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13 May 2022

Online at https://mpra.ub.uni-muenchen.de/113071/
MPRA Paper No. 113071, posted 20 May 2022 13:22 UTC

# Budgetary principles in the cemac zone : effectiveness or efficiency

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## SUMMARY

*The budgetary principles in CEMAC are the rules derived from practice that member states must follow when presenting their draft budget laws. This article looks at the actual implementation of these principles and the effect of their application. Thus, an empirical link is established by means of DEA analysis between three inputs (wage bill, expenditure on goods and services, investment expenditure) and one output (gross domestic product). The analysis covered the six CEMAC countries and seven fiscal years. On the basis of the analysis, the effectiveness of budgetary principles is very relative in all CEMAC countries, not only because of the adjustments provided for by the legislator, but also because of shortcomings in the preparation and execution of the budget. In addition, the implementation of these principles is effective in three countries of the subregion: Gabon, Equatorial Guinea and Chad. Cameroon is close to the efficiency frontier, which is not the case for the Central African Republic and Congo.*



*Key words : budgetary principles, effectiveness, efficiency, CEMAC Directives, government budget, DEA model.*

## INTRODUCTION

Founded in N'Djamena, Chad, on March 16, 1994 to replace the Customs and Economic Union of Central African States, the Economic and Monetary Community of Central Africa (Communauté Economique et Monétaire de l'Afrique Centrale, CEMAC) expresses a desire to strengthen integration through closer economic cooperation. It brings together Cameroon, Congo, Gabon, Equatorial Guinea, Central African Republic and Chad, who share the Franc de la Coopération Financière en Afrique (FCFA), a currency inherited from the French colonial era. Its parity is fixed against the euro[1].

Since July 5, 1996, these countries have signed the Convention governing the Central African Monetary Union in Libreville, Gabon, although it did not come into force until June 23, 1999. Thus, CEMAC, like the West African Economic and Monetary Union (WAEMU), is unique in that, in the face of any external shock, macroeconomic stability relies primarily on fiscal policy (Ondo, 2000).

The general framework for implementing CEMAC's fiscal policy is provided by its directives. Indeed, CEMAC has undertaken to harmonize the public financial management (PFM) systems of its member countries through directives covering key areas. Building on the experience of WAEMU, this initiative aims to modernize the public financial management system, make it more transparent and ensure greater comparability of public financial data to better monitor economic policies, budgets and financial resources of member countries. To this end, on December 19, 2011, the CEMAC Council of Ministers adopted six revised directives aimed at harmonizing the legal framework for public financial management in its member countries**.**

The guidelines on public expenditure management, as well as those on fiscal policy, are an important part of the CEMAC countries' desire to improve the design and management of fiscal policy in order to strengthen monetary policy and the common monetary base. Collectively, these directives introduce a number of innovations in line with their objectives[2].

The guidelines represent a major improvement that brings the legal and regulatory frameworks for public financial management in CEMAC member countries closer to international best practices and standards in this area. Among the most important of these international practices are the budgetary principles.

[1] 1 Euro = 655.957 FCFA.

[2] The main objectives of the CEMAC directives are as follows:

- Align the public finance system with best practices and international standards;
- Harmonize the rules for the preparation, presentation, approval, execution, control and reporting of the state budget in all member states;
- Promote efficient and transparent public financial management in all member states;
- Enabling comparability of public finance data for effective multilateral surveillance of national fiscal policies;

Promote the integration process in Central Africa.

Many studies are interested in the effectiveness of fiscal policy and the macroeconomic framework in the CEMAC zone. It is in this sense that Tchouassi and Ngwen (2015) dealt with the impact of taxation on fiscal policy. Also, Avom (2007) had made a diagnosis of fiscal policies in the CEMAC zone. Multilateral surveillance of fiscal policies in the CEMAC zone has also been the subject of work (Avom and Ngbetkom, 2003). Although Avom, Bobbo and Mignamissi (2015) have produced a reflection on the effectiveness of macroeconomic convergence in the CEMAC zone, studies on the effectiveness of fiscal principles in this zone are almost non-existent. Moreover, such a subject is hardly ever addressed in other countries. This study attempts to fill this gap in order to answer the following question: Are fiscal principles effective or efficient in the CEMAC zone ?

The objective of this study is to analyze the empirical relationship between the inputs to budget preparation and the application of budgetary principles. Three parts are set in motion to conduct this work. First, the literary and theoretical framework is presented, followed by the methodology of the study. The results are developed last.

## 1. LITERARY AND THEORETICAL FRAMEWORK

Prior to developing the theoretical foundation on which effectiveness and efficiency rest, we will proceed to a definitional framing of some key terms.

### 1.1. BUDGETARY PRINCIPLES

The fiscal principle is any rule that governs public finances (Ferretti, 2020). These are the rules that the government must follow when presenting a budget proposal. In the CFA zone, fiscal principles are generally modeled on French law. In some cases, five principles are recognized and in other cases, six principles are used.

According to Bouthevillain, Dufrénot, and Paul (2013), these principles are imposed by laws and regulations, thus generally ensuring the proper functioning of the state.

*Figure 1: Budgetary principles*

### 1.1.1. THE PRINCIPLE OF BUDGET ANNUALITY

The principle of the annual budget is one of the oldest budgetary principles in France. It is based on the principles of annual fiscal approval of Article 14 of the Declaration of the Rights of Man and Citizenship. However, it was not really applied until the Restoration (Chouvel, 2020) by the Finance Law of 26 May 1817.

This rule is clearly developed by the General Rules of Public Accounting of 31 May 1838 and 31 May 1862 (Hupon, 2001). This principle was set in stone in the 5$^{th}$ Republic by the 1959 Ordinance.

According to Chouvel (2020), the annual principle of the budget is to set the duration of the budget process at one year. In other words, the budget approval given by the budget law is valid for only one year. This prevents the public sector from levying a permanent tax without the approval of the national representative body.

This principle also means that the financial authority to spend is only valid for one year. When the approval expires, you will generally not be able to spend any more, even if all the funds have not been used (Ossa, 2000).

The annual principle was originally justified by the economic structure at the time it was born. Chouvel (2000) recalls that agriculture was the center of economic activity in the 18th and 19th centuries, providing the bulk of household income. The economic and budgetary cycle followed the agricultural cycle because it depended on the rhythm of the year. In the name of this principle, the state budget must be voted before the beginning of each fiscal year. Another, more technical reason was raised. As long as the government's budget is based on expectations, it should not cover too much time. Otherwise, the accuracy of the prediction may be reduced (Chouvel, 2000).

This principle also has political legitimacy. Indeed, according to Chouvel (2000), for effective parliamentary management and a clear vision of the budget, governments must regularly collect taxes for parliamentary approval in order to make expenditures. A period of one year was considered appropriate.

### 1.1.2. THE PRINCIPLE OF A BALANCED BUDGET

According to Cohen (2002), the principle of balanced budgets means that expenditures must be covered by roughly equal revenues. This principle actually implies three distinct obligations.

All budgets must be balanced. Thus, for example, if there is a main budget and several subsidiary budgets, the possible deficit of one cannot be compensated by the surplus of the others.

Revenues and expenses must also be accurately estimated. In other words, there are no omissions, surcharges or discounts. Overestimating revenues, for example to artificially balance the budget, is not allowed.

Finally, the repayment of the debt must be guaranteed by so-called "clean" income. This means that it is forbidden to borrow again to repay another loan.

### 1.1.3. THE PRINCIPLE OF BUDGETARY UNITY

A combination of three elements is required to meet this principle. First, all expenses and revenues must be displayed in one document. Second, they must be presented in detail. And finally, to add them up, they must be of the same nature.

Gilles (2009) points out that this principle gives parliamentarians greater control over public finances. It also makes it possible to clarify the presentation of the budget. It also ensures that the budget is truly balanced, avoids the existence of special accounts and displays the total amount of public expenditure.

According to Gilles (2009), this principle implies that all state budgetary expenditure and revenue processes are followed. However, as a result of decentralization, local governments will have legal personality. As a result, public expenditures on behalf of these communities do not appear directly in the state budget (Gilles, 2007). This also applies to public institutions, public enterprises and social security institutions.

This principle therefore also means the existence of a single budget document submitted to parliamentary vote. At the same time, amendments to the budget law modify the text during the fiscal year and add it to the original text (Gilles, 2009).

### 1.1.4. THE PRINCIPLE OF BUDGETARY UNIVERSALITY

Budgetary universality is reflected in two aspects, the rule of non-compensation and the rule of non-allocation.

Non-compensation rules are also called non-contractual rules or gross proceeds rules. This rule means that expenditures and revenues must be included in the budget law; there should be no netting between them. The rationale for this rule is that parliamentarians are reassured

that there is no spending or revenue hiding the actual levels. It also prevents the formation of a slush fund.

Non-allocation rules prohibit the use of certain revenues to cover certain costs. All budget costs must be covered by a general portion of revenues. This rule complements the leveling rule, which prohibits the budget from including the net amount resulting from the leveling of revenues and expenditures.

Non-allocation rules are often criticized for creating administrative inertia by preventing the service from benefiting from the revenue it generates. Another argument against the principle is that it prevents taxpayers from seeing the benefits of the taxes they pay; it is as if they do not know what their taxes are for.

### 1.1.5. THE PRINCIPLE OF BUDGETARY SPECIALITY

Born in Great Britain in the 17th century, the principle of budgetary speciality is one of the most restrictive in public finance. It specifies that any appropriation authorized by parliament by means of the finance act must be allocated to a specific expenditure. A voted appropriation cannot be used for any purpose (Guyen, 1996).

In general, specialization is verified on the basis of two criteria. The first is the criterion of the nature of the expenditure, which applies to the means to be used, and the second is the criterion of the purpose of the expenditure, which refers to the objective to be achieved.

According to Gilles (2000), this principle is interesting in that it strengthens parliamentary control over government action. Moreover, the specialization of appropriations is intended to facilitate the execution of public expenditure and helps to avoid waste.

### 1.1.6. THE PRINCIPLE OF BUDGET ACCURACY

Verifying the authenticity of financial statements means checking for obvious valuation errors. Thus, the search for truthfulness aims to ensure that the estimates made in the financial and tax statements are free of errors. Since forecasts are never completely accurate, it is necessary to distinguish between so-called normal errors and errors that are clearly due to false budgetary statements. The amending finance act can then oblige the legislator to go back to the original data.

In the context of the principle of sincerity, it is expected that the forecasts are consistent and the emphasis is on implausible figures reflecting the insincerity of the budget bill rather than on substantive errors in the figures and forecasts put forward.

National accounting is also subject to the principle of fairness. This requires the accuracy of the State's accounts. It is required that the State's accounts be regular, sincere and give a true and fair view of its assets and financial situation. This shows that fairness is expected in the settlement law.

### 1.2. NOTIONS OF EFFECTIVENESS AND EFFICIENCY

To speak of the effectiveness and efficiency of legal norms (in this case the provisions of the CEMAC directives on the finance law) is to define these notions under the dual prism of law and management.

#### 1.2.1. EFFECTIVENESS: STRONG LEGAL CONNOTATION

Legislative evaluations are becoming increasingly important, although they are much less implemented than trendy public policies in particular. These criteria are based on legal standards of quality, Deming wheels, controls, performance, good examples of quality assessment, the UN system's rules of evaluation, and the legal theory of the legislative process in some Western countries (Gaster, 1995).

Given the myriad of standards of legal quality and their diversity, Ethier (1994) recommends grouping them under the broadest general standards to assess the quality of law or equivalent means. They lead to the criteria of accountability, objectivity, legitimacy, effectiveness, efficiency, efficacy and operability.

Effectiveness is a theoretical model in the sociology of law that aims to go beyond the effectiveness or ineffectiveness of norms. According to Demers (1996), the concept of legal effectiveness was originally subordinated to "the more general study of the evaluation of legal rules" (p. 135). According to Rocher (1998), effectiveness refers to "any effect of any kind that a law may have" (p. 136). Therefore, it is much broader than the mere effectiveness of the law when it comes to achieving the legislator's desired effect.

For Rocher (1998), the ineffectiveness of the law would only be a negative effect of the norms. In other words, it will be the empirical effect of the norm or of its modifications. In this case, it is a question of "measuring not only the effects of any kind, but also the reasons for these effects and the way in which they occur" (Leroy, 2011, p. 728).

Effectiveness lies in the enforcement of the rule. If the recipient does not comply with the rule for various reasons, the rule will be ineffective. Where a rule is binding, as in the

CEMAC guidelines, it is clear that its lack of effectiveness constitutes an error, because the rule does not produce the intended effect.

### 1.2.2. EFFICIENCY: STRONG ECONOMIC CONNOTATION

Effectiveness is the quality of what makes it possible to achieve the expected results and is directly linked to the concept of performance. In a broader perspective, effectiveness can be understood as an action that produces the desired effect. The concept begins in the early 16th century and is derived from the Latin word efficacia. According to Plane and Tanimoune (2005), its application began with medical terms to define good realization of therapeutic and clinical approaches. Soon, the term became popular and was used in several fields of knowledge such as education, administration and psychology.

Effectiveness is also a virtual measure of the gap between the results obtained and the objectives sought. Tchouassi and Nkabkob (2021) argue that this measure alone is not sufficient and that the necessary means must be available to achieve the stated objectives (relevance).

Effectiveness can also be seen as the degree of achievement of the planned activity and the degree of achievement of the expected outcome. It is measured by planned factors and expected objectives (Nkabkob, 2020). Effectiveness is often used in the context of measuring the outcome of an action taken.

There are several tools that can be used in any facility for effectiveness assessment. In this sense, the ISO standard defines evaluation as the process of determining the effectiveness, efficiency and conformity of a service or facility. According to the standard, effectiveness is a measure of the degree to which an objective is achieved. This is distinct from efficiency which measures the use of resources to achieve a particular objective. Relevance is the relationship between the means and the end. That is, the ability of the available means to enable information services to achieve their intended objectives.

Finally, efficiency, like effectiveness, must also be put into perspective with respect to the usefulness of fiscal policy.

## 1.3. THEORICAL FOUNDATIONS OF THE UTILIITY OF BUDGETARY POLICY

The use of government spending as a tool to stabilize economic activity officially began during the Great Depression of 1929 (Bruneau and De Bandt, 1999). Since then, several

economists have commented on the use of this approach. Two ways of thinking are explained, Keynesian and neoclassical.

### 1.3.1. THE KEYNESIANS AND THE INTEREST OF BUDGETARY POLICY

The theory behind fiscal policy is based on the idea of the British economist John Maynard Keynes (1883-1946). In his General Theory of Employment, Interest and Money, published in 1936, the author proposed solutions to the economic problems that caused unemployment and the Great Depression of 1930. According to Keynes, as economic activity slows, governments should strive to maintain a strong economy and high employment by stimulating demand through tax cuts, deficit spending and investment in public works projects. Once the economy recovers, the government will have to pay off the debt caused by tax cuts and public spending with tax increases and budget surpluses (N'kodia and Sarr, 2007).

During and even after the Great Depression, this theory was popular in the Western world. It was seen as a stabilization policy that not only helped prevent a prolonged recession, but also curbed inflationary pressures and promoted strong economic growth.

In Canada, the economic crises of the 1960s and 1970s seem to have confirmed the validity of the Keynesian approach. However, this approach did not solve the problems of inflation and high unemployment (Bikai, 2015). This has led some economists to criticize Keynes' theory. For them, Keynesian intervention is likely to increase rather than decrease economic volatility. Keynesian economists countered that the problems of the 1970s were due to the sharp rise in world oil prices and other developments that were largely beyond the control of national economic policy. And, they argued, they saved the world from the Great Depression, despite the fact that Keynesian policies were not properly implemented.

### 1.3.2. NEOCLASSICS AND BUDGETARY IMPERTINENCE

Some economic theories disagree with Keynes' theory: state intervention will not be effective in reviving economic activity. This is the neoclassical claim. For them, the state should not intervene in the market so as not to distort the effect of Adam Smith's invisible hand. Briotti (2015) argues that Smith's theory is the basis for the classical idea that letting go is the best way to avoid imbalances, as the economy tends to be self-regulating.

For neoclassicals, only the market should ensure a return to full employment. The state should only intervene as a referee to guarantee free play in competition. Therefore, even in

times of recession, governments should not intervene in economic activity to stabilize at the lowest levels.

Ricardo's equivalence theory is consistent with neoclassical theory. It says that the tax system will be invalidated because rational individuals can so well predict future tax increases. Clearly, when agents are informed of future tax increases, they increase personal savings and reduce consumption. Thus, the Keynesian multiplier remains uniform and it is therefore a neutral fiscal policy. However, this theory is based on certain assumptions that are not always correct (Barro, 1974).

Along with neoclassicals, monetarists argue that purely fiscal government intervention has no significant impact on national output. In their view, the Keynesian model is unrealistic. They ignore some important linkages between different sectors of the economy, explaining why fiscal shocks have little effect on the level of economic activity (Biau and Girard, 2005).

To measure the true effectiveness of fiscal policy, monetarists have proposed a model that allows for a correct analysis of fiscal policy, taking into account all the communication factors absent from the Keynesian model. However, this model has not been able to estimate the specific effects of fiscal policy.

To date, there is still no comprehensive monetarist model that can compete with the existing Keynesian model. There is still controversy about the effectiveness of fiscal policy as a tool for stabilizing economic activity (Martin Velazquez, 2001).

## 2. METHODOLOGY

To conduct this study, it was first necessary to identify the appropriate statistical model. The model leads to the knowledge of the variables, and on this basis, the sources of the data should be identified, as well as the approach to be used (qualitative or quantitative) to obtain the data, whether quantified or not.

### 2.1. MODEL AND VARIABLES

#### 2.1.1. STATISTICAL MODEL: CHOICE OF THE DEA METHOD

The study focuses on two pillars: effectiveness and efficiency. For the first pillar, we will use the legal approach to observe whether or not budgetary principles are taken into account in CEMAC member states. The effectiveness component requires the use of a statistical model based on similar studies (Albouchi, Bachta and Jacquet, 2005). Speaking of

comparable studies, those of Huron and Spindler (2008), Maugard (2014) and Ferdi (2012) show that the measurement of efficiency relates to that of effectiveness in a similar work, using the DEA method.

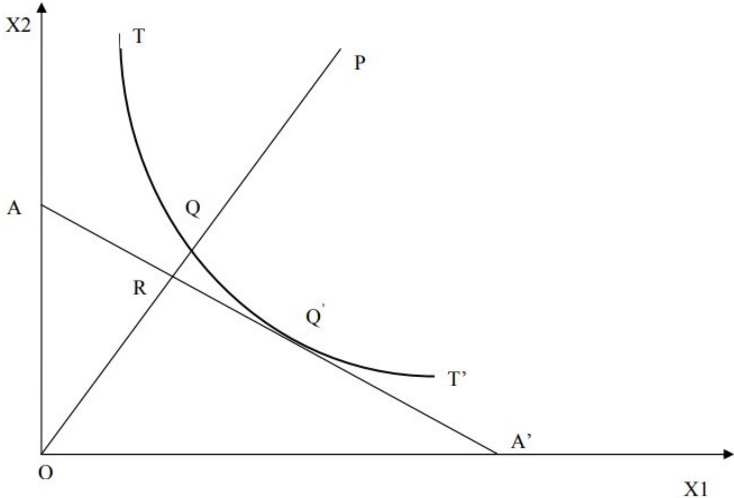
Inspired by the work of Farrell (1957), the DEA method developed by Charnes, Cooper and Rhodes (1978) was initially developed to measure the relative efficiency of fabrics for which production techniques are not always specified. The boundaries observed on these efficiency measures refer to effectiveness.

Two measures of technical efficiency can be given. These are efficiency measures that date back to Debreu (1951) and Koopman (1951) and were popular in the case of a single problem according to Farrell (1957).

For a given factor allocation, the production efficiency of a firm is measured by the difference between the observed level of output and the optimal level of output determined by the production frontier. In other words, Ambapour (2001) argues that if another firm or group of firms can reduce the quantity of one or more inputs to achieve the same output, that firm is considered inefficient. The same firm is inefficient if there are other firms or combinations of firms that produce more with the same factor endowment (Nyemeck and Nkamleu, 2006).

X-efficiency also includes allocative inefficiencies (Battesse and Hassan, 1999). Technical inefficiencies are due to the abuse of certain inputs, while allocative inefficiencies result from combinations of inputs that are not optimal in terms of relative prices (Banker, Charnes, and Cooper, 1984).

*Graph 1: Measuring technical and allocative efficiency*




Source: Farrell, M.J. (1957)

### 2.1.2. MAIN VARIABLES OF THE STUDY

A particularity of fiscal policy implementation in countries is that they are interested in the same types of overall results (outputs), using different resources (inputs) together. Outputs and inputs are the main ingredients of the DEA method.

The outputs of the model are the consequences of all the work done in constructing the budget. In this case, they are the major macroeconomic indicators such as the poles of the Kaldor magic square: growth rate, inflation rate, unemployment rate and trade balance. The study chooses the growth rate because it is more closely related to fiscal indicators. It is the rate that measures the growth of GDP from one year to the next.

As for inputs, these are the material, financial and human resources brought into play and which have an influence on the level of output. In this case, it is government expenditure. The study selects three categories[3] : salary expenditures, expenditures on goods and services and investment expenditures.

## 2.2. SOURCES AND DATA COLLECTION

### 2.2.1. MULTIFORM SOURCES OF DATA

A data source is the place where the data used originates. Nkabkob (2021) explains that it can be the place where the data was created or where the physical information was digitized. These data can, according to Akani (2003), be information specifically collected to study a particular phenomenon (primary data) or information that has already been collected for a different purpose than the study being conducted and is available for a second use (secondary data). For the data in this study, the sources are both primary and secondary.

Speaking of primary sources, the information was collected from the ministries in charge of finance, in particular from the departments in charge of the budget, those in charge of forecasting and those in charge of payroll within the CEMAC.

Various documents, including reports, were consulted for data, and thus served as secondary sources. The CEMAC Commission conducts an annual review in the countries of the subregion as part of multilateral surveillance and produces an important report that was used. The International Monetary Fund conducts various technical and financial assistance

[3] Transfers and interest on debt, which are part of budgetary expenses, were not included as inputs because of their particularity: their level does not depend on the surrounding economic activity.

missions to CEMAC countries and produces country and subregional reports. The subregional reports were used as a source for this work.

### 2.2.2. DATA COLLECTION AND ANALYSIS

The study used the qualitative approach, even though the data to be collected were both qualitative and quantitative. This happens because there are no occurrences to calculate through the responses to be collected.

While qualitative research is used to explore the attitudes, opinions, feelings and behaviors of individuals and to understand how this affects the individuals in question, it can also be used to obtain numerical information on inputs and outputs. The qualitative approach was used to capture information on the practice of budgeting principles in terms of the qualitative data itself. It is this information that has enabled a better analysis of the effectiveness of the budgetary principles.

The quantitative data were analyzed using the MDeap 2 application. This application allows the envelopment of basic data with input or output orientation, and constant or variable return to scale. In the end, it allows to calculate the economic efficiency.

## 3. EMPIRICAL RESULTS

The effectiveness of budgetary principles within CEMAC is identified through participant observation interviews, while the effectiveness of these principles is assessed through DEA analysis. The study used budget laws from 2012 to 2018 and the related document, given that the 2018 budget year is the most recent for which the CEMAC convergence review report is completed.

### 3.1. EFFECTIVENESS OF BUDGETARY PRINCIPLES IN CEMAC COUNTRIES

The CEMAC directives, adopted in 2011, gave member states ten years to fully transpose them into national regulations. While all CEMAC member states have transposed the directives, not all mechanisms induced by the provisions have been triggered.

At the meeting of the CEMAC Committee of Experts on Public Financial Management held in February 2021[4], it was noted that the overall level of implementation of the CEMAC Directives is 45%, with disparities; the implementation rates in the countries range from 19% to 57%.

[4] Regional Workshop on Strengthening the Implementation of Public Financial Management Directives in CEMAC Member States.

The budgetary principles are derived from the Finance Act Directive. This is the most important directive and has already been implemented in all member states. According to the officials interviewed, the provisions of the principles are respected in the preparation, execution and reporting of budget laws. However, observation of budgetary practice and documents reveals some pitfalls in the application of these principles.

The principle of annuality is subject to both infra-annual and supra-annual derogations. In some cases, the principle of budget annuality is too long a time frame (changes in the economic context, reorientation of public policies, etc.), and in other cases it is too short (multi-year investment expenditures, execution of certain public contracts, etc.).

It is sometimes necessary, because of the difficulty of forecasting, to pass a rectifying finance act, and these acts are the only ones that can modify the State budget during the year today. The other infra-annual derogation is the decree of advance. It allows the government to increase and open up limited appropriations without seeking the authorization of Parliament, which must nevertheless ratify the decree after the fact. These decrees are subject to varying conditions, depending on whether there is a simple emergency or an emergency and an imperative need in the general interest.

It is also sometimes necessary to grant waivers that exceed the budget year. This is particularly necessary for the development of the State's investments. This is reflected in the budgets in the form of multi-year commitment authorizations.

The principle of balance is also mitigated in practice in CEMAC, through special accounts and annexed budgets. These bring together directly related revenues and expenditures.

The principle of unity is as good as dead when it is known that in all CEMAC countries, the State's budget law is a tripartite one, consisting of the general budget, annex budgets and special accounts.

The general budget groups together all the operations of the Finance Act that do not benefit from a legal regime that derogates from ordinary law. The main estimates of State revenue and expenditure are included. The annexed budgets are special budgets, distinct from the general budget, and concern certain public services of the State whose activity is essentially aimed at producing goods or rendering services for which fees are paid. The special accounts are made up of special appropriation accounts, trade accounts, monetary transaction accounts and financial assistance accounts.

The principle of universality is subject to adjustments that may make it questionable. The procedure of assistance funds takes place within the CEMAC. This procedure concerns donations made by a private or public person to certain administrative services. These services have the possibility of receiving these grants, donations or legacies, of entering them as revenue in the budget, and then of opening a supplementary credit of the same amount by order of the Minister in charge of finance.

The principle of specialization suffers from the existence in all CEMAC budgets of global credits or common expenses. In all countries, there are global appropriations for contingent expenditure, which are intended to meet needs whose amount cannot be known exactly when Parliament adopts the budget law, and global appropriations for incidental expenditure, which are intended to meet expenditure that is unforeseen in terms of amount and principle. Insecurity in the sub-region is one of the factors that aggravate this situation. Moreover, Parliaments are sovereign in determining their budgets. The use of the funds allocated to the assemblies is not subject to any control under ordinary law.

Finally, on the principle of fairness, it is noted that the accuracy of the financial information provided by the state is often lacking, even if completeness and consistency are increasingly respected. This principle is interpreted more strictly in the settlement laws, where the courts of auditors[55] seem to note the lack of sincerity in some places.

### 3.2. EFFECTIVENESS OF BUDGETARY PRINCIPLES IN CEMAC COUNTRIES

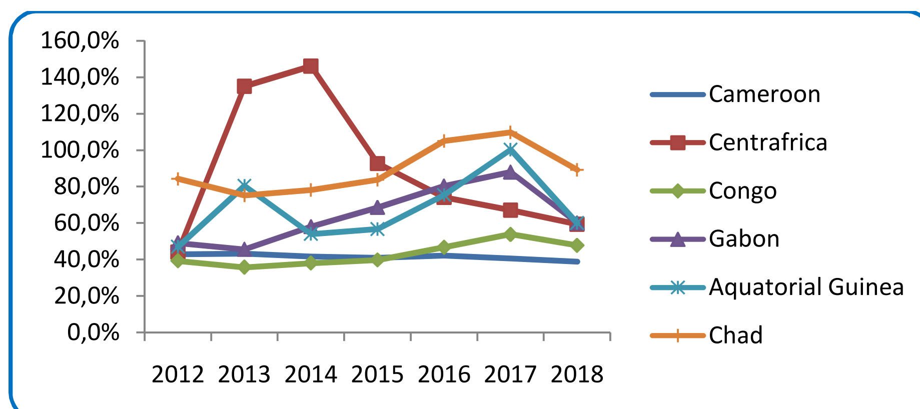
An analysis of the evolution of the indicators used in the model is made before turning to the efficiency model itself, in order to highlight some of the characteristics of the CEMAC countries in public financial management.

The wage bill was analyzed on the basis of its ratio to non-oil tax revenues. This ratio is an element of the subregion's convergence criteria; its ceiling is set at 40%.

According to graph 2 below, Cameroon and Congo have more stable wage bill sustainability ratios, close to the ceiling adopted by the subregion. The rest of the countries have ratios that give cause for concern about the sustainability of the wage bill. Chad has a consistently high wage bill, while the Central African Republic has had to pay salaries in excess of its non-oil tax revenues.

[5] Some CEMAC countries still have chambers of accounts, but they play the role of courts of audit.

*Graph 2: Evolution of the wage bill in relation to non-oil tax revenues in CEMAC countries*

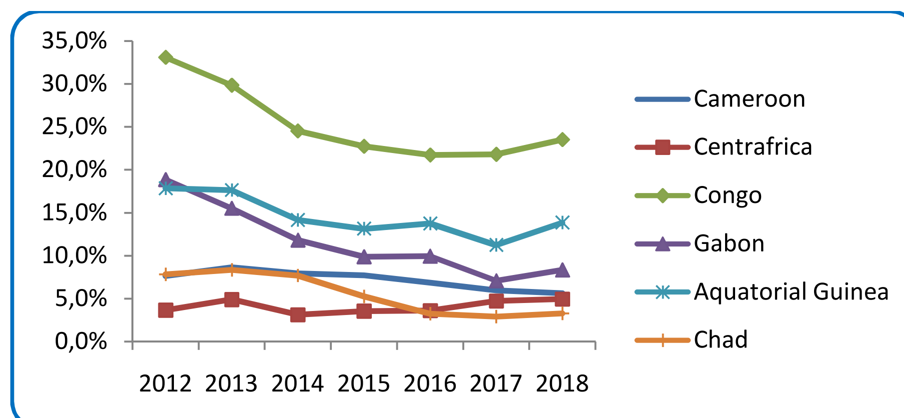



Source: We ourselves.

Expenditures on goods and services are observed on the basis of their ratio to their country's non-oil gross domestic product (Figure 3). This is because the goods and services purchased should theoretically add to the gross domestic product in question, hence the logical link between the two.

Congo is a country where national wealth outside of oil is largely due to government spending on goods and services; the ratio is between 18 and 35 percent. Equatorial Guinea and Gabon also have high ratios of spending on goods and services to GDP (between 10 and 20 percent), although they have declined over the period 2012 to 2018. In Cameroon, Chad, and the Central African Republic, the level of spending on goods and services relative to non-oil GDP does not vary much and is between 3 and 7 percent.

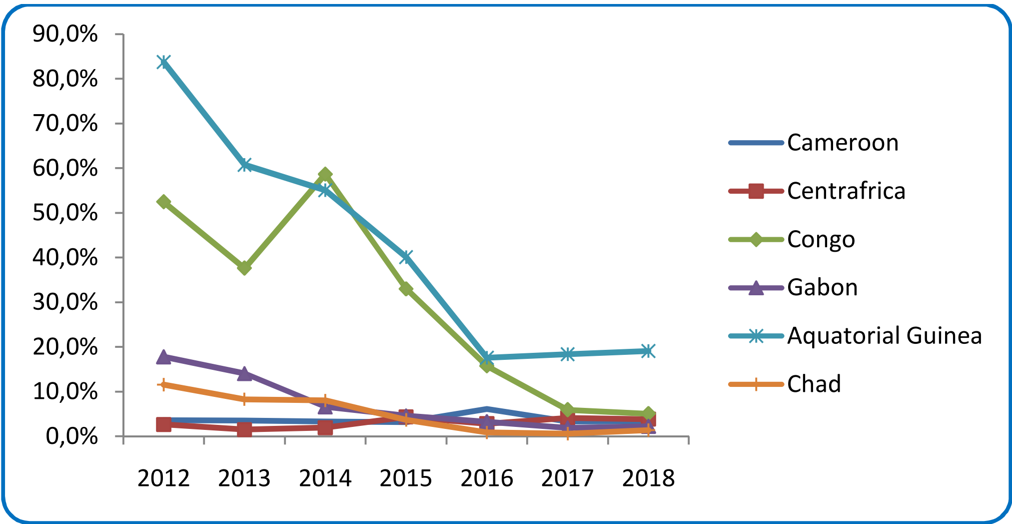
*Graph 3: Evolution of expenditure on goods and services in relation to non-oil gross domestic product in CEMAC countries*




Source: We ourselves.

Like spending on goods and services, public investment spending is analyzed in relation to non-oil GDP (Figure 4). In Equatorial Guinea, non-oil GDP used to be more than 80% public investment. The trend has declined but has remained at the highest level in the subregion, at over 20 percent. Congo also had periods when the ratio exceeded 50%, but it fell to almost 5% over the study period. Chad and Gabon had ratios above 10%, but these also declined over time. The Central African Republic and Cameroon have remained consistent with investment spending of around 5 percent of non-oil GDP.

*Figure 4: Evolution of investment spending as a proportion of non-oil gross domestic product in CEMAC countries*




Source: We ourselves.

For the DEA analysis, we took the average of each of the inputs and outputs over the period of the data series

The model includes:

- Six Decision Units:
  - UD1 = Cameroon ;
  - UD2 = Central African Republic;
  - UD3 = Congo ;
  - UD4 = Gabon ;
  - UD5 = Equatorial Guinea;
  - UD6 = Chad;

- Three inputs:
    - Inv1 = Payroll ;
    - Inv2 = Expenditure on goods and services ;
    - Inv3 = Capital expenditures ;
- An outpout:
    - Outv1 = GDP.

The results are obtained from the RAC perspective. The efficiency measured here (total efficiency or TE) therefore refers to a country's ability to use a minimum amount of resources from the application of budgetary principles to produce a given level of output, notably GDP. The result on the technical efficiency is materialized as follows in terms of "scale efficiency".

*Table 1: Technical efficiency*

| θréct | Eff | |
|---|---|---|
| UD1 | 0,936377 | |
| UD2 | 0,873875 | |
| UD3 | 0,416261 | |
| UD4 | 1,000000 | * |
| UD5 | 1,000000 | * |
| UD6 | 1,000000 | * |

Sources : We ourselves

According to Table 1 above, average efficiency ranges from 0.4 to 1. There are three countries with an efficiency of 1: Gabon, Equatorial Guinea and Chad. This would mean that here, certain budget indicators (wage bill, spending on goods and services, investment spending) contribute to an optimal level of GDP. The implementation of budgetary principles can be said to be effective for these countries.

Cameroon has an average efficiency of 0.936, which would mean that it can reduce 6.4% of its resources in payroll, goods and services, and investment spending to keep the same level of GDP. In the Central African Republic (score of 0.873), 12.7% of these resources are too much, while in the Congo (score of 0.416), 58.4% of resources can be reduced to achieve the same GDP.

It is possible, through the "slack movement" to tell which resources can be reduced.

*Table 2: Model deviations*

| | Inv1 | Inv2 | Inv3 | Outv1 |
|---|---|---|---|---|
| UD1 | | -59,4176 | | |
| UD2 | -14,2252 | | -12,4955 | |
| UD3 | | -367,98 | | |
| UD4 | | | | |
| UD5 | | | | |
| UD6 | | | | |

Sources : We ourselves

From Table 2 above, Cameroon could reduce its spending on goods and services over the study period (2012-2018) without affecting its GDP. The Central African Republic could reduce its wage bill by $14.2 billion and its investment spending by $12.4 billion, and its GDP would remain the same. The Congo could reduce its investment by $367.9 billion and its GDP would remain the same.

Moreover, the exploitation of the model's "peers" allows us to know what can be duplicated from one country to another.

*Table 3: Model references*

| | UD4 | UD5 | UD6 |
|---|---|---|---|
| UD1 | 0,045 | | 2,802 |
| UD2 | | | 0,132 |
| UD3 | 0,358 | | 0,313 |

Sources : We ourselves

In view of Table 3 above, for the implementation of budgetary principles to be effective in Cameroon, it could draw inspiration from Gabon and Chad in determining the wage bill, expenditures on goods and services, and capital expenditures. The Central African Republic could draw inspiration from the practice in Chad, while the Congo, like Cameroon, could draw inspiration from Gabon and Chad.

**CONCLUSION AND RECOMMENDATIONS**

There is almost no work that has focused on the effects of the application of budgetary principles, particularly in terms of effectiveness and efficiency. This study brings something

new to the research world by modeling the effectiveness of budget principles in CEMAC countries.

As rules prescribed by the legislator through the CEMAC Directives and the national laws that transpose these directives, the budgetary principles are effective within the CEMAC member states. However, this effectiveness must be put into perspective since these same laws and regulations provide for several derogations and exceptions. These principles are also ineffective because of the technical arrangements for the preparation and execution of the budget in CEMAC member states.

The measurement of the effectiveness of fiscal principles for CEMAC countries was done using the non-parametric Data Envelopment Analysis (DEA) method. Wage expenditures, expenditures on goods and services, and investment expenditures were taken as inputs to the model as a consequence of the application of fiscal principles, while GDP was taken as an output.

The empirical results show that the application of budgetary principles is ineffective for half of the countries concerned. Cameroon, Central African Republic and Congo can reduce the levels of the above-mentioned inputs and still achieve the same GDP. The efficiency gap in Cameroon is relatively small compared to what is observed in the Central African Republic and Congo where the inefficiency score is quite high. As for Gabon, Equatorial Guinea and Chad, their inputs allow them to achieve their good GDP level; the budgetary principles are therefore effective for these last three countries.

For a CEMAC subregion that would like to see the effectiveness and efficiency of fiscal principles, member countries must continue to clean up their public finances and remedy any fiscal slippage by taking corrective measures. Limited implementation of economic policy by any of these countries would also weaken the overall momentum and undermine the confidence of external partners in the subregion's public financial management strategy, thereby significantly increasing the region's vulnerability.

Member states also need to redouble their efforts to create conditions for sustainable and comprehensive GDP growth (Gankou, Bamou, and Ekpo 2003). They need to focus more on increasing non-oil revenues to meet fiscal consolidation targets and create fiscal space for development expenditures. They should also remember to promote regional integration and be more proactive in addressing governance issues, particularly through greater oversight of fiscal management.

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