

IMPACT OF ECONOMIC FREEDOM ON CEMAC COUNTRIES

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IMPACT OF ECONOMIC FREEDOM ON CEMAC COUNTRIES

By

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DECLARATION

I, EDITH GLORIA OSSONO NII (student number 209005656), hereby declare that the dissertation for MAGISTER COMMERCII ECONOMICS is my own work and that it has not previously been submitted for assessment or completion of any postgraduate qualification to another University or for another qualification.

EDITH GLORIA OSSONO NII

LIST OF ACRONYMS

ADF: Augmented Dickey Fuller

AICD: Africa Infrastructure Country Diagnostic

AMU: Arab-Maghreb Union

BVMAC: Central Africa Stock Exchange

CEMAC: Economic and Monetary Community of Central Africa

CEN-SAD: Community of Sahel-Saharan States

CFA: African Financial Community (previously African French Colonies)

COMESA: Common Market for Eastern and Southern Africa

COPAX: Central African Council for Peace and Security

COSUMAF: Central African Financial Markets Supervisory Commission

CEPLG: Economic Community of the Great Lake Countries

CPI: Consumer Price Index

DSX: Douala Stock Exchange

EAC: East African Community

ECCAS: Economic Community of Central African States

ECOWAS: Economic Community of West African States

EFNA: Economic Freedom of North America

FDI: Foreign Direct Investments

GDP: Gross Domestic Product

GMM: Generalised Methods of Moments

GNI: Gross National Income

IGAD: Inter-Governmental Authority on Development

IPS: Im, Pesaran and Shin

LMS: Least Median of Squares

OECD: Organisation for Economic Cooperation and Development

OHADA: Organisation for the Harmonisation of Corporate Law in Africa

OLS: Ordinary Least Squares

PP: Phillips-Perron

REP: Regional Economic Programme

RISP: Regional Integration Strategy Paper

SADC: Southern African Development Community

SONARA: National Oil Refinery

UN: United Nations

US: United States

WAEMU: West African Economic and Monetary Union

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ABSTRACT

The study aimed to evaluate the impact of economic freedom on economic growth and investments in the Economic and Monetary Community of Central Africa (CEMAC). The region was created in 1994 by the six states of Cameroon, Chad, the Central African Republic, the Republic of Congo, Gabon and Equatorial Guinea. CEMAC countries comprise low and middle-income countries that share the same currency - the CFA Franc.

The CEMAC countries were observed between 1995 and 2008 and panel regression methodologies were employed. A positive impact of economic freedom on economic growth was established using fixed effects method and the generalised method of moments. The impact of a unit increase in the economic freedom index on GDP per capita ranged between 72.65 and 124.51 units (dollars) increase on GDP per capita, *ceteris paribus*. Economic freedom was also found to Granger-cause economic growth. The results underline a significantly positive relationship between economic freedom and economic growth which is consistent with existing literature.

The impact of economic freedom on domestic investment and foreign direct investment was then examined. With regard to domestic investment, economic freedom was found to be statistically significant and positive in all specifications of the model, thereby implying that a unit increase in the economic freedom index increases domestic investment by values of between 0.50 and 0.69 dollars in the CEMAC. The results obtained were consistent with most findings on the relationship between economic freedom and investments.

With regard to the relationship between economic freedom and foreign direct investment inflows, economic freedom was unexpectedly statistically insignificant in most specifications of the model. The latter implies that economic freedom does not have a significant impact on

foreign direct investment in the CEMAC. However, the study revealed that economic freedom Granger-causes foreign direct investment but foreign direct investment does not Granger-cause economic freedom. This means that economic freedom precedes foreign direct investments, and foreign direct investments do not precede economic freedom.

The study strongly recommends an improvement of institutions in the CEMAC in order to enjoy greater levels of economic freedom and therefore foster economic growth and domestic investment in the region.

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“I believe that free societies have arisen and persisted only because economic freedom is so much more productive economically than other methods of controlling economic activity.”

(Milton Friedman, in Gwartney *et al.* 1996)

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Economic freedom can broadly be defined as the elementary entitlement of a person to manage his/her economic activities in a way that is protected by the state and unimpeded by the state (Heritage Foundation, 2011). Economic freedom has been measured since 1995 and annual rankings are published to evaluate the level of economic freedom in countries worldwide. There are two major surveys that measure economic liberty on a systematic basis: the Fraser Institute's economic freedom index and the Heritage Foundation's index of economic freedom.

Despite some divergences between the issuers of both indices, they agree that economic freedom is a concept based on property rights, business and investment freedom, labour freedom, and freedom from corruption. The indices are not simply random indicators of trade freedom in a country, they also display a larger picture in terms of economic activity. Economic freedom rankings are reliable indicators because the index of economic freedom covers numerous broad areas that reflect the economic situation and influence the economic activity of a region.

This chapter includes the study background, a problem statement and the objectives of the study. Further on, the research hypotheses are followed by the significance of the study. The next section introduces the research methodology and the last section outlines the study.

1.2 BACKGROUND OF THE STUDY

The impact of institutions on economic growth was eloquently established by Adam Smith in his book *The Wealth of Nations* published in 1776. Smith emphasised that securing private property rights against expropriation was an important requirement for encouraging individuals to invest and accumulate capital. Other studies such as North (1990), Olson (2000), Acemoglu et al. (2001 and 2002), World Bank (1997) and Glaeser and Shleifer (2002) listed some additional factors. In addition to property rights, the effectiveness of the legal system, the absence of corruption, regulatory structures and governance quality were

added to the list of factors that positively affect economic systems (Snowdon and Vane, 2005: 635). Smith's ideal social system is referred to as "a system of natural liberty". Smith's "system of natural liberty" implies that individuals are free to pursue their interests, as long as they respect the law (Monsalve, 2009: 6).

The definition of economic freedom can therefore be linked to the notion of liberalism, as the economic freedom concept is based on property rights, freedom and exchange. The fundamental idea of liberalism is "liberty under the law" (Dahrendorf, 1989: 183). The notion of liberalism goes hand in hand with the law and regulation. It also promotes freedom of expression, and the realisation of citizens' rights.

The foundations of economic freedom are free choice, open exchange, free entry to the market, fair competition and the protection of private property rights. As a result, in the best ranked countries, economic activity is achieved in a secure way that is unconstrained by laws and institutions (Gwartney et al., 2010: vii).

The only way to finance government expenses without economic freedom is by borrowing from other countries or by printing more money, which can result in impoverishment and /or hyperinflation (Bester and Bell, 1997: 75). Bester and Bell provide further reasons why governments' economic operations are intrinsically inefficient:

- Governments are generally the largest economic operator. Lack of competition grants them a monopoly that influences their efficiency.
- A country is not run as a business where shareholders can claim a return on their investment. As a result, governments can be underperforming and inefficient.
- Governments are in charge of the economy for political reasons only. Actors of the private sector, even with the required skills, will not be allowed to perform if they represent any threat to the existing power in the country (Bester and Bell, 1997:78).

Aside from governments' tendency towards ineffective economic ruling, economic freedom represents a current concern, as the world attempts to recover from the 2008 global economic crisis by means of numerous reforms and plans. Solutions for economic improvement are more difficult to elaborate and implement in developing countries because of their economic instability. Policy responses to the 2008 global economic crisis have led to a significant reshuffling in the top 20 countries in the 2011 Heritage Foundation's economic freedom index. Furthermore, many advanced economies have intensified their government's

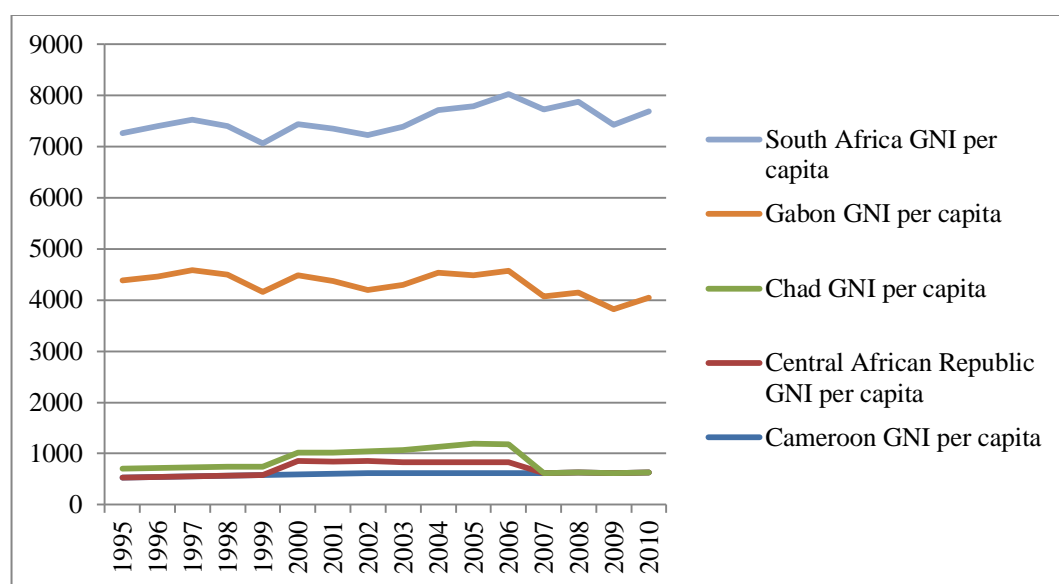
direct hindrance to the economy by increasing government spending. Government interference has not only produced bad results for economic growth and employment, but has also hampered private investments and thus, prolonged the crisis (Heritage Foundation, 2011: 3, 4).

1.3 PROBLEM STATEMENT

Africa's general level of Economic Freedom is very low compared with that of other regions. Mauritius is the only sub-Saharan country that can be considered to be economically free. Only eight countries in sub-Saharan Africa (among them South Africa) are considered to be moderately free. Most sub-Saharan African countries are therefore economically unfree or repressed (Heritage Foundation, 2011: 49).

This study focuses on economic freedom in the Economic and Monetary Community of Central Africa (CEMAC). Gabon is the leader of the Central African community with an overall score of 55.4/100, followed by Cameroon (52.3), Equatorial Guinea (48.6), Central African Republic (48.4), Chad (47.5) and the Republic of Congo (41.4) (Heritage Foundation, 2010: 76-77). CEMAC countries are thus either “mostly unfree” or “repressed” in terms of economic freedom. The economic freedom categorisation in the CEMAC depicts some major problems that undermine the growth process in these countries. By way of illustration, 80 percent of Chad's population live below the poverty line (Central Intelligence Agency, 2011). Gross National Income is the main criterion used by the World Bank to classify economies. Chad and Central African Republic are classified as low income countries, Cameroon and Congo are lower middle income, Gabon is an upper middle income country and Equatorial Guinea is ranked as a high income economy (World Bank, 2011). Figure 1.1 shows the Gross national Income (GNI) levels (in constant 2000 US Dollars) observed in CEMAC countries as opposed to South Africa's between 1995 and 2010.

Figure 1.1: GNI comparisons between CEMAC countries and South Africa



Source: World Bank Data (2011)

Figure 1.1 shows a level of income per capita in most CEMAC countries lower than that observed in South Africa between 1995 and 2010. Equatorial Guinea and the Republic of Congo have been omitted from this graph because of data deficiency. The general income level emphasises the need for economic policy improvement to stimulate economic growth in the CEMAC. A positive impact of economic freedom on the CEMAC could therefore contribute to poverty alleviation in these countries. The research questions that can be raised include: What is the relationship between economic growth and economic freedom? What is the relationship between investments and economic freedom?

1.4 OBJECTIVES OF THE STUDY

The broad objective of this study is to establish the impact of economic freedom on growth and investments in the Economic and Monetary Community of Central Africa (CEMAC).

The specific objectives of this study can be detailed as follows:

- Conduct an empirical analysis on the relationship between economic freedom and economic growth in the CEMAC;
- Conduct an empirical analysis on the relationship between economic freedom and investment inflows in the CEMAC;
- Draw conclusions based on the outcome, and make policy recommendations.

1.5 RESEARCH HYPOTHESES

Four sets of hypotheses will be tested:

- H_0 : Economic freedom is not related to economic growth
- H_1 : Economic freedom is related to economic growth

- H_0 : Economic freedom does not cause economic growth
- H_1 : Economic freedom causes economic growth

- H_0 : Economic freedom is not related to investments
- H_1 : Economic is related to investments

- H_0 : Economic freedom does not cause investments
- H_1 : Economic freedom causes investments

H_0 describes the null hypothesis, whereas H_1 is the alternative hypothesis to be tested in each set. A distinction will be made between domestic investments and foreign direct investments.

1.6 SIGNIFICANCE OF THE STUDY

The CEMAC aims to intensify and develop regional integration and co-operation but faces weaknesses. The CEMAC is characterised by a low regional mobility, a low product diversification with exports mostly comprising a few primary products, a variable degree of openness despite a low interregional trade, a low level of fiscal integration, and low inflation convergence (Bagnai, 2010: 10). Security is an additional weakness in CEMAC. Good examples are: the Central African Republic, Congo and Chad – which have experienced civil wars over the past twenty years (Ngankou and Ntah, 2008: 6).

Conversely, Ngankou and Ntah (2008: 3-5) present some of the CEMAC's strong points:

- CEMAC countries have a common institutional background. The CEMAC block derives from the “French Equatorial Africa”, which was the regional organisation during the colonial era.

- Links between CEMAC countries are also strengthened by common projects, such as the Chad-Cameroon pipeline, that widely contributes to developing the co-operation framework.
- Geographic and cultural affinities are an important aspect of regional integration, as some ethnic groups can be found across countries and some dialects are spoken beyond countries' borders.

Economic freedom implies market liberalisation. The consequence is a sudden loss of tariff income that can be very significant in developing countries, where tariffs represent up to half of the total tax revenue. Reducing these revenues can severely aggravate debt problems because of increased borrowing in financial markets (Sundaram and von Arnim, 2008: 15). Establishing the impact of economic freedom on CEMAC countries may contribute to determine means whereby poverty can be erased from the region and contribute to the improvement of the integration process in Central Africa. As economic freedom provides opportunity for wealth-creating activities, a positive impact on growth should also reflect on employment rates and income level. Evidence is provided by Feldmann (2010: 197), who established that higher Gross Domestic Product per capita is correlated with lower unemployment rates and lower youth unemployment rates.

1.7. RESEARCH METHODOLOGY

The research strategy will be divided into two main sections: a primary study and a secondary study.

1.7.1 SECONDARY STUDY

The secondary study, which consists of a comprehensive literature study, will be performed on the basis of previous publications related to the topic. Previous studies will outline the construction of a suitable economic model. The neoclassical theory will be used as a theoretical foundation, as it developed the use of mathematical equations in the study of various aspects of the economy. Solow (1956) made a major contribution to the neoclassical growth model by creating an aggregative general equilibrium model. Solow suggested a model of economic growth based on the Cobb-Douglas formulation and augmented with a variable called technology. The neoclassical growth (Q) model is therefore based on capital (K), labour (L) and technology (A (t)) (Boianovsky and Hoover, 2009: 1-5). Solow's model is formulated as follows:

$$Q = A(t)L^\alpha K^{1-\alpha} \quad (1.1)$$

The neoclassical model represents a foundation for most empirical analyses on economic freedom and growth. However, significant progress is made with the proliferation of informal (or Barro) regressions. Regressions are called informal when a researcher is not constrained by an aggregate production function to explain growth relationships (Liu and Premus, 2000: 4,5). As a result, the list of possible growth determinants has been extended to include countries' specific characteristics, such as the rule of law, investment share, openness, government spending and suchlike.

A model will therefore be built on the basis of economic theory and previous literature and data will be obtained from reliable databases, in order to execute a primary study.

1.7.2 PRIMARY STUDY

A primary study will subsequently be undertaken in order to empirically assess the model and test the hypotheses. Panel data will be the statistical method employed. Panel data comprise a set of cross-sectional units that are observed over time (Hill et al., 2008: 383). The cross-sectional units observed in this case are the CEMAC countries. The number of individuals observed in this study will be N=6 (for CEMAC is made up of six countries), and T=14, for each time-series observation between 1995 and 2008. CEMAC countries will be observed from 1995 to 2008 because one of the variables, the Heritage Foundation's index of economic freedom, was first released in 1995.

The Heritage Foundation's ranking of economic freedom will be used as a reference because of its consistency and the simplicity of its components. Countries' data to be included in the econometric model will be collected from the World Bank and the Heritage Foundation databases. Impacts of economic freedom will be observed on growth and investments in CEMAC countries. Data will be analysed by using an econometric panel data model, as panel data provide a larger number of data points, more degrees of freedom, a greater degree of variability and a better efficiency (Hsiao, 2003: 1-8).

The six countries' equations will then be pooled as a simple model, and formulated as follows:

$$Y_{i,t} = \beta_1 + \beta_2 X_{2,i,t} + \dots + \beta_z X_{z,i,t} + \varepsilon_{i,t} \quad (1.2)$$

where $i = 1, 2, \dots, 6$ (every figure corresponding to a country, and $t = 1, 2, \dots, 14$, with every figure corresponding to a time series comprised between 1995 and 2008 (Hill et al., 2008: 385)).

Models will then be tested to determine which method is the most suitable to fit the data. Causality between economic freedom and both dependent variables (economic growth and investments) will eventually be tested by using a Granger-causality test.

1.8 OUTLINE OF THE STUDY

The study is organised as follows: The next chapter introduces the concept of economic freedom, as it is defined and measured by its main issuers, the Heritage Foundation and the Fraser Institute. The following chapter examines the CEMAC. Chapter Four contains a literature review. Chapter Five comprises the research methodology. Chapter Six reveals the results. The seventh chapter concludes the study.

CHAPTER 2

ECONOMIC FREEDOM

2.1 INTRODUCTION

An index of economic freedom is a measure of the extent to which rightly acquired property is protected and individuals are free to engage in voluntary transactions (De Haan, 2003:395). A worldwide economic freedom ranking is released annually by two main institutions: the Fraser Institute and the Heritage Foundation. This chapter presents the index of economic freedom, and its components as designated by both its main issuers. In addition, details are provided on the historical foundation of the concept of economic freedom, as well as its importance. This chapter firstly focuses on the historical background of the economic freedom concept. Secondly, the Fraser Institute index of Economic Freedom and the Heritage Foundation index of Economic Freedom are examined. Thirdly, the significance of the economic freedom is discussed.

2.2 HISTORICAL BACKGROUND

Adam Smith in his book *The Wealth of Nations* published in 1776 emphasised the importance of institutions for securing property rights and encouraging economic activity (Snowdon and Vane, 2005: 635). Economic freedom is in line with the invisible hand concept developed by Adam Smith which is associated with the concept of “laissez-faire”. The invisible hand upholds that developing actions for individual interest contribute unintentionally to promote public welfare and public wealth (Vaughn, 1987:168).

Economic freedom can also be assimilated to the historical term of positive non-interventionism that was implemented in the new social policy of Hong Kong in the 1970s. Positive non-interventionism was created by Sir Phillip Haddon-Grave who was a firm believer in free markets and reduced government intervention to achieve economic growth (Wilding, 1997: 248-251). However, positive non-interventionism and “laissez-faire” cover a major difference, as positive non-interventionism implies the possibility of a state’s intervention when necessary (Chen, 2007: 4,5). The first attempt to systematically measure economic freedom was produced by Gastil and Wright for the Freedom House in 1983. The first measurement of economic freedom was then released in the Freedom House's annual report on political and civil liberties around the world (Gastil, 1984). Wright (1982: 51–52)

defines “economic freedom” as the degree to which persons are free individually and collectively to undertake economic activities of their choice, regardless of political structure.

The Freedom House suggests that a government that advocates dictating wages, controls prices, erects trade barriers, or hinders private economic endeavours eventually prevents individuals from being free and infringes upon their rights to exchange goods and services or join together to pursue economic ends. However, the Freedom House strongly recommends that the state controls contracts enforcements and property rights definition, because a society that conforms to the law displays a better business climate (Messick, 1996: 5).

The Freedom House index of economic freedom places significant emphasis on certain civil liberties such as women’s rights to property ownership. Gwartney et al. (1996) argue that it is important to distinguish between economic freedom and political and civil liberties. Political liberty exists when citizens are free to participate in a democratic and transparent political process. Civil liberty encompasses the freedom of the press and the rights of individuals to free expression, free choice and fairness. The Freedom House ranking confirms the importance of economic freedom as a determinant of prosperity (Hanke and Walters, 1997: 117-146).

The following sections examine the contemporary issuers of the economic freedom index.

2.3 THE FRASER INSTITUTE’S INDEX OF ECONOMIC FREEDOM

The Fraser Institute’s index of Economic Freedom measures the extent to which institutions favour economic freedom (Gwartney et al., 2010: vii). Economic freedom exists when individuals are free to produce, consume, trade and fairly compete, as long as their actions do not harm other’s property (Gwartney et al., 2010: 1). Each year since 1995, a number of countries is rated and measured on a scale of 0–10. A score of zero means that a country is economically unfree and 10 means that a country is economically free.

The Fraser Institute's Economic Freedom Index appears to be more appropriate than the Gastil-Wright approach, as the latter may emphasise political procedures and civil liberties in measuring economic freedom. The Economic Freedom index endorsed by the Fraser Institute is the result of a series of conferences hosted by Milton Friedman and Michael Walker from 1986 to 1994 (Gwartney et al., 2010:1). The Fraser institute released a publication in 1996 entitled *Economic Freedom of the World: 1975-1995*, which constructed three indices of

economic liberty for more than 100 nations over a period of two decades (Gwartney et al., 1996). The current index of Economic Freedom is divided into five broad sections:

- Size of the Governments: Expenditures, taxes and enterprises
- Legal structure and security of property rights
- Access to sound money
- Freedom to trade internationally
- Regulation of credit, labour and business.

Each broad section consists of several components that are discussed below.

2.3.1 SIZE OF THE GOVERNMENT: EXPENDITURE, TAXES AND ENTERPRISES

This component of the Economic Freedom index points out the extent to which resources are distributed on the basis of political process (Gwartney et al., 2010: 3). This section is made of four components that are discussed as follows:

- General government consumption spending, as a percentage of total consumption. As stated by Gwartney et al. (2010: 219), countries that are attributed high ratings are countries with a smaller proportion of government expenditure.
- Transfers and subsidies as a percentage of Gross Domestic Product (GDP): This component consists of general government transfers and subsidies as a share of GDP. The formula generates higher ratings for countries with lower transfer sectors (Gwartney et al., 2010: 219).
- Government enterprises and investments: On a zero-to-10 scale, countries that get the higher ratings are countries with fewer government-managed enterprises and investments (Gwartney et al., 2010: 220).
- Top marginal rate High ratings are attributed to countries with lower marginal tax rates as well as lower marginal income tax rates which are applicable to higher income thresholds (Gwartney et al., 2010: 220).

This component promotes personal choice and efficient markets rather than political decision making (Gwartney et al., 2010: 3).

2.3.2 LEGAL STRUCTURE AND SECURITY OF PROPERTY RIGHTS

Protection of people as well as their rightly acquired property is a core element of economic freedom (Gwartney et al., 2010:3). This section consists of seven components:

- Judicial independence: A zero-to 10 scale on answers to a question on juridical independence from political influence; with higher ratings conferred to the most independent judiciaries (Gwartney et al., 2010:221).
- Impartial courts: Efficiency and partiality of Governments' actions and regulations are assessed. The highest ratings are attributed to the most efficient and neutral processes (Gwartney et al., 2010: 221).
- Protection of property rights: Possessions protection is assessed and higher ratings are attributed to countries where property rights, including financial assets are clearly defined and well protected by laws (Gwartney et al., 2010: 222).
- Military interference in rule of law and the political process: This component evaluates military involvement in politics as it diminishes democratic accountability (Gwartney et al., 2010: 222).
- Integrity of the legal system: This subcomponent evaluates the strengths and impartiality of the legal system as well as popular observance of the law (Gwartney et al., 2010:222).
- Legal enforcement of contracts: This evaluates the time and cost necessary to collect a straightforward debt (Gwartney et al., 2010:222).
- Regulatory restrictions on the sale of real property: assesses the time and monetary cost necessary to transfer ownership of property that includes land and a warehouse (Gwartney et al., 2010: 222).

This component emphasises that property rights are vital to market efficiency (Gwartney et al., 2010: 5).

2.3.3 ACCESS TO SOUND MONEY

Monetary problems such as inflation arise with high rates of monetary growth; increasing rates of inflation tend to become more volatile, and thus distort relative price, alter long-term contract fundamentals terms and prevent individuals from making practical future plans (Gwartney et al., 2010:12). This section consists of four components:

- Money growth. Money growth is a five-year average annual growth of money supply minus a ten-year average in the annual growth of real GDP. Higher rankings are attributed

to lowest adjusted growth rates of money supply, indicating that money growth is equal to the long term growth of real output (Gwartney et al., 2010: 223).

- Standard deviation of inflation. This component measures the standard deviation of the inflation rate over a period of five years. Higher rankings are attributed to countries with the least variation in the annual rate of inflation (Gwartney et al., 2010: 223).
- Inflation: Most recent year. Generally this component is measured using the Consumer Price Index (CPI hereafter). Higher ratings are therefore attributed to lower inflation rates (Gwartney et al., 2010: 223).
- Freedom to own foreign currency bank accounts. Higher ratings in this section are attributed when foreign currency banks are permissible without restriction both domestically and abroad (Gwartney et al., 2010: 223).

2.3.4 FREEDOM TO TRADE INTERNATIONALLY

This component is designed to assess various roadblocks to international trade freedom such as: tariffs, quotas, hidden administrative constraints and exchange rates (Gwartney et al., 2010:5). This area can be divided into five components:

- Taxes on international trade. This component is a combined measure of the amount of tax on international trade, mean tariff rates and standard deviation of tariff rates (Gwartney et al., 2010: 224).
- Regulatory trade barriers. This component is a combined measure of non-tariff trade barriers and the compliance cost of importing and exporting, in order to assess the ability and cost to import goods and compete in a domestic market (Gwartney et al., 2010: 224).
- Size of the trade sector and as expected this component compares the actual size of trade sector with the expected size for the country (Gwartney et al., 2010: 225).
- Black market and exchange rates. This component assesses the difference between the official and the parallel exchange rates. Higher ratings are attributed to countries with a domestic currency that is fully convertible without restrictions (Gwartney et al., 2010: 225).
- International capital market controls. This component is a combined measure of foreign ownership restrictions and capital controls. Higher ratings are attributed to countries where foreign investments are encouraged (Gwartney et al., 2010: 225).

The above component highlights the importance of having fewer barriers to international trade, as they hinder economic freedom.

2.3.5 REGULATION OF CREDIT, LABOUR AND BUSINESS

The fifth area of the index focuses on regulatory restraints that limit the freedom of exchange in credit, labour and product markets (Gwartney et al., 2010: 5). The section has three components:

- Credit market regulations: This component assesses the level of bank ownership, foreign bank competition, private sector credit and interest rate controls. Higher ratings are granted to countries with the largest shares of privately held deposits, largest shares in foreign banks, credit allocated to private sector, interest rates determined by the market and positive real deposit and lending rates (Gwartney et al., 2010: 226-227).
- Labour market regulations: This component is concerned with hiring and firing regulations, minimum wage, centralised collective bargaining, military conscription and mandated cost of worker dismissal. Higher ratings are attributed to countries where hiring and firing regulations are flexibly determined by employers, where wages are determined by individual companies, and countries without military conscription (Gwartney et al., 2010: 227-228).
- Business regulation: This component is concerned with price controls, administrative recruitments, bureaucracy costs, the cost of tax compliance bribes and licensing restrictions. Higher ratings are attributed to countries with the least widespread use of price controls, administrative requirements, bureaucracy costs; the level of ease allowed for starting a business, and the time-cost of tax compliance (Gwartney et al., 2010: 228-229).

Each roadblock to economic freedom is assigned a low rating on a zero-to-10 scale, which follows the principle of the zero-to-100 scale employed by the Heritage Foundation. The Heritage Foundation's index of economic freedom is discussed in the following section.

2.4 THE HERITAGE FOUNDATION'S INDEX OF ECONOMIC FREEDOM

In 1994, the Heritage Foundation started to publish an annual *Index of Economic Freedom* (Johnson and Sheehy, 1996). The Heritage Foundation's aim differs slightly from that of other surveys. The Heritage Foundation's economic freedom ranking investigates the

significance of externally funded development assistance (or the lack thereof) in facilitating the growth process (Hanke and Walters, 1997: 117-146). The Heritage Foundation concluded that economic freedom, not aid, is the key to economic development (Johnson and Sheehy, 1996: 2). The Heritage Foundation's index of economic freedom has 10 components that are detailed as follows:

2.4.1 BUSINESS FREEDOM

Business freedom is concerned with the level of ease allowed for starting and running a business, which differs from one country to the other. The burdensome in business freedom may vary, from regulations that affect the production costs to interference within the price setting process (Heritage Foundation, 2011: 25). CEMAC countries are generally affected by the inefficiency and opacity of the regulatory regime. The procedure to establish a business is generally time consuming and costly. In Chad for instance, starting a business takes roughly twice the world average of 35 days (Miller et al., 2011: 128).

2.4.2 TRADE FREEDOM

Trade Freedom refers to the openness to the import of goods and services, and the ability of individuals to buy and sell freely. Tariffs, taxes, quotas and trade bans are examples of direct trade restrictions (Heritage Foundation, 2011: 21-22). In most CEMAC countries, burdensome customs, extensive and opaque regulations, insufficient infrastructures, exports licences and government subsidies on goods add to the cost of trade. For instance, ten points were deducted from Equatorial Guinea's Trade Freedom score to account for non-tariff barriers (Miller et al., 2011: 176). CEMAC countries are considered among the worst business environments, which significantly affects their Economic Freedom ranking.

2.4.3 FISCAL FREEDOM

Fiscal Freedom is a measure of tax burden in an economy, the ability of people to keep their income for their own benefit without any interference from the government. Hence, a high tax lowers the reward for the individual's efforts, which in turn lowers the incentive to work and produce. CEMAC countries have high tax rates (government's cut computed as a percentage of a country's GDP). However, some countries like Cameroon have progressively implemented some reforms to broaden the tax base by including new taxpayers from the informal sector, in the system. (Miller et al., 2011: 128).

2.4.4 GOVERNMENT SPENDING

Excessive government spending financed by higher taxation is an issue for Economic Freedom because it lowers the amount invested in infrastructure, research and improvement. Furthermore, government insulation from the market discipline leads to inefficiency and excessive bureaucracy (Miller et al., 2011: 22).

2.4.5 MONETARY FREEDOM

A stable currency and market-determined prices are signs of a reliable economic environment that provides an incentive to make long term plans and investments. Stable currency and market-determined prices are therefore necessary requirements for monetary freedom. Central banks control the value of a country's currency through monetary policy. It is important that a monetary policy endeavours to fight inflation in order to preserve price stability, as an inflationary policy confiscates wealth (Miller et al., 2011: 22-23). CEMAC countries perform relatively well in terms of monetary freedom because most prices are determined by the market. Furthermore, The Bank of Central African States (BEAC) which controls the monetary policy of CEMAC countries prioritises the control of inflation and the maintenance of the currency's peg to the Euro. However, CEMAC countries obtain lower scores because, in Cameroon for instance, the government subsidises and controls prices for some "strategic" items like flour, pharmaceutical products, electricity and telecommunications (Miller et al., 2011: 128).

2.4.6 INVESTMENT FREEDOM

Investment Freedom is concerned with the freedom and openness of an economy to entrepreneurial opportunities, and to increasing lucrative economic activities. Such environments promote innovation, improvement, and competition. Increasing capital inflows and efficient capital allocation are some important benefits of Investment Freedom (Heritage Foundation, 2011: 23). Government screening of foreign investment, corruption and cumbersome bureaucracy are some hindrances to investment freedom in CEMAC countries. In Gabon for instance, there is no discrimination between a local and a foreign investor but many investors find it useful to have a local partner, partly because of an important political influence on investment freedom (Miller et al., 2011: 190)

2.4.7 FINANCIAL FREEDOM

Financial Freedom relies on a transparent and open financial system, fair access to financing and promotion of entrepreneurship. Hence, in financially free countries, banks' functions are

complemented by other forms of financial services which provide alternative ways to raise capital or diversify risks, and the regulatory role of governments is to ensure transparency, legal responsibility and integrity (Heritage Foundation, 2011: 23). CEMAC countries are characterised by an underdeveloped financial system dominated by the banking sector and microfinance structures. In Equatorial Guinea, the high cost of finance limits access to credit, the insurance sector is small and there is no stock exchange or securities market. (Miller et al., 2011: 176).

2.4.8 PROPERTY RIGHTS

The ability to accumulate and secure private property is an important incentive for investors in that it gives them confidence to undertake entrepreneurial activity and make long term plans. This process requires a fair judicial system. An important aspect of property rights is the enforcement of contracts, which represents the foundation of the market system, according to Miller et al. (2011: 24). In the CEMAC the judicial system is sometimes subject to political influence. However, some efforts have been made; CEMAC countries are all part of the Organization for the Harmonisation of Business Law in Africa (OHADA), which aims to reform the enforcement of business contracts. OHADA was created in October 1993 in Mauritius (OHADA, 2011).

2.4.9 FREEDOM FROM CORRUPTION

Corruption can be defined as the misuse of public service for private benefit. Embezzlement, bribery, nepotism, and patronage are some manifestations of political corruption that can infect all parts of an economy. Therefore, almost all governments' regulations provide an opportunity for corruption and create room for the development of an informal market. Transparency is therefore the best weapon against corruption. Corruption is perceived as pervasive in most CEMAC countries. Despite the existence of a ministry of morality that conducts anti- corruption seminars for government officials, Chad still ranks 175th out of 180 countries in Transparency International's Corruptions perception Index 2009 (Miller et al., 2011:136).

2.4.10 LABOUR FREEDOM

The labour market, just as the goods market, must be ruled by free, voluntary exchange. Hence, state intervention in the form of wage controls, hiring and firing restrictions has an impact on competition and labour efficiency, as observed in CEMAC countries. In the

Republic of Congo, the public sector remains the largest source of formal employment, hence the unemployment rate is quite high (Miller et al., 2011: 148).

The Fraser Institute, Freedom House, and Heritage Foundation surveys are all aimed at an audience of policymakers and scholars who are concerned with the type of institution that is most likely to enhance economic growth. They conclude that all three indicators have the advantage in that they provide useful information about economic institutions in less-developed countries, where the benefits of growth would be greatest. Each indicator, then, reflects institutions which can be changed by political means (Hanke and Walters, 1997: 117-146). The following section discusses economic freedom in the CEMAC.

2.5 ECONOMIC FREEDOM IN THE CEMAC

This section is concerned with certain of the CEMAC countries' features that obstruct economic freedom improvement in the region. Components of economic freedom that represent a challenge in each of the CEMAC countries are discussed below.

2.5.1 CAMEROON

Entrepreneurs in Cameroon face inefficient bureaucracy, poor infrastructure and restrictive regulation that significantly hinder growth in the country. Services account for roughly 40percent of the GDP but the public sector still dominates the country (Miller et al., 2011: 127).

The tax rate is high but the tax collection remains inefficient. Government expenditure is driven by the public wage bill which amounts to 5percent of the GDP, and subsidies to the national oil refinery (SONARA), as well as state owned enterprises. Subsidies are also granted to certain "strategic" goods such as rice, flour, electricity and pharmaceutical products inter alia. The government generally maintains a large ownership interest in privatised companies. The cost of financing remains high and the access to credit still limited, especially in rural areas. The stock exchange remains embryonic (Miller et al., 2011: 127).

Administrations are subject to corruption and legal uncertainty. Cameroon's labour market remains inefficient despite the existence of a legal framework for a well-functioning market (Miller et al., 2011: 128).

2.5.2 CHAD

Chad's economy is overly dependent on oil. Government's interference with market prices is extensive. Regulation is burdensome and the labour market is underdeveloped. Protection of property right remains weak and corruption is rampant. Chad is thinly populated (10 million), landlocked, unstable and impoverished. The unstructured regulatory system restrains private sector development. Starting a business takes twice the world's average of 35 days and the cost of establishing a business remains quite high (Miller et al., 2011: 136).

Chad has very high tax rates. It has the highest income tax rate which is set at 60percent. Private initiative is minor. The state retains control of cotton, water and electricity.

Inflation rose at an average of 9.4 percent between 2007 and 2009. Prices are determined in the market, but are influenced by state-owned enterprises and regulation that affects key goods and services such as cotton, water, road transportation and energy (Miller et al., 2011: 136).

Chad provides fair treatment to foreign investors. However, investments are limited by inadequate infrastructure, technical expertise, burdensome taxes, underdeveloped markets, bureaucracy, corruption, crime and violence (Miller et al., 2011: 136).

With regard to the financial sector, significant banking privatisation has been completed. However, informal financial services are common and the sector's regulation is outmoded. Access to credit remains difficult and costly (Miller et al., 2011: 136).

Protection of private property is weak and private settling of disputes is common practice. Judicial officials guarantee judicial independence through the constitution, but are named by the president and therefore assumed to be subject to political influence. The labour market is mostly informal and the workforce remains mostly unskilled (Miller et al., 2011: 136).

2.5.3 REPUBLIC OF CONGO

The Republic of Congo is subject to repressive governance worsened by a weak rule of law. An unreliable judicial system contributes to fuel corruption. Congo has endured internal conflict such as a civil war that ended in 2003. Congo's economic performance in 2012 is largely due to an increase in oil production which generates roughly 80 percent of fiscal revenue and represents 70 percent of Congo's GDP (Miller et al., 2012: 153).

2.5.4 EQUATORIAL GUINEA

Despite a modest population (1.3 million), corruption and institutional weaknesses undermine the economic freedom process in Equatorial Guinea. Private property is vulnerable to bureaucratic interference. Large oil revenues enable poor management of public spending. Limited economic reform has led to a dependence on natural resource-driven investments, which is highly volatile. Equatorial Guinea is a significant oil producer. The oil sector is the major source of high economic growth, which enables Equatorial Guinea to be one of the fastest growing economies in Africa. However, more than half of the workforce is estimated to work in the informal economy. Oil accounts for 91 percent of Equatorial Guinea's GDP, 91 percent of the Government's revenue, and 99 percent of the exports in 2007. The judicial system remains under political influence, the application of laws is selective and cronyism is pervasive (Miller et al., 2012: 181-182.)

2.5.5 GABON

Gabon is characterised by poor governance, a lack of sound judicial framework and a heavy reliance on the oil sector in the same way as the other countries in the CEMAC. The heavy presence of the government, coupled with a widespread corruption continues to raise the cost of doing business in Gabon. The democratic process remains dubious. After the former president Omar Bongo died, after being in power since 1968, his son, Ali Ben Bongo was elected to replace him. Gabon is Africa's third largest oil producer in Africa. In 2006, oil constituted 50 percent of the country's GDP, 60 percent of the government revenues, and 80 percent of Gabon's exports (Miller et al., 2012: 195).

2.5.6 THE CENTRAL AFRICAN REPUBLIC

In the Central African Republic, foreign and domestic investors are treated equally in all sectors of the economy, including real estate. However, the country is characterised by a weak protection of property rights, as an important part of the territory is rebel-controlled. The judiciary is subject to executive interference and the courts hardly function because of inefficient administration.

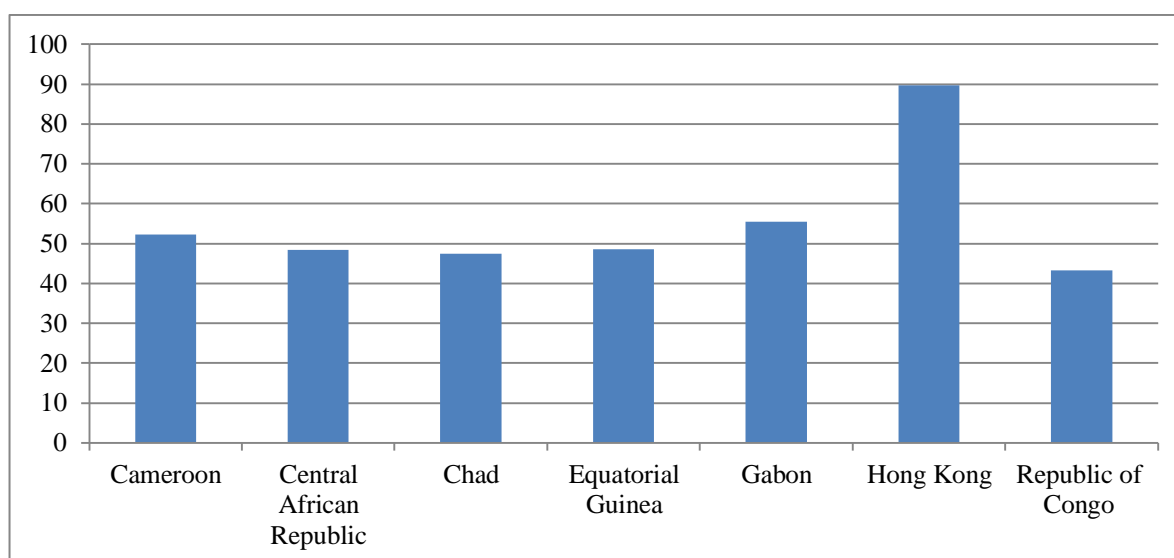
Regarding the economic performance, government spending is equivalent to 15.4 percent of total domestic output. The budget balance has been in deficit in recent years, and public debt stands at 41.9 percent of the GDP.

Establishing a business has become less time-consuming, but other regulatory requirements remain burdensome and opaque, and therefore increase the cost of conducting business. The

minimum capital required to start a business is over four times the average annual income. The financial system is underdeveloped, and access to financing for businesses remains very limited. Less than one percent of the population has access to banking services (Miller et al., 2012: 140).

Figure 2.1 represents economic freedom scores of CEMAC countries, as well as Hong Kong which scored highest in the Heritage Foundation's 2010 economic freedom ranking in 2010.

Figure 2.1: Economic freedom in the CEMAC in 2010



Source: The Heritage Foundation (2011)

Hong Kong led the Heritage Foundation's worldwide ranking with an overall score of 89.7/100 in 2010, which justifies the use of the country as a reference. Gabon is the leader of the CEMAC community, followed by Cameroon, Equatorial Guinea, the Central African Republic, Chad and the Republic of Congo. The discrepancies observed amongst these countries' scores are justified by the differences observed in their economic systems.

2.6 IMPORTANCE OF ECONOMIC FREEDOM

Most growth models are based on capital accumulation, technology and education. This fact is illustrated by the Asian tiger (countries) where technology played an important part during the latter half of the twentieth century. However, it is important to note that the institutional environment encouraged invention and innovation and thus played a great part in achieving growth in the Asian tiger countries (Carden and Hall, 2010: 48).

If resource endowments determined a national economy's fate, Venezuela would be rich and Taiwan poor; and South Korea would be as deprived as North Korea. East Germany's highly skilled labour force should have enabled it to rival West Germany before the Iron Curtain fell. Likewise, if access to sophisticated technology guaranteed prosperity, perhaps the Soviet Union would still exist. Other factors such as the quality of institutions therefore have a strong influence on a country's growth. Natural resources, a highly skilled labour force and new technologies may enhance growth. In contrast to natural resources, labour force and technology are neither necessary nor sufficient conditions for growth. (Hanke and Walters, 1997: 117-146).

Capital formation broadly conceived is a proximate cause of economic growth. Capital can only be formed out of saved resources that individuals are willing to engage if property rights are secured and contracts are reliably enforced. By establishing the conditions under which saving is profitable and in which long term plans can be conceptualised, economic freedom can contribute to growth prosperity (Carden and Hall, 2010: 48).

Economic freedom increases the level of economic of globalisation, as the integration of economic systems is driven by entrepreneurial initiatives (businesses looking for markets, resources and efficiencies). Entrepreneurs face some restrictions related to the economic policies applied in the country where they want to venture. Restrictions include tariff and nontariff barriers, exchange rate controls, and control over capital mobility- all which hinder the economic freedom necessary to business seekers. Conversely, economic freedom is also perceived as a threat to certain major sectors of the economy. Governments are therefore confronted with the dilemma of implementing the optimal level of economic freedom while still protecting the important sectors (Ahkter, 2004: 286-287).

2.7 CONCLUSION

This chapter first examined the historical background of the study. The concept of economic freedom of was firstly expressed by Adam Smith in 1776 and is currently associated with the notion of liberalism. Economic freedom is based on property rights, freedom and exchange.

The two main institutions that release an annual worldwide ranking on economic freedom: the Fraser Institute and the Heritage Foundation were then examined. The way both indices are computed was discussed The Fraser Institute releases an index based on five broad components: Size of the governments (Expenditures, taxes and enterprises); Legal structure

and security of property rights; Access to sound money; Freedom to trade internationally; and Regulation of credit, labour and business.

The Heritage Foundation's index is based on ten components that can be summarised in four sections: Rule of law, regulatory efficiency, limited government and open market. The CEMAC country members were then observed in terms of economic freedom. Gabon is the leader of the CEMAC community, followed by Cameroon, Equatorial Guinea, the Central African Republic, Chad and the Republic of Congo. Finally the importance of economic freedom was stated. An economically free individual does not ask himself what the government can do for him/her and vice-versa. Individuals rather ask themselves what they can do through the government to achieve their goals (Milton Friedman, 1982: 2). Economic freedom is therefore important in the sense that governments are perceived as partners to private initiative for growth achievement rather than regulators.

The following chapter will examine the economic profile of CEMAC countries more closely.

CHAPTER 3:

THE CEMAC COUNTRIES

3.1 INTRODUCTION

The Economic and Monetary Community of Central Africa in its French acronym CEMAC was created in 1994 by the six states of Chad, Cameroon, the Central African Republic, Congo, Gabon and Equatorial Guinea. The CEMAC is a regional community that shares a common currency-the CFA franc. This chapter introduces the social and economic profile of the central African states and seeks to identify their specificity. This chapter firstly presents the CEMAC from a historical perspective. The second part of this chapter introduces the objectives of the CEMAC, and the third part focuses on social and economic profile of the CEMAC.

3.2 HISTORICAL PERSPECTIVE

The CEMAC was created in March 1994 and consists of six countries, all located in Central Africa. The CEMAC consists of a geographic area of about Three million square kilometres and is considerably smaller than the West and South African regions. The CEMAC is a product of pre-war French colonial rule. The French Equatorial Africa (AEF) created in 1910, consisted of Chad, Oubangi-Chari (which later became the Central African Republic), Congo, and Gabon. The French part of Cameroon was governed separately by France under a United Nations (UN) mandate and remained outside of the federation. Territories previously representing the French Equatorial Africa became independent in 1962. The region is well endowed with natural resources that include petroleum, minerals and metals. Additionally, the region's dense forested area, together with the Democratic Republic of Congo, constitutes the second largest tropical rain forest in the world, after the Amazon. The common French language (except in Equatorial Guinea where Spanish is spoken) is an important bond in the CEMAC community that separates them from their Anglophone neighbours (Zafar and Kubota, 2003:1).

Geographic and cultural affinities constitute an additional aspect of regional integration in the CEMAC, as some ethnic groups can be found across countries and some dialects are spoken beyond countries borders (Ngankou and Ntah, 2008: 3-5).

Beyond geographical and cultural aspects, the economic and financial foundation of the CEMAC also emanates from the colonial era's arrangements. The CFA franc is the region's currency. The CFA franc was created in December 1945 to maintain the exchange rates in the French colonies with the dollar during the devaluation of the French franc. The French acronym CFA stood then for African French Colonies and nowadays CFA stands for African Financial Community (Zafar and Kubota, 2003:2.) The CFA franc that was pegged to the French franc is currently pegged to the Euro at a fixed parity. The steadfast bond between France and the CEMAC illustrates a weak disruption with the former colonial supremacy.

After independence, former British colonies have generally moved from currency boards to flexible exchange rates, whereas the former French colonies reached an agreement with France in form of the CFA Franc zone. The CFA franc zone includes two monetary unions: The West African Economic and Monetary Union (WAEMU hereafter) and the Economic and Monetary Community of Central Africa (CEMAC hereafter). The WAEMU comprises Benin, Burkina-Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal and Togo. The CEMAC encompasses Cameroon, Central African Republic, Congo, Chad, Equatorial Guinea and Gabon. The union has a single central bank which is responsible for monetary policy. The French treasury provides the required amount of foreign devices to fill potential balance of payment deficits. The CFA franc is pegged to the Euro, with institutional guarantee by the French Treasury. In January 1994, the CFA franc was devalued by 50 percent. The devaluation was associated with bank restructuring and debt relief (Benassy-Quéré and Coupet, 2005: 349- 350.)

The 1994 devaluation process started with crude oil and other commodity prices collapsing in 1986. The CEMAC's terms of trade consequently dropped by 40 percent between 1986 and 1988, and remained depressed until 1993. In response to the shock the CEMAC adopted the "internal adjustment strategy", which is a mix of deflationary macroeconomic policies, internal structural reforms and substandard trade policies. The real depreciation happened to be too large to be accomplished without a nominal devaluation. Since the 1994 devaluation, most macroeconomic indicator levels have improved significantly. Better macroeconomic management as well some external price factors have improved the public finance management, trade performance and price stability (Zafar and Kubota, 2003: 4-6).

The following section discusses the CEMAC's objectives.

3.3 OBJECTIVES OF THE CEMAC

The CEMAC's main objective is to develop an integrated economic system (Mackie et al., 2010:7). The region aims at macroeconomic stability and the creation of a common market. The region's main goals are to be implemented through security, solidarity and good governance in order to serve human development. Consolidation of physical infrastructure and support services is the foundation of the CEMAC Regional Economic Programme (REP) based on the "vision 2025". The REP aims to build a competitive regional environment in an attempt to attract substantial private investment in growth areas. The Central African Power Pool for example, is a project that was conceived to address the escalating energy crisis in Central Africa. The Central African Council for Peace and Security (COPAX) was created in 1999 to ensure peace and to prevent conflict in the region. This is another example of cooperation in the Central African countries (African Development Bank and African Development Fund, 2011: 9).

The CEMAC's agenda currently revolves around the Regional Economic Programme (REP) which aims to make the region an integrated, emerging economic area, characterised by shared security, solidarity, good governance, and human development (CEMAC, 2011).

The REP aims to reach emergence through three five-year periods between 2010 and 2025. The first Phase (2010-2015) consists of building the institutional foundations of emergence; the second phase (2016-2020) is designed to anchor the pillars of economic diversification in the Community. The third phase (2021-2025) aims to consolidate the previous phases. The completion of the third phase is projected to complete the creation of an emerging economic area in the CEMAC in 2025. The finance plan of the REP is based on the principle of creating an emergency fund in the region. The operational plan (2011-2015) of the REP has the significant advantage of being a clear institutional framework, characterized by its declination in five axes, twelve strategic objectives, 29 programs and 86 projects (CEMAC, 2011).

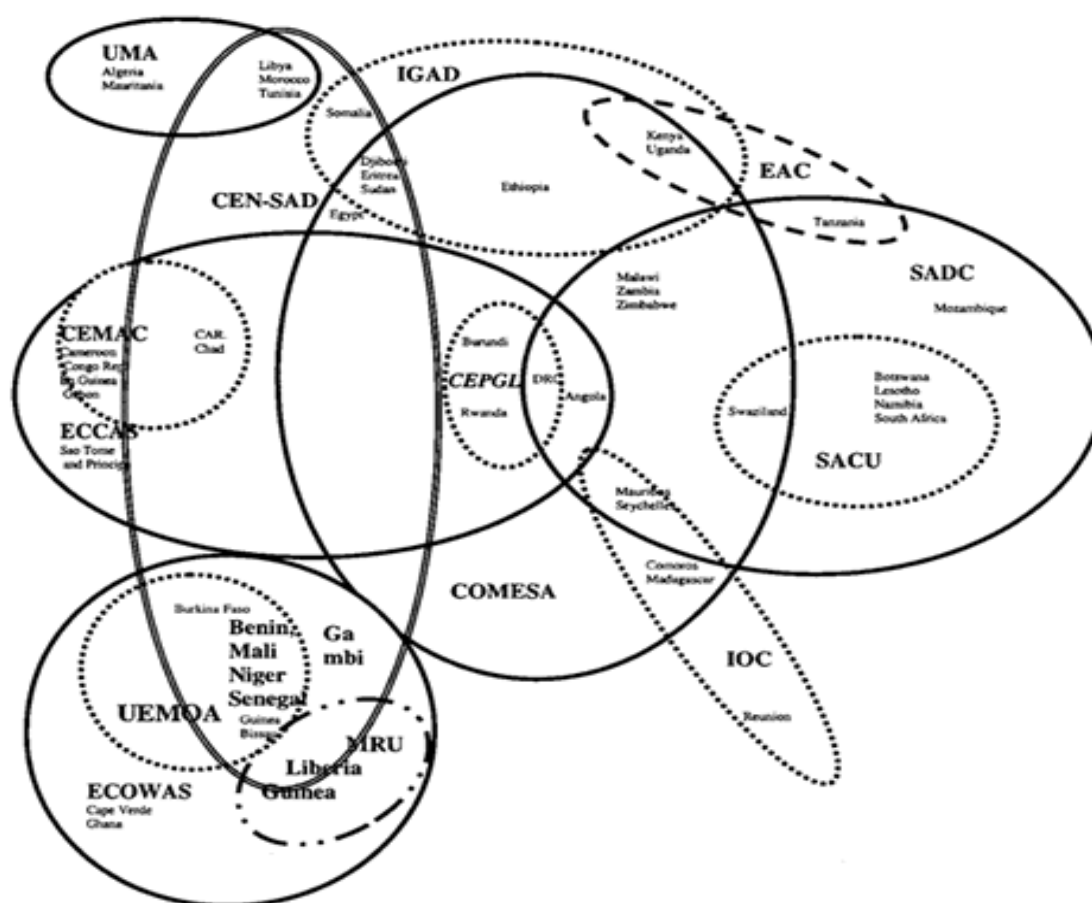
3.3.1 REGIONAL INTEGRATION AND CHALLENGES IN THE CEMAC

CEMAC is the only region sharing boundaries with: the Economic Community of West African States (ECOWAS), the Community of Sahel Saharan States (CEN-SAD), the Arab Maghreb Union (AMU), the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA), the eastern Inter-Governmental Authority on Development (IGAD) and the Southern Africa Development Community (SADC). This

strategic position potentiates Central Africa as a pivotal region and a privileged transit zone in Africa. See the map in Appendix A. (African Development Bank and African Development Fund, 2011: 11).

As is illustrated in Figure 3.1, a single country can belong to one or more regional or regional blocs. The CEMAC belongs to a greater regional bloc called the Economic Community of Central African States (ECCAS). The ECCAS encompasses CEMAC members plus Burundi, Angola, the Democratic Republic of Congo and Sao-Tome and Principe. Burundi belongs to the East African Community, together with Kenya, Tanzania, Uganda and Rwanda. Angola and the Democratic Republic of Congo simultaneously belong to the ECCAS and the Southern African Development Community (SADC). Chad and the Central African Republic simultaneously belong to the CEMAC and the Community of Sahel Saharan States (CEN-SAD). Burundi and the Democratic Republic of Congo simultaneously belong to ECCAS and the Economic Community of the Great Lakes Countries (CEPLG), as well as the Common Market for Eastern and Southern Africa (COMESA). The simultaneous commitment to different regional blocs and trade unions leads to overlapping macroeconomic management and policy-making issues (African Development Bank and African Development Fund, 2011:3.) The overlapping regional blocs are represented in the following Euler diagram.

Figure 3. 1: Regional community interactions in Africa



Source: RegionsWatch (2010)

With regard to economic freedom, most African countries (including CEMAC countries) first associated economic freedom with colonial conspiracy which delayed the implementation of their economic policies. In addition most African countries have developed a history of foreign aid dependence. Because economic aid was an easy option, many government officials did not have to get involved in the difficult process of improving prosperity and became mere administrators. Economic aid then has the negative effect of keeping poor political rulers in power to (Shikwati, 2003). The efficiency of good institutions can therefore be assessed using the economic freedom ranking.

The following section outlines the economic profile of the CEMAC.

3.4 ECONOMIC PROFILE OF THE CEMAC

This section is concerned with macroeconomic and social indicators, followed by growth limitations and determinants in the CEMAC.

3.4.1 ECONOMIC INDICATORS IN THE CEMAC

Economic indicators of income, growth, employment, investments and aid were annually observed in the CEMAC between 1998 and 2010 and then averaged to obtain an overall perception of economic performance in the region. Macroeconomic indicators in the CEMAC are represented in table 3.1.

Table 3.1: Macroeconomic indicators in the CEMAC (period average)

Countries	1998-2010 Average GDP per capita CEMAC (constant 2000 US. \$)	1998-2010 Average Gross capital formation (Percentage of GDP)	1998-2010 Average Employment to population ratio (percentage population older than 15)	1998-2010 Average Inflation rate, consumer prices (percentage change in CPI)	1995-2007 Average interest rate (percentage)
Cameroon	676.54	17.67	61.4	2.46	15.60
Chad	239.35	28.96	66.47	3.14	16.19
Central African Republic	241.4	9.71	73.18	2.53	12.99
Republic of Congo	1090.58	24.65	67.3	3.1	11.60
Equatorial Guinea	5644.75	49.09	59.64	5.49	8.52
Gabon	4141.2	26.02	60.8	1.59	13.96

Source: World Bank (2012)

Table 3.1 reveals that Equatorial Guinea, followed by Gabon lead the region's average GDP per capita with respective ratios of 5644.75 and 4141.20 US dollars. The lowest performers are Chad and Central African Republic with respective ratios of 239.35 and 241.40 US dollars.

In terms of gross capital formation, the best performer in the region is Equatorial Guinea, with an average of 49 percent of GDP allocated to capital formation between 1998 and 2010, followed respectively by Chad, Gabon, Cameroon and the Central African Republic. Regarding the employment to population ratio, the best performing country is the Central African Republic, with an average employment to population ratio of 73.18 percent of the country's population employed. The lowest performance record over the period 1998-2010 is held by Equatorial Guinea, where an average of 59.6 percent of the population older than 15 are employed.

The CEMAC country with the greatest variation of consumer prices over the period 1998-2010 is Equatorial Guinea, with an average inflation level of 5.5 percent, followed by Chad, Congo, Central African Republic, Cameroon and Gabon.

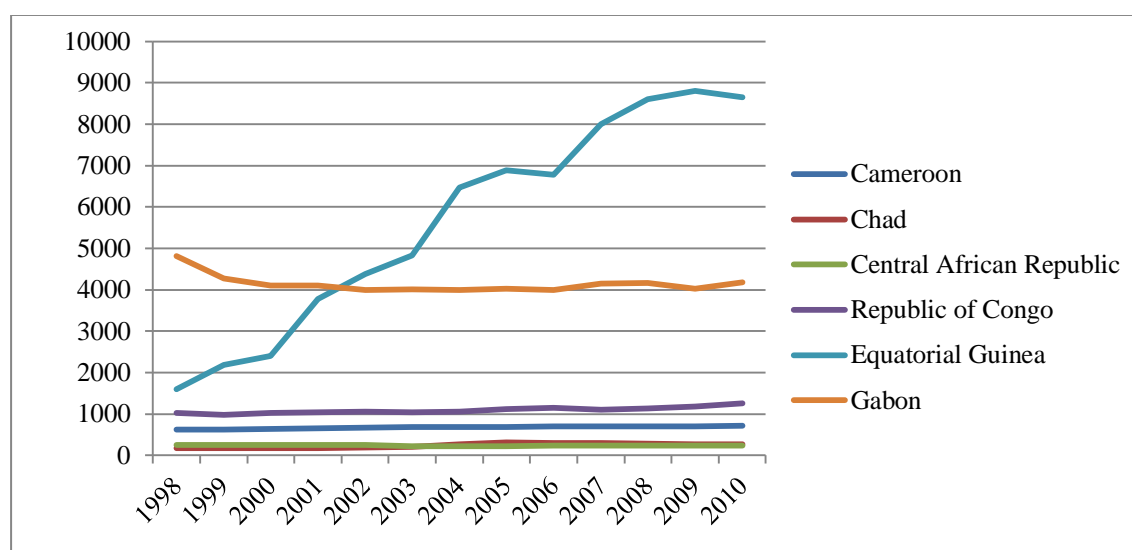
The CEMAC country with the highest interest rate is Chad with an average of 16.19 percent over the period 1995-2007, followed by Cameroon with an average real interest rate of 15.60. The country with the lowest interest rate in the CEMAC is Equatorial Guinea with an average of 8.52 percent.

A representation of the CEMAC's macroeconomic indicator trends follows.

3.4.1.1 Gross domestic product per capita

GDP per capita is obtained by dividing gross domestic product by midyear population. GDP is the sum of gross value added by all resident producers in the economy, plus any product taxes and minus any subsidies not included in the value of the products (World Bank, 2012). Trends on GDP per capita in the CEMAC in constant US dollars are represented in Figure 3.2.

Figure 3. 2: Trends in GDP per capita in the CEMAC (constant 2000 US \$)



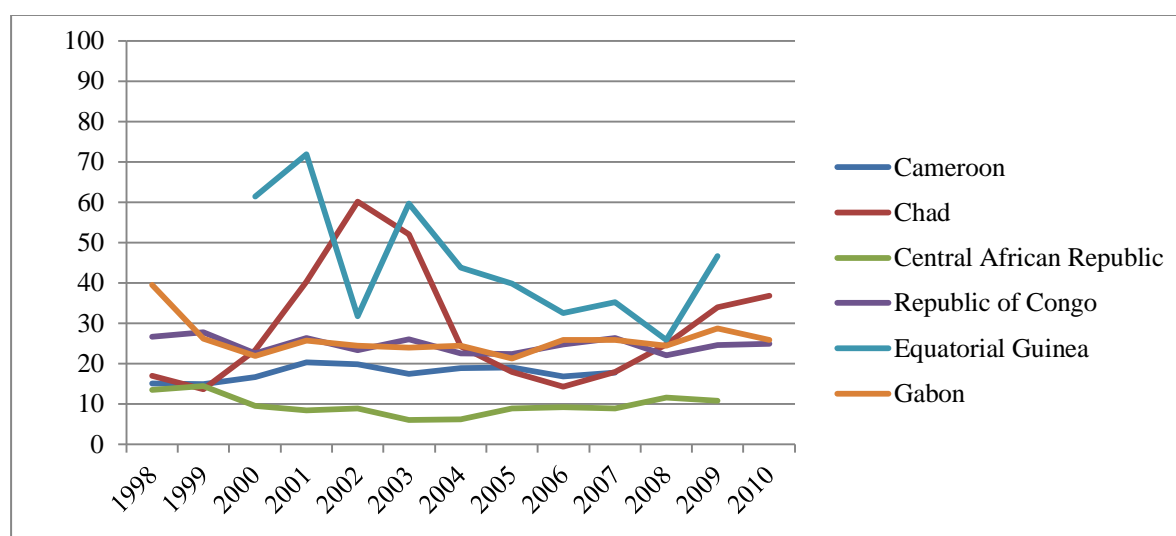
Source: World Bank (2012)

Figure 3.2 displays the CEMAC's trends in GDP per capita in constant 2000 US dollars from 1998 to 2010. The best progression was achieved by Equatorial Guinea, moving from a GDP per capita of 1601.03 US dollars in 1998 to 8649.58 U.S. dollars in 2010. Gabon on the other hand, sustained a GDP per capita ranging between 3988 and 4815 US dollars throughout the observation period. Chad and the Central African Republic are the lowest performers in the region with GDP per capita ranging between 168 and 300 US dollars between 1998 and 2010.

3.4.1.2 Gross capital formation

Gross capital formation was formerly known as gross domestic investment and consists of expenditure on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements, equipment purchases and infrastructure development (World Bank, 2012). Gross capital formation performances in the CEMAC are represented in Figure 3.3.

Figure 3. 3: Trends in gross capital formation (percentage of GDP)



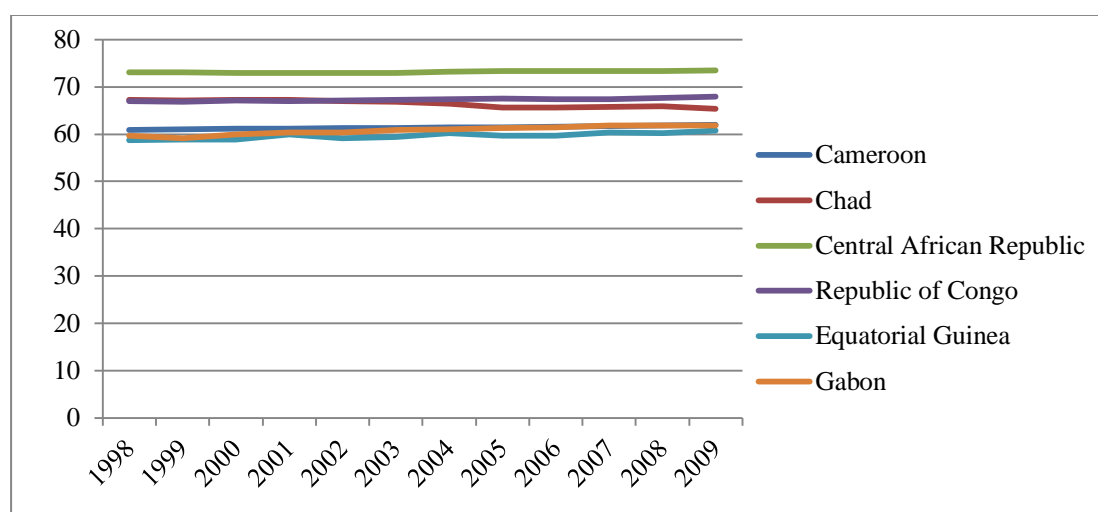
Source: World Bank (2012)

Figure 3.3 reveals trends in gross capital formation as a percentage in GDP between 1998 and 2010. Equatorial Guinea used the highest share of GDP for capital formation, whereas the Central African Republic- the lowest performer in the region- did not use more than 27.77 percent of GDP for capital formation.

3.4.1.3 Employment to population ratio

According to the World Bank (2012), employment to population ratio is the proportion of a country's population that is employed. The potential working population is observed from the age of 15. Average ratios of employment to population in the CEMAC are represented in Figure 3.4.

Figure 3. 4: CEMAC trends in employment to population ratio



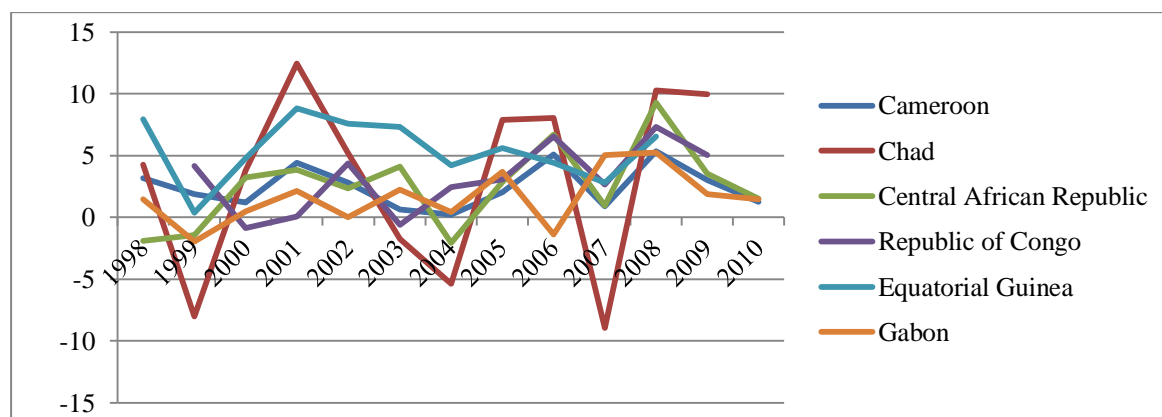
Source: World Bank (2012)

Figure 3.4 represents trends in employment to population ratios and reveals that in the CEMAC, 59.2 to 73.5 percent of the population older than 15 constitute the labour force. The best performing country in terms of employment rates is the Central African Republic and the lowest performer is Equatorial Guinea. However, trends in employment to population ratio are generally increasing in the CEMAC.

3.4.1.4 Inflation, consumer prices

Inflation as measured by the changes in consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a representative basket of goods and services (World Bank, 2012). CPI trends in the CEMAC are represented in Figure 3.5.

Figure 3. 5: trends in inflation of consumer prices (annual percentage)



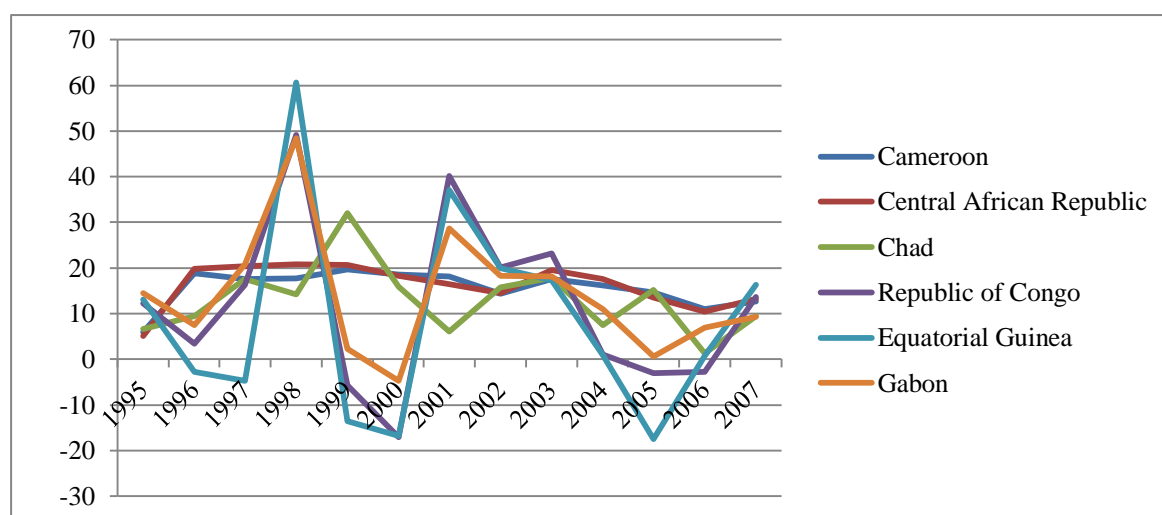
Source: World Bank (2012)

Figure 3.5 shows that inflation trends in the CEMAC display some important variations. The trend is a general decrease between 1998 and 1999, then an increase until 2001. The inflation trend declines from 2001 to 2004, then rises until 2006, falls between 2006 and 2007, increases again until 2008 and decreases between 2008 and 2010.

3.4.1.5 Interest rates

According to the World Bank (2012), real interest rates are the rates charged by banks on loans adjusted for inflation. Trends in interest rates in the CEMAC between 1995 and 2007 are represented in Figure 3.6.

Figure 3. 6: CEMAC countries' trends in interest rates (1995-2007)



Source: World Bank (2012)

Figure 3.6 reveals that trends in real interest rates observed between 1995 and 2007 present some important variations very similar to those observed in the inflation trends. This is probably on account of the fact that real interest rates are the nominal interest rates deflated by the rate of inflation.

The following section examines some important limitations in the CEMAC.

3.4.2 OBSTACLES TO ECONOMIC DEVELOPMENT IN THE CEMAC

The CEMAC is characterised by low intra-regional trade levels, when compared with its regional counterpart-the West African Economic and Monetary Union (WAEMU). The intra-regional trade level in the CEMAC is lower than that predicted by standard gravity models. These models stipulate that levels of trade between countries are proportional to their economic size and distance from each other. The lack of economic complementarities also

entails the integration process in the CEMAC. Most of the member countries are characterised by undiversified production structures and exports which are dominated by a few primary products. Intra-regional tariffs have not prevailed since the creation of the CEMAC in 1994. The barriers are of a political and administrative nature instead. The poor road system and telecommunication infrastructure are more obstacles to the success of a fully-fledged integration process in the region. CEMAC economies are linked to France, but not to each other. A low capital and labour mobility is another manifestation of the weak intra-regional linkages in the CEMAC (Zafar and Kubota, 2003: 15.)

Poor infrastructure exacerbated by formalities and other non-tariff barriers are a major obstacle to regional trade. Landlocked countries in the CEMAC are most affected by these drawbacks since they increase the cost factor, hamper the emergence of a dynamic private sector and hinder the competitiveness of the region (African Development Bank and African Development Fund, 2011: 7).

Compared to other regions of the Continent, Central Africa has limited basic infrastructure. Roads, drinking water, sanitation and information and communication technologies in the region are among the weakest in Africa. The Central African energy sector is the least developed in the continent. This conclusion was reached by the Africa Infrastructure Country Diagnostic (AICD) study conducted by the World Bank in partnership with the Bank Group and other Technical and Financial Partners in 2009 and 2010 (African Development Bank and African Development Fund, 2011:10).

Physical and economic integration of the region is limited by the poor interconnection of national transport and communication networks between Central African countries. Land transport is predominant, but asphalted roads represent less than 20 percent of the whole regional road network. Railway systems in Central Africa are not connected and most railway lines are currently obsolete and underused. Central Africa is one of the most liberalized regions in terms of air transport, but is limited by lack of connectivity between countries, the obsolescence of aircraft, weak competition and limited airport infrastructure (African Development Bank and African Development Fund, 2011:10).

Regarding the maritime transport, the limited capacity of the region's port services contributes to increased freight costs. The major ports in Central Africa are not sufficiently equipped to handle the burgeoning maritime container transport. The waiting period could take up to 80 percent of the total delivery period for merchandise in Central Africa, compared

to 20 percent in East Asia. This situation, coupled with limited transport facilities, has contributed towards substantially increased maritime transport costs. Port management is a good example of public/private partnerships given the complexity of ports reforms. The private sector systematically plays an important part in improving the quality of port services (African Development Bank and African Development Fund, 2011: 10.)

In addition to the weak infrastructure, Bagnai (2010: 10) asserts that the CEMAC is characterised by a low regional mobility, a low product diversification with exports mostly made of few primary products, a low fiscal integration, and low inflation convergence. Ngankou and Ntah (2008: 6) consider security to be another drawback in CEMAC- especially since the Central African Republic, Congo and Chad have been involved in intermittent civil wars over the past two decades.

Regarding the balance of trade, the region's exports accounted on average for 0.2 percent of world's exports between 1999 and 2008. The CEMAC's export level is low, compared to the 0.6 percent exports for West Africa, 1.2 percent for Southern and East Africa and 1.3 percent for North Africa. Central African global exports remain dominated by a limited number of products (oil and other commodities) (African Development Bank and African Development Fund, 2011: 6).

The financial sector grows in the CEMAC, but mostly at a national level. In addition, the embryonic financial sector is dominated by the banking sector which hampers the financing of economic diversification. Regional exchanges record limited activities. Financial institutions in the region include the Central Africa Stock Exchanges (BVMAC) in Libreville, Gabon and the Douala Stock Exchange (DSX) in Cameroon. In January 2010, the Central African Financial Markets Supervisory Commission (COSUMAF) that regulates, supervises and controls the regional market, was mandated by the heads of state to bring together the two CEMAC Stock Exchanges (African Development Bank and African Development Fund, 2011:6).

An ultimate drawback in the CEMAC is the region's vulnerability to external shocks. By way of illustration, the region's real GDP growth rate depreciated from 1.7 percent to 1.3 percent in the oil economies in 2009. This trend can essentially be blamed on the decline in oil production in oil-producing countries and the recessive impact of the global financial crisis. This in turn caused a decline in demand from European countries, a decline in capital flow (drop in official development assistance and foreign direct investment), reduced remittances

from migrants and a decline in tourism revenue. The franc CFA exchange rate also had a negative impact on CEMAC countries. (African Development Bank and African Development Fund, 2011:5).

3.4.3 GROWTH DETERMINANTS IN THE CEMAC

A discussion of the major growth determinants, namely crude oil and other natural resources will follow.

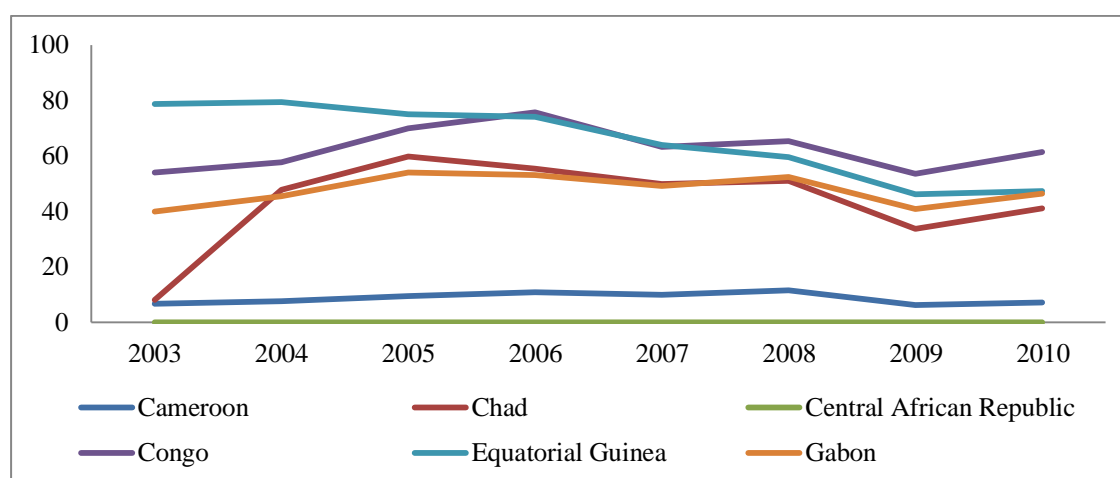
3.4.3.1 Oil

Oil represents about two thirds of the CEMAC's total exports since 1994 and therefore is one of the main contributing factors of growth in the region. The cumulative rise in terms of trade rose by about 35 percent between 1994 and 2001 and declined by 20 percent between 2002 and 2004. Fluctuations in terms of trade are mainly due to the crude oil price. Volatility in terms of change and the real exchange rate appreciation is a major consequence of such a great dependence on oil. As a result, periods of oil boom characterised by a rise in international prices improve terms of trade in the region. The converse is also true. A long run decline in non-oil commodity prices such as cotton worsens the situation (Zafar and Kubota, 2003:7, 11-13).

The "Dutch disease" is also a constant threat to CEMAC economies. The "Dutch disease" is defined as a phenomenon in which a boom in one traded goods sector leads to a decline in other traded goods sectors. The primary export sector loses its competitiveness when a combination of real exchange rate appreciation and an increase in production costs occur. Another difficulty in the CEMAC is that most Central African economies do not have the technical expertise and investment capital required for oil exploitation. The CEMAC governments therefore have a low bargaining position vis-à-vis oil companies (Zafar and Kubota, 2003:7, 11-13).

Figure 3.7 represents oil rents as a percentage of GDP between 2003 and 2008.

Figure 3.7: oil rents in the CEMAC (GDP percentage)



Source: World Bank (2012)

Figure 3.7 exhibits the important contribution of oil rents to the CEMAC's GDP between 2003 and 2010. With the exception of the Central African Republic which does not produce oil, Cameroon is the country that depends the least on oil revenues. Chad's production rose sharply from 2004, probably due to the implementation of the Chad-Cameroon pipeline. Gabon, Congo and Equatorial Guinea's oil rents represent an important share of GDP. Oil revenues were responsible for between 40 and nearly 80 percent of GDP between 2003 and 2010.

3.4.3.2 Other natural resources

Dense forests in Central Africa (including the Democratic Republic of Congo) cover 190 million hectares and represent the second largest eco-forest zone on the planet- after the Amazon. The forest in the CEMAC region constitutes the second source of fiscal receipts after oil. It is the first source of animal protein and the second largest employer after public administration. The forestry sector is of great importance to the region because unlike the mining and petroleum sectors, it is a renewable resource. However, the problem of deforestation increases with the expansion of wood production. An operational framework including the Democratic Republic of Congo was therefore created in March 1999 to facilitate the convergence of national forestry policies in the region (Zafar and Kubota, 2003: 13-14.)

In addition to the huge agricultural and forestry potential, the CEMAC enjoys favourable climatic conditions. The region's rivers have significant navigation, fishery and drinking water potential. Furthermore, the region abounds in various natural resources such as oil and a variety of minerals and ores - primarily diamonds, uranium, gold, copper, iron, cobalt and manganese (African Development Bank and African Development Fund, 2011: 11).

Furthermore the Central African region has a huge hydro-electricity potential. The high density of the Congo basin network generates a hydroelectric potential representing 60 percent of the potential of the entire African continent. Major initiatives are underway to develop this resource in order to secure the region's electrification gap and reduce dependence on other regions of the continent.

3.4.4 FOREIGN ASSISTANCE AND ECONOMIC PERFORMANCE IN THE CEMAC

The poverty level in the region is slightly higher than the African average, as nearly 45 percent of Central Africa's population live on less than one dollar a day. The human development index in the CEMAC is also lower than Africa's average. The CEMAC scored 0.417 between 1999 and 2008 in comparison with a 0.48 score for Africa (African Development Bank and African Development Fund, 2011: 8). Such figures on poverty in the CEMAC justify the need for foreign help to develop the region. Further justifications for aid are provided by a discussion over a project promoting trade liberalisation.

A project called "aid for trade" designed to promote trade facilitation led to a debate about the advantages of foreign aid. Firstly, developing countries should be compensated for their loss of productive and export capacities. Small businesses can be expected to underperform following trade liberalization when they face G-7 subsidised companies. Secondly, most developing country need to be compensated as trade liberalisation makes it impossible for them to make up for lost tariff revenues. Thirdly, due to further multilateral trade liberalization, developing countries need to be compensated for the erosion of existing preferences. Fourthly, the cost involved in developing alternative internationally competitive productive and export capacities and capabilities is considerable and often uncertain. (Sundaram and Von Arnim, 2008: 15.)

Despite the allocation of foreign help to under-developed countries, the multiplicity of donor objectives often led to fragmentation of aid programs. As a result, the impact on poverty reduction was limited. Differences in donor objectives, approaches and procedures also

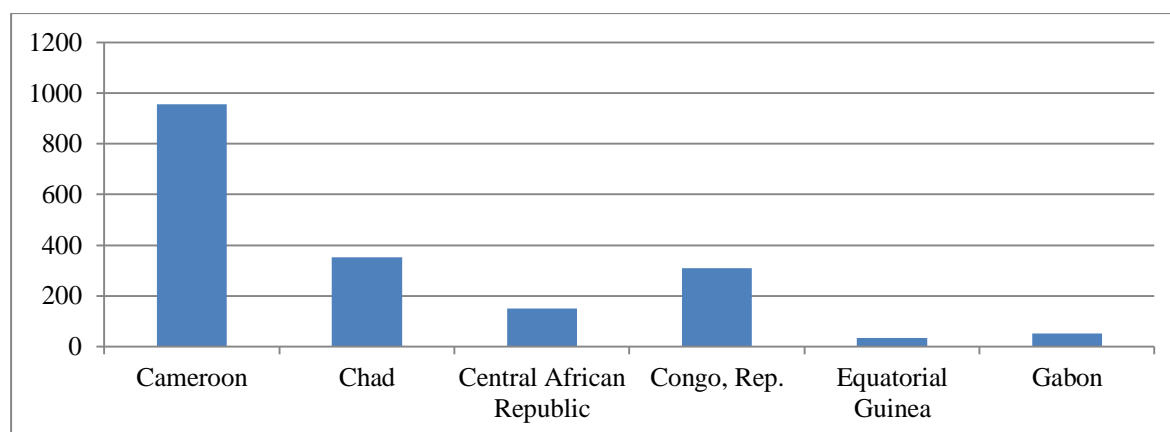
resulted in higher transaction costs of the delivery of aid both for the donors and the recipient countries (African Development Bank and African Development Fund, 2004: 15-16).

Bieker (2007) suggests that trade is the best support, as development aid has not lifted Africa out of poverty, and has often been an obstacle to development for several reasons: The first reason is that foreign aid creates dependence. If a country receives a steady income from donors, it has little motivation to improve from within, as the amount of money available for the government to spend does not depend on the performance of the economy. The second reason is that foreign aid fuels corruption. Foreign aid does not always reach its intended recipients and instead upholds corrupt dictators. The third reason is that foreign aid undermines Markets. Foreign aid often consists of surplus commodities and money is often allocated to purchase goods from the donor country.

Sachs and Warner (1995) support Bieker's argument. They found a strong, positive correlation between free trade and growth. Sachs and Warner's study is based on the observation of 117 countries over 20 years. They pointed out that growth was three to six times higher in open economies than in closed ones (Sachs and Warner, 1995: 47-51.)

Net official development assistance (ODA) is disbursement flows made from official donors to countries and territories on a list of aid recipients. Net official aid refers to aid flows (net of repayments) to countries and is provided under terms and conditions similar to those for development assistance (World Bank, 2011). The 1998-2009 period-average data on development assistance and official aid received in the CEMAC - constant 2009 million US dollars is represented in Figure 3.8.

Figure 3. 8: CEMAC development assistance and official aid received (in millions US \$)



Source: World Bank (2012)

Figure 3.8 reveals that Cameroon received the highest level of foreign assistance and aid over the period 1998-2010, with an average of 956,792,500 US dollars received, followed by Chad and the Central African Republic. Equatorial Guinea and Gabon received the lowest level of development assistance between 1998 and 2010.

3.5 CONCLUSION

This chapter introduced the Central African Economic and Monetary Community (CEMAC) created in 1994 and the six countries it includes: Chad, Central African Republic, Cameroon, Equatorial Guinea, Gabon, and Congo. The CEMAC consists of a geographic area of about three million square kilometres. The CEMAC emanates from French colonial rule, which justifies the use of French as the official language in most of the region. France remains a key political and economic partner.

The CEMAC is discussed from a historical perspective in the first section. CEMAC countries share geographic and cultural affinities as well as a common currency, The CFA franc, that was pegged to the French franc is currently pegged to the Euro at a fixed parity. The second section introduced the objectives of the CEMAC. The Central African institutions aim to intensify and develop integration and cooperation at a regional level.

The third section was concerned with the economic profile of the region. Time series of various macroeconomic indicators were observed and compared within the CEMAC countries. Gross Domestic Product (GDP), inflation, employment to population ratio, gross capital formation and interest rates were the macroeconomic indicators observed in the CEMAC over the period 1998-2010.

Some salient limitations of the CEMAC were then mentioned. The region is characterised by a weak infrastructure system, coupled with a low regional mobility, a low product diversification, a low fiscal integration, low inflation convergence, an embryonic financial sector dominated by the banking sector and a lowly diversified economy vulnerable to external shocks. External shocks in the CEMAC are mostly the result of the oil price fluctuations and the 2008 financial crisis.

The significance of oil and other natural resources was then analysed, as well as the importance of foreign aid in the CEMAC. Foreign aid represents a significant portion of the CEMAC's revenue and has often been qualified as an obstacle to growth, rather than a

facilitator. Some authors argue that improving trade activity is the best way to assist needy countries. Conclusive results about the negative effect of aid and rather the benefits of trade liberalisation in the under-developed countries justify the significance of economic freedom as an enhancing growth factor. The following chapter introduces an extensive literature review on growth analysis.

CHAPTER 4

LITERATURE REVIEW

4.1 INTRODUCTION

The concept of economic freedom is essentially related to the notion of freedom to execute an economic activity in a free manner with the assurance that some elementary rights such as property rights are respected. Economic policy determines the level of growth and the way economic actors seek to invest in a specific region. In order to establish the impact of economic freedom on economic growth and investments, this chapter will first investigate the stylised facts on growth theory. Secondly, previous findings on the impact of economic freedom on economic growth, income equality and development assistance will be investigated. Thirdly, past literature on the effect of economic freedom on investments and entrepreneurial activity will be reviewed. Fourthly, the role of institutions in a mixed economy will be explored. The fifth section summarises and concludes the chapter.

In the next section, stylised facts on growth theory are discussed.

4.2 STYLISTED FACTS ON GROWTH THEORY

Customary growth models will be looked at first. An application of growth modelling in the African context and its overall limitations will follow.

4.2.1 CUSTOMARY GROWTH MODELS

A range of models account for differences in income levels and growth rates across countries. One of the most famous economic models is the Harrod-Domar model that will be described in the next paragraph.

The Harrod-Domar model explains growth levels as a function of savings and capital productivity. Stern (1991: 123-124) investigates the Harrod-Domar model that improved the Keynesian savings-investments model by putting it in a dynamic perspective. According to Stern (1991: 124), two alternative formulations of the Harrod-Domar condition are:

$$\dot{K}/K = s/v \tag{4.1}$$

and

$$\dot{Y}/Y = s/v \quad (4.2)$$

where K stands for capital, Y stands for national income, \dot{K} is the growth of capital, \dot{Y} is the growth rate of income, S stands for savings; $s = S/Y$ and $v = K/Y$. Establishing equilibrium in this context suggests that planned savings, given the level of income, are equal to actual savings; equivalently, reaching equilibrium involves the clearing of the output market.

However, the literature mostly employs a production function approach based on the work of Solow (1956) (Gwartney et al., 2004: 206). The Solow model is an improvement of the Harrod-Domar model. Solow's research presented a model of economic growth that focused on capital accumulation as a source of economic growth. Output in each period is determined by the available supplies in capital and labour in a process called competitive clearing of factor market. Additionally, the total saving and investment are assumed to be an exogenous fraction of total income, and the labour force is assumed to grow at a given rate. Solow's model incorporates a dynamic link between flows of savings and investments and the stock of capital. Capital increases as a result of capital accumulation, based on an increase in gross investment and a depreciation of the initial capital stock. Labour grows as per population growth; total production and income increases as a result of an increase in capital and labour inputs (Sørensen and Whitta-Jacobsen, 2010: 57).

Solow's model can be adapted to an open economy to determine how the dynamic of wealth accumulation is affected by international capital mobility and international trade. The model can also be generalised in such a way that the foundation of steady positive long term growth is a steady exogenous technological process. The complete general Solow model can therefore be written as follows (Sørensen and Whitta-Jacobsen, 2010: 129-130):

$$Y_t = K_t^\alpha (A_t L_t)^{1-\alpha} \quad (4.3)$$

$$r_t = \alpha \left(\frac{K_t}{A_t L_t} \right)^{\alpha-1} \quad (4.4)$$

$$w_t = (1 - \alpha) \left(\frac{K_t}{A_t L_t} \right)^\alpha A_t \quad (4.5)$$

$$S_t = sY_t \quad (4.6)$$

$$K_{t+1} - K_t = \delta S_t - K_t, K_0 \text{ given} \quad (4.7)$$

$$L_{t+1} = (1 + n)L_t, L_0 \text{ given} \quad (4.8)$$

$$A_{t+1} = (1 + g)A_t, A_0 \text{ given} \quad (4.9)$$

where Y_t is a measure of the output in period t , K_t stands for the amount of capital available in period t , A_t is a measure of technological progress, L_t is a measure of labour force in period t , S_t stands for gross savings as a fraction of total income, s measures the savings rate, δ is the rate at which capital depreciates, r is the rate of return on capital, w_t is the wage rate, n is the growth rate of the population, g is the growth rate in output per worker.

Equation (4.3) is a basic Cobb-Douglas production function that defines output as a function of capital, technological progress and labour force. Equations (4.4) and (4.5) present the rentals rates from the marginal products of the inputs, whose expressions are based on the production function. Equations (4.6), (4.7) and (4.8) are expressions of the behaviour with reference to savings and fertility. Equation (4.9) is the addition on the assumption of technological change. Growth models are therefore fundamentally based on capital, labour force, technological progress, savings rate, growth rate of population and wage rate.

Growth theories generally have shown excessive concern about the long run growth of total factor productivity and have made only a little contribution to explaining it. The reviewed theories might be omitting issues that are important for the medium run growth such as economic organisation, and social and physical infrastructure. In brief, health, education, political liberties and environment are a major concern in studying the growth process (Stern 1991: 131-132).

The common theories of economic growth are useful for allowing countries to identify the factors that determine output levels. Models of economic growth are adapted and used by policy-makers and macroeconomists to account for growth in practice.

The most well-known approach to calculate Gross Domestic Product (GDP), used in modern economics as a proxy for growth, is the one called “the expenditure method”. The expenditure on all final goods and services bought are added together. A final good or service is one that is sold to its final consumer or one that will not be shortly re-used in the production process (Kates, 2011: 162-164). According to its definition, the expenditure method to compute the Gross Domestic Product (GDP) of a country can be formulated as follows:

$$Y \equiv C + I + G + X - M \quad (4.10)$$

where Y stands for GDP, C stands for consumer demand, I for investments, G for government spending, X for exports and M for imports. The identity sign (\equiv) is used to show that the expression results from an accounting definition.

Basic factors generally account for growth levels' improvements. However, specific factors can affect a country's development in practice and should be taken into account in order to generate reliable estimates and formulate effective policy prospects and recommendations. In addition to the customary determinants of growth which are capital, labour, savings and technology - political institutions can therefore be added to account for growth levels.

In the 1960s growth theory was mainly constituted with the neoclassical growth model, as developed by authors such as Ramsey (1928) and Solow (1956). Barro (1996) suggested a conditional convergence property because in the neoclassical model the steady state levels of capital and output per worker depend on the propensity to save, the population's growth rate, and the position of the production function. The neoclassical model was later extended to include some additional explanatory variables, particularly government policies concerned about consumption spending, property rights, and distortions of domestic and international markets. The concept of capital was also broadened from physical goods to include human capital in the forms of education, experience and health (Barro, 1996: 3-5).

Barro, who observed a panel of 100 countries from 1960 to 1990, supported the notion of conditional convergence. The convergence property is an important feature associated with the neoclassical model. The convergence property states that lower initial levels of real per capita GDP are associated with higher predicted growth rates. For an initial level of real per capita GDP, the growth rate is improved by higher initial schooling and life expectancy, lower fertility, lower government consumption, better maintenance of the rule of law, lower inflation and improvements in terms of trade. Barro used a panel analysis - instead of a cross-sectional analysis as was done in previous studies - in order to expand the sample information (Barro, 1996: 12).

The framework used by Barro (1996: 9) to investigate growth is an extended version of the neoclassical model described above and can be represented using the equation that follows:

$$Dy = f(y, y^*), \quad (4.11)$$

where Dy is the growth rate of per capita output, y is the current level of per capita output and y^* is the long-run steady-state level of per capita output. The growth rate Dy is diminishing

in y for given y^* and rising in y^* for given y . Values of y^* depend on a selection of public and private sector choices. Public sector's choices encompass various categories of spending, tax rates, maintenance of the rule of law and property rights, terms of trade and the degree of political freedom. Private sector's choices include savings rates, labour supply and other variables that depend on preferences and costs (Barro, 1996: 9).

Barro suggests that political freedom has a weak effect on growth under certain conditions. Expansion of initially low political levels has a positive effect on growth. However, when political freedom is moderate, further expansion reduces growth. Higher inflation also has a significantly negative effect on economic growth (Barro, 1996: 2,3).

An expansion of political freedom fosters economic rights and stimulates growth. However, it is important to mention that it is possible to see a nondemocratic government that maintains economic freedom and private property, as dictators do not necessarily have to engage in central planning. Some restricted regimes such as the Pinochet government in Chile and the Fujimori administration in Peru have managed to expand their economic freedom level. However the effects of autocracy are adverse (Barro, 1996: 32-33).

Barro suggests that political systems can be added to the list of potential growth determinants. Additional influential factors can be added by investigating the determinants of total factors productivity.

Determinants of Total factors Productivity (TFP) can be grouped into four broad sections: Creation, transmission and absorption of knowledge; Factor supply and efficient allocation; Institutions, integration and invariants; and competition, social dimension and environment. Total factor productivity growth refers to a technological progress in the neoclassical growth tradition. Measurement of TFP growth shows how much output was produced using a given amount of input (Isaksson, 2007: 4-5).

Isaksson (2007: 77-80) identifies an extensive list of determinants of Total Factor Productivity (TFP) on the basis of a thorough literature review. Human capital, infrastructure, imports (not merely trade), institutions, openness, competition, financial development, geography and capital intensity/deepening were found to be the major determinants of factor productivity, with an emphasis on innovation and research and development's benefits for industrialised countries. Isaksson then established a way to implement the above findings into efficient policy making for countries.

Human capital, which is made of education, training and health, is the other type of capital. Human capital impacts labour productivity, but also helps to determine whether technology transfer from abroad will impact on TFP growth (in other words, absorptive capacity). Public spending on education and health is a policy choice that is expected to be particularly productive in Africa and South Asia. Investment in “health capital” can be expected to be particularly productive, as such a policy is likely to increase the returns to education as well, thus further spurring TFP growth. Additionally, health, and therefore longer life expectancy makes it more meaningful to invest in education and attracts Foreign Direct Investment (FDI). In addition to empowering the human capital, openness to foreign technology through trade liberalisation is important. Openness and trade liberalisation facilitates market entry for new firms and stimulates competition (Isaksson, 2007: 77-80).

An efficient policy should target capital accumulation to increase the production capacity. In addition to the quantity of capital, an improvement in the quality of capital was also cited. In developing countries the capital package improvement must be coupled with financial sector reform in order to increase savings, favour a better allocation of the savings to investment and maintain healthy incentives. Trade reforms are also vital for increasing access to foreign capital and are put into place on account of good institutions and good governance. Infrastructural improvements are also important (Isaksson, 2007: 77-80).

4.2.2 GROWTH-MODELLING IN THE AFRICAN CONTEXT

From the above theory reviews, a fitting growth model therefore encompasses fundamental theory-based variables and additional factors based on factors productivity investigation. Specific factors that can vary from one region to another can also be added to growth models expressions.

Hoeffler (2002: 135-155) investigated whether Africa’s growth performance could be accounted for in the framework of the augmented Solow model. Hoeffler (2002) formulated a model and added control for unobserved country specific effects and regressor’s endogeneity. The African growth performance was analysed using a two- step procedure. In the first step, the preferred coefficient estimates of the Solow model obtained by the Generalised Method of Moments (GMM) estimate were used, and the residuals obtained. In the step-two regression, residuals obtained on the first step were regressed on the African dummy variable. The step-two regression was estimated by the Ordinary Least Squares (OLS) and described whether the Africa dummy could account for some variations in countries’ growth

performance. The coefficient of the Africa dummy is insignificant, which suggests that in the model estimation Africa is not required to account for the variations in growth rates once the presence of unobserved country specific effects is controlled. The augmented Solow model can therefore account for the difference in growth experienced by African countries. Low investment ratios and high population rates in African countries can therefore account for slow growth of income per capita.

The possibility of the augmented Solow model being used to explain African growth requires that additional information on the core factors of economic growth in Africa be supplied.

Sahn and Younger (2004: 66-95) reviewed the literature on growth in Africa and established a number of constraints to African growth. They grouped these into three entities: human resource development, vulnerability and risk management, and fiscal management.

Human resource management is concerned with access to education and health. Education allows Africans to access knowledge that leads to better income in the long run, and generally empowers individuals to deal with non-economic shock, such as sudden illness. Low levels of education in Africa reflect on poor governance and policy making. Low school attendance is imputed to poor infrastructure, poor training, low wages and a lack of motivation for teachers, high direct and indirect schooling fees, inter alia. With regard to health issues, life expectancy and malnutrition were among the major problems observed. The ability of African governments to deal with health shocks such as HIV/ AIDS is questionable. The failure of institutions to provide information and to aggressively implement mechanisms that promote healthy habits results in the spread of numerous diseases on the continent (Sahn and Younger, 2004: 66-95).

With regard to vulnerability and uncertainty, all economic (entrepreneurial) activity is exposed to levels of risk that are worsened by the economic environment in Africa. Soils, meteorology and hydrology make the economic activity highly unstable. Farmers are vulnerable to shocks that result from drought, pest infestation, or livestock disease. A main concern is that openness could add to the degree of vulnerability in African economies, either through a greater focus on a narrow range of exports, or because of fluctuations in the world market price. However, greater openness may imply greater diversification and efficiency. This in turn lowers vulnerability to risk such as crop or market failures resulting from thin markets, especially in the agricultural sector. A very low progress in financial liberalisation

aggravated by low levels of security, little access to insurance networks contribute to poverty traps, especially in the rural areas, where most of the poor population is found (Sahn and Younger, 2004: 66-95).

Regarding fiscal decentralisation, an important share of Africa's public spending is controlled by central administrations who allocate funds to tertiary services, rather than local services that benefit most of the population. Decentralisation, especially in public expenditure remains inconsistent in Africa. Reallocating funds from central bureaucracies to local institutions may be an effective way to reduce poverty (Sahn and Younger, 2004: 66-95).

4.2.3 LIMITATIONS OF CUSTOMARY ECONOMIC GROWTH MODELLING

Economic growth has many sources, but is not a linear process. Myrdal (1957:16) suggested that problems like economic growth should be examined using the concept of “circular causation”, implying that a change in one factor affects a number of other factors, and these changes then in turn have an effect on the first factor.

Economic growth is therefore perceived as a complex of interlocking, circular, and cumulative changes (Myrdal, 1957: 14). The first implication is that, it is useless to look for one predominant factor amongst determinants of economic growth, as a basic factor leads to another in an interlocking circular manner (Myrdal, 1957: 19). The second implication is that to view economic growth in these terms, means to abandon the search for precise econometric models, as the relevant variables, and the relevant relations between them are too many to permit such simplification (Myrdal, 1957: 101).

Similarly, Kenny and Williams (2001) suggest that policy recommendations are sometimes nothing more than a mechanical output of the particular choices made by the model-builder. Kenny and Williams thereby emphasise the possible dangers inherent in the use of regression analysis as a source of policy advice. Some very interesting statistical implications are not robust, mostly because the underlying variables are linked with each other.

An illustration was provided by governments' long term investments. Policy outcomes in that case may change with time. Alternatively, many of the variables found unrobust or insignificant in a specific country may have a reverse effect in other countries. Kenny and Williams (2001: 15-16) quoting Lauterbach (1957) emphasised the necessity of applying methods with caution and with a real effort to understand the culture, value system and social structure of each population group that is subject to a development policy. The above section

looked into sources of economic growth. In addition to the theoretical sources of economic growth, additional determinants may be added, such as variables that describe political institutions. The following section reviews the relationship that exists between economic freedom and economic development.

4.3 ECONOMIC FREEDOM, ECONOMIC DEVELOPMENT AND INCOME EQUALITY

Relationships between economic freedom and economic growth, income equality and development assistance are investigated in this section. The initial focus is on the relationship between economic freedom and economic growth.

4.3.1 ECONOMIC FREEDOM AND ECONOMIC GROWTH RELATIONSHIP

The four Asian tigers (Hong Kong, Singapore, South Korea and Taiwan) are the newly industrialised countries in East Asia whose growth rates rose by eight percent a year between 1960 and 1985. In 1985 the GNP of each “tiger” was nearly 700 percent of what it was in 1960. Increase in capital and labour was the basis for the most important growth factors in Hong Kong (Henderson, 1997: 433-434).

Henderson (1997: 447) affirms that the East Asian exemplary economic growth success is mainly due to low economic intervention. Henderson’s findings are based on an observation of Japan, as well as the East Asian four tigers (Hong Kong, Singapore, South Korea and Taiwan).

Japan experienced several reductions in individual and corporate tax rates between 1954 and 1974. By way of comparison, in 1974 the average family in Japan earning 2.4 million yen (the equivalent of 8,000 USD) was in federal bracket of 12 percent while the average American family which earned 13,000 \$ was in a 22 percent tax bracket. The low marginal tax rates gave the Japanese people an incentive to earn income and invest in education in order to improve their earning power. High rates of savings were another consequence of the pro-tax policy (Henderson, 1997: 429-430).

Since the 1950s, Hong Kong’s government policy has been closer to “laissez-faire” than any other government in the world. Government consumption is very low, averaging less than ten percent of the GDP. Very low income tax rates, coupled with low levels of government spending and subsidies give people the incentive to work. The top marginal tax rate is one of

the lowest in the world, and therefore encourages people to save and invest. Efficient use of capital and labour is promoted by free trade. Revenues from tariffs represent less than one percent of the sum of exports and imports. Residents can own foreign currencies; there is no black market in foreign exchange. The official price of the Hong Kong dollar is the same as the trading price and government intervention is very limited (Henderson, 1997: 434-435)

Singapore is characterised by a great level of economic freedom that contrasts with the level of political freedom of that country. Low marginal tax rates and tariffs rates which are comparable to Hong Kong's make both countries the top two free-trade nations. However in Singapore residents are required by the authorities to save a certain amount of their income, and the government runs an active industrial policy to decide on how savings are invested. Nonetheless, growth rates in Hong Kong and Singapore are almost identical (Henderson, 1997: 435-436).

In the 1950s, the government in Seoul (South Korea) was characterised by a trademark for government spending and heavy restrictions on imports that induced the country to produce goods that could have been obtained cheaply from abroad. Strict price controls on food, with prices just below the cost of production discouraged agricultural production and harmed an economy where agriculture accounted for 410 percent of the GDP. Between 1963 and 1979 government spending fell, import quotas were reduced, and the government caused financial repression by putting a lid on interest rates. Despite some important failures observed in Korea's industrial policy, low government spending and liberalisation of international trade were the main factors used to promote economic growth. As a result, the GNP in South Korea grew rapidly, averaging 7.2 percent annually (Henderson, 1997: 437).

Since the early 1950s, the government intervention in Taiwan's economy has been significantly reduced. Similar to Hong Kong, Singapore and South Korea, Taiwan slowly liberalised the economy, reduced trade barriers and reduced the share of manufacturing production inter alia (Henderson, 1997: 439).

The observation of the growth pattern in the aforementioned East-Asian (Japan, Hong-Kong, Singapore, Taiwan, and South-Korea) countries suggests a positive interaction between economic freedom and economic growth. Further studies investigate and propose empirical evidence of a significant relationship between economic freedom and economic growth.

Early studies on economic freedom aimed to establish whether economic freedom is related to growth. Scully and Slottje (1991: 121-152) and De Vanssay and Spindler (1994: 359-372) established a significant relationship between economic freedom and growth, using an index of economic freedom developed by Sully and Slottje (1991). Easton and Walker (1997: 328-332) also established that economic freedom has a significant impact on growth. Similarly, Carlsson and Lundstrom (2002: 335–344) used a sample of 74 countries from all continents observed from 1975 to 1995 and ran multivariate regression. The coefficient associated with economic freedom was positive and significant, implying that an increase of economic freedom leads to an increase in economic growth.

Pääkkönen (2010: 469-476) contributed to the existing literature by investigating the Economic freedom index as driver of growth in transition. The study reviewed the political economy of 25 post-communist economies (previously part of the Soviet Union) making the transition to free markets. The objective was to establish whether better institutions (measured in terms of economic freedom) contribute to growth. The Arellano and Bond (1991) two-step General Method of Moments applied to panel data was the method employed. The study suggested firstly that in case of insufficient institutions or private capital, improvements in institutions and investment tend to boost productivity growth. Secondly, government consumption, which can also be viewed as a measure of government size, has a negative impact on growth. However, some unexpected results on the effect of institutions and investments on growth may be explained by model misspecification. The quest for an ideal measure of human capital formation was also mentioned as a constraint.

Le Roux and Gorlach (2011) focused their study of the relationship between economic freedom and economic growth on the Southern African Development Community (SADC) and also employed panel data analysis. This study also established that a positive relationship exists between economic freedom and economic growth. One unit increase in economic freedom raises the growth rate by 14.54 percent.

The establishment of a significant relationship between economic freedom and economic growth often generates a discussion as to whether it is the level of economic freedom that impacts on economic growth or the change in economic freedom.

De Haan & Sturm (2000: 215-241) used an Extreme Bound Analysis (EBA) on 80 countries observed from 1975 to 1990. Their study found that changes in economic freedom foster growth, but the initial level of economic freedom does not influence growth. Sturm and De

Haan (2001: 839-844) then investigated the robustness of the relationship between economic freedom and economic growth using Least Median of Squares (LMS) regression technique developed by Rosseeuw (1984 - 1985). The LMS technique is applied to identify outliers and is very similar to the Least Squares estimation, but the difference is that the sum is replaced by a median which makes the estimation robust with respect to a large number of outliers. A growth model was applied to eight East-Asian countries. The average growth rate of GDP was the dependant variable and the set of explanatory variables consisted of: initial income, average investment share to GDP, and secondary school enrolment; the index of economic freedom was then added to the set. The level of economic freedom was found to be non-significant, whereas the level of economic freedom was strongly related to economic growth.

The Extreme Bound Analysis (EBA) was also employed by Leertouwer et al. (2002: 403-416) who also demonstrated that only the change (not the level) in economic freedom, is related to growth. Pitlik (2002: 55-80) suggested rather that both level and change in economic freedom are significantly related to economic growth, although level is not very robust.

Panel data analysis was the method employed by Karabegovic et al. (2003: 431-445) to observe the impact of economic freedom on growth performance by comparing the United States (US) of America and 10 Canadian provinces. The data set consisted of 10 Canadian Provinces and the 50 US states observed between 1993 and 2000. The panel regression results indicated that economic freedom index (in levels and change) have a significant impact on growth performance. The study also suggested that Canadian provinces which experienced lower levels of economic freedom were therefore likely to face lower standards of living relative to American states.

Cole (2003: 189-194) used a sample of 106 countries observed between 1980 and 1999, and estimated growth regressions based on the neoclassical model. The following variables were therefore used: per capita GDP in levels, investment share in GDP average, fertility rate average as a proxy for population growth, and the average years of schooling as a proxy for the human capital variable. The economic freedom index was then added in the next model estimation. Adding the economic freedom index as a variable increased the explanatory power of the variables and the index of economic freedom was statistically significant. Changes in the economic freedom index were then added as a variable. Changes in the economic freedom index also positively affected the explanatory power of the model.

Fluctuations in economic growth can therefore be explained by levels of economic freedom, as well as by the magnitude of the change in economic freedom.

A study on the impact of economic freedom was conducted by Gwartney and Lawson (2003: 5-10) on 99 countries between 1980 and 2000. It reveals that economic freedom is a major determinant of current cross country differences in per capita GDP. The study contributed to the existing literature by including the economic freedom index average (over the two decades of the observation period) as a measure of long-term institutional quality. Cross-country differences in the economic freedom index explain 63.2 percent of the cross-country variation in 2000 per capita GDP.

Weede (2006: 511-521) analysed the interaction between economic freedom and economic development by observing 102 countries between 1980 and 2000. Similar to Gwartney and Lawson (2003), an average score of economic freedom over the whole observation period is observed, rather than a single time point measure. Other variables consisted of: the improvement (change) in economic freedom, the level of economic development, Intelligence Quotient (IQ) as a proxy for human capital formation. Two geographical variables were also added: coastal population and tropical location. Despite the use of different model specifications the average level of economic freedom was found to have a stronger effect on economic growth than the changes in economic freedom. Weede (2006) contributed to the existing literature by taking into account the importance of backwardness in less developed countries, caused by the previous capitalist development of Western societies. Although most scholars validate a significant positive relationship between economic freedom (change or level) and economic growth, Weede (2006: 511-521) argued that the initial level of economic development and other advantages promote economic growth to a greater extent than economic freedom does.

Further argument arises from the establishment of a significant relationship between economic freedom and economic growth. It is important to ascertain whether it is the holistic index of economic freedom that impacts on economic growth, or if some components of economic freedom impact growth more than others.

Alternative analyses are revealed by authors who regard only some components of economic freedom as significant for growth. Ayal and Karras (1998: 327-338) ran a regression analysis on the components of the 1996 Fraser Institute's index of economic freedom which found that only a number of components (six precisely) were found to have a significant effect on

growth. Heckelman (2000: 48) suggested that the most robust relationship is that of the monetary policy, which implies that a low inflation leads to short term economic growth.

Carlsson and Lundström (2002: 335) also investigated the impact of individual components of economic freedom on economic growth, because highly aggregated indices do not lead to precise policy conclusions. The index of economic freedom used in the study is the Gwartney et al. (2000) index of economic freedom, which was then decomposed into seven categories. Each category was then observed in growth regressions applied to 74 countries over a period of 25 years. Carlsson and Lundström (2002: 336) emphasised the fact that economic freedom does not mean free from state intervention, as even in a libertarian society a minimal “state” exists and provides protection of individuals’ freedom in the society. The Gwartney et al. (2000) index of economic freedom used in the study emphasises two major goals for the government: The first goal is to provide the infrastructure such as enforcement of contracts and stable monetary regimes in order to facilitate the operation of a market economy. The second goal for a government is to provide public goods that cannot easily be provided by the private sector, such as national defence and education inter alia. An investigation of the economic freedom components revealed that only the variables, “legal structure and private ownership”, and “freedom to use alternative currency” have positive and robust relations to GDP growth. Variables related to the economic structure and use of markets, as well as freedom of exchange in capital markets were positive but non robust. “Size of government” decreased the growth rate for index values lower than 8.86 out of ten. The variable “freedom to trade with foreigners” revealed a negative and robust relationship with GDP growth (Carlsson and Lundström, 2002: 336:342).

Swaleheen and Stansel (2007: 343-354) investigated the relationship between economic freedom, corruption, and economic growth using a panel of 60 countries. A major improvement on previous literature is that economic growth, corruption and investment are jointly determined. The benchmark structural model consisted of the following variables: Gross Domestic Product, a set of control variables (school enrolment rates, population growth rates, size of the government and political stability), investments, corruption and economic freedom. Corruption and investment, amongst other variables, are correlated with another variable called the unobserved fixed effect. The Arellano and Bond (1991) method was applied to the model because it is suitable to estimate dynamic models applied to countries observed over a short time span. The Arellano and Bond (AB) method is used in the study to

eliminate the unobserved country fixed effect by using the one-period lagged values of explanatory variables. The two-period-lagged values of the endogenous explanatory variables (investments and corruption) were used as instruments in the model. The results of the study were bilateral. Everything being equal, corruption had a negative effect on growth, in countries with a low level of economic freedom. Conversely corruption was found to provide a way around government controls in countries with high economic freedom, which therefore fosters economic growth.

The time dimension is also taken into account when the impact of economic freedom on growth is assessed. Heckelman (2000: 78) suggested that there is a statistically significant relationship between economic freedom and economic growth in the short run. Conversely, Quazi (2007: 329-344) associates economic freedom with political costs in the short run, and emphasises rather on the long-run economic benefits associated with economic freedom.

In addition to the establishment of a significant relationship between level, changes and components of economic freedom and economic growth, it is important to establish whether lagged values of economic freedom have an impact on economic growth, by means of causality tests.

Farr et al. (1998: 247-262) held one of the pioneer studies on causality between economic freedom and economic growth studies. Farr et al. (1998) concluded that causality between economic freedom and growth goes both ways, meaning that economic freedom precedes economic growth and economic growth precedes economic freedom. Heckelman (2000: 72-73) later examined the causality between economic freedom and economic growth on the short run. Heckelman (2000) contributed to the literature by making use of a different methodology and by using the Heritage Foundation's index of economic freedom, instead of the Fraser Institute's as was done in most previous studies. Ordinary Least Squares methodology was first employed on a bivariate equation between economic freedom and economic growth. The Granger-causality test was then used to assess whether lagged values of economic freedom index were useful to predict growth beyond the use of growth lags only. Individual components of the economic freedom index were then tested for causality as well. The results suggested that some components precede growth, but not the other way around. Granger-causality tests based on a three lag specification on 94 countries suggest that the

average freedom score and the monetary policy consistently Granger-cause growth. It was also found that other components: Capital Flows, Wage/Price Controls, Property Rights, and Regulation Granger-cause growth when more than one lag is applied (Heckelman, 2000: 76-87).

Vega-Gordillo and Álvarez-Arce (2003: 207-212) also examined the causality between economic freedom, political freedom and economic growth on the basis of a dynamic model using the Granger-causality methodology. The data comprised a panel of 45 countries observed over the period 1975-1995. The Fraser Institute's index of economic freedom (which was then issued for a 5-year period) was employed in the study. Economic freedom was found to be conducive to higher growth rates. The study concluded that the impact of economic freedom on economic growth nearly doubles the effect of political freedom, thus suggesting a greater impact of liberalisation rather than democratisation on the growth process.

Similarly, Dawson (2003: 484-495) observed countries from 1970 to 2000 using the Gwartney and Lawson 2001 index of economic freedom as a proxy for institutional standards. The Gwartney and Lawson (2001) index of economic freedom also consists of seven components: size of government, use of markets, money/prices, alternative currencies, property rights, international trade and international finance.

Dawson (2003) used Granger-causality tests to investigate the causal relationship between economic freedom and economic growth. Using various measures of institutions and growth across countries, Dawson (2003: 493) found that the overall level of economic freedom Granger-causes economic growth, whereas changes in economic freedom are jointly determined with growth. Additionally, Dawson (2003) analysed the effects of the economic freedom index's components, and suggested that levels of economic freedom areas related to the use of markets and property rights Granger-cause economic growth. Therefore, economic freedom, especially in its components related to markets and property rights foster long-term economic growth. On the other hand, Dawson (2003) established a unilateral causality relationship between economic growth and economic freedom's components (in levels and changes) related to government size. Furthermore, money and price stability in both levels and changes were also jointly determined with economic growth.

As a review of the existing literature has established a causal relationship between economic freedom and economic growth, Justesen (2008: 646-656) claimed improvement from

previous studies by conducting Granger-causality tests using panel data for the period 1970-1999 on a set of countries that varied from 35 to 77 in number. Justesen also concluded that economic freedom impacts growth. However, only two aspects of the economic freedom composite index which are government size and regulatory policies have a strong effect on economic growth and investments. Justesen's findings therefore lay emphasis on the hypothesis that some components of the economic freedom index are not determinants of economic growth (Justesen, 2008: 656-657).

Most studies on the relationship between economic freedom and economic growth, using various methods and samples, established that economic freedom (or its components) has a positive impact on economic growth. Findings are summarised in Appendix B. The relationship between economic freedom and income equality will now be discussed.

4.3.2 ECONOMIC FREEDOM AND INCOME EQUALITY

Islam (1996: 595-597) conducted one of the first studies on the impact of economic freedom on income equality. Islam (1996) used ordinary least squares and cross-sectional data to investigate the relationship between economic freedom and economic performance of low, middle and high income countries. Variables comprised Gross National Product (GNP) per capita, growth of per capita income, and the Easton and Walker (1992) economic restrictions index which, like the currently published economic freedom indices, assesses the obstructiveness of the economy. The Easter and Walker (1992) index of economic freedom consists of the foreign exchange regime; freedoms relating to property, travel, information, broadcast media, work, peaceful assembly, privacy, military draft; the type of economic system and the rule of law. Islam's findings indicate that economic restrictions have a negative impact on per capita income in low income countries, but not on middle and high income countries. In contrast, economic restrictions have a negative effect on economic growth in high income countries, but not in middle and low income countries. Also, per capita income was generally found to reduce economic restrictions, thereby improving economic freedom.

Gwartney & Lawson (2003: 9-10) employed a cross country analysis on 99 countries observed between 1980 and 2000, and established that there was a tendency for high-income countries to grow more rapidly than those with low initial income levels. This trend inverted when economic freedom was added to the model as an independent variable; lower income countries therefore grow faster than higher income countries.

Furthermore, increased economic freedom can raise income equality by expanding opportunities; in contrast, economic freedom can lower equality by reducing income redistribution toward the poor, which justifies a trade-off between economic freedom and income (Carter 2006: 175).

Carter (2005: 163-175) employed a fixed effects model in order to investigate the relationship between economic freedom and income inequality, which is measured using the Gini coefficient. The initial sample was constructed as an unbalanced panel comprising 123 countries and six time periods between 1975 and 2004. The variables included in the equation were as follows: Gini coefficient, economic freedom, per capita income, political rights, civil liberties, years of education, population's age group and geographic location, industry employment and services employment. Economic freedom can raise income equality by widening income-earning opportunities and can lower opportunities by reducing income distribution toward the poor. The results obtained suggested that the latter effect is dominant, except at low levels of freedom. The estimated relationship between economic freedom and income inequality is positive, statistically significant, but relatively inelastic. A positive trade-off between economic freedom and income equality is therefore indicated.

A positive interaction between economic freedom and income equality was established; the following section investigates the relationship between economic freedom and development assistance.

4.3.3 ECONOMIC FREEDOM AND DEVELOPMENT ASSISTANCE

Knedlik and Kronthaler (2006: 6-15) investigated the effect of development aid on economic freedom using a panel estimation of 104 countries covering the years 1995 to 2004. The Heritage Foundation index of economic freedom was used for two reasons: Firstly, because in terms of time period, the Heritage Foundation's contemporary rankings made the data more suitable to capture the actual interaction between aid and economic freedom. The second reason was that the Heritage Foundation index had more observations, and ranked more countries than the Fraser Institute index. Variables included in the model are the year to year change of the value of the Heritage Economic Freedom Index of a country, the extent of official development assistance per capita, and the amount of International Monetary Fund's (IMF) credit per capita a country received in the respective year. The estimation results suggested that, firstly, development aid is positively correlated with economic freedom, and secondly, that IMF credit, which can be taken as a proxy for conditional aid is negatively

correlated with economic freedom. Conditional aid can therefore not coerce countries to economic freedom.

Conversely, it was further suggested that economic freedom rather than foreign aid, is an important key to economic growth especially in African countries. Foreign aid is an obstacle to African development, firstly because foreign aid creates a dependence on a steady income that does not depend on economic performance and sustains government spending. Secondly, foreign aid fuels corruption because funds are often misused or embezzled by government officials. Thirdly foreign aid undermines markets because it is generally coupled with agreements that benefit the donor countries' markets, thereby weakening the local economic system (Bieker, 2007: 1).

The following section investigates the relationship between economic freedom, investments and entrepreneurial activity.

4.4 ECONOMIC FREEDOM, INVESTMENTS AND ENTREPRENEURIAL ACTIVITY

Investment and entrepreneurship are among the main drivers of economic growth. An investigation of the relationship between investments and economic freedom can therefore establish the channels whereby economic freedom positively affects economic growth.

4.4.1 INVESTMENTS

Borensztein et al. (1998: 115-135) analysed the interaction between Foreign Direct Investment (FDI) and economic growth in 69 countries over two decades, and found that FDI is an important vehicle for technology transfer. They found that FDI contributes to economic growth in the countries where the level of education (as a measure of absorptive capacity) is high.

Dawson (2003: 489-490) found evidence that level and changes of the broad measure of economic freedom Granger-causes investments. However, there is less evidence of causality concerning the relationship between the individual components of economic freedom and investments. Improvements in the areas related to international finance are most effective in increasing investments than direct growth (Dawson 2003: 493). This emphasises the role of investment in channelling economic freedom's impact on growth, contrary to political freedom that is likely to affect growth directly.

Cole (2003: 189-194) used a sample of 106 countries observed between 1980 and 1999, and estimated growth regressions based on the neoclassical model. The following variables were therefore used: per capita GDP in levels, investment share in GDP average, fertility rate average as a proxy for population growth, and the average years of schooling (as a proxy for the human capital variable). The economic freedom index was then added to the following model estimation. An analysis of the interaction between investment and economic freedom concludes that changes in the investment rate are conditional to the value of the economic freedom index. Additionally, Cole (2003: 194) found that any level of investment has a higher growth impact in countries with greater degrees of economic freedom.

Another study on the impact of economic freedom was undertaken by Gwartney and Lawson (2003: 5-10). The sample studied consisted of 99 countries observed between 1980 and 2000 and revealed that economic freedom is a key determinant of investments. A one-unit increase in economic freedom is associated with a \$1281 increase in annual real investment per worker. With regard to foreign direct investment, a one-unit increase in the economic freedom index is associated with a \$546 increase in annual Foreign Direct Investments per worker between 1980 and 2000. Furthermore, other things constant, a one-unit increase in long-term economic freedom index enhances investment as a share of GDP by 2.16 percentage points. Economic freedom not only exerts an impact on the level of investment, it also influences growth by improving the productivity of investment. Investment as a share of GDP exerts a highly significant positive impact on long-term growth. Gwartney and Lawson (2003) therefore concluded that investment is more productive (and thus exerts a stronger impact on growth) when it is undertaken in countries with higher economic freedom ratings.

Gwartney et al. (2004: 216-231) applied the ordinary least squares (OLS) to a sample of 156 to 198 countries during the period 1980-2000. Similar to Gwartney and Lawson (2003), Gwartney et al. (2004) found that a one-unit increase in the long-term economic freedom rating is associated with a 2.16 percentage point increase in investment as a share of GDP. They also found that a one-unit increase in the long-term economic freedom rating is associated with a 1.24 percentage point increase in the annual growth of capital per worker. It can therefore be concluded that better institutions not only increase the level of investment, but also increase productivity.

Pääkkönen (2004: 479) also established a significant positive interaction between economic freedom and investments. Furthermore, investment increase and economic freedom are said to have a jointly positive impact on growth.

The investigation of the freedom-investment relationship has to include the financial sector, which plays an important role in economic growth, especially in developed countries.

Stocker (2005: 583-594) reviewed the existing research on economic freedom and investigated the relationship between equity returns and economic freedom to determine the effect of economic freedom on equity valuation. Stocker (2005) used the discounted cash flow equity-pricing model which includes the following variables: the estimated present value of the equity unit, the expected nominal free cash flow from the firm's operation for period t , and the expected cost of capital in period t . In theory, the equity's present value is positively related to expected cash flows as well as the discount rate. Additionally, Stocker suggested some channels whereby components of the economic freedom index may affect equity prices through their impact on future cash flows and the discount rate. An observation of the correlation coefficients of economic freedom and equity returns between 1972 and 2002 revealed that less economically free countries are more likely to experience a greater increase in economic freedom than countries that already experience higher levels of economic freedom (Stocker 2005: 587). Analysis of the relationship between changes in economic freedom and annualised returns confirmed that larger increases in economic freedom are associated with higher equity returns (Stocker 2005: 589). The observation of economic freedom fluctuations and stock market confirmed that increases in economic freedom (% FREE) are associated with higher equity returns while the absolute level of beginning (BEGF) and ending economic freedom (ENDF) do not affect equity returns (Stocker, 2005:589). The study showed that cross-country equity returns are directly related to increases in economic freedom. For investors seeking superior investment returns, countries likely to experience an increase in economic freedom are favoured for investments (Stocker, 2005: 5).

Moreover, a panel data analysis conducted on 84 countries suggested that foreign direct investment (FDI) affect the economy indirectly via its interaction terms. FDI positively affect economic growth through its interaction with human capital and has a negative impact through its interaction with the technology gap, as technology-absorptive capacity is generally low in developing countries. Low technology-absorptive capacity, exacerbated by

low level of human capital, therefore explains a negative effect of FDI in developing countries (Li and Liu, 2005: 393-407).

Quazi (2007: 335-339) expressed a model to estimate FDI as a function of several variables: Lagged changes of FDI, economic freedom index, return on investment, market size, political instability, human capital, and quality of infrastructure. The Heritage Foundation/Wall Street journal index of economic freedom was included in the model as a proxy for the investment climate. The study employed panel data on a sample of seven East-Asian countries: China, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand, which were observed from 1995 to 2000. A dummy variable for China was then added to investigate a possible bias in FDI flow to China. The regression equations were estimated using the generalised least squares and the random effects model.

In addition to the usual determinants of FDI, Quazi (2007: 340-342) found that the economic freedom index, used as a proxy for the investment climate, is a significant and robust determinant of FDI. Incremental lagged values of FDI, used as a measure of foreign investors' incremental knowledge about investment opportunities significantly increase the current level of FDI in a country. Generally, the study suggested that better domestic investment climate results in larger domestic market size, which induces higher return on investment. Moreover, higher incremental lagged changes in FDI boost the FDI inflow, while political instability causes the contrary.

Similarly, Van Wyk and Lal (2008: 511-522) investigated the potential relationship between economic freedom and FDI. The following variables were included in a linear model: investment (FDI) as the dependant variable, market size, rate of growth of GDP, inflation rate, current account balance, exchange rate, political risk, operational risk, and economic freedom (EF). A comparative cross-country time-series dataset was conducted on 31 countries over the period 1995-2003. The log-linear functional form was then applied to the equation. The original data was modified to enable the use of logarithms, which can only apply to positive numbers. The log formulation was used to simplify the interpretation of the data, as coefficients associated with independent variables measure respective elasticities. The positive significance of the relationship between EF and FDI shows that institutional change, on the macro political, bureaucratic and economic levels improves the investment climate in the observed countries.

Conversely, Pourshahabi et al. (2011: 77) employing panel fixed effects on OECD countries, found that economic freedom has a positive non-significant effect on FDI. The sign of the economic freedom coefficient was equal to theoretical expectation, but the non-significance was explained by the fact that there is not any large economic freedom gap amongst the countries studied that could lead to significant differences of foreign direct investments. An unexpected positive impact of inflation on foreign direct investments was also established. This unexpected positive relationship between inflation and FDI is explained by the low inflation rate in the OECD countries. Low level of inflation in the economy leads to gaining profit for producers that can encourage them to do more investment to achieve more profit. Equally, higher inflation rates associated with more inflation uncertainty would have rebounded to uncertain profit and less investment.

The existing literature generally established a positive relationship between economic freedom and investments. Some authors nonetheless insisted on the fact that the impact of FDI is significant only when the host country exhibits high levels of technology-absorptive capacity and of human capital. For instance, Sørensen and Whitta-Jacobsen (2010: 178) suggest that differences in technology are important to account for income level differences between rich and poor countries. Investment rates in physical and human capital, and total factor productivity are the main determinants of income levels, and constitute the essential channels through which economic freedom impacts positively on investments. The relationship between economic freedom and entrepreneurship will be examined in the following section.

4.4.2 ENTREPRENEURSHIP

Bjørnskov and Foss (2006) contributed to the literature by addressing the impact of economic freedom on entrepreneurial activity and factor productivity as a vector of economic growth. The study examined the relationship between economic freedom and entrepreneurial activity, using a survey on a representative sample of individuals between 18 and 64 years old in 29 countries.

The variables included in the model were: levels of total entrepreneurial activity, types of entrepreneurial activity, GDP per capita. The model controlled for regional variations by including dummy variables for Sub-Saharan Africa, North Africa and the Middle East, Latin America, and the post-communist countries in Eastern Europe and Central Asia.

The Gwartney and Lawson (2005) index of economic freedom was employed in the study. The index consists of five broad components whose effects on economic growth were also analysed: government size, legal quality, sound money, international trade and regulatory quality. The results established a strong negative relationship between economic development and entrepreneurial activity. However, a distinction was made between entrepreneurial opportunity activity and entrepreneurial necessary activity.

The study suggested that development reduces the necessary amount of entrepreneurial activity, but does not essentially reduce the perceived opportunities. Regarding the components of economic freedom, the size of government is strongly positively related to entrepreneurial activity. Access to sound money is also strongly related to entrepreneurial activity. Economic freedom through its effects on entrepreneurship increases competition and production efficiency and therefore improves the economic performance (Bjørnskov and Foss, 2006: 10-22).

The relationship between economic freedom and net business formation was alternatively investigated by Campbell and Rogers (2007) using a panel of the American states covering the period 1990-2001. The dependent variable was net new business formation, as a function of state real income per capita, change in real income per capita, median age of a state's population, ethnic minority percentage of the population, volume of commercial and industrial loans, state population, population's change, intergovernmental revenue per capita, percent change in intergovernmental revenue per capita, and the economic freedom of North America (EFNA) economic freedom index which was then published by the Fraser Institute.

The model was an amalgam drawn from studies on economic freedom and firm formation, and derived essentially from the Solow (1956) growth model, with income and population variables accounting for labour force estimate. Commercial and industrial loans accounted for capital investment. The model was estimated as a pool, using the Ordinary Least squares estimates. The fixed effect model fitting an intercept adjustment for each state is then estimated.

Evidence supported the choice for fixed effects estimation. States with a low level of economic freedom have a lower rate of business formation, as resources are channelled away from wealth creation into securing protection from market forces. Pro-economic freedom policies have a greater impact on business formation, than policies aimed at demographics or lending (Campbell and Rogers, 2007: 26).

The third and fourth sections of this chapter reviewed the literature and provided evidence of a positive impact of economic freedom on economic growth, income equality, investments and entrepreneurship. However, some measure of regulation is necessary to preserve a healthy economic environment. The following section specifies the role of institutions in a free economy.

4.5 IMPORTANCE OF INSTITUTIONS FOR THE ECONOMY

Hall and Jones (1998: 1,2) explain the difference in productivity amongst countries by the disparity in social infrastructure and institutions. Social infrastructure encompasses institutions and government policies that determine the economic environment in which individuals accumulate skills and firms accumulate capital and produce output. A reliable financial system, with safe banks to place one's wealth is essential for savings and investments in a country. The quality of a government's rules and regulations is important for individuals' protection and property rights. Uncorrupted bureaucracy is a natural incentive to investment and entrepreneurial activity. A reliable system of laws and courts results in fair decisions in case of disputes and indirectly promotes productivity. A sound fiscal policy and well-designed tax system is essential for functioning and efficient public services and infrastructure. Finally, a good educational system determines the level of skills accumulation. Effective social infrastructure and institutions therefore increase the output level per worker Hall and Jones (1998: 1,2).

4.6 INSTITUTIONS AND ECONOMIC GROWTH IN A MIXED ECONOMY

Central planning refers to a central point decision-making on what to produce and how to produce without referring to the market as in the market economy. A mixed-economy is therefore made of elements of both the market and central planning. The economic function of government is listed by Kates (2011: 58-64) as:

- Legal and administrative: Law courts and effective enforcement support wealth-creating activity by creating an environment of civic peace and by managing general administration, as governments manage the community's affairs.
- Regulation: Regulation is important to define the right balance between individual and social welfare. Governments regulate the economic activity by reconciling the need of the markets and the health, safety and wellbeing of the society.

- **Infrastructure:** Infrastructure, in terms of the transport, roads or harbours, generally supplied by governments, is the backbone of economic activity.
- **Welfare:** Throughout history governments have always been the institution responsible for assistance to the poor, and those who generally struggle to provide for themselves.
- **Taxation levels and structure:** Tariffs, tolls and taxes collected from the populations constitute an important share of government revenues. The tax level plays a role in encouraging (or not) industry and entrepreneurship.
- **Government businesses:** The most common form of government-owned business is natural monopoly, such as power, post offices, and water in many countries. The management of such natural monopolies by governments is questionable but the idea of private monopolies raises some concerns as well. By way of illustration, public transportation systems sometimes imposed by governments are often inefficient and unprofitable. In fact governments generally have a very basic knowledge of business management and the (public) workers' personal cost of failure is very low. As a result, governments have a very poor record in achieving cost-effective business administration and adding value to the managed resources.
- **Government spending in recession:** Government spending is used as a counterweight to recession in the private sector, to support the exchange process and stimulate the economy. However, unproductive spending does not induce value-adding activity and therefore does not lead to economic growth.

To sum up, governments are necessary to generate infrastructure that promotes economic activity, preserves individuals' rights, and secures social welfare. However, any economic activity (publicly or privately owned) must contribute to the productivity chain by adding value at each stage. Efficiency and productivity should therefore be the main concern of businesses' administration.

4.7 CONCLUSION

The chapter was concerned with examining previous literature on economic freedom and its interaction with economic development and investments. The second section mentioned some stylised facts on growth theory. Most growth models that are used in modern economics are derived from the neo-classical model that expresses economic growth as a function of capital, labour, savings and technology levels. Basic concepts such as capital as physical goods were

expanded to encompass the concept of human capital in forms of education, health and experience. Political institutions and other factors could therefore be added to the list of potential additional growth level determinants although, as stated by Myrdal (1957: 14), economic growth remains a complex of interlocking circular and cumulative changes.

The third section was concerned with a literature review of the relationship between economic freedom and economic growth, income equality and development assistance. Economic freedom in most cases was found to have a significantly positive impact on economic growth and income equality, and to be an efficient alternative to development assistance.

The fourth section reviewed the literature on the relationship between economic freedom, investments and entrepreneurial activity. The existing literature embraces the suggestion that economic freedom fosters investments, entrepreneurial activity and business formation. It is nevertheless important to mention that some studies emphasise the importance of a certain level of human capital and infrastructure in the FDI recipient country. Human capital and the level of infrastructure may therefore constitute an important channel for conducting an improvement in investment in an economically free environment. The fifth section then looked at the importance of institutions in a mixed economy.

This chapter reveals a gap in the literature concerning the contribution of economic freedom to economic growth and investments in Sub-Saharan Africa, especially in Central Africa. However, the literature review did establish the necessary framework for conducting an appropriate empirical analysis. The following chapter entails an empirical analysis of the impact of economic freedom on the CEMAC countries' growth.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 INTRODUCTION

Economic freedom is a concept used to assess the openness of an economy and the ease with which an economic activity can be engaged. A secondary study, which entailed a review of the literature showed a general positive impact of economic freedom on countries' economic growth and investment climate. Research methodologies have gradually evolved towards the use of panel regression analysis to investigate the impact of economic freedom on a group of countries over time. The existing literature outlines the construction of a suitable economic model. Data will be obtained from reliable databases, in order to execute the primary study.

The primary study empirically assesses the model and tests the hypotheses. This chapter aims to underline the methodology used to estimate the impact of economic freedom on economic growth and investments in the CEMAC. Following the literature, data will be analysed using an econometric panel data model. Panel data are a set of cross-sectional units that are observed over time (Hill et al., 2008: 383). The cross-sectional units observed in this case are the CEMAC countries.

This chapter is organised as follows. Firstly, the theoretical framework of the empirical analysis is established. Secondly, the empirical model is described. Sources of data, a priori expectations, description of the variables involved in the model are outlined, and the tests involved in the empirical analysis are described. The following section discusses the theoretical model.

5.2 THEORETICAL MODELS

This section examines theoretical growth and investment models.

5.2.1 THEORETICAL GROWTH MODEL

Neoclassical theories improved the use of mathematical equations in the study of various aspects of the economy. Solow made a major contribution to the neoclassical growth model by creating an aggregative general equilibrium model built around three equations: a constant

returns-to-scale production function; an equation describing capital accumulation on the assumption of a constant rate of savings; and a labour-supply function. Solow's growth rate is determined by the rates of technical progress and population growth. Solow suggested a model of economic growth based on the Cobb-Douglas and augmented with a variable called technology. The neoclassical growth model is therefore based on capital (K), labour (L) and technology (A(t)). Solow's model is formulated as follows (Boianovsky and Hoover (2009: 1-5):

$$Q = A(t)L^{\alpha}K^{1-\alpha} \quad (5.1)$$

The neoclassical model represents a foundation for most empirical analyses on economic freedom and growth. However, as stated by Liu & Premus (2000: 4,5), the propagation of informal (or Barro) regressions is an important progress. Regressions are called informal when a researcher is not constrained by an aggregate production function to explain growth relationships. As a result, the list of possible growth determinants has been extended to include countries' specific characteristic such as the rule of law, investment share, openness and government spending.

The literature has provided several growth models whose specification has evolved over the years. Growth models are no longer limited to the neoclassical Solow specification, but encompass a wide range of variables.

5.2.2 THEORETICAL INVESTMENT MODEL

The classical economic theory suggests that the savings level in a region depends on its income and consumption levels. All savings are invested, therefore investment is equal to savings. The classical theory also suggests that, given the level of income, savings are positively related to the interest rate. Furthermore, demand for capital is determined by the marginal product of capital because investors borrow funds for the purpose of creating future income. The classical theory therefore suggests a negative relationship between capital demand and interest rate (Ghosh, in Keynes, 2006: xxxv)

In equilibrium, the classical theory states that aggregate expenditure is equal to aggregate income. The equilibrium equation can be expressed as follows (Snowdon and Vane, 2005:47).

$$E = C(r) + I(r) = Y \quad (5.2)$$

Where E is the aggregate expenditure, Y is the aggregate output, I is the investment and r is the interest rate.

Aggregate expenditure consists of two components: investment expenditure (from firms) and consumption expenditure (from households). With regard to consumption, the classical model assumes that households do not automatically spend all their income. As a result, some of the income is saved. The relationship between savings, income and consumption can be expressed in the following equation (Snowdon and Vane, 2005:47):

$$Y - C(r) = S(r) \quad (5.3)$$

Where Y , C , r and S respectively represent income, consumption, interest rate and savings.

Combining both equations (5.2) and (5.3) leads to the following equation (Snowdon and Vane, 2005:47):

$$S(r) = I(r) \quad (5.4)$$

The classical theory therefore suggests that investment is mainly function of interest rate and equal to savings. Keynes suggests alternatively that investment expenditure depends on the expected profitability of investment and the interest rate which represents the cost of borrowing funds (Snowdon and Vane, 2005:59).

The following section examines contemporary empirical growth and investment models that will be employed in the study.

5.3 EMPIRICAL MODELS

This section discusses empirical growth and investment models.

5.3.1 EMPIRICAL GROWTH MODEL

The following panel regression will be employed to establish the impact of economic freedom on economic growth in the CEMAC. The growth equation is adapted from Swaleheen and Stansel (2007).

$$GDP_{i,t} = \alpha_0 + \beta X_{i,t} + \alpha_1 EF_{i,t} + \mu_i + \vartheta_{i,t} \quad (5.5)$$

where GDP stands for gross domestic product, X is a set of control variables which consist of factors related to human capital, population and savings rate and inflation, investments and

EF stands for economic freedom. Corruption was excluded to avoid redundancy because the level of corruption in a country is implicitly encompassed within the economic freedom index.

Initially, a simplistic, non- dynamic version of this model will be used. The inclusion of a lagged value of GDP implies the use of a dynamic panel regression and requires a specific methodology that differs from the conventional panel data analysis.

The control variables in the main model are the following: Gross Capital Formation (*GCF*), interest rate (*IR*), gross domestic product rate (*GDPG*), population growth rate (*POP*) and inflation (*INFL*) and a proxy for development assistance (*AID*). Having a single proxy for investments makes it difficult to distinguish between domestic and foreign investments' impacts. The variable *INV* will therefore be replaced by two variables that will account for gross capital formation as a proxy for domestic investment (*GCF*) and another component that will consist of foreign direct investments (*FDI*). One specification of the model can therefore be expressed as follows.

$$GDP_{i,t} = \alpha_0 + \alpha_1 EF_{i,t} + \alpha_2 FDI_{i,t} + \alpha_3 GCF_{i,t} + \alpha_4 AID_{i,t} + \alpha_5 GDPG_{i,t} + \alpha_6 INFL_{i,t} + \alpha_7 IR_{i,t} + \alpha_8 POP_{i,t} + \mu_i + \vartheta_{i,t} \quad (5.6)$$

Where $i = 1, 2, \dots, 6$ (every figure corresponding to a country, and $t = 1, 2, \dots, 14$ with every figure corresponding to a time series comprised between 1995 and 2008).

Therefore, the number of individuals observed in this study will be $N=6$ (for CEMAC is made of six countries), and $T=14$, for each time-series observation between 1995 and 2008. The model is described as long and narrow because the time dimension is greater than the cross-sectional units observed (Hill et al., 2008: 385).

5.3.2 EMPIRICAL INVESTMENT MODEL

The empirical investment model employed in the study is adapted from Van Wyk and Lal (2008). The investment model can therefore be expressed as follows:

$$INV_{i,t} = \alpha_0 + \beta X_{i,t} + \alpha_1 EF_{i,t} + \mu_i + \vartheta_{i,t} \quad (5.7)$$

Where *INV* stands for investment. *X* is a set of control variables which consist of factors related to income, savings rate and inflation; *EF* stands for economic freedom. A distinction will be made between domestic and foreign direct investments. A first model will be

expressed with gross capital formation (as a proxy for domestic investment) as the dependant variable; a second model will be expressed with foreign direct investment as a dependent variable.

A dynamic panel regression will then be expressed, adapted from Quazi (2007). The dynamic model is expressed as follows:

$$INV_{i,t} = \alpha + \beta_1 INV_{i,t-1} + \beta_2 X_{i,t} + \beta_3 EF_{i,t} + \mu_i + \vartheta_{i,t} \quad (5.7)$$

Where *INV* stands for investment. *X* is a set of control variables which consist of factors related to income, human capital, savings rate and inflation and *EF* stands for economic freedom. The next section discusses the variables in detail.

5.4 DESCRIPTION OF THE VARIABLES

The variables selected for the empirical study are therefore listed as follows.

- The Economic Freedom Index (*EF*) data are collected from the Heritage Foundation database. The economic freedom score is an index.
- Foreign direct investments (*FDI*), expressed as a percentage of GDP, are the net inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor (World Bank, 2012).
- Gross capital formation (*GCF*) was formerly known as gross domestic investment. Gross capital formation consists of spending on additions to the fixed assets of the economy plus net changes in the level of inventories. Gross capital formation is expressed in constant 2000 US dollars (World Bank, 2012).
- Net official development assistance (*AID*) consists of expenditure of loans and grants granted to promote economic development and welfare in specific countries. Net official aid refers to aid flows from official donors to disadvantaged countries and is expressed in current US dollars (World Bank, 2012).
- Gross Domestic Product growth rate (*GDPG*), is the percentage growth rate per capita. Per capita implies that Gross Domestic Product is divided by midyear population. (World Bank, 2012).
- Inflation (*INFL*) reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services (World Bank, 2012).

- Real interest rates (*IR*) in percentage and collected from the World Bank database. It is the lending interest rate adjusted for inflation as measured by the Gross Domestic Product deflator (World Bank, 2012).
- Annual population growth rate (*POP*) for year *t* is the exponential rate of growth of midyear population from year *t-1* to *t*, expressed as a percentage (World Bank, 2012).
- Gross domestic product per capita (*GDP*) is the sum of gross value added by a resident producer in the economy plus any product taxes and minus any subsidies not included in the value of the products. GDP per capita is obtained by dividing gross domestic product by midyear population and expressed in constant 2005 international dollars (World Bank, 2012).

5.5 A PRIORI EXPECTATIONS

Following the literature, the following signs are expected from each variable in the growth model.

Table 5.1: A Priori signs of the variables (growth model)

VARIABLE	EF	FDI	GCF	AID	GDPG	INFL	IR	POP
EXPECTED SIGN	+	+	-	+	+	-	-	-

Similarly, the following signs are expected from each variable in the investment model.

Table 5.2: A Priori signs of the variables (Investments model)

VARIABLE	EF	GDP	AID	GDPG	INFL	IR	POP
EXPECTED SIGN	+	+	+	+	-	-	-

The (-) represents an expected negative relationship between the independent variable and economic growth. The (+) sign represents an expected positive relationship between the independent variable and economic growth. Economic freedom (EF), foreign direct investments (FDI), foreign development assistance (AID), growth rate of gross domestic product (GDPG) are expected to have a positive impact on gross domestic product per capita (GDP); whereas gross capital formation (GCF), inflation rate (INFL), interest rate (IR) and

population growth rate (POP) are expected to have a negative effect on gross domestic product per capita (GDP).

5.6 SOURCES OF DATA

CEMAC countries will be observed from 1995 to 2008 because one of the variables, the Heritage Foundation's index of economic freedom, was first released in 1995. The Heritage Foundation ranking of economic freedom will be used as a reference because of its consistency and the simplicity of its components. Countries' data to be included in the econometric model will be collected from the World Bank and the Heritage Foundation databases. The impact of Economic Freedom will be observed in growth and investment in CEMAC countries.

Variables are then tested for stationarity in order to avoid spurious regressions.

5.7 STATIONARITY TEST

A spurious regression is usually characterised by very high R^2 (a high explanatory power) and insignificant estimates by looking at the t-statistics. However, in spurious regressions the results may have no economic meaning at all, because the OLS estimates may not be consistent, and therefore the tests for statistical inference are not valid (Asteriou and Hall, 2011:339). The presence of a unit root in each series in the panel was therefore tested using four stationarity tests: The Levin, Lin and Chu (LLC) test, The Im Pesaran and Shin (IPS) test, the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test.

5.7.1 LEVIN, LIN AND CHU (2002) TEST OF STATIONARITY

Levin, Lin and Chu (LLC) argued that individual unit root tests have limited power and therefore suggest a more powerful panel unit root test more powerful than individual unit root testing for each section. The LLC hypotheses are stipulated as follows.

- H_0 : Each individual series contains a unit root
- H_1 : Each time series is stationary

The LLC test is a three-step procedure that involves performing separate Augmented Dickey-Fuller regressions for each cross-section, estimating ratio of long-run to short run standard deviation, and finally computing the panel test statistics. The LLC test of stationarity is appropriate for moderately sized panels, with N between 10 and 250 and T between 25 and

250. The Monte Carlo Simulations performed by LLC indicate that the normal distribution provides a good approximation to the empirical distribution of the test statistic, even in relatively small samples. However, the test presents some limitations. The LLC test is not applicable if cross-sectional correlation is present. In addition, the assumption that All Cross-sections have or do not have unit roots is restrictive (Baltagi, 2008: 275-277).

5.7.2 IM, PESARAN AND SHIN TEST (2003)

The LLC test is restrictive because it requires a correlation coefficient ρ homogenous across cross-sections. Im, Pesaran and Shin (IPS thereafter) suggest an alternative hypothesis based on averaging individual unit root test statistics (Baltagi, 2008: 278).

- H_0 : Each series in the panel contains a unit root
- H_1 : Some individual series have unit roots

The IPS hypotheses can be rewritten as follows.

- H_0 : $\rho_i = 0$ for all i
- H_1 : $\rho_i < 0$ for $i = 1, 2, \dots, N_1$; $\rho_i = 0$ for $i = N_1 + 1, \dots, N$

The IPS requires the fraction of the individual time series that are non-stationary to be nonzero, this condition is necessary for the consistency of the panel unit root test. The necessary condition can be expressed as follows (Baltagi, 2008: 278).

$$\lim_{N \rightarrow \infty} (N_1/N) = \delta \text{ where } 0 < \delta \leq 1$$

5.7.3 THE AUGMENTED DICKEY-FULLER (ADF) AND PHILIPS-PERRON (PP) TESTS OF STATIONARITY

The ADF test is an extension of the Dickey-Fuller test of stationarity that includes sufficient lag terms to capture the full dynamic nature of a process to ensure that residual terms are not auto correlated. The null hypothesis in the ADF test, as well as the PP test is the presence of a unit root in the series or non stationarity (Hill et al., 2012: 485).

After establishing that the series is trustworthy and will not lead to spurious regressions, it is necessary to establish which one of the fixed effect methods or random effects method will be appropriate for the study.

5.8 POOLED, FIXED AND RANDOM EFFECTS

Linear panel data can be estimated using three methods: The common constant method also called pool OLS method, the fixed effects method, and the random effects method (Asteriou and Hall, 2011: 417).

5.8.1 POOLED MODEL

Each method will be developed below:

A model is pooled when data on different individuals are simply pooled together with no provision for individual differences (Hill et al., 2012: 540). For a model with two explanatory variables x_2 and x_3 , a pooled model can be written as follows.

$$y_{it} = \beta_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + e_{it} \quad (5.4)$$

where the subscript i denotes the i th individual and t denotes the t th time period. y_{it} is the t th observation for the i th individual. Coefficients β_1 , β_2 and β_3 do not have i or t subscripts and are therefore assumed to be constant for all individuals in all time periods and does not allow for possible individual heterogeneity. The data for different individuals are pooled together and the equation is estimated using least squares. The least squares are referred to as pooled least squares, when it is applied to a pool model (Hill et al., 2012: 540-541).

5.8.2 FIXED EFFECT MODEL

The fixed effect model can be written as follows:

$$y_{it} = \beta_{1i} + \beta_{2i} x_{2it} + \beta_{3i} x_{3it} + e_{it} \quad (5.5)$$

An i subscript is added to each of the subscripts implying that the coefficients β_1 , β_2 and β_3 can be different for every individual. Fixed effects models are not suitable for short and wide panels with a few time series observations and a great number of individuals. A popular simplification exists for short and wide panels, whereby slope coefficients (β_{2i} and β_{3i} in that case) are constant across individuals, the intercept β_{1i} alone is different for different individuals. All behavioural differences between individuals are referred to as individual heterogeneity and are captured by the intercept. Individual intercepts therefore capture for individual specific (time-invariant) characteristics and are therefore called fixed effects (Hill et al., 2012: 541).

5.8.3 RANDOM EFFECTS MODEL

Similar to the fixed effects, all the individual differences are captured by the intercept parameters. However, it is also reckoned that individuals in the sample have been randomly selected; therefore individual differences are treated as random rather than fixed. Random individual differences are included in the model by specifying an intercept parameter β_{1i} that consists of a fixed part that represents the population average, and random individual differences from the population average. The equation can therefore be specified as follows (Hill et al., 2012:551).

$$y_{it} = \beta_{1i} + \beta_2 x_{2it} + \beta_3 x_{3it} + e_{it} \quad (5.6)$$

$$y_{it} = (\bar{\beta}_1 + \mu_i) + \beta_2 x_{2it} + \beta_3 x_{3it} + e_{it} \quad (5.7)$$

The equation can be rearranged as follows.

$$y_{it} = \bar{\beta}_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + e_{it} + \mu_i \quad (5.8)$$

$$y_{it} = \bar{\beta}_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + \vartheta_{it} \quad (5.9)$$

$\bar{\beta}_1$ in the equation is a fixed population parameter and μ_i is a random effect. In the rearranged equation $\bar{\beta}_1$ is the intercept parameter and the error term ϑ_{it} consists of a component μ_i that represents a random individual effect and component e_{it} which is the usual regression random error (Hill et al., 2012: 552).

The choice of the method for the study is determined by the Hausman test. Panel data analysis is important because it helps to deal with complex issues that cannot be analysed using a simple regression. A major advantage of panel data is the increasing precision in estimation, due to a greater number of observations, as a result of pooling several time series of data for each individual (Cameron and Trivedi, nd.: 697).

Hsiao (2003: 1-8), listed some of the benefits of panel data:

- Panel data suggest that individuals studied are heterogeneous. Time-series models and cross sectional analyses do not control this heterogeneity and run the risk of obtaining biased results.
- Panel data provide a larger number of data points, more degrees of freedom, a greater variability and a better efficiency. Multicollinearity for instance, is an important issue encountered in time-series analyses.

- Panel data are able to study the dynamics of adjustment, and thus can provide some indications on the adjustment of variables to policy changes.
- Panel data are useful in constructing more complex models than simple cross sectional and time-series data.

However, Baltagi (2008: 8-10) highlights several limitations panel data are subject to, such as design and data collection problems due to complete coverage of the population, cooperation of the population being interviewed, accuracy of the information collected from the population that can result in measurement errors. Short time series dimensions can also be an issue in the sense that asymptotic arguments rely on the number of individuals tending to infinity. Cross section dependence is an issue encountered by panel data, as macro panels on regions with long time series that do not account for cross-country dependence may lead to misleading inference. In simple terms, Asteriou and Hall (2011:416) state if the pooling assumption is not correct, which means parameters are not the same across individuals, panel data estimators are no longer expected to give a representative average estimate of individual parameters, as the panel in that case is heterogeneous.

Another advantage is the potentially consistent estimation of the fixed effects model, which allows for unobserved individual heterogeneity that may be correlated with repressors. Panel data are handy in this case because unobserved heterogeneity usually leads to omitted variable bias, which is generally corrected in the single cross-section case with instrumental variables.

A dynamic model is used when the past value of the explained variable is an explanatory variable in the model. A dynamic panel data analysis method in the form of the generalised method of moments (GMM) will be employed in the study to account for the initial level of income.

5.9 DYNAMIC PANEL DATA ANALYSIS: THE GENERALISED METHOD OF MOMENTS

Dynamic panel data are characterised by the presence of a lagged dependant variable among the regressors (Baltagi, 2008: 147). Dynamic panels can be expressed as follows.

$$GDP_{i,t} = \delta GDP_{i,t-1} + X_{i,t} + U_{i,t} \quad (5.10)$$

Where $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$. GDP accounts for gross domestic product and X is a set of control variables.

It is also assumed that $U_{i,t}$ follows a one way component model and can therefore be written as follows

$$U_{i,t} = \mu_{i,t} + v_{i,t} \quad (5.11)$$

Introducing a lagged variable in the model gives room for the autocorrelation problem in the model because $GDP_{i,t}$ is a function of $\mu_{i,t}$, therefore the lagged value of the regressand used as a regressor ($GDP_{i,t-1}$) is also correlated to $\mu_{i,t}$. As a result of the autocorrelation problem, the least squares estimator is biased and inconsistent for both fixed and random effects estimations. The instrumental variables (IV) estimation, developed by Anderson and Hsiao in 1982, is an alternative method that leads to consistent but not necessarily efficient estimates of the parameters in the model. Arellano and Bond in 1991 then proposed the Generalised Method of Moments (GMM hereafter) procedure, to be more efficient than the instrumental variable estimation (Baltagi, 2008: 148).

5.10 CAUSALITY STUDY

Regression analysis is concerned with interdependence between variables and does not necessarily imply causation. Causality between variables, as well as the direction of influence can be investigated using a Granger-causality test. The Granger causality test assumes that the information relevant to predicting variables is contained in the variables' time series. Applying the Granger test to the current study involves estimating the following pair of regression (Gujarati, 2003: 697).

$$GDP_t = \sum_{i=1}^n \alpha_i EF_{t-i} + \sum_{j=1}^n \beta_j GDP_{t-j} + \mu_{1t} \quad (5.12)$$

$$EF_t = \sum_{i=1}^n \lambda_i GDP_{t-i} + \sum_{j=1}^n \delta_j EF_{t-j} + \mu_{2t} \quad (5.13)$$

where GDP and EF are the gross domestic product and economic freedom respectively, the disturbances μ_{1t} and μ_{2t} are assumed to be uncorrelated. Bilateral causality between economic freedom and both dependent variables (economic growth and economic freedom) will eventually be tested using a Granger causality test.

Pairwise or bilateral causality has been tested on the CEMAC panel observed between 1995 and 2008. Bilateral causality has been observed between both variables using the following null hypotheses:

*{GDP does not Granger cause EF
{EF does not Granger cause GDP*

The above sections have detailed the principles that support the methods employed in the study. Results of the investigation of the impact of economic freedom on economic growth in the Economic and Monetary Community of Central Africa (CEMAC) are discussed in the following section.

5.11 CONCLUSION

This chapter was concerned with the methodology the study will employ to estimate the impact of economic freedom on economic growth and investments. The first section was an introduction; the second section described the theoretical model that supports the construction of suitable growth and investment model for the study.

The third section defined the empirical models. The literature outlined the main variables used in growth and investment models. Sources and definitions of the variables employed in both models were detailed, as well as a priori signs of expected coefficients. The data are collected from the World Bank and the Heritage Foundation databases. Models will be expressed in different specifications comprising different sets of the aforementioned variables in order to draw accurate conclusions from the estimation process.

The different panel regression methods that can be employed in the study, namely pooled regressions, the fixed effects method and the random effects were then discussed. The formal test to ascertain the appropriate formulation for the study is determined by the Hausman test. Dynamic panel analysis, namely the generalised method of moments was then discussed. The necessity of using a dynamic panel regression is justified by the importance of the initial value of the dependant variable in the modelling process.

Further on, the causality study was discussed. Investigating whether economic freedom causes economic growth and investments is justified by the fact that correlation does not necessarily imply causation. A causal relationship between economic freedom and economic growth implies that economic freedom precedes economic growth.

The next chapter reveals the results of the panel estimations.

CHAPTER 6

EMPIRICAL RESULTS

6.1 INTRODUCTION

The existing literature reveals that countries which embrace economic freedom experience better economic growth than others. By way of illustration, the sub-Saharan Africa's top five countries on the Heritage Foundation economic freedom index rankings (Mauritius, Botswana, Cape Verde, Namibia and South Africa) enjoy a per capita GDP that is six times greater than that of the bottom five (Zimbabwe, Eritrea, Democratic Republic of Congo, Republic of Congo and Comoros) (Heritage Foundation, 2011). Studies in the previous chapter provide a useful framework for an empirical analysis.

However, the ideas of economic freedom and openness (that are parenthetically interrelated) have been welcomed with difficulty by developing countries. Tariffs represent up to half of total tax revenue in developing countries; therefore reducing tax revenues can severely aggravate debt problems because of increased borrowing in financial markets (Sundaram and Von Arnim, 2008:15). Establishing a positive impact of economic freedom on CEMAC countries may contribute towards determining a means by which poverty can be erased from the region. It would also contribute to the improvement of the integration process in Central Africa. As economic freedom provides opportunity for wealth creation activities, a positive impact on growth should also reflect on employments rates and income levels.

The broad objective of this chapter is to establish the impact of economic freedom on growth in the Economic and Monetary Community of Central Africa (CEMAC) by conducting an empirical analysis on the relationship between economic freedom and economic growth in the CEMAC. The first section summarises the descriptive statistics of the data. The second and third section report the stationarity and Hausman tests' results, respectively. The impact of economic freedom on gross domestic product per capita is reported in the fourth section. The fifth section reports the impact of economic freedom on foreign direct investments in the CEMAC.

6.2 DESCRIPTIVE STATISTICS

Descriptive statistics of the data are presented in Table 5.3, namely: the mean, median, maximum and minimum values, standard deviation, skewness, kurtosis. Jarque-Bera probability, sum of the series, sum square deviations and the number of observation for each variable are also represented in Table 6.1.

Table 6.1 Descriptive statistics of the data

	EF	FDI	GCF	GDP	GDPG	INFL	IR	POP	AID
Mean	51.32	6.35	24.95	1998.89	6.37	2.99	12.42	2.56	338.41
Median	52.30	2.47	22.52	979.39	3.80	3.09	14.47	2.46	164.40
Maximum	60.50	54.19	71.89	7995.05	61.90	12.43	48.39	3.61	1936.12
Minimum	40.30	-8.59	6.11	168.45	-8.93	-8.97	-17.51	1.58	-14.75
Std. Dev.	5.26	11.50	13.63	2135.76	10.66	3.96	12.19	0.54	435.15
Skewness	-0.16	2.25	1.55	1.03	3.06	-0.49	-0.05	0.11	2.20
Kurtosis	2.10	8.62	5.44	2.85	14.83	4.18	4.29	2.22	7.85
Jarque-Bera	2.32	131.87	39.61	10.87	450.86	5.95	4.25	1.68	109.01
Probability	0.31	0.00	0.00	0.00	0.00	0.05	0.12	0.43	0.00
Sum	3130.70	387.25	1521.75	121932.60	388.34	182.12	757.51	156.10	20642.74
Sum Sq. Dev.	1661.33	7939.63	11144.63	2.74×10^8	6816.63	939.38	8917.17	17.25	1.13×10^7
Observations	61	61	61	61	61	61	61	61	61

Table 6.1 reports descriptive statistics of the data. It is important to notice the opposite signs of minimum and maximum values of foreign direct investment (FDI), GDP growth rate (GDPG), inflation (INFL), interest rate (IR) and development assistance (AID).

6.3 STATIONARITY TESTS

Levin, Lin and Chu (LLC), Im, Pesaran and Shin (IPS), Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) stationarity tests were conducted and the output is reported in Table 6.2.

Table 6.2: Pool unit root test summary

Method	Statistic	P-values	Cross- sections	Observations
Levin, Lin & Chu t^*	-3.51	0.0002	8	620
Im, Pesaran and Shin W-stat	-9.03	0.0000	8	620
ADF - Fisher Chi-square	122.86	0.0000	8	620
PP - Fisher Chi-square	131.81	0.0000	8	628

Stationarity tests were conducted on pooled variables for all- time series involved in the raw model. Individual effects are considered as exogenous variables. The lag length selection is based on the Schwarz Information Criterion. Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. All tests are based on the null hypothesis of a unit root which is rejected in this case at one per cent, five per cent and 10 per cent levels, since the p-value associated with each test is respectively lower than 0.01, 0.05 and 0.1. The hypothesis of the presence of a unit root in the time series studied is therefore rejected. Pooled series are stationary.

6.4 HAUSMAN TEST

The Hausman test was conducted to determine which one of the pooled, fixed or random effects is appropriate for the study. The results are reported in the following table.

Table 6.3: Hausman test summary

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.639863	4	0.0309

The null hypothesis of correlation between explanatory variables and random effects is rejected at five percent significance level, therefore the fixed effects method is appropriate for the study.

6.5 ECONOMIC FREEDOM AND ECONOMIC GROWTH

A panel data analysis was used to investigate the impact of economic freedom on economic growth in the CEMAC. The model can be expressed in the following simplistic form.

$$GDP_{i,t} = \alpha_i + \beta_{ki}X_{i,t} + U_{i,t} \quad (6.1)$$

where the dependant variable is gross domestic product per capita (*GDP*) *i* subscript is added to each of the subscripts implying that the coefficients β_k can be different for every individual. *X* is a set of control variables that consist of economic freedom (*EF*), foreign direct investments (*FDI*), gross capital formation (*GCF*), GDP growth rate (*GDPG*), inflation rate (*INFL*), population growth rate (*POP*), foreign development assistance (*AID*) and interest rate (*IR*). The results are presented below.

6.5.1 THE FIXED EFFECTS MODEL APPLIED TO A LINEAR MODEL

The Hausman test Determined that the Fixed effects methodology is the appropriate method to apply to the model. Five expressions of the regression in levels are reported in Table 6.4.

Table 6.4: fixed effects models (dependent variable GDP)

MODELS	(1)	(2)	(3)	(4)	(5)
EF	113.10*** (3.57)	98.54*** (3.29)	124.51*** (3.60)	119.85*** (3.53)	77.05*** (2.91)
FDI	2.91 (0.22)		-29.45*** (-2.85)	-22.88** (-2.14)	-6.67 (-0.55)
GCF	-37.2** (2.57)	-41.79*** (-4.24)			-35.53** (-2.53)
GDPG	-3.69 (-0.34)			-18.46 (-1.51)	
INFL	8.51 (0.37)	17.72 (0.81)	40.52 (1.61)	37.43 (1.52)	
IR	3.28 (0.45)				
POP	577.09 (1.36)	348.71 (0.90)	-39.81 (-0.09)		408.76 (1.08)
AID	-0.19 (-0.69)		-0.26 (-0.78)	-0.21 (-0.62)	
C	-4346.50** (-2.22)	-2895.61 (-1.56)	-4078.44* (-1.89)	-3868.75*** (-2.21)	-2006.03 (-1.15)
R-squared	0.93	0.92	0.90	0.90	0.92
Adjusted R-squared	0.919	0.917	0.882	0.887	0.915

Note: the t-statistics are given in parentheses. ***, **, and * respectively denote one, five and ten percent significance.

Table 6.4 presents results of five specifications with *GDP* in levels as a dependant variable. Regressions are computed using the OLS fixed effects techniques. The overall fit of the model is satisfactory as shown by the determination coefficient R-squared that ranges between 0.90 and 0.93.

With respect to individual effects, economic freedom is statistically significant and positive in all specifications of the model. The impact of a unit increase in the economic freedom index on *GDP* per capita, ranges between 77.05 and 124.51 dollars increase on *GDP* per capita, *ceteris paribus*.

With regard to foreign direct investments, results provide little evidence to support the theory. Coefficients exhibit different signs depending on the formulation and the variable is not significant in all specifications. However, values of the significant coefficients are negative, which translates that a one unit increase in foreign direct investments decreases *GDP* by up to 29.45. Part of the explanation for the unexpected negative coefficients is that parts of the dataset showed negative values of foreign direct investments.

Gross capital formation (*GCF*), which represents an expense on fixed assets in the economy, exhibits statistically negative and significant coefficients in all specifications. Hence a dollar increase in gross capital formation leads to a decrease in *GDP* per capita comprised between 31.29 and 41.79 dollars.

With regard to *GDP* growth rate (*GDPG*), an unexpected negative sign of the coefficients can be explained by some negative values of *GDP* growth rate provided in the dataset. The variable is not significant throughout specification. A plausible explanation would be the redundancy of the variable *GDP* growth rate in a model that attempts to explain changes in growth per capita values.

Inflation (*INFL*), interest rates (*IR*) population growth rates (*POP*) and foreign development assistance (*AID*) were found to be insignificant in all specifications.

A comparison of adjusted determination coefficients (adjusted R-squared) reveals that the first specification of the model is the best. It can therefore be concluded that one increase in the economic freedom index increases economic growth by 113.10 dollars.

6.5.2 THE FIXED EFFECTS MODEL APPLIED TO A LOG-LINEAR MODEL

In an attempt to investigate a possible misspecification, the model was estimated again, this time using a log-linear specification. Results are reported in Table 6.5.

Table 6.5: Fixed effects log-linear model (dependent variable GDP)

MODELS	(1)	(2)	(3)	(4)	(5)
EF	0.039*** (5.422)	0.034*** (4.926)	0.032*** (4.577)	0.039*** (5.127)	0.039*** (5.361)
FDI	-0.000 (-0.260)		-0.007*** (-3.376)	-0.007*** (-3.018)	-0.007*** (-3.504)
GCF	-0.009*** (-2.863)	-0.009*** (-4.232)			
GDPG	0.003 (1.576)			-0.000 (-0.255)	
INFL	0.002 (0.568)	0.007 (1.540)		0.011** (2.086)	0.011** (2.136)
IR	-0.000 (-0.167)				
POP	0.046 (0.485)	-0.028 (-0.333)			
AID	-0.000 (-0.373)	0.000 (0.052)	-0.000 (-0.022)	-0.000 (-0.178)	
C	5.019*** (11.242)	5.455*** (12.909)	5.356*** (15.139)	4.930*** (12.353)	4.933*** (12.854)
R ²	0.99	0.98	0.98	0.98	0.98
Adjusted R-squared	0.99	0.986	0.979	0.98	0.981

Note: the t-statistics are given in parentheses. ***, **, and * respectively denote one, five and ten percent significance.

Table 6.5 reveals results of five regressions with GDP in logarithm as a dependant variable in all specifications. Regressions are computed using the OLS fixed effects technique. The

overall fit of the model is satisfactory as shown by the determination coefficient R-squared that ranges between 0.98 and 0.99.

With respect to individual effects, economic freedom is statistically significant and positive in all specifications of the model. The impact of a unit increase in the economic freedom index on *GDP* per capita ranges between 0.032 and 0.039 percentage points increase on *GDP* per capita, *ceteris paribus*.

With regard to foreign direct investments, coefficients consistently exhibit negative signs depending on the formulation. The variable is not significant in all specifications. Significant values of *FDI* coefficients imply that that a one unit increase in foreign direct investments leads to a decrease in *GDP* comprised of between 0.002 and 0.007 percentage points. Part of the explanation for such inconclusive results is that economic parts of the dataset showed negative values for foreign direct investments. Otherwise the coefficients would reveal that the presence of economic freedom in growth models applied to the CEMAC depreciates the effect of foreign direct investments.

Gross capital formation (*GCF*) exhibits statistically negative and significant coefficients in all specifications. It can therefore be concluded that a one unit increase in gross capital formation leads to a decrease in *GDP* per capita comprised between 0.00 and 0.0009 percentage points.

With regard to inflation (*INFL*), an unexpected positive sign of the coefficients can be explained by some negative values of *GDP* growth rate provided in the dataset. The variable is significant in two specifications out of four. Statistical variables reveal that an increase in one unit of inflation measure leads to an increase in *GDP* of 0.01 percentage points.

GDP growth rate (*GDPG*), interest rates (*IR*), population growth rates (*POP*) and foreign development assistance (*AID*) were found to be insignificant in all specifications.

A comparison of the adjusted determination coefficients (adjusted R-squared) reveals that the first specification of the model is the best. It can therefore be concluded that a one unit increase in the economic freedom index increases economic growth by 0.039 percentage points.

6.5.3 THE GENERALISED METHOD OF MOMENTS (GMM) APPLIED TO A LINEAR MODEL

A different specification of the model allows the violation of the strict exogeneity of variables assumption the lagged value of gross domestic product per capita (*GDP*) to be considered as a regressor in the model. The model can therefore be expressed as follows.

$$GDP_{i,t} = \delta GDP_{i,t-1} + X_{i,t} + U_{i,t} \quad (6.2)$$

where $i=1, 2, \dots, N$ and $t=1, 2, \dots, T$. *GDP* accounts for gross domestic product. The dependant variable is gross domestic product per capita (*GDP*). *X* is a set of control variables that consist of lagged value of *GDP* ($GDP_{i,t-1}$) economic freedom (*EF*), foreign direct investments (*FDI*), gross capital formation (*GCF*), *GDP* growth rate (*GDPG*), population growth rate (*POP*) and foreign development assistance (*AID*). The variables interest rate (*IR*) and inflation (*INFL*) have been dropped because they showed little or no significance in the previous specifications. Results are reported in Table 6.6.

Table 6.6: Generalised method of moments (dependent variable *GDP*)

MODELS	1	2	3	4	5
<i>GDP</i> (-1)	1.12*** (25.72)	0.99*** (28.83)	0.88*** (8.06)	1.12*** (25.72)	0.90*** (816.50)
<i>EF</i>	4.15* (1.79)	12.74** (2.60)	23.41*** (3.95)	4.15* (1.79)	20.06*** (8.50)
<i>FDI</i>		4.60 (1.36)	2.12 (0.25)		
<i>GCF</i>			-6.31*** (-2.94)		
<i>GDPG</i>	23.05*** (177.58)			23.05*** (177.58)	
<i>INFL</i>					
<i>IR</i>					
<i>POP</i>					-372.37*** (-19.26)
<i>AID</i>	-0.01 (-0.25)			-0.01 (-0.25)	
J-stat	1.32	3.454	3.435	1.32	3.286

Note: the t-statistics are given in parentheses. ***, **, and * respectively denote one, five and 10 percent significance.

Table 6.6 reveals results of five with *GDP* in levels as a dependant variable in all specifications. Regressions are computed using the generalised method of moments (GMM) methodology.

With respect to individual effects, the lagged value of *GDP* which is also a proxy for initial level of income is a statistically significant and positive in all specifications of the model. A unit increase in the initial value of *GDP* increases current *GDP* per capita from 0.88 to 1.12 units, *ceteris paribus*.

Economic freedom is a statistically significant and positive in all specifications of the model. A one a unit increase in the economic freedom index increases *GDP* per capita from 4.15 to 23.41 dollars, *ceteris paribus*.

Foreign direct investments and foreign aid coefficients were not found to be significant using the GMM methodology.

Gross capital formation (*GCF*) exhibits statistically a negative and significant coefficient. It can therefore be concluded that a one dollar increase in gross capital formation leads to a 6.31 dollar decrease in *GDP* per capita - again because *GCF* represents an expense on fixed assets in the economy

Contrary to the values obtained using the OLS fixed effects, *GDP* growth rate (*GDPG*) is significant in all specifications when GMM methodology is employed. A one percentage point increase *GDPG* leads to a 23.05 dollar increase in *GDP* per capita.

In contrast to the results obtained using the OLS fixed effects method, population rate is statistically significant and exhibits the expected negative sign when GMM is used. A percentage point increase in the population growth rate leads to a 147.43 dollar decrease in *GDP* per capita. Population growth therefore has a negative impact on growth levels.

The GMM displays more consistent estimates overall. One of its advantages is to correct for autocorrelation. The method allows for the use of lagged values of *GDP* (the initial growth level) which is an important component of a growth model that cannot be investigated using OLS fixed effects because of its dynamic nature.

The second model is the best because it has the highest J-statistic. It can therefore be concluded that a one unit increase in the economic freedom index increases economic growth by 12.74 dollars.

6.5.4 GRANGER-CAUSALITY TEST APPLIED TO A LINEAR MODEL

The linear relationship between economic freedom and economic growth has been established using panel data analysis. The dynamic aspect of the regression has been studied using the general method of moments (GMM) and the impact of lagged values of the dependant variable has been revealed. To appreciate the effect of lagged values of economic freedom on *GDP*, as well as the lagged *GDP*'s impact on economic freedom, the Granger-Causality test can be undertaken. Results are provided Table 6.7.

Table 6.7: Granger - Causality test results

Null Hypothesis	Number of observations	F-Statistic	P-values
<i>GDP</i> does not Granger Cause <i>EF</i>	58	1.04	0.35
<i>EF</i> does not Granger Cause <i>GDP</i>		2.76	0.07

The null hypothesis is rejected for p-values lower than 0.1 corresponding to 10 percent significance level. Rejection of the null hypothesis implies that a variable X, Granger-causes a variable Y, and therefore X precedes Y, or lagged values of X can be used to predict Y.

In this case, *GDP* does not Granger-cause *EF* as the null hypothesis is not rejected for the lag length 2, but *EF* Granger- causes *GDP* at 10 percent significance level. In other words, economic freedom precedes *GDP*, but *GDP* does not precede economic freedom.

6.6 IMPACT OF ECONOMIC FREEDOM ON DOMESTIC INVESTMENTS IN THE CEMAC

The fixed effect method is applied to a new model specification with Gross Capital Formation (*GCF*) used as a regressand. The model can be expressed as follows

$$GCF_{i,t} = \alpha_i + \beta_{ki}X_{i,t} + U_{i,t} \quad (6.3)$$

The subscript *i* implies that the coefficients β_k can be different for every individual. *X* is a set of control variables that consist of economic freedom (*EF*), Foreign Direct Investments (*FDI*), *GDP* growth rate (*GDPG*), inflation rate (*INFL*), population growth rate (*POP*), foreign development assistance (*AID*) and interest rate (*IR*).

6.6.1 THE FIXED EFFECT METHOD APPLIED TO A LINEAR MODEL

The impact of the selected controlled variables on Gross Capital Formation (GCF), used as a proxy for domestic investment is investigated using fixed effects panel data analysis. Regression results are represented in Table 6.8.

Table 6.8: Fixed effects method (Dependent variable GCF)

MODELS	(1)	(2)	(3)	(4)	(5)
GDP	-0.003** (-2.57)	-0.002** (-2.60)	-0.002*** (-2.68)	-0.005*** (-4.24)	-0.006*** (-4.21)
GDPG	0.039 (0.38)	0.046 (0.46)			
INFL	-0.003 (-0.01)	0.056 (0.28)	0.049 (0.25)	0.206 (0.799)	0.343 (1.26)
IR	0.025 (0.38)				
POP	9.90** (2.61)	6.842** (2.01)	7.042** (2.12)	13.167*** (3.10)	
FDI	0.55*** (6.08)	0.542*** (5.99)	0.557*** (6.66)		
EF	0.68** (2.14)	0.522* (1.74)	0.508* (1.80)	0.699* (1.87)	0.675* (1.68)
AID	-0.0006 (-0.25)	-0.0006 (-0.23)			
C	-32.858 (-1.75)	-17.07 (-0.99)	-16.799 (-1.01)	-33.349 (-1.52)	1.692 (0.08)
R ²	0.86	0.84	0.84	0.71	0.66
Ajusted	0.825	0.807	0.813	0.669	0.618
R-squared					

Note: the t-statistics are given in parentheses. ***, **, and * respectively denote one, five and 10 percent percent significance.

Table 6.8 reveals results of five regressions with *GCF* in levels as a dependant variable. Regressions are computed using the OLS fixed effects techniques. The overall fit of the model is satisfactory as shown by the determination R-squared that ranges between 0.66 and 0.86.

With respect to individual effects, economic freedom is statistically significant and positive in all specifications of the model, thereby implying that a unit increase in the economic freedom index increases domestic investments by values of between 0.50 and 0.69 dollars in the CEMAC.

Foreign direct investments (FDI) exhibit statistically positive and significant coefficients in all specifications. Hence, an increase in one unit of FDI leads to an increase in GCF of between 0.18 and 0.82 dollars in GCF.

Population growth rate (POP) exhibits statistically positive and significant coefficients in all specifications. Hence a percentage point increase in population growth rate leads to an increase in of between 6.84 and 13.16 dollars in GCF.

GDP per capita (*GDP*) is negative and statistically significant in a single model specification, implying that GDP growth rate has a negative impact on GCF. A one dollar increase in *GDP* decreases GCF in the CEMAC by 0.002 to 0.006 dollars.

Inflation (*INFL*), interest rates (*IR*), GDP growth rate (*GDPG*) were found to be insignificant in all specifications.

The comparison of adjusted determination coefficients (adjusted R-squared) reveals that the first specification of the model is the best. It can therefore be concluded that a one unit increase in the economic freedom index increases gross capital formation by 0.68 dollars.

Pairwise causality was then tested between economic freedom and gross capital formation.

6.6.2 GRANGER-CAUSALITY TEST APPLIED TO A LINEAR MODEL

The null hypothesis is rejected for p-values lower than 0.1 corresponding to 10 percent significance level. Rejection of the null hypothesis implies that a variable *X* Granger-causes a variable *Y*.

Table 6.9: Granger - Causality test results

Null Hypothesis:	Obs	F-Statistic	Prob.
GCF does not Granger Cause EF	26	1.82548	0.1788
EF does not Granger Cause GCF		2.42247	0.0916

Table 6.9 shows that *GCF* does not Granger- cause *EF* as the null hypothesis is not rejected at the lag length 7, but *EF* Granger- causes *GCF* at 10 percent significance level. In other words, economic freedom precedes domestic investments, but the opposite is not true.

6.7 IMPACT OF ECONOMIC FREEDOM ON FOREIGN DIRECT INVESTMENTS IN THE CEMAC

The fixed effect method is applied to a new model specification with foreign direct investments (*FDI*) used as a regress and. The model can be expressed as follows

$$FDI_{i,t} = \alpha_i + \beta_{ki}X_{i,t} + U_{i,t} \quad (6.4)$$

The subscript *i* implies that the coefficients β_k can be different for every individual. *X* is a set of control variables that consist of economic freedom (*EF*), gross capital formation (*GCF*), GDP growth rate (*GDPG*), inflation rate (*INFL*), population growth rate (*POP*), foreign development assistance (*AID*) and interest rate (*IR*).

6.7.1 THE FIXED EFFECT METHOD APPLIED TO A LINEAR MODEL

The impact of the selected controlled variables on foreign direct investments (*FDI*) is investigated using fixed effects panel data analysis. Regression results are represented in Table 6.10.

Table 6.10: Fixed effects method (Dependent variable FDI)

MODELS	(1)	(2)	(3)	(4)	(5)
EF	-0.04 (-0.16)	-0.10 (-0.31)	-0.04 (-0.14)	-0.31 (-0.97)	-0.35 (-1.05)
GCF	0.76*** (6.89)	0.18*** (0.80)	0.82*** (8.49)	0.75*** (7.04)	0.82*** (7.41)
GDPG	0.19* (1.75)	0.18 (1.51)		0.13 (1.19)	
INFL				0.11 (0.46)	0.16 (0.67)
IR		-0.02 (-0.34)		0.05 (0.65)	0.06 (0.89)
POP	-1.15 (-0.28)	-3.55 (-0.78)			-2.86 (-0.61)
AID		-0.001 (-0.096)			
C	-8.55 (-0.46)	0.18 (0.00)			
R ²	0.67	0.69	0.65	0.71	0.71
Adjusted R-squared	0.626	0.632	0.619	0.662	0.655

Note: the t-statistics are given in parentheses. ***, **, and * respectively denote one, five and 10 percent percent significance.

Table 6.10 reveals results of five regressions with *FDI* in levels as a dependant variable. Regressions are computed using the OLS fixed effects techniques. The overall fit of the model is satisfactory as shown by the determination R-squared that ranges between 0.67 and 0.71.

With respect to individual effects, economic freedom is unexpectedly statistically insignificant and negative in all specifications of the model, thereby implying that economic freedom does not have a significant impact on foreign direct investments in the CEMAC.

Gross capital formation (*GCF*) exhibits statistically positive and significant coefficients in all specifications. Hence a one dollar increase in gross capital formation leads to an increase of between 0.18 and 0.82 percentage points in *FDI*.

GDP growth rate (*GDPG*) is positive and statistically significant in a single model specification, implying that GDP growth rate is either insignificant or has a positive impact on *FDI*. In the latter case, one percentage point increase in *GDPG* leads to a 0.19 percentage point increase in *FDI*.

Inflation (*INFL*), interest rates (*IR*), population growth rates (*POP*) and foreign development assistance (*AID*) were found insignificant in all specifications.

A comparison of the adjusted determination coefficients (adjusted R-squared) reveals that the fifth specification of the model is the best. It can therefore be concluded that a one unit increase in the economic freedom index increases does not have a significant impact on foreign direct investment.

6.7.2. THE GENERALISED METHOD OF MOMENTS (GMM) METHOD APPLIED TO A LINEAR MODEL

The impact of the selected controlled variables on foreign direct investments (*FDI*) is investigated using the Generalised Method of Moments. Lagged values of the dependant variable are therefore included in the model among independent variables. Regression results are reported in Table 6.11.

Table 6.11: Generalised Method of Moments (Dependent variable FDI)

MODELS	(1)	(2)	(3)	(4)	(5)
FDI(-1)	-0.56** (-2.53)	3.28 (0.77)	-0.80 (-0.44)	0.16 (1.34)	0.02 (0.21)
EF	1.29 (0.59)	-13.40*** (-2.71)	2.19 (0.89)	0.12 (0.21)	2.50 (1.62)
GCF	-0.54 (-1.41)	7.98 (1.22)	-1.23 (-0.50)	0.73*** (3.89)	-0.13 (-0.25)
GDPG	0.97*** (4.75)		1.41*** (4.13)		0.74*** (9.54)
INFL		1.08 (0.28)			0.78*** (3.52)
IR		-0.004 (-0.01)	-0.46*** (-8.84)		-0.03 (-0.28)
POP	85.97*** (3.37)	-386.85 (-1.05)	-94.71 (-0.27)		
J-STAT	0.213	0.00	0.00	3.127	0.00

Note: the t-statistics are given in parentheses. ***, **, and * respectively denote one, five and 10 percent percent significance.

Table 6.11 reveals results of five specifications with FDI in levels as a dependant variable in all specifications. Regressions are computed using the general method of moments (GMM) methodology.

Economic freedom has a negative effect on FDI in one model specification. Most specifications of the model therefore show an insignificant and positive relationship between economic freedom and FDI.

The lagged value of *FDI* which is also a proxy for initial level of foreign direct investments has a negative effect on *FDI* in one model specification. Most specifications of the model therefore show an insignificant and positive relationship between the initial and current level of *FDI*.

The gross capital formation (*GCF*) coefficient is significant and exhibits a positive sign in a single specification with the GMM methodology. Model (4) therefore states that a dollar increase in gross capital formation increases the current level of foreign direct investments by 0.73 percentage points.

GDP growth (*GDPG*) exhibits statistically a positive and significant coefficient. It can therefore be concluded that one percentage point increase in gross capital formation increases current values of foreign direct investments by values of between 0.74 and 1.41 percentage points.

Inflation exhibits a positive and statistically significant coefficient in a single specification. The variable is therefore either insignificant for foreign direct investment in a model where *FDI(-1)*, *EF*, *GCF*, *IR* and *POP* are the other explanatory variables. Inflation is significant in a model where *FDI (-1)*, *EF*, *GDPG*, *GCF* and *IR* are the other explanatory variables. In the latter, a one percentage point increase in inflation leads to a 0.78 percentage point increase in foreign direct investments.

Interest rate (*IR*) exhibits a negative and statistically significant sign in a single specification, therefore showing that a one percentage point increase in interest rate decreases the current level of foreign direct investments (*FDI*) by 0.46 units.

Population growth rate (*POP*) exhibits a negative and statistically significant sign in a single specification, therefore showing that a one unit increase in interest rate decreases the current level of foreign direct investments (*FDI*) by 85.97 percentage points.

A comparison of the adjusted determination coefficients (adjusted R-squared) reveals that the fourth specification of the model is the best. Therefore the dynamic model confirms that a one unit increase in the economic freedom index increases does not have a significant impact on foreign direct investment.

The following sections investigates a causal relationship between economic freedom and foreign direct investments

6.7.3 GRANGER-CAUSALITY TEST APPLIED TO A LINEAR MODEL

The null hypothesis is rejected for p-values lower than 0.1 corresponding to 10 percent significance level. Rejection of the null hypothesis implies that a variable *X* Granger-causes a variable *Y*.

Table 6.12: Granger - Causality test results

Null Hypothesis	Number of observations	T-statistics	P-values
FDI does not Granger Cause EF	58	2.21	0.11
EF does not Granger Cause FDI		6.36	0.00

Table 6.12 shows that *FDI* does not Granger - cause *EF* as the null hypothesis is not rejected for the lag length 2, but *EF* Granger- causes *FDI* at 1 percent significance level. In other words, economic freedom precedes FDI, but the opposite is not true.

6.8 CONCLUSION

This chapter was concerned with establishing the impact of economic freedom on economic growth and investments in the Economic and Monetary Community of Central Africa (CEMAC). The first section was an introduction. The second, third and fourth sections of this chapter reported the descriptive statistics, stationarity test and Hausman test results respectively. Series were found to be stationary. Stationarity implies that using the tested series in the study does not lead to spurious regressions.

The fifth section revealed the results. A positive impact of economic freedom on economic growth was established using the Fixed Effects method and the General Method of Moments. The impact of a unit increase in the economic freedom index on GDP per capita ranges between 72.65 and 124.51 units (dollars) increase on GDP per capita, ceteris paribus. Economic freedom was found to Granger-cause economic growth. The results significantly underline the positive relationship between economic freedom and economic growth which is consistent with the existing literature.

The impact of economic freedom on domestic investment and foreign directs investment was also examined using the fixed effects panel analysis. With regards to domestic investment, economic freedom was found to be statistically significant and positive in all specifications of the model, thereby implying that a unit increase in the economic freedom index increases domestic investment by values of between 0.50 and 0.69 dollars in the CEMAC. Furthermore, economic freedom was found to Granger-cause domestic investment. The results obtained are consistent with most findings on the relationship between economic freedom and investments.

With regard to the relationship between economic freedom and foreign direct investment inflows, economic freedom was unexpectedly statistically insignificant in most specifications of the model, thereby implying that economic freedom does not have a significant impact on foreign direct investments in the CEMAC. The results in this case are consistent with Pourshahabi et al. (2011:77) who studied the relationship between economic freedom and foreign direct investments in the OECD. Given the similarities between both studies, the explanation for this unexpected result may be similar to the one given in Pourshahabi et al. (2011). Insignificant impact of economic freedom on foreign direct investment was then explained by the relatively low economic freedom gap that exists among the countries studied, which therefore does not lead to a significant change in FDI.

Conversely, the study revealed a causal relationship between economic freedom and foreign direct investments. Economic freedom Granger-causes FDI but FDI do not Granger-cause economic freedom. This means that economic freedom precedes FDI, FDI do not precede economic freedom. These findings are once again consistent with the existing literature. The next chapter will conclude the study and recommendations will be formulated.

CHAPTER 7

CONCLUSION AND RECOMMENDATIONS

7.1 CONCLUSION

Economic freedom can be defined as the fundamental right of individuals to undertake economic activity in a way that is secured and unconstrained by ruling institutions (Heritage Foundation, 2011). Each year since 1995, economic freedom has been measured and rankings published to evaluate the level of Economic Freedom in countries worldwide. Countries' economic freedom rankings are established by two main institutions: the Fraser Institute and the Heritage Foundation.

This study was concerned with the evaluation of the impact of economic freedom on the Economic and Monetary Community of Central Africa (CEMAC). The study was therefore divided into six chapters: The first chapter was an introduction, the second examined the economic freedom concept, the third chapter described the CEMAC, the fourth chapter reviewed the existing literature, the fifth undertook an empirical analysis of the impact of economic freedom on economic growth in the CEMAC, and this sixth and last chapter concludes the study.

The first chapter introduced the study. The introduction consisted of a study background, the significance of the study, a problem statement and a general outline of the study. The study background revealed that the impact of institutions on economic growth was first accurately recognised by Adam Smith in his book, *The Wealth of Nations*, published in 1776. Smith emphasised that securing private property rights against expropriation was an important requirement for encouraging individuals to invest and accumulate capital (Snowdon and Vane, 2005: 635).

The study is significant in that it has been undertaken in a period when attempts are being made to recover from the 2008 global economic crisis. The numerous reforms and plans are much more complex to formulate and implement in developing countries because of their economic volatility. Policy responses to the 2008 global economic crisis have led to an important reshuffling in the 2011 and 2012 Heritage Foundation's economic freedom index. This is partly justified by the fact that numerous countries have intensified their government's direct hindrance in the economy, by increasing government spending.

Government interference has not only produced bad results for economic growth and employment, but has also hampered private investments, and thus prolonged the crisis (Heritage Foundation, 2011: 3,4).

The Heritage Foundation (2011) revealed that Mauritius is the only sub-Saharan country that can be considered to be economically free. Only eight countries in sub-Saharan Africa (including South Africa) were considered to be moderately free in the economic freedom 2011 rankings. Most sub-Saharan African countries, including the CEMAC, are therefore economically unfree or repressed (Heritage Foundation, 2011: 49). The Heritage Foundation's 2010 economic freedom ranking revealed that Gabon was the leader of the CEMAC in terms of economic freedom, with an overall score of 55.4/100, followed by Cameroon (52.3), Equatorial Guinea (48.6), Central African Republic (48.4), Chad (47.5) and the Republic of Congo (41.4) (Heritage Foundation, 2010: 76-77). The economic freedom categorisation in the CEMAC depicts some major problems that undermine the growth process in these countries. By way of illustration, 80 percent of Chad's population live below the poverty line (Central Intelligence Agency, 2011). Such issues encountered in Africa and especially in the CEMAC highlight the problems addressed in the study and justify the need to investigate further elements that could improve the growth process in the CEMAC. The second chapter took a detailed look at the economic freedom concept

The second chapter of the study examined the economic freedom index from a historical perspective. Then it analysed the indices' components of the Fraser Institute and the Heritage Foundation. It was in 1983 that Gastil and Wright first attempted to measure economic freedom for the Freedom House. Economic freedom was then defined as the degree to which persons are individually and collectively free to undertake economic activities of their choice, regardless of political structure (Wright, 1982: 51–52). As a result, the Freedom House strongly recommended that institutions allow individuals to freely undertake economic activity. It also suggested that the state should control contracts enforcements and property rights to ensure an adequate business climate (Messick, 1996: 5).

The Gastil-Wright (Freedom House) index was said to be heavily concerned with political procedures and civil liberties even though it was meant to be an assessment of economic freedom. The subsequent measurement of economic freedom was then suggested by the Fraser Institute, which assesses the extent to which institutions favour economic freedom.

The Economic Freedom Index endorsed by the Fraser Institute is the result of a series of conferences hosted by Milton Friedman and Michael Walker from 1986 to 1994. Gwartney et al. (2010: 1) stated that “economic freedom” exists when individuals are free to produce, consume, trade and fairly compete, as long as their actions do not harm other’s property. Each year since 1995, economic freedom is rated by the Fraser Institute in a number of countries and results are reported on a scale of 0–10. A score of zero means that a country is economically unfree and 10 means that a country is economically free. The Fraser Institute’s index of Economic Freedom is divided into five broad sections (Gwartney et al., 2010):

- Size of the Governments: expenditures, taxes and enterprises, which points out the extent to which resources are distributed on the basis of political process;
- Legal structure and security of property rights, which emphasises that protection of people as well as their rightly acquired property is a core element of economic freedom
- Access to sound money, which emphasises that monetary problems such as inflation arise with high rates of monetary growth; In turn, increasing rates of inflation tend to become more volatile, and thus alter long-term contracts fundamentals terms and prevent individuals from making practical future plans;
- Freedom to trade internationally, which assesses various roadblocks to international trade freedom such as tariffs, quotas, hidden administrative constraints and exchange rates;
- Regulation of credit, labour and business, which focuses on regulatory restraints that limit the freedom of exchange in credit, labour and product markets.

As an alternative, the Heritage Foundation started to publish an annual *Index of Economic Freedom* in 1994 (Johnson and Sheehy, 1996). The Heritage Foundation’s aim differs slightly from that of other surveys because it considers the significance of externally funded development assistance (or the lack thereof) in facilitating the growth process (Hanke and Walters, 1997: 117-146). For that reason, the Heritage Foundation suggested that “economic freedom”, not “aid” is the key to economic development (Johnson and Sheehy, 1996:2). The Heritage Foundation’s index of economic freedom comprises 10 components that are detailed as follows:

- Business freedom, which is concerned with the ease to start and run a business, which differs from one country to the other.

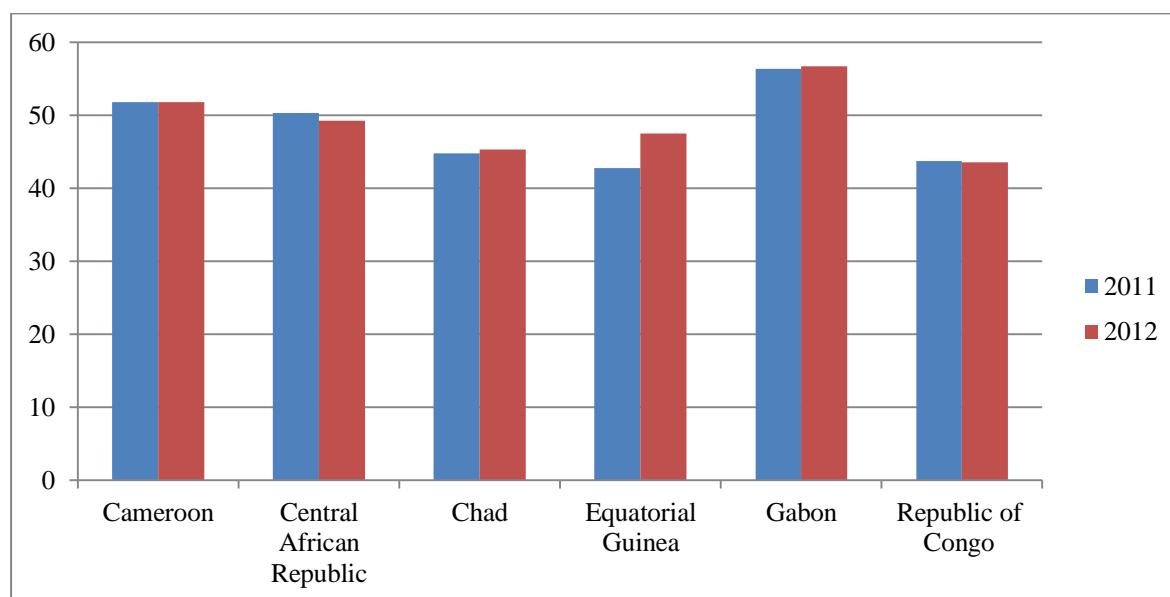
- Trade Freedom, which refers to the openness to the import of goods and services, and the ability of individuals to buy and sell freely.
- Fiscal Freedom, which is a measure of tax burden in an economy, the ability of people to keep their income for their own benefit without any interference from the government.
- Government spending. Excessive government spending is an issue for economic freedom because it lowers the amount invested in infrastructure, research and improvement, as a higher government spending is financed by higher taxation.
- Monetary freedom, which emphasises that a stable currency and market-determined prices are signs of a reliable economic environment that provides an incentive to make long term plans and investments.
- Investment Freedom, which is concerned with the freedom and openness of an economy to entrepreneurial opportunities, and increasing lucrative economic activities.
- Financial Freedom, which relies on a transparent and open financial system, fair access to financing and promotion of entrepreneurship.
- Property rights, which assess the ability to accumulate and secure private property, which in turn is an important incentive for investors that gives them confidence to undertake entrepreneurial activity and make long term plans.
- Freedom from corruption, which assesses manifestations of political corruption, such as embezzlement, bribery, nepotism, and patronage that can infect all parts of an economy.
- Labour freedom, which assesses whether the labour market, just as the goods market, is ruled by free, voluntary exchange.

The Fraser Institute, Freedom House, and Heritage Foundation all have in common that they evaluate the extent to which institutions hamper economic activity. These assessments of economic freedom are of major interest to policymakers and scholars who are concerned with the type of institution that is most likely to enhance economic growth (Hanke and Walters, 1997: 117-146).

The study of economic freedom is significant because it increases the level of economic globalisation but is limited by the same policy restrictions faced by entrepreneurs. Restrictions include tariff and nontariff barriers, exchange rate controls, and control over capital mobility that hampers the economic freedom necessary to business seekers. Conversely, economic freedom is also perceived as a threat to certain major sectors of the economy. Governments are therefore confronted with a dilemma as to whether to implement the optimal level of economic freedom that's preserves the important sectors, or not. (Ahkter,

2004: 286-287). The following figure illustrates the evolution of the economic freedom score in the CEMAC between 2011 and 2012.

Figure 7.1: Economic freedom in the CEMAC in 2011 and 2012



Source: The Heritage Foundation

Figure 7.1 shows a very slight change in the economic freedom score in Cameroon, Central African Republic, Chad, Gabon and Congo between 2011 and 2012. However, there is a significant improvement in the economic freedom score in Equatorial Guinea, which is also unsurprisingly, one of the fastest growing countries on the continent. The figure also highlights a current economic freedom ranking in the CEMAC. In 2012, Gabon obtained the highest score in the Heritage Foundation averaging (56.7), followed by Cameroon (51.8), the Central African Republic (49.3), Equatorial Guinea (47.5), Chad (45.3) and the Republic of Congo (43.6). The third chapter took a detailed look at the economic profile of the CEMAC countries.

The third chapter of the study investigated the CEMAC. The Economic and Monetary Community of Central Africa in its French acronym CEMAC was created in 1994 by the six states of Chad, Cameroon, the Central African Republic, Congo, Gabon and Equatorial Guinea. The CEMAC is a regional community that shares a common currency - the CFA franc. The chapter was broadly partitioned into three sections: a historical background, the objectives of the CEMAC, and the region's economic profile.

From a historical perspective, the CEMAC is a product of pre-war French colonial rule and derives from the French Equatorial Africa (AEF) created in 1910. The AEF consisted of

Chad, Oubangi-Chari (which later became the Central African Republic), Congo, and the Gabon. The French part of Cameroon was separately governed by France under a United Nations (UN) mandate and remained outside of the AEF. The CEMAC consists of a geographic area of about 3 million square kilometres and is considerably smaller than the Western and Southern African communities. The common French language (except in Equatorial Guinea where Spanish is the official language) is an important bond in the CEMAC community that separates them from their Anglophone neighbours. (Zafar and Kubota, 2003: 1).

The CEMAC's main objective is to develop an integrated economic system (Mackie et al., 2010: 7). The region aims at macroeconomic stability and the creation of a common market. An example of Central African countries' cooperation is the Central African Council for Peace and Security (COPAX) created in 1999 to ensure peace and conflict prevention in the region (African Development Bank and African Development Fund, 2011: 9). The current agenda of the CEMAC revolves around a Regional Economic Programme (REP) that was formulated to consolidate physical infrastructure and support services in the CEMAC by 2025.

The REP aims to build a competitive regional environment in an attempt to attract substantial private investments in growth areas. The REP aims to reach emergence through three five-year periods between 2010 and 2025. The first Phase (2010-2015) consists of building the institutional foundations of emergence; the second phase (2016-2020) is designed to anchor the pillars of economic diversification in the Community. The third phase (2021-2025) aims to consolidate the previous phases. The completion of the third phase is projected to complete the creation of an emerging economic area in the CEMAC in 2025. (CEMAC, 2011).

Regarding the region's economic profile, Equatorial Guinea, followed by Gabon enjoy the region's highest standard of living with respective GDP per capita ratios of 5644.75 and 4141.20 US dollars. The countries with the lowest per capita GDP ratios are Chad and the Central African Republic with respective ratios of 239.35 and 241.40 US dollars (World Bank, 2011).

Crude oil and other natural resources are major growth determinants in the region. Oil represents about two thirds of the CEMAC's total exports since 1994 and therefore is one of the main contributing factors of growth in the region. In terms of trade, fluctuations are mainly due to the crude oil price. In the terms of change, volatility and the appreciation of the real exchange rate are a major consequence of such a huge dependence on oil. As a result,

periods of oil boom characterised by rising in international prices led to improving terms of trade in the region. The converse is also true (Zafar and Kubota, 2003).

In addition to crude oil, the CEMAC has a huge agricultural and forestry potential. The dense forests in Central Africa (including the Democratic Republic of Congo) cover 190 million hectares and represent the second largest eco-forest zone on the planet after the Amazon. The forest constitutes the second source of fiscal receipts after oil in the CEMAC and is the first source of animal protein. It is the second largest employer after public administration. The forestry sector is very important in the region because it is a renewable resource, in contrast with the mining and petroleum sectors which are not. However, the deforestation problem arises from the expansion of wood production. An operational framework which included the Democratic Republic of Congo, was therefore created in March 1999 to facilitate the convergence of national forestry policies in the region (Zafar and Kubota, 2003).

The fourth chapter was concerned with examining the existing literature on economic freedom and its interaction with economic growth and investments. The first section mentioned some important aspects of growth theory. Most growth models that are used in modern economics are derived from the neo-classical model that expresses economic growth as a function of capital, labour, savings and technology levels.

Basic concepts such as “capital” - aside from physical goods - were expanded to encompass, the concept of human capital in forms of education, health and experience. Political institutions and other factors could therefore be added to the list of potential growth level determinants.

It was then highlighted that the augmented Solow model could explain economic growth in Africa. Several core factors that influence and constrain the growth process in Africa were divided into three main factors: human resource development (which was concerned with education and health), vulnerability and risk management (which was concerned with uncertainty regarding the climate and the stability of institutions), and fiscal decentralisation (which would positively affect economic growth in Africa, through a more efficient allocation of government spending) (Sahn and Younger, 2004: 66-95). The difficulty of accurately modelling economic growth was also raised, as the growth process consists of variables that interact with each other in an interlocking circular manner (Myrdal, 1957: 19). This represents a limitation in economic growth modelling.

The second section of the fourth chapter was concerned with a literature review of the relationship between economic freedom and economic growth, income equality and development assistance. In most cases, economic freedom was found to have a significantly positive impact on economic growth and income equality; economic freedom was also said to be an efficient alternative to development assistance (Bieker, 2007:1).

The third section reviewed the literature on the relationship between economic freedom, investments and entrepreneurial activity. The existing literature suggested that economic freedom fosters investments, entrepreneurial activity and business formation. However, in some cases, economic freedom was found to have an insignificant effect on foreign direct investments (Pourshahabi et al. (2011: 77).

The fourth section then looked into the importance of institutions in a mixed economy. It was deemed necessary for governments to generate infrastructure that promotes economic activity, preserves individuals' rights, and secures social welfare. This chapter revealed a gap in the literature concerning the contribution of economic freedom to economic growth and investments in Sub-Saharan Africa, especially in Central Africa. However, the existing literature established a framework necessary to conduct an appropriate empirical analysis.

The fifth chapter then described the methodology employed to analyse the impact of economic freedom on economic growth and investments in the CEMAC. Following the theoretical literature, four sets of hypotheses were tested:

- H_0 : Economic freedom is not related to economic growth
- H_1 : Economic freedom is related to economic growth

- H_0 : Economic freedom does not Granger-cause economic growth
- H_1 : Economic freedom Granger-causes economic growth

- H_0 : Economic freedom is not related to investments
- H_1 : Economic freedom is related to investments

- H_0 : Economic freedom does not Granger-cause investments
- H_1 : Economic freedom Granger-causes investments

The review of existing literature constituted the secondary study. Preceding studies outlined the construction of a suitable economic model. Data was then collected from the World Bank and the Heritage Foundation databases in order to execute the primary study. The primary study was then undertaken in order to empirically assess the model and test the hypotheses. Following the literature, data was analysed using an econometric panel data model. Panel data are a set of cross-sectional units that are observed over time (Hill et al., 2008: 383). The cross-sectional units observed in this case are the CEMAC countries.

Hsiao (2003: 1-8) highlighted the benefits of panel data as follows:

- Panel data suggest that individuals studied are heterogeneous. Time-series modelling and cross sectional analysis do not control this heterogeneity and run the risk of obtaining biased results.
- Panel data provide a larger number of data points, more degrees of freedom, a greater variability and a better efficiency.
- Panel data are able to study the dynamics of adjustment, and thus can provide some indications on the adjustment of variables to policy changes.
- Panel data are useful for constructing more complex models than simple cross sectional and time-series data.

The following panel regression was then employed to establish the impact of economic freedom on economic growth in the CEMAC. The growth equation was adapted from Swaleheen and Stansel (2007).

$$GDP_{i,t} = \alpha_0 + \beta X_{i,t} + \alpha_1 EF_{i,t} + \mu_i + \vartheta_{i,t} \quad (7.1)$$

Similarly, the empirical investment model was expressed as follows.

$$INV_{i,t} = \alpha_0 + \beta X_{i,t} + \alpha_1 EF_{i,t} + \mu_i + \vartheta_{i,t} \quad (7.2)$$

where GDP stands for gross domestic product, X is a set of control variables which consist of factors related to human capital, population, income, savings rate and inflation; EF stands for

economic freedom. The control variables in the main model are the following. Gross Capital Formation (*GCF*), interest rate (*IR*), gross domestic product growth rate (*GDPG*), population growth rate (*POP*) and inflation (*INFL*) as a proxy for development assistance (*AID*). Because having a single proxy for investments makes it difficult to distinguish between domestic and foreign investments' impacts. The variable *INV* was therefore replaced by two variables: *GCF* which accounts for gross capital formation as a proxy for domestic investment and another *FDI* that represented foreign direct investments.

CEMAC countries were then observed from 1995 to 2008 because the Heritage Foundation's index of economic freedom was first released 1995. The Heritage Foundation ranking of economic freedom was used as a reference because of its consistency and the simplicity of its components. Countries data to be included in the econometric model were collected from the World Bank and the Heritage Foundation databases. The Impact of Economic Freedom was then observed on growth and investments in CEMAC countries.

A simplistic, non-dynamic version of the selected growth or investment model was used first. The subsequent inclusion of a lagged value of dependant variables implied the use of a dynamic panel regression which required a specific methodology called the generalised method of moments (GMM).

Chapter six revealed the results. The presence of a unit root in each series in the panel was therefore tested using four stationarity tests: The Levin, Lin and Chu (LLC) test, The Im Pesaran and Shin (IPS) test, the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. Stationarity tests were conducted on pooled variables for all- time series involved in the raw model. All tests were based on the null hypothesis of a unit root which was rejected in this case at one per cent, five per cent and 10 per cent levels, since the p-value associated with each test was respectively lower than 0.01, 0.05 and 0.1. The hypothesis of the presence of a unit root in the time series studied is therefore rejected. Pooled series were found to be stationary.

The Hausman test was then used to determine which one of the fixed or random effects models was more appropriate to fit the data. The "fixed effects" methodology was found to be the more appropriate method to apply to the model. Five expressions of the regression in levels were reported with *GDP* in levels as a dependant variable. Regressions were computed using the panel fixed effects techniques. The overall fit of the model is satisfactory as shown by the determination coefficient R-squared that ranged between 0.90 and 0.93. With respect

to individual effects, economic freedom was statistically significant and positive in all specifications of the model. The impact of a unit increase in the economic freedom index on *GDP* per capita ranged between 77.05 and 124.51 units increase on *GDP* per capita, *ceteris paribus*.

The model was estimated again, this time using a log-linear specification. Results were reported with *GDP* in logarithm as a dependant variable in five specifications. Regressions were computed using the panel fixed effects techniques. The overall fit of the model was satisfactory as shown by the determination coefficient *R*-squared that ranged between 0.98 and 0.99. With respect to individual effects, economic freedom was statistically significant and positive in all specifications of the model. The impact of a unit increase in the economic freedom index on *GDP* per capita ranged between 0.032 and 0.039 percentage points increase on *GDP* per capita, *ceteris paribus*.

A different specification of the model allowed the violation of the strict exogeneity of variables assumption. The lagged value of gross domestic product per capita (*GDP*) was then considered as a regressor in the model. Regressions were computed using the generalised method of moments (GMM) methodology. With respects to individual effects, the lagged value of *GDP* which was also a proxy for initial level of income was statistically significant and positive in all specifications of the model. A unit increase in the initial value of *GDP* increased current *GDP* per capita by 0.88 to 1.12 units, *ceteris paribus*. Economic freedom was a statistically significant and positive in all specifications of the model. A one unit increase in the economic freedom index positively impacted *GDP* per capita by values comprised between 4.15 and 23.41 units increase on *GDP* per capita, *ceteris paribus*.

The linear relationship between economic freedom and economic growth was established using panel data analysis. The dynamic aspect of the regression was using the general method of moments (GMM) and the impact of lagged values on the dependant variable has been revealed. To appreciate the effect of lagged values of economic freedom on *GDP*, as well as the lagged *GDP*'s impact on economic freedom, the Granger-Causality test can be undertaken. The null hypothesis was rejected for *p*-values lower than 0.1 corresponding to 10 percent significance level. Rejection of the null hypothesis implies that a variable *X* Granger-causes a variable *Y*, and therefore that *X* precedes *Y*, or lagged values of *X* can be used to predict *Y*. It was then concluded that *GDP* does not Granger-cause *EF* as the null hypothesis was not rejected at the lag length 2, but *EF* Granger-causes *GDP* at 10 percent significance

level. In other words, economic freedom precedes *GDP*, but *GDP* does not precede economic freedom. The results obtained on the relationship between economic freedom and economic growth in the CEMAC were consistent with the existing literature.

The impact of the selected, controlled variables on gross capital formation (*GCF*), used as a proxy for domestic investments, was then investigated using fixed effects panel data analysis. Five model specifications were represented with *GCF* in levels as a dependant variable. The regressions were computed using panel fixed effects techniques. The overall fit of the model was satisfactory as shown by the determination coefficient R-squared that ranged between 0.71 and 0.86. With respect to individual effects, economic freedom was statistically significant and positive in all specifications of the model. Based on the five model specifications used, a unit increase in economic freedom leads to an increase of between 0.50 to 0.69 units in domestic investments. Causality between economic freedom and gross capital formation was then tested. At lag length 7, economic freedom was found to Granger-cause gross capital formation (domestic investment), but gross capital formation does not Granger-cause economic freedom.

The impact of the selected controlled variables on foreign direct investments (*FDI*) was investigated using fixed effects panel data analysis. Five model specifications were represented with *FDI* in levels as a dependant variable. The regressions were computed using panel fixed effects techniques. The overall fit of the model was satisfactory as shown by the determination coefficient R-squared that ranged between 0.67 and 0.71. With respect to individual effects, economic freedom was unexpectedly statistically insignificant and negative in all specifications of the model, thereby implying that economic freedom does not have a significant impact on foreign direct investments in the CEMAC. A possible explanation for these unexpected results is the presence of negative values of foreign direct investment in the dataset.

The impact of the selected controlled variables on foreign direct investments (*FDI*) was also investigated using the general method of moments. Lagged values of the dependant variable were therefore included in the model among independent variables. Regression results are reported with *FDI* in levels as a dependant variable in all specifications. Regressions were computed using the general method of moments (GMM) methodology. In most specifications, economic freedom has a positive, but statistically insignificant effect on

current FDI, *ceteris paribus*. The results obtained with the GMM can also be explained by negative values of foreign direct investment in the dataset.

Causality between economic freedom and investments using Granger-causality tests was then investigated. The study concluded that *FDI* does not Granger-cause *EF* as the null hypothesis of no Granger-causality was not rejected at lag length 2. On the contrary, *EF* Granger-causes *FDI* at one percent significance level. In other words, economic freedom precedes foreign direct investments, but the opposite is not true.

The study was limited to the CEMAC region, which consists of six countries. Another limitation was data availability, as worldwide annual ranking of economic freedom began in 1995. In addition, the index of economic freedom was employed as an aggregate rather than each component studied individually. Using the aggregate index does not provide information on which components of economic freedom impact growth or investment the most.

7.2 RECOMMENDATIONS

The estimated results are noteworthy because they establish economic freedom as a significant determinant of economic growth in the CEMAC. This highlights the need for economic freedom enhancement in the CEMAC, in order to improve economic growth in the region. A first recommendation is therefore made regarding the improvement of institutions in the CEMAC. Institutions are the supervisory bodies that can guarantee the security of private property, enforce, develop infrastructure and ensure the economic stability that encourages individuals to invest and make accurate plans for the future. The economic function of government was listed by Kates (2011: 58-64) as follows.

- Legal and administrative: Law courts and effective enforcement support wealth-creating activity by creating an environment of civic peace and by managing general administration, as governments manage the community's affairs.
- Regulation: Regulation is important to define the right balance between individual and social welfare. Governments regulate the economic activity by reconciling the need of the markets and the health, safety and wellbeing of the society.
- Infrastructure: Infrastructure, in terms of transport, roads or harbours, generally supplied by governments, is the backbone of economic activity.
- Welfare: Throughout history governments have always been the institutions responsible for assistance to the poor, and those who generally struggle to provide for themselves.

- Taxation levels and structure: Tariffs, tolls and taxes collected from the populations constitute an important share of government revenues. The tax level plays a role in encouraging (or not) industry and entrepreneurship.
- Government businesses: The most common form of government-owned business is a natural monopoly, such as power, post offices, and water in many countries. Governments' management of such natural monopolies is questionable but the idea of private monopolies raises some concerns as well.
- Government spending in recession: Government spending is used as a counterweight to recession in the private sector, to support the exchange process and stimulate the economy. However, unproductive spending does not induce value-adding activity and therefore does not lead to economic growth.

Secondly, the study established a positive effect of economic freedom on gross capital formation, as a proxy for domestic investment. Increased domestic investment resulting from improved economic freedom creates a virtuous circle that improves productivity and enhances economic growth. Infrastructure, especially in terms of transport and energy severely affects the ease with which economic activity is undertaken in the CEMAC and therefore constitutes an important limitation to economic growth in the region.

The third recommendation concerns regional trade. The lack of functional transportation corridors among CEMAC countries is the prominent infrastructure restriction that hampers trade and limits the gains from regional integration (Nxumalo et al., 2012). Despite the region's poor infrastructure, the study recommends that the CEMAC takes advantage of its strategic geographic position that constitutes a pivotal transit zone for the entire continent, in order to improve the region's extremely low intraregional and interregional trade. This process can only be effective if there is a greater emphasis on infrastructure development. The CEMAC would therefore gain from improving its infrastructures to channel inter-regional transactions through the region, thereby enhancing its economic freedom levels, improving economic growth in the region and attracting greater investment incentives.

Fourthly, following on from infrastructure development, the manufacturing sector should also be improved in the CEMAC. The primary reason would be to add value to the raw commodities that are exported, gain a competitive advantage and therefore reap greater returns. The advantage of the manufacturing sector's improvement in the CEMAC is twofold: It increases productivity in the region, and it makes the local economy less vulnerable when

highly industrialised firms enter the market. The service sector also needs to be improved, especially in areas such as banking and finance. Financial access in the CEMAC is low and the region's stock market remains ineffective. An improvement in the financial and banking sector would therefore improve the overall economic freedom index, foster investment and improve economic activity in the region.

A recommendation for further studies is to investigate the various components of economic freedom so as to establish the specific components of the economic freedom index that are the most important for stimulating growth and investment in the CEMAC.

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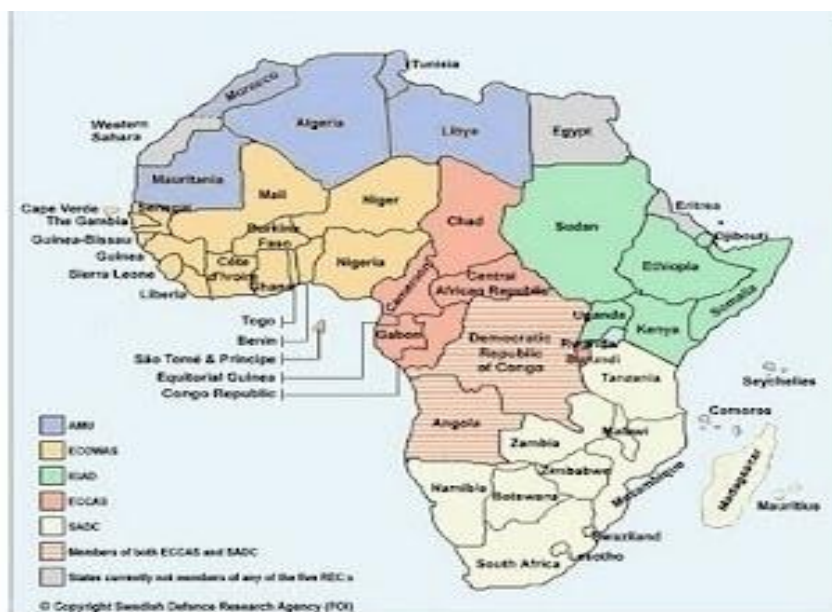
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APPENDIX A: REGIONAL TRADE BLOCS IN AFRICA



Source: RegionsWatch (2010)

**APPENDIX B: ECONOMIC FREEDOM ECONOMIC GROWTH-LITERATURE
REVIEW SUMMARY.**

AUTHORS	SAMPLE STUDIED	METHOD USED	EMPIRICAL FINDINGS
Pääkkönen	25 post-communist economies countries,	General Method of Moments (GMM)	<ul style="list-style-type: none"> - improvements in institutions and investment tend to boost productivity growth - Government consumption has a negative impact on growth.
Sturm and De Haan (2001)	7 east Asian countries + Cyprus = 8 countries observed 1975-1990	Least Median of Squares (LMS)	Change in economic freedom is strongly related to economic growth. However, the level of economic freedom is not related to growth.
De Haan & Sturm (2000)	the period 1975–1990 for 80 countries	Ordinary Least Squares, Using a variant of the extreme bound analysis.	The level of economic freedom is not related to growth. However, there is a positive relationship between changes in economic freedom and economic growth.

Weede (2006)	102 countries observed from 1980 to 2000.	Regression analysis	the average level of economic freedom has a stronger effect on economic growth than the changes in economic freedom
Gwartney & Lawson (2003)	99 countries observed between 1980 and 2000.	Regression analysis	The economic freedom index mean over the two decades of the observation period provides a measure of long-term institutional quality. Cross-country differences in the economic freedom index explain 63.2 percent of the cross-country variation in 2000 per capita GDP
Cole (2003)	106 countries observed between 1980 and 1999	Regressions based on the neoclassical model	changes in economic growth can be explained by economic freedom, not only in levels but also on the direction and the magnitude of the change
Le Roux, P. & Gortach, V. (2011)	The SADC	Panel data analysis	Economic freedom has a significantly favourable effect on economic growth, stronger than that of openness.
Karabegović, Samida, Schlegel and McMahon	10 Canadian Provinces and the 50 US states observed between 1993 and 2000	Panel data analysis	economic freedom index (in levels and change) have a significant impact on growth performance

Swaleheen & Stansel (2007)	A Panel of 60 countries	The Arellano and Bond (AB) method	Corruption has a negative effect on growth, in countries with a low level of economic freedom. Conversely corruption provides a way around government controls in countries with high economic freedom, and therefore fosters economic growth.
John W. Dawson (2003)	A large indeterminate sample of countries observed between 1980 and 2000.	Granger causality.	Economic freedom, especially in its components related to markets and property rights foster long-term economic growth. On the other hand, Dawson (2003) established a unilateral causality relationship between growth in freedom's areas (in levels and changes) related to government size.
Carlsson & Lundström (2002)	The sample includes 74 countries for the period 1975–1995	A variant of Sala-i-Martin (1997) sensitivity analysis	An increase in the level economic freedom increases growth. A look at the economic freedom components reveals that only the variables Legal structure and Private Ownership, and Freedom to Use Alternative Currency have positive and robust relations to GDP growth
Heckelman	94 countries observed from 1994 to 1997	Granger-causality	The Average freedom Score and Monetary Policy consistently Granger-cause growth. Other components such as capital Flows, Wage/Price Controls, Property Rights, and Regulation, Granger-cause growth when more than one lag is applied.

Justesen (2008)	panel data for the period 1970–1999 on a number of countries comprised between 35 and 77.	A series of Granger causality tests using panel data.	Economic freedom, especially in its components related to markets and property rights foster long-term economic growth. On the other hand, Dawson (2003) established a unilateral causality relationship between growth in freedom's areas (in levels and changes) related to government size.
Vega-Gordillo and Álvarez-Arce (2003)	45 countries observed between 1975 to 1995	Granger-causality tests.	Economic freedom is found to be conducive to higher growth rates. The impact of economic freedom on economic growth nearly doubles the effect of political freedom, thus suggesting a greater impact of liberalisation rather than democratisation on the growth process.

APPENDIX C: CUSTOMARY DETERMINANTS OF ECONOMIC GROWTH

STUDY	COUNTRIES	METHODOLOGY	DETERMINANTS
Barro (1996)	34 developing countries	Panel regression	Education, life expectancy (as a proxy for health), fertility rate, government consumption, rule of law, inflation, terms of trade.
De Haan and Sturm (2000)	8 Asian countries	Least median of squares	Economic freedom, standard economic indicators (initial income, average investment share to GDP, secondary school enrolment); additional economic variables (average population, average ratio of real government consumption to GDP, average inflation rate, and average export and import to GDP.
Cole (2003)	106 countries	Classical regression	Investment share in GDP average, fertility rate (as a proxy for population growth) average years of schooling (as a proxy for human capital)
Swaleheen and Stansel (2007)	60 countries	Arellano and Bond (1991) method	School enrolment rates, population growth rate, size of government, investments, corruption, and economic freedom
Tiwari (2011)	69 countries	Generalised Method of Moments	Gross capital formation (as a proxy for capital), total population (as a proxy for labour), foreign aid, foreign direct investments (net inflows), economic freedom.

Ndambiri et al. (2012)	19 sub- Saharan countries	Generalised Method of Moments	One period-lagged GDP (as a proxy for initial income), gross fixed capital formation, government expenditure, exports, nominal discount rate, literacy rate, foreign aid.
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