

# The Influence of Investment Legislation on the Macroeconomic Performance of the CEMAC Region

Vukenkeng Andrew Wujung<sup>1</sup> & Ongo Nkoa Bruno Emmanuel<sup>2</sup>

<sup>1</sup>Department of Economics and Management, Faculty of Social and Management Sciences P.O.Box 63, University of Buea, Cameroon.

<sup>2</sup>Department of Economics and Management, Faculty of Social and Management Sciences P.O.Box 63, University of Buea, Cameroon.

Correspondence: Vukenkeng Andrew Wujung, Department of Economics and Management, Faculty of Social and Management Sciences P.O.Box 63, University of Buea, Cameroon.

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## Abstract

The countries of the Economic and Monetary Community of Central African States (CEMAC) adopted in 1999 a common investment legislation which member countries adapted to their specific realities to improve the economic climate and to guarantee sustained economic growth. This paper while recognizing that a majority of the countries in the sub-region had experimented country-specific investment codes before the formulation of the common investment legislation, contends that the Common investment legislation has had a positive effect on macroeconomic performance of the sub-region. Data for the study is collected from the World Bank Development Indicators, covering a period of 18 years from 1995 to 2012. The estimation technique used for this study is the generalized method of moments (GMM). The analyses showed that the adoption of the common investment legislation had a significant positive relationship with the macroeconomic performance of the sub-region. Also, it was shown that investment legislation, private and public investments play a positive and statistically significant influence on the level of macroeconomic performance in the sub-region. From a policy perspective, given that investment legislation improves macroeconomic performance, it should be continuously revised and adapted to the specific current and future exigencies and prospects for growth.

**Keywords:** Investment, Legislation, Macroeconomic performance, CEMAC

**JEL Classification:** E12, E22, E23, E62

## 1. Introduction

The member states of the Economic and Monetary Community of Central Africa (CEMAC<sup>1</sup>) after experimenting the structural adjustment programme for a good number of years, formulated a common investment legislation to improve the economic climate and to guarantee sustained economic growth in 1999. It is important to note that these common reforms were put in place after some of the member countries such as Cameroon had experimented a number of investment legislations since the 1960s. The CEMAC investment code had a number of objectives ranging from the improvement of the macroeconomic framework, guaranteeing a state of law and justice, a smooth functioning of the economy, partnership with the private sector, creation of a conducive environment for the growth of enterprises, basing the tax policy of member states on the principle of simplicity, equity and moderation, adoption of a common currency the FCFA which is issued and managed by the Bank of Central African States (BEAC), and seeking support from member countries in various forms including security of investments, fiscal or financial advantages especially encouraging domestic investors to invest in the sub-region.

Prior to the adoption of CEMAC investment code in 1999, Cameroon had experimented three different investment

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<sup>1</sup>The Economic and Monetary Community of Central African states (CEMAC) are made up six countries: Congo, Gabon, Equatorial Guinea, Chad and Central African Republic. It was created in 1994 to replace the Customs Union of Central African States (UDEAC) which existed since 1964.

codes in 1960, 1984, and 1990. Each of these codes had different objectives. In fact, at independence in 1960, Cameroon was basically agricultural with only a few industries set up during colonial times. Resources from the agricultural sector proved to be inadequate to guarantee meaningful industrialization especially given the departure of foreign capital and manpower after independence. Against this background, the 1960 investment code was intended to create investment in centers which would attract the required domestic and foreign private investments within the framework of the major objectives of the Five years Development plans—namely the maintenance of balance between the various sectors and regions of the national economy (Ndogko, 1980).

In order to determine whether the 1960 investment code helped Cameroon achieve its development objectives or not, Ndongko (1985: 143) analyses the statistics available between July 1960 and 30th June 1965 to show that a total of 38 companies with a capital investment of 10.393 millions CFA francs were granted incentives under the code and these companies generated 8000 new jobs. He further observes that because of this attractive investment code, Cameroon was able to attract more 84 billion CFA francs in private investment capital for its development needs by June 1975. Examining the regional distribution of investments since the adoption of the code, he shows that the principles of balanced self-reliant development pursued at the time was not met for more than half of the industries approved by the national investment commission were located in the Littoral Region.

It follows therefore that this investment code did very little in reducing the regional imbalance in industrial development inherited from the colonial period. Government's determination to continue to pursue its policies of balanced and self-reliant development necessitated the revision of the investment code in 1984. The aim of the revision of the 1960 investment code in 1984 was to enable the government achieve its industrialization policy of promoting indigenous entrepreneurship. More specifically, Cameroon's industrial policy at this time focused on accelerating the transformation of local raw materials, establishment of heavy industries; rational reorganization and development of national industries, development of basic infrastructure and the intervention of the state in strategic industries.

By 1990, the Cameroon economy was deep in crisis, and the purpose for the revision of the investment legislation in November 8, 1990 was to encourage and promote productive investment in Cameroon. To the authors of the 1990 investment code, it set out to encourage the creation and development of economic activities geared towards the valorization of Cameroon's natural resources as a priority; creation of new jobs; production of competitive goods and services for the domestic and foreign markets; increase in exports of manufactured goods; transfer and adoption of appropriate technology; protection of the environment; and the improvement of the quality of life in urban and rural areas.

Unlike the previous codes, the 1990 investment code was more elaborate with four schedules and envisaged new objectives—namely the transfer and adoption of appropriate technologies and protection of the environment. This code reviewed downwards the duration of tax holidays and duty exemptions accorded new businesses—3 years installation phase, 5 years non-renewable period operational phase and seven years during the exploitation phase.

Then in 2002 the government revised the investment legislation to build a competitive and prosperous economy by boosting investments and savings so as to attain its social and economic objectives. This law defined the investment promotion framework in accordance with the overall development strategy aimed at increased and sustainable growth, job creation in all sectors of economic activity and the social wellbeing of the people. The law equally applies to investments relating to commencement, extension, renewal, readjustment and/or change of activity.

For Congo, her first investment legislation dates back to 1982. This legislation was revised in response to the changing economic environment by law no.0008-92 of 10 April 1992. Before this time this country had signed an accord of exchange with other African countries on the 27th December 1978. Chad's investment legislation originates from the degree N°25/PR/87 of 8 December 1987 which replaced degree N°156/PR/63 of 26 August 1963. This law has been revised by the investment charter of 2008.

The first investment code in Gabon was signed in 1967. This law was revised by law no. 15/1998 which gave birth to the investment charter of Gabon. The first investment legislation of Equatorial Guinea was adopted in April 1992 and revised in April 1994. In Central African Republic the law no.88/004 of 9th May 1988 specified the regulatory framework of investment revising the first investment code of the country of 1963. In 2001 this country adopted a new investment code in response to the putting in place of the sub regional code. Also, this country like other countries of the sub region had signed the bilateral exchange agreement with other countries since 1965. In 1987 through law no.25/PR/87 of 8th December 1987, she revised her 1963 investment law. Then in 2008 the new investment charter was implemented.

Against this background, this paper sets out to analyse the effect of investment legislation on the macroeconomic performance of the CEMAC region amongst other variables. The rest of the paper is organised as follows: The second section situates the paper in its proper perspective by reviewing literature linking institutions and macroeconomic

performance. The third section identifies data sources and discusses the method of analysis. The results are presented and discussed in section four. The final section concludes the paper with some policy recommendations.

## 2. Conceptual Framework

Societal needs can be satisfied both through market institutions and political institutions. In some instances these needs are provided by voluntary organizations. In this section, we review both theoretical and empirical literature on institutions and macroeconomic performance so as to situate the study in its proper perspective.

### 2.1 Theory of institutions

Institutions are defined from different perspectives. Holdgson (2006) considers institution as systems of established and existing rules that regulate social interactions. Following this definition, conventions are specific cases of institutional norms. Practically, institutions ensure order, expectation, and action through consistency in human activities. Institutions also include rules which impose constraints on human actions.

Meanwhile North (1990) considers organizations to be specific institutions with defined boundaries that differentiate between members and non-members, has clear rules of those in charge, and a clear distribution of duties within the organization. In this light, organizations are seen to comprise of a group of individuals united by a common purpose to realize specific objectives. Again, North (1981) views institutions to include rules, compliance procedures and norms that control the behavior of people so as to maximize wealth or unity of principles. North (1990) summarizes the institutional context to include formal rules, informal rules, and monitoring and enforcement of property rights. And in this context, Geels (2004) holds that agents are only ready to take risks to invest when they have certain expectations of the future outcomes. This consideration reveals the long lasting control or limiting character of institutions.

Institutions are measured in terms of institutional quality, government effectiveness and limits of executive power. These measures are directly related with per capita and are volatile. Indicators of institutional quality and government effectiveness are designed such that authoritative governments that choose good policies can achieve the same results as governments forced to choose them. The variable relating to effectiveness of government measures the expected outcome. The index of government effectiveness includes the quality of public service provision, quality of bureaucracy, the competence of civil servants, the independence of the civil service from political pressures and the credibility of the government commitment to policies. This index is directly related to the level of economic development.

The index of the political environment captures the constraints on executive power. This variable gives an impression of the outcome of previous elections and equally concerns itself with checks and balances between different political interests as concerns decision making. It is an outcome measure though in advanced countries limiting the executive may be the result of development. The index or measure of democracy captures the presence of institutions and procedures through which citizens express effective presence of alternative policies and leaders, institutional constraints and the guarantee of civil liberties.

Institutions tend to reduce uncertainty and moderate daily life. In some instances, institutions can be likened to the rules of the game in a competitive situation which at the same time allow certain individuals to undertake certain activities (North, 1990). He also sees institutions as norms and social conventions that shape choices of individuals in society. These norms and laws influence the negotiation process in resolving disputes.

Meanwhile literature on institutional environment shows how economies develop over time (North and Thomas, 1973; North, 1990; Drobak and Nye, 1997). They hold that economic growth is highly dependent on institutions which influence information costs, capital accumulation and mobility, the nature of risks as well as the ease of cooperation. Also, the growth of the goods and resource markets equally depend on secured property rights. As economies develop, an increasing number of commercial activities necessitate trade, finance banking, insurance and management (Wallis and North, 1986). In fact, the development process requires institutions to moderate the costs linked to economic activities/transactions. In this regard, political and economic institutions shape the economic environment which directly influences productivity (North, 1991).

North (1990) sees the rational choice approach to politics and the positive political theory to consider institutions to be explained in terms of deliberate human choice. The rational choice perspective has been used to explain the effects of political institutions on macroeconomic policy, welfare policy, budgets, regulation and technology policy (Weingast, 1996).

Denzau and North (1994) analyze the link between institutional environment and establishing a framework for decision making under uncertainty and hold that ideology coupled with institutions help agents take complex decisions. To them, where social learning follows a given direction, economic development will be gradual and unequal and consequently some economies may continue to perform poorly for a long time.

Institutional economics has expanded the concept of the firm. Coase (1937) sees the boundaries of the firm to go

beyond the productive technology to the cost of transacting business. In this connection, Roe (1994:7) sees today's conception of the firm to go beyond a framework or a black box in which inputs are transformed into output of goods and services as well as profit to be a management structure which performs well when its activities and resources are properly coordinated and matched.

Institutional arrangements have a component governing transactions. To Williamson (1985) this governance structure protects parties involved in transactions from various problems that ensue in the process especially given that we usually have to do with incomplete contracts. In this context, not all solutions are provided to future problems that arise, for example, in a relational contract with shared goals and a set of general principles that govern the relationship (Goldberg, 1980). This is also the case of verbal agreements which are assumed to be understood by all parties. The incomplete nature of contracts exposes the parties to some risks making it imperative for them to adapt to unforeseen circumstances and this tends to increase the transaction costs. From this perspective, institutions are seen as governance structures and poor institutions give rise to highly inefficient macroeconomic solutions/ outcomes characterized by low cooperation between factors of production. This manifests in the form of underemployment, market segmentation and technological exclusion of some factors.

### *2.2 Empirical link between institutions and macroeconomic performance*

Glaeser et al. (2004) show that there exists a great variation on average within country deviations of institutional measures on the one hand and a strong link between institutional quality indices on the other hand and per capita income. In fact, there is evidence of a strong link between economic growth and the assessment of institutional quality. At the same time, there is no link between growth and constitutional measures of institutions. Plurality and proportional representation are strongly linked with growth. Also, judicial checks and balances are not linked with per capita income while judicial independence is weakly related with outcome indices.

In poor countries, human capital and political institutions can be used to assess the effect of institutions on growth. It is shown that countries having high level of human capital grow faster than those with low levels of capital and countries with stable democracies equally grow faster than imperfect democracies and dictatorships. It is also shown that growth rates are more dispersed among autocracies than democracies and countries with low level of education.

Again, despite the fact that a majority of poor countries especially in the 1960s were dictatorship some of them have struggled to come out of poverty while others have remained in it. This at least suggests that the choices made by dictators account more for growth than the constraints put on them.

North (1990) and Olson in Knack and Keefer (1995) hold that there exists a direct relationship between the quality of institutions and economic growth. Helpman (2004) sees a lot of importance to be given to traditional determinants of growth while Dellepiane (2006) holds that politics and institutions through incentives to innovation tend to stimulate growth. To Kaufmann and Kraay (2002) there is no direct relationship between incomes and the quality of institutions, while Glasser et al (2004) contends that growth improves the quality of institutions.

Corruption is quite often considered to be the abusive use of public service for personal enrichment. From a sociological perspective, corruption is a sign/symptom of the malfunctioning of the relationship between the state and the citizens which manifests itself in the giving of wine, extortion of funds and nepotism (Alatas, 1968). Consequently, public opinion loses confidence in the ability of the state to manage the state in the interest of the citizens.

Mauro (1995) finds that corruption has a negative effect on investment and economic growth. Similarly, Alesina (1998) identifies administrative efficiencies, absence of corruption, enforcement of property rights and fair justice to be important factors of growth. Mijiyawa (2004) finds significant differences in growth rates of countries over time and shows that economic growth is sustained more in some countries than in others because of differences in the quality of institutions which render some economies to be more competitive than others.

Advantage can better be taken of business opportunities in local, regional and international markets when there are good institutions. Here, Dellepiane (2006) sees poor countries growing very fast if they put in place workable institutions. The above review leads us to expect that the adoption and good implementation of the common investment charter by countries of the CEMAC sub-region will lead to an improvement in macroeconomic outcomes. Hence, it is important to investigate the impact of this common investment legislation on the macroeconomic performance of the sub-region.

### **3. The Economic Model**

Theoretically, we use the macroeconomic equilibrium model which is given by

$$Y + M = C + I + G + X \quad (3.1)$$

Where Y is GDP, M is Imports, C is household Consumption, I, G and X are respectively Investment, Government expenditure and Exports. On the basis of this model, we find the national income using the following equation:

$$Y = C + I + G + X - M \quad (3.2)$$

We add the rate of inflation and the level of infrastructural development for two reasons. Firstly, inflation explains macroeconomic instability which reduces economic performance. Secondly, an increase in the level of infrastructure increases the level of economic growth.

We will first examine the different effects of corruption on economic growth with the help of the following model:

$$y_{it} = \alpha y_{i,t-1} + \beta X_{it} + \gamma Z_{it} + v_i + \varepsilon_{it} \quad (3.3)$$

Where for a country  $i$  at time  $t$ ,  $Y$  is the natural logarithm of real income per head,  $X$ , is a vector of predetermined and endogenous variables (including corruption, investments, or openness).  $Z$  is a vector of exogenous variables;  $\alpha$ ,  $\beta$  and  $\gamma$  are the parameters to be estimated. The regression results are presented on table 5. In all the regressions, we assume that  $v_i$  and  $\varepsilon_{it}$  are independent during the period of study and for each country  $i$ . The term  $v_i$  represents the specific effects on a country which are assumed to be independent and identically distributed on the different countries and is equally independent and identically distributed. The estimated model is using the Generalized Method of Moments (GMM) developed by Arellano and Bond (Arellano and bond, 1991). We test for auto-correlation and the validity of the instruments (Sagan test) as well as the estimation of the coefficients on table 4. The procedure of estimation using the GMM suggested by Arellano and Bond has two stages. Firstly, the dynamic model is rewritten in the first derivative form so as to eliminate the specific effects ( $v_i$ ). We then obtain the following expression:

$$\Delta y_{it} = \sum \Phi_m \Delta y_{i,t-m} + \beta \Delta X_{it}^k + \gamma \Delta Z_{it}^p + \Delta \varepsilon_{it} \quad (3.4)$$

Elsewhere, the later expression raises another problem which is that of correlation between  $\Delta y_{i,t-1} = (y_{i,t-1} - y_{i,t-2})$  and  $\Delta \varepsilon_{it} = (\varepsilon_{it} - \varepsilon_{i,t-1})$ . Consequently, OLS technique is biased since  $y_{i,t-1}$  depends on  $\varepsilon_{i,t-1}$ , what calls into question the use of the method of instrumental variables for the estimation of this relationship. This is why in the second stage this equation is estimated using the method of GMM which adopts a set of instrumental variables. The vector of the instruments is constructed according to the method of Arellano-Bond. In other words, the instruments are defined in a differentiated manner for each term (each instrument is multiplied by temporal indicators associated to each term). The vector of instrumental variables retained in this analysis comprises of all the lagged values of endogenous variables expressed at this level. In as much as the later correlated with the endogenous variables expressed in the form of the first derivative, it remains valid as long as the residues do not show any auto correlation independent of the first derivative of the residues. It is important to note that for there to be no bias in the estimators obtained from the method of GMM depends on inexistence of the second order correlation in the series of the first derivatives of residues.

This leads us to specify the new theoretical model as:

$$Y = I + G + Infrac + Corrup + Pol\_Stab + Infla + Dummy \quad (3.5)$$

Introducing the index of time and individual countries as well as including interactive variables we have the following model:

$$Y_{it} = \beta_0 + \beta_1 Y_{i,t-1} + \beta_2 I_{it} + \beta_3 G_{it} + \beta_4 Infrac_{it} + \beta_5 Infla_{it} + \beta_6 Corrup_{it} + \beta_7 Pol\_Stab_{it} + \beta_8 Dummy + \beta_9 (Dummy * I)_{it} + \beta_{10} (Dummy * G)_{it} + \mu_{it} \quad (3.6)$$

Where,

$$\mu_{it} = \beta_i + \varepsilon_{it} \quad (3.6)$$

Our sample is made up of the six countries of CEMAC. These countries have a common currency, a relative identical growth and development experience, relief, culture and institutional problems. The CEMAC region at moment is concerned with inclusive growth, achieving a higher rate of growth and equitable distribution of wealth as well as

consolidating its integration (CEMAC, 2009). In the model above,  $Y_{it}$  is the rate of growth of GDP. It indicates the main variable of macroeconomic performance of the countries. Generally, the economic growth rate of the CEMAC region (6%) is above the average of the African countries. Many factors can explain this observation. The CEMAC

region is rich in natural resources. On the average, 64% of exports from the sub-region are in the form of natural resources. Though the economies of these countries are not diversified, they are embarked on big economic transformation programs or projects. The variable  $Y_{i,t-1}$ , is the lagged variable of economic growth of the economies. Its inclusion is motivated by the nature of the model. We are considering a model of dynamic panel data. Investment is divided into two groups. Private investment ( $I_{it}$ ) and public investment ( $G_{it}$ ). These two variables are components of GDP and are influenced by the desire to invest. This explains why we test the interactive effects between changes in legislation (Dummy) and the nature of investments. The two interactive variables (Dummy\*I and Dummy \*G) measure the contribution of the new investment codes on investment. We are also interested to test if private sector and public sector agents incorporate investment laws in their investment projects and decisions and if such consideration improves the rate of economic growth. Such an approach is new since it translates the value of laws adopted by state institutions. The investment climate is captured by the level of inflation ( $Infla_{it}$ ), the quality of infrastructure ( $Infrast_{it}$ ), the degree of corruption ( $Corrup_{it}$ ) and the level of political stability ( $Pol\_Stab_{it}$ ). According to worldwide governance indicators (2012), the governance variables are captured by an index which ranges from -2.5 to +2.5. When this index moves towards -2.5 it indicates poor governance and when it moves towards +2.5, it indicates good governance. The variables used in the above model are described along side with sources of data in table 1.

Table1. Description of variables and sources of data

Variables	Description	Source of data	Expected sign
Y	Rate of growth of GDP	World Development Indicator (WDI, 2014)	
$Y_{t-1}$	Rate of growth of lagged GDP		+
I	fixed capital formation/GDP	WDI (2014)	+
G	Government expenditure / GDP	WDI (2014)	+
Corrup	Index of corruption	WorldwideGovernance indicators (2012)	-
Pol_Stab	Index of political stability	WorldwideGovernanceIndicators (2012)	-
Infla	Rate of inflation	WDI (2014)	-
Infras	Number of Mobile phones per 100 habitants	WDI (2014)	+
DUMMY	Takes 0 before 1999 and 1 after 1999	Authors	+
DUMMY*I	Takes 0 before 1999 and 1 after 1999	Authors	+
DUMMY*G	Takes 0 before 1999 and 1 after 1999	Authors	+

Source: authors

The time period ranges from 1995 to 2012 i.e 18 years. This is because of data difficulties. Data of institutional variables according to Kaufman, Kraas and Mastruizzi (2012), dates back to 1995. This makes us to adopt dynamic panel data. Two main reasons justify this choice. Firstly, legislation contributes gradually to the modification of the method of production and the variables of the model. Secondly, with dynamic panel data, the usual or traditional method of estimation (2SLS or the Generalized Least Square Method) is less robust and gives rise to biased coefficients. It is preferable therefore to use the GMM estimation which is more robust and eliminates all possible bias. Also, the number of observations is few for us to use the traditional methods to estimate the model.

#### 4. Presentation and Discussion of results

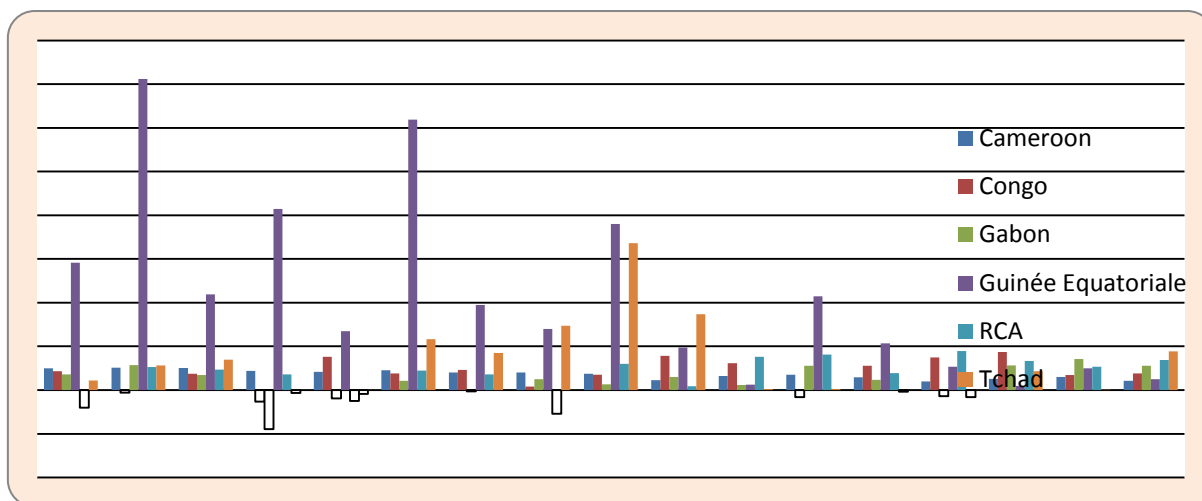
The findings of the study are presented both in terms of descriptive and inferential statistics. The differences in the means and standard deviation of the different variables of macroeconomic performance are analyzed in table 2.

Table2. Descriptive statistics

Variables	Mean	Std.Dev.	Min	Max	Obs
$Y_t$	6.49	11.69	-8.93	71.18	102
I	26.34	17.69	4.31	113.57	92
G	9.53	5.81	-8.97	24.19	94
Infla	3.76	2.74	-2.06	10.03	100
Infras	1.02	0.91	0.08	3.28	102
Corrup	-0.76	0.75	-2.14	0.45	102
Pol_Stab	-1.08	0.26	-1.68	-0.42	102

Source: Authors

The rate of economic growth in the CEMAC region (6.49%) is since two decades above the average for Africa (4.9%). However, the countries of the sub- region show many differences in their rates of growth (Graph 1)



Graph 1. Evolution of economic growth rate between 1996-2012

Source: Authors from WDI (2014) Data Base

From 1996 to 2006 growth was characterized by the evolution of primary produce which witnessed a dramatic increase in 2006. This period corresponded with the implementation of ambitious macroeconomic and institutional reforms-devaluation of the FCFA, the Heavily Indebted Poor Countries initiative (HIPC) and the consolidation of the integration process. During this period, the average rate of growth was 16.9%. A peak of 30% was recorded in Chad in 2004 and in Equatorial Guinea it was 60% in 1999. The period 2007- 2012 was characterized by a varied rate of economic growth. This period coincides with the world economic and financial crises whose effect was felt at the CEMAC sub- regional level on the level of exports of primary products, direct foreign investments, lay-offs from forest/ timber exploiting companies and delays in financing some projects. At this time the average rate of growth was about 5.1%.

Before this fall, we observe a constant evolution of the GDP. Here, political authorities defined a framework to guide macroeconomic evolution. At the level of the countries, for example, Cameroon and Equatorial Guinea, two reasons justify this choice. Cameroon appears to be the locomotive engine of the sub- region. Its GDP stands at 14270 billion FCFA as against 46563 billion FCFA for the sub -region. This means that the GDP of Cameroon is 31% of that of the sub- region. Equatorial Guinea in the long- run recorded a very high rate of economic growth. With a relative diversified economy, Cameroon’s production is relatively stable (Touna, 2008).

Since 2009, the country embarked on modernizing its productive machinery by putting in place a package of

policies/measures in what she called growth and employment strategy paper (GESP). This document lays the road map to the first stage of emergence in 2035. With a growth rate of 4.6% in 2012, Cameroon was still far from realizing the millennium development goals by 2015. In Equatorial Guinea a good market of primary products and petroleum products in particular sustained growth in the long -run. In the whole of the sub -region, Equatorial Guinea is the only country which has ever recorded a very high rate of economic growth of 75% in 1996. However, the international financial crises reduced the growth of the country by end of 2007. Between 2009 and 2012 the rate of economic growth of the country was just about 2%. This drastic fall of the rate of economic growth in Equatorial Guinea in 2012 is attributed to the fall in the price of a barrel of petrol which fell from 113.5 dollars in 2011 to 111.67 dollars in 2012. The level of private investments increased around this period to about 26.35%. In fact, Equatorial Guinea tops the chart of private investments of about 62%. The rate of private investments in the sub-region is dragged down by the Central African Republic which records only 6.5% rate of private investments.

The quality of the institutions is still a main problem in the sub- region. If we consider only corruption and political stability which are the main institutional variables, we see that they are negative. We have -0.76 for the index of corruption and -1.08 for political stability. Despite all efforts to eradicate corruption, it remains an endemic problem in the region. In Congo, it is -1.69; in Gabon it is about 0.29. Gabon is seen to be the least corrupt country in the sub -region. Committees and control brigades to fight against corruption have recorded appreciable results.

A detail analysis of differences in means of variables is presented in table 3.

Table 3. Analysis of difference of means

Dependant variable : Economic growth rate : Y						
Variables	Cameroon	Congo	Gabon	Equatorial Guinea	Central Rep.	Chad
I	2.04 (0.0039)	0.1225 (0.0052)	0.514 (0.0000)	2.3057 (0.0048)	1.452 (0.0002)	3.628 (0.0003)
G	0.013 (0.0002)	5.291 (0.0000)	0.0307 (0.0184)	2.8414 (0.0000)	0.4521 (0.2476)	1.508 (0.0550)
Infla	9.709 (0.0000)	10.441 (0.0000)	9.38 (0.0000)	7.9341 (0.0000)	9.9508 (0.0000)	10.0304 (0.0000)
Infras	9.782 (0.0000)	10.439 (0.0000)	9.456 (0.0000)	7.8010 (0.0000)	9.7721 (0.0000)	9.7618 (0.0000)
Corrup	7.196 (0.0000)	11.584 (0.0278)	8.2262 (0.0000)	7.295 (0.0012)	8.18 (0.0000)	7.5362 (0.0023)
Pol_Stab	12.1941 (0.0000)	11.0706 (0.0000)	9.823 (0.0000)	9.134 (0.0000)	11.576 (0.0000)	11.7990 (0.0000)

Source: authors

Note: We have means and p-value in parentheses; Hypothesis Ho: Means (diff) =0

All the explanatory variables portray an insignificant or weak difference in means. These variables have a P- value of less than 5%. This shows therefore their significance. The difference of means between the Gross Domestic Product and household consumption on the one hand and government expenditure on the other hand are not significant. This situation is explained by the nature of the data. In general, the above results show a good behavior of the explanatory variables. This confirms the results of the descriptive statistics.

A further analysis of the link between investment legislation together with other variables and macroeconomic performance are presented in table 4.

Table 4. Correlation matrix of dependent variable and independent variables

	Y	I	G	Infla	Infras	Corrup	Pol_Stab	Dummy
Y	1							
I	0.5846*	1						
G	-0.156*	-0.014	1					
Infla	0.1765	0.0175	-0.3615	1				
Infras	-0.034*	0.0211	0.0742*	-0.2415	1			
Corrup	-0.165*	0.3423	0.0303	-0.175*	0.7512*	1		
Pol_Stab	-0.349*	-0.0414	0.3031	-0.0647	-0.0537	0.0012*	1	
Dummy	1.234*	0.0346	2.0145*	1.0562	0.3564	0.2756	0.0251	1

Source: authors



Note: \* indicates significance at 5%

The correlation matrix shows that all the explanatory variables are strongly correlated with the explained variable (Y) except inflation. The signs of the coefficients associated with the explanatory variables are in conformity to theory except in the cases of government expenditure, infrastructure and inflation. The correlation between the explanatory variables is weak and in most cases insignificant. In general, when the correlations are weak, that indicates the absence of multicollinearity. However, an in-depth analysis is done from table 5 which shows the estimates of the macroeconomic performance function.

Table5. Results of estimations

Explanatory Variables	Model 1	Model 2	Model 3	Global Model
Y <sub>t-1</sub>	1.21** (0.15)			1.62* (1.07)
I	0.19* (0.10)			1.02 (1.01)
G	0.287 (0.27)			-0.62 (1.35)
Infla		-0.22 (0.468)		-0.18* (0.67)
Infras		-12.28* (5.03)		2.98** (6.01)
Corrup		-1.40** (3.17)		-1.25* (2.38)
Pol_Stab		-1.04* (6.22)		-1.78* (6.15)
Dummy			1.99** (2.50)	2.35* (2.21)
Dummy*I			2.15* (1.24)	1.98* (1.35)
Dummy*G			0.52* (2.35)	0.61** (1.58)
_Cons	2.01*** (1.15)	1.91** (2.17)	2.62** (3.18)	6.19* (4.12)
Nbersof Obs.	84	84	84	102
Prob>F	0.000	0.001	0.006	0.000
R-squared	0.82	0.79	0.85	0.86
Adj. R-squared	0.77	0.71	0.76	0.81
AR1	0.626	0.691	0.51	0.621
AR2	0.617	0.521	0.581	0.612
Sargan/Hansen Test	1.61	1.58	1.67	1.81

Source: Authors

Note: The values in parentheses are Standard Deviation. \*\*\*, \*\* and \* represent the significance of the error threshold of 1%, 5% and 10% respectively. For the threshold of 5%, if the p-value of the statistical AR1 or AR27 is less than 1.96 then we accept the assumption of independence of errors or the lack of autocorrelation of errors. At 1%, if the statistical AR1 or AR2 is less than 2.536, the same conclusion is maintained. The p-values of the Sargan/Hansen test is widely used to accept the null hypothesis of the validity of instruments. Remember that the overall model is estimated by the Generalized Method of Moments (GMM).

The first model considers only the traditional macroeconomic variables. The second model incorporates institutional variables which capture the investment climate. The third model shows the impact of investment legislation on macroeconomic performance. The fourth model incorporates all the explanatory variables of the model.

**Private investment (I)** is significant at 10%. A percentage increase in the rate of investment leads to a 0.19% increase in economic growth. This low contribution of investment to economic growth is attributed to the hostile investment climate in the CEMAC sub-region. According to the Doing Business report of 2014, the countries of CEMAC appear towards the bottom of the chart of investment climate. Of the 189 countries studied, three CEMAC countries come in

the last position. Congo is the 185th, the republic of central Africa is the 188th and Chad is the 189th. This implies that investors encounter many difficulties in this region. Public investment (G) is positively but insignificantly associated with economic growth. Government expenditure is directed more towards social projects whose returns are felt only in the long- run.

The macroeconomic and institutional framework is shown in the second model. Inflation (Infla) reduces the macro economic performance in the sub region by 0.22%. Despite the convergence criteria accepted by the authorities of the sub- region to limit the country rate of inflation at 3%, there still exist higher rates of inflation. In 2008, for example, the rate of inflation was 9.3% in the Central African Republic. It was 4.8% in Equatorial Guinea in 2011.

**The quality of infrastructure (Infras)** measured by the number of telephone lines per 1000 inhabitants does not contribute to economic growth. It reduces as much as 12.28% the macroeconomic performance of the CEMAC sub-region. Generally, if energy, financial and economic (road) infrastructures are considered, we observe their level to be very low. Central Africa has a very high energy potential in the continent. Its potential is 653361 Giga watts per hour (Gwh) i.e 57.7% of the continents potential. However, it produces only 10537 Megawatts per hour (MWH).

**Corruption (Corrup)** in the CEMAC countries is even evident. On average, its index is -0, 76 between 1995 and 2012. It reduces significantly economic growth by 1. 40%. The struggle against this pandemic must be intensified by creating committees to fight against the pandemic and putting in place special jurisdictions to judge authors of corrupt practices. To this end, the Cameroonian authorities created, for example, anti-corruption committees and special tribunals to judge all economic crimes especially embezzlement.

**Political instability (Stab\_Pol)** is the second institutional variable. It is significant at 10% and reduces at the rate of 1.04% the macroeconomic performances of the Sub- region. Since independence of these countries there has been 14 coups d'états and multiple civil wars.

More specifically, in Central African Republic, there has been 5 coups d'états; in Chad 4 coups d'états; in Congo 4 coups d'états and in Guinea Equatorial 1 coups d'états (International Crisis Group, 2014). Cameroon and Gabon are excluded in terms of coups d'états but they have the common characteristics of having long serving heads of states as well as political regimes.

**The Dummy variable** was included in the model to assess the effect of investment charters on macroeconomic performance in the CEMAC region. The result showed that this variable was positively and significantly associated with economic growth in the aggregate and disaggregated model. This dummy variable is significant at the 5% level. A percentage increase in this variable increases by 1.99% the macroeconomic performance of the Sub - region. This implies that institutional reforms and investment codes stimulate private investment (Dummy\*I) and contribute to an increase in economic growth. The effect of legislation on economic growth varies with the degree of private investment. Indeed, when there is an improvement in legislation by a unit, the effect of a unit of private investment on economic growth is 2.15. In the same way, when there is an improvement in legislation by a unit, the effect of a unit of public investment on economic growth is 0.52

In the global model, all variables related to investment legislation are positive and significant. Corruption and the political instability always reduce economic growth. The level of inflation always impacts negatively on economic growth. The level of infrastructure that was negative in the simple model is significant at 5% in the global model.

## 5. Conclusion and Policy Implications

The estimates of the generalized macroeconomic function showed that investments and investment legislation were significantly and positively related to growth. However, the significance of these variables in explaining the variation in the level of growth was not robust in all the models. Factors such as corruption, inflation and political instability were the most important negative factors in explaining variation in macroeconomic performance. Government spending showed an insignificant negative association with macroeconomic performance in the aggregate model. The level of infrastructural development and political stability significantly influenced variation in macroeconomic performance in the aggregate model.

From these results, a number of policy issues emerge. On the whole, it is important for the countries of the CEMAC region to revise and adapt their investment legislations to their specific current and future exigencies and prospects for growth. At the sub-regional level, efforts should be intensified to ensure the workability of the common investment legislation and their various adaptations in the individual countries.

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