



## **INSTITUTIONS AND ECONOMIC DEVELOPMENT IN CEMAC REGION**

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### **Abstract**

*This paper aims to analyze the influence of institutions on economic development of this region. The study, used panel data of six member countries from 2002 to 2018 period and System Generalized Moment Method to estimate a dynamic growth model of the region. The results revealed that control of corruption, governance effectiveness through the improvement of public services and an increase of the level of investments could create fair business environment that can ensure sustain economic development in the region. Thus, the study suggests to policies makers of member states to integrate the improvement of the quality of institutions in any developmental economic plans and programs in order to stimulate economic growth and sustain economic development in the region.*

*Keywords: Institutions, Economic Development, Economic Growth, CEMAC region*

### **INTRODUCTION**

The role of institutions on economic performances of the countries have been a focuses of many cross countries studies, in recent years. In fact, political, economic and social structures explain the difference in the level of economic development across countries. Hence when it comes to defined institutions each author has its own conception. Lecours (2002) in political science perceived institutions as a superiority of the State, while Scott (1995) in sociology defined institutions as standards cognitive that guide human action. However, without presenting all the definitions put forward so far, we have chosen North's (1990) definition who states that Institutions are the rules of the game in a society or more formally are the humanly devised constraints that shape human interaction. He argued that through the set of formal rules namely 'rules of the game' and informal norms institutions reduce transactions cost and promote



good macroeconomic environment, that later lead to economic development. Institutions in literature are recognized to affect the development of economic activities.

Scott (2001) defined institutions as a set of laws and regulations (regulatory institutions), valuable systems and cultural standards (normative institutions), and cultural habits (cognitive institutions) existing in a society. For these authors institutions are assimilated to laws and regulations (regulatory institutions) that guide individual actions in society. Thus, when individuals failed to respect these guidelines some social problems like corruption can rise.

While Campbell (2004) defined institutions as formal and informal rules, that define the context within which, individuals, corporations, labor unions, nation-states, and other organizations operate and interact with each other. In the same line, Williamson (2000) argued that four factors including: social embedded, institutional environment, governance and the level of resource allocations have impacts on economic activities. Rodrick, Arvind and Francesco (2004) argued that the quality of institutions influences the decisions of investors before developing economic projects. And Kostova (1997) developed the concept of 'country institutional profile' that are the set of relevant institutions established over time and operate in the country. He argued that institutional profile explains the difference in the development of economic activities across countries. He found out three dimensions of institutions namely: regulatory dimension that refers to government policies, while cognitive dimension refers to social norms and a normative institution refers to social values. For these authors, the quality of economic, political, social and cultural aspects of institutions determined the quality of investment that can be made by investors in a given country and later the level of economic development.

It is widely accepted that regulatory institutions have an impact on economic activities. For instance, North (1990) argued that political institution is a legal frame that defines 'rules of the game' and characteristics of the administrative and judicial authorities which implement the rules, that play a central role in the development of economic activities. Thus political institutions affect the regulation of economic activities and therefore influence economic development. North (2005) also argued that the combination of formal and informal rules constrains the actions of economic agents. North institutional economics approach mainly focuses on the integration of institutions into economic theory and the role of State in setting policies that shape the behavior of economic agents.

Therefore, institutions including government policies and programs, legal and judicial framework, financing system, technologies and social and cultural norms could enhance or hinder economic development of countries or region country (Roxas, Lindsay, Ashill, & Victorio, 2007).

Economic development which main measurement is growth rate, is influenced by many factors. Broadly there are supply-side variables (labor, physical capital, and technology) and the demand side variables (government expenditures, investment expenditures and net export). The supply side and demand side factors are called direct factors that determined growth. The traditional growth model of Solow (1956) mainly focus on these direct factors. However, since the increasing of literature on the role of institutions in economic development, authors such as Barro (1996) introduced variables of institutions in growth model, to admit the role of institutions on economic development. Meanwhile, some authors such as Prochniak (2013) admit that institutions are factors that affect direct factors and consequently, affected growth. Thus, we can admit that institutions play a central role in economic development of countries. Meanwhile empirical studies on the role of institutions on economic development introduced institutional variables in economic model (Barro, 1996, Acemoglu, Jonhson and Robinson, 2001, Jalilian et al, 2007, Asiedu and Freeman, 2009, and Mbulawa, 2015).

The Economic and Monetary Community of Central Africa (EMCCA) which the common abbreviation in French is *CEMAC* includes six countries: Cameroon, the Central African Republic, Chad, the Republic of Congo, Gabon and Equatorial Guinea. These countries are link to each other by the common currency: XAF (CFA Francs) and share same economic area and history. The quality of institutions in this region depend of the evolution of economic activities.

After their independence in early 1960s, these countries have put in place policies (political, social, economic) to conduct the countries through developmental programs in order to orient public policies as well as economic policies. These states being endowed with large and diversified natural resources were main economic agent and focusing on the construction of infrastructures including: transportation system, the energy sector, and agro industries firms and exported crops products. Broadly after independences, these countries knew economic prosperity and have relative stable institutions. (Forge, 2009).

However, the economic crisis in mid-1980s where state companies became unproductive and were privatized, following with the decrease of the volume of exportations of crops products such as coffee, cocoa, and gasoil on the international market, the increase of external debt, deficit of public budget, and the devaluation of common currency revealed the weaknesses of institutions (political, economic and social) of different countries of CEMAC region (African Development Bank, 2007).

In early 2000s countries of CEMAC zone adopted economic and social policies and programs in order to promote the development of economic activities and boost economic growth. Despite, these new policies and programs, these countries growth rate remains weak.

Broadly, institutions are qualified as weak and unfair in major developing countries and this may explain the slow level of economic development in these countries. However, when assessing the effect of institutions on economic development, some questions arise, which variables of institutions really impact growth (since institutions is a complex notion)? and what proxy to use as measurement of institutions (many variables are used as proxy)?

Thus, this study focuses on variables of regulatory institutions and used governance indicators to measure these variables in CEMAC region. As mentioned before, growth rate in this region remain weak year to year, despite the adoption of new policies and program by governments. The study makes the assumption that fair institutions could lead to economic development in the region.

## LITERATURE REVIEW

### Impact of institutions on economic development

Literature presents different concepts of institutions, stressing its complexity. Hence, some scholars (Williamson, 2000 and North, 2005, etc) believe that societies with fair institutions that invest in infrastructures, HR and technologies prosper from an economic point of view.

Acemoglu, Jonhson and Robinson (2001) carried out research on colonial origins of countries based on governance indicators, estimate the effect of rule of law on growth. They used a mortality rate of colonizers' as a measurement of rule of law. These authors made the assumption that countries where the colonizers have settled, have better rule of law than countries where their colonizers have not settled. And they concluded that better rule of law leads to growth. Then, Kauffman, Kraay, Lora and Pritchett (2002) also used the settlers' mortality rate as a measurement instrument of institutions in their analysis of the impact of institutions on growth, they concluded that good institutions lead to growth.

Hasan (2010) argued that good implementation of rule of law creates fair business environment that attracts investors and lead to growth. While Qian (2000) studying economic growth in China concluded that economic reform which started in 1978 allowed the development of economic activities of the country. For these two authors, regulatory institutions (mainly rule of law and economic policies) promote economic development.

Acemoglu, Jonhson and Robinson (2004) argued that long run growth is the outcome of economic institutions, they shape incentives of key economic actors and they also recognized that political institutions, cultural and geographical factors may also influence economic performance. In the same line, Rodrik (2007) studying institutions, found out that democracy lead to good institutions and concluded that elements of democracy such as control of corruption and governance effectiveness positively influence economic growth.

In the same line, Proniack and Witkowski (2013) and Jalilian et al. (2007) argued that the quality of regulations created fair business environment that stimulates investment and enhance economic performance. Prochniak (2013) studying impact of institutions on a sample of 153 countries found out that the quality of governance explained the difference in economic development between countries. He then concludes that good governance matter economic development. And Mbulawa (2015) studying determinants of growth in Southern Africa Development Community, concluded that institutional quality created and enabling suitable environment for enhancing economic growth in the region.

Literature also revealed that there is no robust evidence of the effect of institutions on economic performances. Dijkstra (2013) found out that governance effectiveness effect on growth was not significant and Kurtz and Schrank (2007) and Commander and Nikoloski, (2010). found out that institutions have no significant effect on economic growth.

Despite this inconclusive debate on the role of institutions in enhancing or hindering economic performances of countries, this study still focuses on institutions as driver of economic development.

### **The measurement of institutions**

Institutional economists (North, 1990; Williamson, 2000; Scott, 2001; Jackson, 2002 and Campbell, 2004 and Acemoglu et al. 2004) recognized the impact of institutions on economic development. However, the measurement of institutions varies from one author to another. Indeed, political, economic, cultural, and geographical factors are used as proxy that measure institutions. In fact, for institutional analysts; political, economic and social structures explain the difference in economic development across countries. Meanwhile, institutional component including government policies and programs, legal and judicial framework, financing system, technologies and social and cultural norms appear as factors that enhance or hinder economic development. Thus, authors such as Baughn et al., (2006) Djankov et al., (2006), and Gupta et al., (2014), who studying the impact of institutional environment on entrepreneurship and economic development in the emerging markets focused on three dimensions of the country institutional profile namely regulatory, normative and cognitive dimensions.

However, Worldwide Governance Indicators (WGI) appear to be a widely used proxy in cross countries governance studies (Kaufmann et al., 2010 and Rodrik, 2007). Meanwhile this study used Governance indicators as a proxy to measure institutions in CEMAC region. In fact, the Worldwide Governance Indicators summarize the views on the quality of governance by a large number of enterprises, citizens, experts survey in industrial and developing economies (Kaufmann, Kraay, & Mastruzzi, 2008). Despite the weakness of WGI indicators highlighted by

some authors (Arndt & Oman, 2006, and Kurtz & Schrank, 2007). Hence institutions as well as its measurement from governance indicators are complexes and vary from one country to another. Thus, it is a difficult task to find a right measurement of governance performance. Meanwhile, Kaufmann and Kraay (2007), suggested that rule-based indicators need to be used in conjunction with the outcome-based indicators in order to capture the real quality of institutions in a given country. So, in this paper, to measure the impact of institutions on economic development in CEMAC region, author used World Governance Indicators and World Development Indicators from World Bank to analyze the effect of institutions on economic development in CEMAC region.

## **METHODOLOGY**

### **Data**

The study is based on panel data of six countries of CEMAC region from 2002 to 2018. The justification of this time frame is based on the fact that major CEMAC countries started major reforms of economic policies in the early 2000s. The variables of World Governance Indicators (RQ, GE, RL and CC) are from Worldwide Governance Indicators and the estimated values of each variable were used. GDP per capita growth (annual %) and other explanatory variables are from World Bank Development Indicators available online on World Bank database.

### **Model**

It is still difficult for scholars in economic fields to agree on the variables that explained economic growth. The traditional growth model of Solow (1956) focuses on physical and human capital as endogenous determinants of growth. Mankiw et al. (1992) using the Cobb-Douglas production function improving Solow model, and they estimated growth model is function of capital, labor and the level of technology. Meanwhile, Prochniak (2013) argued that capital, labor and technology are direct factors that influence growth, hence there are other factors called 'deep factors' that are institutions that affected direct factors and consequently affects growth. For instance, North and Thomas (1973) argued that factors such as innovation, economies of scales, education and capital accumulation, are not factors of growth but they are growth. Thus, Barro (1996: 4) explained the new growth theory as 'the extension of neoclassical growth model that stipulated that the growth rate depends of the relation between the initial output ( $y$ ) and its target position ( $y^*$ ). The target ( $y^*$ ) depends of government policies and of household behavior with respect to savings, work effort and fertility'. For Barro (1996) growth depends of political and economic institutions as well as geographical factors. Thus, major empirical growth models (Mankiw et al. 1992, Barro, 1996, Barro and Sala-i-martin, 2004,

Kauffman et al, 2002, Acemoglu et al, 2004, and Prochniak, 2013) integrate institutions in classical growth model of Solow (1956). Based on theoretical growth model on long term and the empirical model of Barro (1996) the model of this study is formulated as follows:

$$GDP_{it} = \alpha_0 + \alpha_1 GDP_{it-1} + \alpha_2 INST_{it} + \alpha_3 X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

The equation is:

$$GDP_{it} = \alpha_0 + \alpha_1 GDP_{it-1} + \alpha_2 CC_{it} + \alpha_3 GE_{it} + \alpha_4 RQ_{it} + \alpha_5 RL_{it} + \alpha_6 GFC_{it} + \alpha_7 TRN_{it} + \alpha_8 DCP_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Where:

$GDP_{it}$ : is the growth rate of GDP per capita of country i in year t

$GDP_{it-1}$ : is the growth rate of GDP per capita of country i in year t lagged by one period

$INST_{it}$ : are governance indicators (CC, GE, RQ, and RL) for countries i in t

$X_{it}$ : are other economic variables (gross capital fixed formation, total natural resources and domestic credit to private by banks)

$\alpha$  : are coefficients of explanatory variables;  $\alpha_0$ : is the coefficient,

i: is selected countries; t: time period (year)

$\mu$  : specific effects of countries,  $\lambda$  : specific temporal effects and  $\varepsilon$ : is the error term

### Presentation of variables

Table 1: Variables

	<b>Variables and code</b>	<b>Measurement</b>	<b>Sources</b>
Dependent variable	-Gross Domestic Product (GDP)	Growth rate per capita (annual %)	World Development Indicators (WDI)
Independent Variables	-Control of corruption (CC)	Estimated value (-2, 5) weak to (2, 5) strong	World Governance Indicators (WGI)
	-Government Effectiveness (GE)	Estimated value (-2, 5) weak to (2, 5) strong	World Governance Indicators (WGI)
	-Regulatory Quality (RQ)	Estimated value (-2, 5) weak to (2, 5) strong	World Governance Indicators (WGI)
	-Rules of Law (RL)	Estimated value (-2, 5) weak to (2, 5) strong	World Governance Indicators (WGI)
Control variables	-Gross Fixed Capital formation (GFC)	Average annual growth of gross fixed capital formation based on constant local currency	World Development Indicators (WDI)
	-Domestic Credits to Private sector by banks (DCP)	Percentage of GDP	World Development Indicators (WDI)
	-Total Natural Resources (TNR)	The sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents	World Development Indicators (WDI)

### ***The dependent variable***

GDP per capita annual growth is the dependent variable. Economic growth is measured from the GDP per capita that is function of governance institutions (GE, RQ, RL and CC), and control variables mainly economic variables (gross fixed capital formation, and domestic credits to private sector by banks) and total natural resources. GDP per capita is used as proxy for economic growth that appears to be the outcome of the quality of institutions (Kauffman et al., 2002, Acemoglu et al., 2004, Rodrik, 2007 and Dijkstra, 2013).

### ***Independent Variables***

#### *Regulatory Quality (RQ)*

In this study regulatory quality is used as a proxy of government policies and programs in CEMAC region. With regards to various developmental policies and programs put in place by major member states, this variable is expected to have a positive effect on growth. The estimate values of governance ranges from approximately (-2, 5) weak to (2, 5) strong governance performance.

#### *Rule of Law (RL)*

Rule of Law is a proxy of laws and regulations. Country's effectiveness of law enforcement is a motivate factor to promote good investment climate and consequently to stimulate growth. However, according to WGI indicators major developing counties have weak Rules of Law, so RL in CEMAC region is expected to have a negative or insignificant effect on GDP.

#### *Government Effectiveness (GE)*

Government Effectiveness is a proxy of bureaucratic process. Government's fair public services and the absence of political pressure on economic agents promote private investment. GE expected to have significant effect on growth.

#### *Control of Corruption (CC)*

Control of Corruption is a proxy of informal networks. Major counties from Sub Saharan Africa have weak Control of Corruption, so CC is expected to have negative effect on growth.

### ***Control variables***

The current econometric model includes variables that could also explain economic growth in CEMAC region (gross fixed capital formation, and domestic credits to private sector by banks, and total natural resources).



*Gross Fixed Capital formation (GFC)*

Gross Fixed Capital formation is the average annual growth of gross fixed capital based on constant local currency. It is a proxy to measure the level of investment in the region and it appears to have a positive influence on growth (Barro, 1996). Thus, Gross Capital Formation is expected to have a positive effect on growth in CEMAC region.

*Total Natural Resources (TNR)*

Total Natural Resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents (WDI, 2019). Countries of CEMAC region have various and large natural resources, thus Total Natural Resources appear to have a positive effect on growth of these countries.

*Domestic credits to private sector by Banks (DCP)*

Percentage of credits to private sector by Banks measure financial system and it is used as a proxy of financial development and its measure the efficiency of the banking sector in financing private investment (Zang & Kim, 2007). This indicator positively influences country's investment and by extension economic growth.

**Method of estimation**

This paper used the Generalized Moments Method (GMM) that appear to be a preferable method to estimate dynamic model of growth (Arellano and Bond, 1991 Arellano and Bover, 1995, and Blundell and Bond 1998). GMM is used to estimate dynamic panel coefficients and have two type of tests including: the first difference GMM estimator and the system GMM estimator. The first difference GMM estimator aims to eliminate countries specific or unobserved effects according to Arellano and Bond (1991). However, this method reported to have bias problem and weak instruments. Thus, this study used System GMM estimator proposed by Blundell and Bond (1998) to correct the endogenous problem of explanatory variables of the estimate model and overcome the bias problems of the difference of GMM estimator. The System GMM estimator assumes that the first difference of the dependent variable and explanatory variables are uncorrelated with the countries specific effects, and has an advantage to generate internal instruments from endogenous explanatory variables (Roodman, 2009). Thus, in this paper the System GMM stacking simultaneous equation (1) in first difference with equation (2). The estimation process follows three steps. Firstly, the test of stationarity variables to determine the stationarity on time period was conduct (Im K Pearsaran, and. Shin, 2003). Secondly, the multi collinearity test of variables was conduct and ensure that all variables are no

collinear and all variables were statistically significant at 1 per cent level. And lastly the generation of the results of estimation (only the results of this step are presented).

## ANALYSIS AND RESULTS

In addition to the estimation results Sargan and autocorrelation test were conduct to valid control variables. The estimation was made through STATA 15.

Table 2: Effect of regulatory institutions on growth

Dependent variable (GDP <sub>it</sub> )	GMM system (one step results)
Independent variables	Coefficients
GDP <sub>(-1)</sub>	0.2470929** (0.013)
CC	5.439627** (0.028)
GE	4.775249* (0.060)
RQ	-11.03102** (0.038)
RL	8.238941 (0.198)
GFC	0.817586*** (0.000)
TRN	0.0381893 (0.659)
DCP	-287088 (0.184)
Const	11.27228*** (0.005)
Wald Chi Square	1255 (0.000)
Sargan test	69.1968 (0.6671)
Arellano-Bond AR (1) (p-value)	0.1006
Arellano-Bond AR (2) (p-value)	0.3689
Number of observations	76
Number of countries	06

Source: Estimation results from STATA 15

- Notes: 1. The GMM system estimated reported are all one step estimator;  
 2. The figures in parenthesis ( ) are p- values and \*, \*\*, \*\*\* denotes the statistical significance at 10%, 5% and 1% respectively;  
 3. The Wald Chi Square test the significance of independent variables;  
 4. The Sargan test verified the null hypothesis that over identifying restrictions are valid;  
 5. The Arellano-Bond AR (1) test the null hypothesis of no autocorrelation of first order in first differenced errors and Arellano-Bond AR (2) test the null hypothesis of no autocorrelation of second order in first differenced errors.

The results of regression model in table 2, revealed that the model of growth is valid, the Chi square is significant at 1 percent level ( $p$ -value =0.000). This means, the explanatory variables have an effect on dependent variable. The Sargan test ( $p$ -value= 0.6671) evaluating the validity of instruments indicates that the instruments of the model are valid. Arellano and Bond test in first and second order indicates a failure to reject the null hypothesis of no autocorrelation in first differenced errors. The coefficient of delayed growth rate is significant and have a positive effect on current growth rate. The coefficients of institutional variables are globally significant except the coefficient of rule of law. Out of control variables, only the coefficient of gross fixed capital formation is significant, while the coefficients of total natural resources and domestic credit to private sector by banks are insignificant.

The estimation of growth model above indicates that the coefficient of control of corruption is positive at 5 per cent level. Thus, an improve in a unit of index of control of corruption lead to an increase in the rate of GDP by 5.43 points everything else remaining equal. The coefficient of governance effectiveness is positive at 10 per cent level, thus an increase by 1 point of the index of governance effectiveness lead to an increase in the rate of GDP by 4.77 points *ceteris paribus*. The coefficient regulatory quality is negative at 5 per cent level, thus a decrease of 1 point of regulatory quality lead to a decrease in GDP by 11 points *ceteris paribus*. The coefficient of gross fixed capital formation is positive at 1 per cent level, thus an increase of a unit of the level of investment increase the rate of GDP by 0.8 points.

The improve in control of corruption lead to an increase in the rate of GDP growth. These results are in line with Rodrik (2007) and Prochniak, (2013), who also found out that control of corruption positively influences growth. Governance Effectiveness have a positive effect on growth rate. In fact, an improve in the quality of public services lead to an increase in the rate of GDP growth. These results are in line with Jalilian et al, (2007) and Asiedu and Freeman, (2009) who also found out that fair public services (less bureaucracy) positively influence growth. Regulatory quality has a negative effect on growth, the inefficient government policies and programs harms growth and lead to a decrease in the rate of GDP growth, these results are opposite to the findings Proniack and Witkowski, (2013) where regulatory quality have positive effect on growth.

Globally, governance indicators in this study have positive effect on growth and these results are in line with Acemoglu et al., (2004) and Kaufmann,et al., (2007), who found out that governance indicators have a positive effect on GDP growth in long term. These results are also in line with Prochniak, (2013) and Mbulawa, (2015) who argued that good institutional environment fosters economic growth. Thus, the results above verified the assumption that fair institutions lead to economic development in CEMAC region.

Gross fixed capital formation has a positive effect on growth, an increase of investment increases the rate of GDP growth. This result is in line with Barro (1996) and Dijkstra (2013) who also found out that investment have a positive effect on growth.

## CONCLUSION

This paper has analysed the effect of institutions on economic development in CEMAC region using panel data and system GMM method to estimate dynamic growth model. The study aims to verify the hypothesis that fair institutions lead to economic development in CEMAC region. The results provide an evidence that variables of institutions in CEMAC region have an important role in enhancing or retarding growth (economic development). Thus, an improvement of public services by reducing bureaucracy process, the improve in the fight against corruption and increase of the level of investment could enhance growth in the region. The results of this study are useful to policies makers and to member states of CEMAC region that any reforms to improve growth rate in the region need to integrate the improvement of the quality of institutions, in order to create fair business environment for investors and ensure sustain economic development. Despite this contribution, this study has some limitations, mainly the used of one model to estimate long term growth and the limited numbers of variables and sources of institutional variables. Further researches could integrate more variables and used various sources of data to capture the effect of institutions on growth rate and economic development in CEMAC region.

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