Available online at www.rajournals.in

International Journal of Management and Economics Invention

ISSN: 2395-7220
DOI: 10.31142/ijmei/v4i8.05
Volume: 04 Issue: 08 August 2018

International Open Access
ICV: 72.76
Impact Factor: 6.378(SJIF), 0.532(GIF)
Page no.-1894-1906

The Effects of Government Spending on the Economic Growth in the Congo

Dr Joseph Emmanuel MATA[1], Dr Maixent LOUBASSOU-NGANGA[2], Junovie lead GALEBAY MOKANDZE[3]

[1]Maitre-Assistant, Vice Doyen (FSE), Université Marien NGOUABI.
[2]Assistant, Université Marien NGOUABI
[3]Université Marien NGOUABI

ARTICLE INFO

Published Online:
30 August 2018
Corresponding Author:
Dr Joseph Emmanuel MATA

ABSTRACT

The aim of this present study is to evidence government spending effects on economic growth in Congo. We used a model based on the cointegration approach and data from 1980 to 2015 to conduct this study. The results found show that budgetary policies applied by the government during the period of the study had positive effects on economic growth in the short run only. Whereas in the long run, the study reveals that those policies had no impact on economic growth.

KEYWORDS: government spending, economic growth, first difference model.
JEL classification: F21, 041, 055

I- INTRODUCTION

The debate concerning public expenses and economic growth has remarkably evolved these last years. Thus, after the collapse of Lehman Brothers's bank in 2008,« public service international research unit » of the Federal European Union of the public services and the international public services had evidenced the precious utility of governmental interventions in settling financial and economic crisis in their report « why public expending matters? » issue :May 2014.

Despite the preponderant role of the public expending on the economic growth instituted by international institutions, or by Aschauer (1989), the economics literature shows that there is no consensus reached either in the theoretical or in an empirical plan.

The justification of this relation, on the theoretical framework, to the full extent focuses on two approaches diametrically opposed: a liberal approach which states that the government has the right to build some public infrastructure which the private would not take initiative and Keynesianapproach, under the hypothesis of growing output of the factors of production, which insists on the positive role of the public capital on the economic growth of nations on the long run term (Barro, 1990). In addition, the role of this factor is similar to that of the other factors introduced by other scholars in regard with the theory of endogenous growth such as the model of accumulation of growth (Romer, 1986), the human capital (Lucas, 1988).

Concerning empirical studies controversy, of the relation between public expending and growth, can be grouped into five phases: the first remarks a relation of double-edged casualty between growth and public expending(Cheng et Wei, 1997; Ouattara 2007). The second shows a relation of unidirectional causality of expending towards economic growth (vice versa) (Kunur et Bassar, 2015; Lahirushan et Gunasekara, 2015). The third, notices relations of the long term and short term between public expenditure and economic growth (Outera, 2017; Obad et Jamal 2016).The fourth supports that public expenditure does not influence economic growth(Abd-el-Kader, 2017, Balai et Lani, 2017). At last, the fifth, remarks that the influence of public expenditureon the economic growth depends on the composition of the public expenditure (Léon, 2016; Tlaytmaste et Mohamed, 2017; Ngakosso, 2016).

Since the republic of the Congo, a heavily indebted poor country completed the conditions for cancellation ofthe debt, the country embarked into a great public expenditure policies, through a programme of accelerated municipalisation which consists of equipping the country with basic infrastructure (roads, airports, housing ,). All the government efforts caused an increase of the public expenditure which passed from 354 million in 1999 to 1. 5billionofAmerican dollars in 2015, which accounts for more than 300 % rise of public expenditure.

Therefore, in this study we are going to question the effects of these expenses on the economic growth in the Congo.

The purpose of the article is to empirically determine the effects of this public expenditure on the economic growth from period of 1980 to 2015. In other words, we aim at

showing the existence these effects and evaluate them in short and long term.

The paper is structured as follow: after a brief presentation of the evolution of the economic growth and public expenditure, we are going to present the review of literature. A descriptive methodology is applied in accordance with data processing and the discussion of the results. In the meantime, the conclusion and the implications of economics policies will be addressed.

II- EVOLUTION OF ECONOMIC GROWTH AND PUBLIC EXPENDITURE

During the reviewed period, the evolution of public expending and the economic growth are fluctuating (up and down). As a matter of fact, we notice 5.08% average rise of GDP and 6.19% of public expenditure per year between 1981 and 1990. That can be justified by the different strategies adopted by the Congolese government near the 1980s. Among the strategies, let us quote the implementation of the years plans or plan quinquennal (1982-1986) based on the diversification of the economy.

The outcome of this five years plan had been weakened by the concomitance fall of dollar and oil price. This situation failed the GDP upper 3 points in contrast with previous period and the public spending collapsed in3.77% per year between 1991 and 2000. It can also be explained by the fact that the Congo adopted the second programme of structural adjustment in the 1990s forecasting the public expenditure reduction including pools from non oil income as well as the different socio-politics crises which destroyed the Congolese economy during that period.

In the years 2000, the Congo took the advantage of their status of heavily indebted poor country which led to the cancellation of debt under the condition that resources have to be oriented towards the expenses of investment for sustaining growth and win the battle against poverty. This initiative enabled the country to benefit from a substantially increase of expenses and growth. As a matter of fact, the country acknowledged an average annual increase between 2001and 2009with14. 06% of GDP and 12. 90% government spending.

Between 2010 and 2015, we noticed a fall of 3. 33% of the average GDP annual growth rate whereas the public expenditure dropped by 4. 35% (table 1).

Tableau 1: Evolution of average annual growth rate and public expenditure

Variables	1981-1990	1991-2000	2001-2009	2010-2015
GDP	5.08%	1.41%	14.06%	-3.33%
EXP	6.19%	-2.77%	12.90%	4.35%

Source : by the authors from world bank data (WDI)

III- LITERATURE REVIEW

The analysis of the relation between the government spending and the economic growth sparked debates either in the theoretical or empirical plans.

The theoretical debate was classically the main concern of the economists that support the government interventions in the economy through the public expenditure as a source of economic imbalance. For the latter, the State would basically have focused on its mandatory functions (Musgrave, 1969). That restrictive vision of the state interventionism into the economy is opposed to the Keynesian thought. The latter thought argues that public expenditure is an exogenous variable and the engine driver of the process of the economic growth. According to the Keynesians, public expenditure increase will boost the effective demand and consequently, the rise of production and employment follows.

Barro (1990) thinks that public expenditure is fundamentals in making public investments. In his works, Barro had shown that funding public infrastructure is crucial as to improving economic growth. This theoretical debate had also been subject to the production of several empirical works.

Concerning the empirical plan, the results on the effectiveness of public expenditure against economic growth are mitigating. The representation of these results can be grouped into five categories.

A double-edged relation of causality is encountered in the first category. In fact, Cheng et Wei (1997) obtained a double-edged causality between economic growth and public expenditure for south Koreawithin1954-1994. In this perspective, Ouattara (2007) testified thanks to the causalitytests economic growth and public expenditure that the reciprocal influence as applied to ECOWAS zone.

The second category of works referred to the link of unidirectional causality public expenditure (vice versa). Based on an empirical analysis, Kunur et Basar (2015) worked on the effect of public expenditure on economic growth economic. The conclusions drawn from that study show the existence of unidirectional causality starting from the public expenditure to the economic growth. In contrast with, Lahirushan et Gunasekara (2015), working on the impact of public expenditure over Asian countries from 1970 to 2013, demonstrated that the causality moved from economic growth to public expenditure.

The third category had shown that public expenditure have an effect on the economic growth. Some studies had proven that the impact of public expenditure on the economic growth is positive and significant (Outera ,2017, Obad et Jamal 2016). In a methodology opposed to the former, Sahn et Younger (2002) emphasized on ,after a macroeconomic analysis, a positive impact of public expenditure on the evolution of the GDP per capita because of the economic agents that bore specific characteristics most familiar to African countries.

Public expenditure does not necessarily entail positive effect on the economic growth. Folster et Henrekson (2001) examined the determinants of economic growth from 1970 to 1995. They referred to rich countries to avoid selection bias. They use two distinctive measures considering the size of the public sector: the first measure by « in put » takes into account the sum of taxes in percentage of the GDP whereas, the second measure by« out put » focuses on the amount of public expenditure in percentage of GDP. The results of this analysis had proven the existence of a negative effect of the size of the public sector on the economic growth based on the two measures. In this view, Obad et Jamal (2016), working on the dynamic impact of public expenditure in morocco with ARDL method application, concluded that there is a negative impact of the public expenditure on the economic growth. These results account for the unproductive character of public expenditure.

The forth category shows that public expenditure has no effect on the economic growth. The application of causality Granger, Edem (2016) shows that there is no link of causality between public expenditure and economic growth as shown for the Togo. Although other research confirmed the hypothesis that public expenditure has no significant impact on the economic growth (Ghali, 2000; Abdelkader, 2017; Balai et Lami 2017).

The fifth category shows that the economic growth is explainable by the composition of the public expenditure (Tlaytmaste et Mohamed, 2017; Mamadou, 2013; Youssoupha et al., 2014; Fouopi et al. 2012; Ngakosso, 2016). According to theoreticians of endogenous growth(Romer, 1986, 1990; Lucas, 1988; Barro, 1990), the public expenditure may affect the economic growth by means of two channels. In the channel, they increase the stock of the capital of the economy through the public investment in the economic and social infrastructure or by the means of the public investment of the state owned companies. In the second channel, the public expenditure affect indirectly the economic growth that boots its marginal productivity of the factors of productions offered by private sector via the education, health, and other services spending which are in the favour of the accumulation of human capital, Tanzi et Zee (1997).

IV - METHODOLOGY

The presentation of the theoretical model of will be followed by an estimated purpose model

IV.1- theoretical framework of the model

The model of growth retained serves as base in the context of our model of growth is endogenous a like Romer (1986). Thus, lesson learned from the theoretical model of search by Mamadou (2013) which uses a function production of the type of Cobb-Douglas with an increased human capital human at the purpose of modelling the relation between public expenditure and economic growth, the model applied in this study lays on a function of an incorporated production defined as follow:

$$Y_t = V_t K_t^{\beta} L_t^{\gamma} H_t^{\delta} \quad (1)$$

where

$Y_t$is the function of the production (actual GDP) ; $K_t$physical capital (INVP) ; $L_t$thelabour (PAC); $H_t$the human capital (TBSS) ; V_t, the technological parameters ; $t$designates the time ; β, γ et $\delta$are parameters to be estimated.

Let us set$V_t = A_t Z_t$, with$A$a technological parameter and $Z_t$avector of variable exogenous related to economic policies likely to influence the economic activity such as public expenditure . By introducing the expression of V_t in the equation(1), we obtain:

$$Y_t = A_t Z_t^{\propto} K_t^{\beta} L_t^{\gamma} H_t^{\delta} (2)$$

As the equation of base retained for econometric estimation of our study takes the form as follows:

GDP = f(TBSS,PAC,DEP,INVP) (3)

IV.2- Estimation Purpose Model

The equation (3) of the proposed model in the methodology can be written under the algorithmic form as follow:

$$logGDP_t = a + \alpha logDEP_t + \beta logINVP_t + \gamma logPAC_t + \delta logTBSS_t + \varepsilon_t \quad (4)$$

Where$a, \propto, \beta, \gamma$ et δparameters to be estimated .

the model (4) contains a dependent variable, the Gross Domestic Product (GDP) and four explicative variables with three controlled (TBSS, PAC et INVP) and of interest (EXP).

The GDP measures the gross domestic product, this is a proxy of the growth

EXP represents the investment expenses and consumption. The effect of that variable on the growth is ambiguous. For the Keynesians, it stimulates the growth, whereas neoclassic considers that it exerts the negative effect on the long run term growth. At last, the neo-ricardian approach (Barro, 1974) sustains the argument of the neutrality of budgetary-policies.

TBSS is the share of the working population which possesses at least a secondary schooling educational level. We assume that this variable positively influenced the economic growth. In fact, an increase of the share of the educated working population, participates to capacity building of the human capital which is defined as a set of incorporated factors to a man and which enablesan increase of its productivity (Logossah, 1994).

PAC represents the working population. We suppose that its effect on economic growth is positive with a threshold effect because of decreased marginal productivity, Gemmell (1996).

The private investment (INVP) is a factor of growth, for neo-classic schools as well as for keynesians. Empirical studies centered on African economies (Ojo et Oshikoya, 1995; Ghura et Hadjimichael, 1996), evidenced the existence of a positive relation between the investment and the GDP growth. We apply a positive sign. We summarize the expected signs of the explicative variables on growth (table 2).

Table 2 : Table of sign

EXPLICATIVE VARIABLES	DEP	PAC	INVP	TBSS
EXPECTED SIGNS	?	+	+	+

These variables are annual and cover the period from1980 to 2015. Apart from the variable TBSSsupplied by the UNESCO site, the other variables came from World Development Indicators Data. The analysis of temporal data is justified by the fact that the data superior to thirty observations.

V- RESULTS AND ECONOMICINTERPRETATIONS

V- 1 CHARACTERISTICS OF VARIABLES

From the upper tablewe learned that the probability of Jarque-Bera associated to each variable is superior to 5%. This result shows that all variables follow the law of normal.

Table3: Statistic characteristics of applied variables from 1980-2015.

	LN(PIB)	LN(DEP)	LN(INVP)	LN(PAC)	LN(TBSS)
Observations	36	36	36	36	36
Minimum	21.26	19.41	18.50	13.37	3.60
Moyennes	22.05	20.25	20.02	13.93	3.97
Médianes	21.74	20.05	20.02	13.95	3.92
Maximum	23.39	21.42	21.20	14.44	4.31
Ecart-type	0.74	0.62	0.72	0.33	0.21
Coefficient_ variation	0.03	0,03	0.04	0.02	0.05
Jacques-Bera	5.17	3.38	1.33	2.26	1.70
Probability	0.08	0.18	0.51	0.32	0.43

Source: calculations by the authors from Data of the World Bank (WDI)

V.2–ECONOMETRIC DATA ANALYSIS

a) Determining the level of variables of integration

We are going to verify whether the incorporated variables are in the same order. To do so, we are going to apply an increased test of Dickey-Fuller Augmenté (DFA) for each variable.

The content of table n°4 shows the p-values of the test of the root unit is superior to 5%. That means that we are going to proceed to the test of nullity of determinist trends by Fisher test. According to annexe A1, the neperian logarithm shows that all variables between 1980 and 2015 are non -stationary and integrated in order 1. In fact, DFA tests on the variables of the model in first difference show that these latter are all stationary with or without constant. Consequently, all variables of incorporated level are integrated in order 1.

Table 4 : DFA test on the variables of the model

	Model 3			Model 2			Model 1	
	Test: square unit	Test of Fischer	Conclusion	Test : square unit	Fischer-Test	Conclusion	Test : square	Conclusion
	P-value	P-value		P-value	P-value		P-value	
LnPIB	0.7741	0.2933	forward to model 2	0.8239	0.2982	forward to model 1	0.9557	I(1)
LnDEP	0.3372	0,0605	forward to model 2	0.5368	0.2106	forward to model 1	0.9587	I(1)
LnPAC	0.9955	0.1049	forward to model 2	0.1979	0.0796	forward to model 1	0.7879	I(1)

LnINVP	0.0974	0.0106	I(1)+T+C					
LnTBSS	0.999	0.0261	I(1)+T+C					

Source: Calculations by authors from World Bank (WDI)

b) Cointegration Test of Johasen

co integration test of johansen introduced in the figure below , reveals that there is no just one relation of cointegration . Therefore, we resort to an estimated model of correction of errors.

Figure 1: Test de Johansen

Date: 09/26/17 Time: 09:29
Sample (adjusted): 1982 2015
Included observations: 34 after adjustments
Trend assumption: Linear deterministic trend
Series: LOG(PIB) LOG(DEP) LOG(INVP) LOG(PAC) LOG(TBSS)
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.715947	77.53637	69.81889	0.0106
At most 1	0.321796	34.74419	47.85613	0.4616
At most 2	0.275952	21.54176	29.79707	0.3247
At most 3	0.208869	10.56322	15.49471	0.2399
At most 4	0.073546	2.597297	3.841466	0.1070

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Calculations by authors from World Bank (WDI)

c) Model of correction of errors (MCE)

There are two methods that helpof estimation of the correction of errors[1]. For reasons of optimality, we are going to make estimation in one single step (Hendry method). If we want to express it by the method of MCE Yon the basis of$X$and$Z$, then we have:

$\Delta Y_t = \alpha_0 + \alpha_1 \Delta X_t + \alpha_2 \Delta Z_t + \beta_0 Y_{t-1} + \beta_1 X_{t-1} + \beta_2 Z_{t-1} + \varepsilon_t (5)$For the validity of MCE,we need coefficientβ_0, called coefficient of correction of errors, significatively included between -1 et 0. We estimated the model of correction of errors in the mathematicformula as follow:

$$\begin{aligned}\Delta logPIB = {} & \alpha_0 + \alpha_1 \Delta(lnDEP_t) + \alpha_2 \Delta(lnINVP_t) \\ & + \alpha_3 \Delta(lnPAC_t) + \alpha_4 \Delta(lnTBSS_t) \\ & + \beta_0 (PIB_{t-1}) + \beta_1 (DEP_{t-1}) \\ & + \beta_2 (INVP_{t-1}) + \beta_3 (PAC_{t-1}) \\ & + \beta_4 (TBSS_{t-1}) + \varepsilon_t (6)\end{aligned}$$

The completion of the estimation by the model of correction of errors of one single step,we noticed that the coefficientof error assuredly occurs between -1 and 0 but not significative.

[1] Il y a la méthode en une seule étape d'Hendry et la méthode en deux étapes d'Engle et Granger.

Figure 2 : Estimation du MCE en une seule étape

Dependent Variable: D(LOG(PIB))
Method: Least Squares
Date: 09/26/17 Time: 09:45
Sample (adjusted): 1981 2015
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.582416	4.508430	-1.238217	0.2271
D(LOG(DEP))	0.421449	0.209649	2.010257	0.0553
D(LOG(INVP))	0.258413	0.164577	1.570159	0.1289
D(LOG(PAC))	18.26956	12.20880	1.496425	0.1471
D(LOG(TBSS))	0.079913	0.535570	0.149212	0.8826
LOG(PIB(-1))	-0.165906	0.213785	-0.776042	0.4450
LOG(DEP(-1))	-0.069514	0.203560	-0.341490	0.7356
LOG(INVP(-1))	-0.033397	0.151784	-0.220031	0.8276
LOG(PAC(-1))	0.718297	0.503245	1.427331	0.1659
LOG(TBSS(-1))	0.192793	0.318291	0.605714	0.5502

R-squared	0.343013	Mean dependent var	0.046065
Adjusted R-squared	0.106498	S.D. dependent var	0.193032
S.E. of regression	0.182464	Akaike info criterion	-0.329575
Sum squared resid	0.832325	Schwarz criterion	0.114810
Log likelihood	15.76756	Hannan-Quinn criter.	-0.176173
F-statistic	1.450281	Durbin-Watson stat	1.789965
Prob(F-statistic)	0.220520		

Source: Calculations by authors from World Bank (WDI)

Regarding the obtained results, we can conclude that the model of correction of errors is not validated. Therefore, a dynamic signification of the correction type of errors is rejected. However, as all variables of the study are $I(1)$, we can then proceed to the application of the model firstindifference.

d) Estimation of Model of the firstdifference

The general formula of this model is the following:

$$\Delta(ln(PIB_t)) = \alpha_0 + \alpha_1\Delta(ln(DEP_t)) + \alpha_2\Delta(ln(INVP_t)) + \alpha_3\Delta(ln(PAC_t)) + \alpha_4\Delta(ln(TBSS_t)) + \varepsilon_t(7)$$

In the simplest way we have: $ln(PIB_t) = \alpha_0 + ln(PIB_{t-1}) + \alpha_1\Delta(ln(DEP_t)) + \alpha_2\Delta(ln(INVP_t)) + \alpha_3\Delta(ln(PAC_t)) + \alpha_4\Delta(ln(TBSS_t)) + \varepsilon_t(8)$

Then we obtain the following results:

Figure 3: Estimation of the model of primary indifference

Dependent Variable: LOG(PIB)
Method: Least Squares
Date: 07/04/17 Time: 23:12
Sample (adjusted): 1981 2015
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.108272	1.504100	0.071985	0.9431
LOG(PIB(-1))	0.985576	0.059144	16.66403	0.0000
D(LOG(DEP))	0.398040	0.172424	2.308500	0.0283
D(LOG(INVP))	0.226671	0.121348	1.867937	0.0719
D(LOG(PAC))	7.215119	10.64336	0.677899	0.5032
D(LOG(TBSS))	-0.001882	0.530742	-0.003547	0.9972

R-squared	0.945514	Mean dependent var	22.07368
Adjusted R-squared	0.936120	S.D. dependent var	0.733768
S.E. of regression	0.185456	Akaike info criterion	-0.377192
Sum squared resid	0.997425	Schwarz criterion	-0.110561
Log likelihood	12.60086	Hannan-Quinn criter.	-0.285151
F-statistic	100.6497	Durbin-Watson stat	1.706628
Prob(F-statistic)	0.000000		

Source: Calculations by authors from World Bank (WDI)

The test of Wald (figure 4) shows that the coefficient of log (GDP (-1)) is equal to1 à 10% confirming by the way the passage of equation 7 to equation 8.

Figure 4 : Test of Wald onthe coefficient of log (GDP (-1))

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
t-statistic	-0.243880	29	0.8090
F-statistic	0.059477	(1, 29)	0.8090
Chi-square	0.059477	1	0.8073

Null Hypothesis: C(2)=1
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
-1 + C(2)	-0.014424	0.059144

Restrictions are linear in coefficients.

Source: Calculations by authors from World Bank (WDI)

The results of stochastic tests (annexe A2) show us that the residuals of the model of first in difference are stationary. Alike the results in annexe A3, showing that P-value (0. 56) of test of normality of residuals of Jarque-Bera is largely superior to 5%. The residuals follow the law of normal. In the same way, the residuals model of primary indifference is homoscedastics, the P-value being superior to 5% (annexe A4).

The exploration of Breusch-Godfrey test implies for p=2[2] (Annexe 5), no delay is significative. Though there is not anautocorrelation of errors. At last, the test of Ramsey (annexe A6) reveals thereis no important variable forgotten, in other words, the modelis specified in the model. In fact, P-value of the variable « FITTED^2 » is not significative, we conclude that the model is well specified.

e) Interpretation of results

The results of the model of first indifference reveal that the real GDP growth overlaps of a period which is significative and positive. Then, budgetary policies applied by the Congolese government between 1980 and 2015 led to short run positive effect of growth. These results are in accordance with the Keynesian theory, as the government spending is traditionally considered as a stimulating factor of economic.

However in a long run, government spending has no impact on the economic growth. The absence of relation between the two variables can be justified by the orientation of investments and the lack of monitoring and follow up these latter. As for orientation, in the period of study, government spending had been oriented to grand works of municipalisation. This latter was allocated to unproductive investments. Or, Obad, J et Jamal, Y (2016) had shown that there was no impact of government spending allocated to unproductive investments.

During municipalisation works process, the public authorities did not define an efficient metho dolgy of monitoring and follow up of investments made, this is why we consider that this situation is due to ill-governance. However, Rajkumar et Swaroop (2002) had shown that good governance has a positive impact on public expenditure.

These results from the study of Congolese economy are close to those obtained by Devarajan et al(1996). They had shown that public expenditure (measured by its share in GDP) have no impact on economic growth. Whereas Ngakosso (2016), working in the period between 1960 and 2013 obtained the opposite results. In fact, he argues that investment expenses, current expenses and the total have positive impact in short run on the economic growth in Congo. This contrast in the results may be due to the difference period of study chosen and otherwise because we consider public expenditure in its globality whereas Ngakosso (2016) used disincorporated data.

In addition, we notice that the threshold of 10%, of private investment has a positive effect on the economic growth. In fact, an increase of a private investment of 1%, entails a GDPrise of 0.23%, this grows the consumption. The rise of the consumption consequently enables an increase of production, which can be remarked in the improvement of the national revenue that is for economic growth.

Regarding the role played by the variable INVP on economic growth, we dare say that its behaviour recommend a validation of physical capital. This result corroborates the results by Ojo et Oshikoya (1995) concerning the positive role played by physical capital on economic growth.

However, when referred to the results of the model of working population and TBSS testified there is no single effect is short run on growth. In fact, we notice at the threshold of significativity even for10%, every variation of working population or that of the net rate of secondary education has no effect on economic growth.

[2] Quand p=1, on parle du test de Durbin-watson (DW).

V- CONCLUSIONS AND POLICYIMPLICATIONS

In this paper we assessed the effect of public expenditure on economic growth. To achieve this objective, we resorted to the model of correction of errors. The obtained results show that in short run government spending has no positive effect on economic growth. However, in long run there is no relation between public expending made and economic growth. Thus , public expenditure can improve economic growth if, public authorities decide to take specific measures as for improving the monitoring and follow up public investments and apply good governance .

To certain extent, this paper comprises a major weakness,the lack of disincorporated data of the government spending. The application of disincorporated data of government spending would enable to uncover the channels which influence economic growth is short run, these data impact in long run and have no effect. This would have help to prioritize-expenses in order to achieve an optimal growth.

BIBLIOGRAPHIE

1. ABDELKADER (2017) « impact of equipment public spending on economic growyh in Algeria-Econometric study». Revues des économies mord africaines vol 2 n 17 p 15 26.
2. ASCHAUER, D.-A. (1989), « Is Public Expenditure Productive? », Journal of Monetary Economics, n° 25, p. 177-200.
3. BALAI et LAM (2017) « the impact of public expenditure on economic growth of Kosovo», AUDOE, Vol. 13, no. 5, pp. 401-412.
4. BARRO, R. (1974), « Are Government Bonds net Wealth? » Journal of Political Economy, 82, N° 6, pp.1095-1117.
5. BARRO, R. (1990), «Government Spending in a Simple Model of Endogenous Growth», Journal of Political Economy, vol. 98, n° 5, octobre, p. 103-125.
6. CHENG S. et WEI T.(1997), « Government Expenditures and Economic Growth in South Korea: A VAR Approach »; Journal of Economic Development, Vol.22, N°1, p. 11-24.
7. DEVARAJAN et AL. (1996), «The Composition of Public Expenditure and Economic Growth», Journal of Monetary Economics, n° 37, Avril 1996, p. 318-344.
8. EDEM, T. (2016) : «Dépenses publiques et croissance économique au Togo : Liens de causalité de Granger» Domaine d'Econométrie et Statistique, American University of Africa, Novembre, 2016.
9. FOLSTER S. et HENREKSON M.(2001), « Growth Effects of Government Expenditure and Taxation in Rich Countries », European Economic Review, Vol. 45, N°8, p. 1501 – 1520.
10. FOUOPI , D MBOMON, N. et EPO B.(2012) «dépense publique et croissance économique dans les pays de la CEMAC »,1er colloque de l'association d'économie théorique et appliquée.
11. GEMMELL N. (1996), « Evaluating the Impact of Human capital Stocks and Accumulation on Economic Growth: Some New Evidence », Oxford Bulletin of Economics and Statistics, vol. 58, N01, p. 9-28.
12. GHALI K.(2000), « Export Growth and Economic Growth: The Tunisian experience », Journal of King Saud University, Administrative Sciences, Vol.12, N°2, p.127-140.
13. GHURA D. et M. HADJIMICHAEL (1996), «Growth in Sub-Saharan Africa», IMF Staff Papers, vol. 43, n° 3, p. 605-631.
14. KUNUR, S et BASAR, S (2015) « The Effects of Public Expenditures on Economic Growth: An Empirical Analysis for Turkey». International Journal of Business and Social Science Vol. 6, No. 4; April 2015
15. LAHIRUSHAN et GUNASEKARA (2015),« The Impact of Government Expenditure on Economic Growth: A Study of Asian Countries». World Academy of Science, Engineering and Technology International Journal of Humanités and Social Sciences, Vol:9, No:9, 2015
16. LOGOSSAH, K.(1994), « Capital humain et croissance économique : une revue de la littérature », Économie et Prévision, n° 5, vol. 116, p. 17-34.
17. LUCAS, R. (1988), «On the Mechanics of Economic Development», Journal of Monetary Economics, n° 22, p. 3-42.
18. MAMADOU, C. (2013), «Impact des dépenses publiques d'éducation sur la croissance économique en côte d'ivoire»,European scientific journal, vol 9, n°25
19. MUSGRAVE R. (1969), « Cost-benefit analysis and the theory of public finance », Journal of Economic literature, p. 707-806.
20. NGAKOSSO A.(2016), « Public Expenses and Economic Growth in Congo », Journal of Economics and Development Studies Vol 4 No 1 March 2016.
21. OBAD, J et JAMAL, Y (2016), « The impact of public expenditure on economic growth in Morocco: Application of ARDL approach », International Journal of Innovation and Applied Studies, Vol. 16 No. 2 Jun. 2016, pp. 444-455.
22. OJO, O. et OSHIKOYA, T.(1995), « Determinants of long term growth: some African results », Journal of African Economies, Vol. 4, N°. 2, p. 163 – 191.
23. OUATTARA W.,(2007), « Dépenses Publiques, Corruption et Croissance Économique dans les Pays de l'Union économique et monétaire ouest-africaine (UEMOA) : une Analyse de la Causalité

au Sens de Granger. », Revue d'Intégration Africaine, Vol.1, N°1, p.139-160.

24. OUTERA, W (2017), « impact of oubli expenditure on economic growth in waemu countries : a reexamination ». AERC Research Paper 334 African Economic Research Consortium, Nairobi April.
25. RAJKUMAR, A,S et SWAROOP, V, « Public spending and outcomes: Does governance matter? » Journal of Development Economics 86 (2008) 96–111.
26. ROMER, P. (1990), «Endogeneous Technological Change», Journal of Political Economy, n° 98, p. S71-S102.
27. ROMER P.M. (1986), « Increasing Returns and Long-Run Growth », Journal of Political Economy, Vol. 94, n° 5, p. 1002-1037.
28. SAHN D.E. et YOUNGER S.(2002), « Expenditure Incidence in Africa: Microeconomic Evidence », Fiscal Studies, Vol. 21, No. 3, p. 329 – 347.
29. TANZI, V. et ZEE, H. (1997), «Fiscal Policy and Long-Run Growth», IMF Staff Papers, vol. 44, juin, p. 179-209.
30. TLAYTMASTE B et MOHAMED K. (2017), « Impact of Public Expenditure on the Growth in Morocco: Role of Governance », International Journal of Economics and Finance, Vol. 9, No. 4.
31. YOUSSOUPHA, D. HAMAT, S. et DAME, T.(2014),«efficience des dépenses publiques au Senegal », direction de la prévision et des études économiques.

ANNEXES

Tableau A 1 : Test de DFA sur les variables du modèle en différence première

	Model 3			**Model 2**			**Model 1**	
	Test of model	Test of Student	Conclusion	Test of model	Test of Student	Conclusion	Test of model	Conclusion
D(LOG(PIB))	P-valeur=0.0000	P-valeur=0.3986	forward to u model 2	P-valeur=0.0000	P-valeur=0.6541	forward to model 1	P-valeur =0.0000	**La série est I(0)**
	Model 3			**Model 2**			**Model 1**	
	Test of model	Test of Student	Conclusion	Test du modèle	Test of Student	Conclusion	Test of model	Conclusion
D(LOG(DEP))	P-valeur=0.0003	P-valeur=0.7730	Forward of model 2	P-valeur=0.0000	P-valeur=0.9093	forward to modèle 1	P-valeur =0.0000	**La série est I(0)**
	Model 3			**Model 2**			**Model 1**	
	Test of model	Test of Student	Conclusion	Test du modèle	Test of Student	Conclusion	Test du model	Conclusion
D(LOG(INVP))	P-valeur=0,0000	P-valeur=0.6285	forward to model2	P-valeur=0.0000	P-valeur=0.8069	forward to model 1	P-valeur =0.0000	**La série est I(0)**
	Model 3			**Model 2**			**Model 1**	
	Test du modèle	Test de Student	Conclusion	Test du modèle	Test de Student	Conclusion	Test du modèle	Conclusion
D(LOG(PAC))	P-valeur=0.0000	P-valeur=0.3164	forward to model2	P-valeur=0.0000	P-valeur=0.2725	forward to model1	P-valeur =0.0000	**La série est I(0)**
	Model 3			**Model 2**			**Model 1**	
	Test of model	Test of Student	Conclusion	Test du modèle	Test of Student	Conclusion	Test of model	Conclusion
D(LOG(TBSS))	P-valeur=0.0001	P-valeur=0,2261	forward to model2	P-valeur=0,0000	P-valeur=. 0127	**La série est I(0)+C**		

Source: Calculation by the des authors from World Bank Data (WDI)

Figure A 2 : *Correlogramme of the residuals of the model of primary difference*

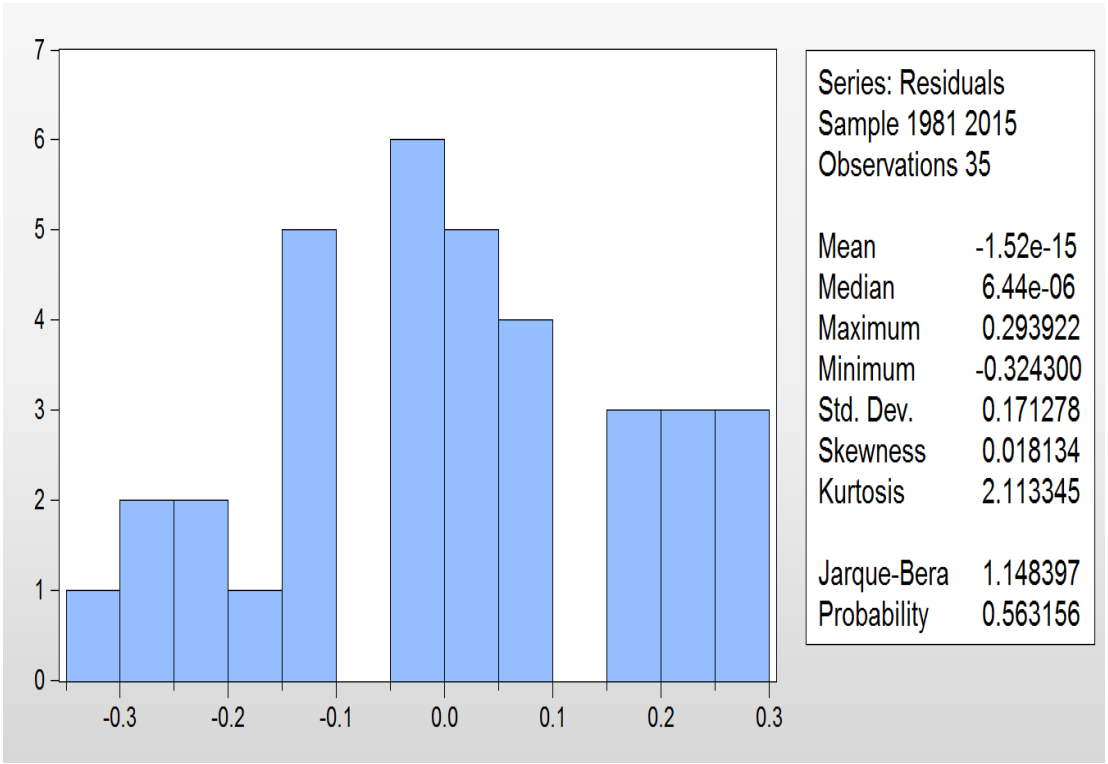
Correlogram of Residuals

Date: 07/04/17 Time: 23:14
Sample: 1981 2015
Included observations: 35

	Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
			1	0.090	0.090	0.3083	0.579
			2	-0.206	-0.216	1.9776	0.372
			3	-0.017	0.027	1.9890	0.575
			4	0.193	0.156	3.5417	0.472
			5	0.113	0.082	4.0901	0.537
			6	0.076	0.136	4.3505	0.629
			7	-0.128	-0.123	5.1128	0.646
			8	0.202	0.265	7.0762	0.528
			9	-0.027	-0.193	7.1115	0.626
			10	-0.133	-0.060	8.0265	0.626
			11	-0.106	-0.127	8.6273	0.656
			12	0.052	-0.038	8.7770	0.722
			13	-0.113	-0.159	9.5237	0.732
			14	-0.130	-0.155	10.574	0.719
			15	-0.086	0.040	11.047	0.749
			16	-0.009	-0.126	11.052	0.806

Source: Authors, extractof Eviews7from World Bank

Figure A 3 : Test of normality of the residuals of the model of primary difference



Source: Authors, extractof Eviews7from World Bank

Figure A 4 **:** *Test d'homoscédasticité des résidus du modèle en différence première*

Heteroskedasticity Test: White

F-statistic	1.123274	Prob. F(20,14)	0.4198
Obs*R-squared	21.56264	Prob. Chi-Square(20)	0.3647
Scaled explained SS	8.240651	Prob. Chi-Square(20)	0.9902

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/04/17 Time: 23:22
Sample: 1981 2015
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.880112	18.58309	-0.477860	0.6401
LOG(PIB(-1))	0.710712	1.555249	0.456977	0.6547
(LOG(PIB(-1)))^2	-0.014950	0.033030	-0.452615	0.6578
(LOG(PIB(-1)))*(D(LOG(DEP)))	-0.003659	0.076860	-0.047611	0.9627
(LOG(PIB(-1)))*(D(LOG(INVP)))	0.086093	0.067927	1.267428	0.2257
(LOG(PIB(-1)))*(D(LOG(PAC)))	-1.257957	5.122308	-0.245584	0.8096
(LOG(PIB(-1)))*(D(LOG(TBSS)))	-0.392973	0.407778	-0.963694	0.3516
D(LOG(DEP))	-0.626581	1.850956	-0.338518	0.7400
(D(LOG(DEP)))^2	0.193876	0.145340	1.333950	0.2035
(D(LOG(DEP)))*(D(LOG(INVP)))	0.116849	0.169830	0.688034	0.5027
(D(LOG(DEP)))*(D(LOG(PAC)))	19.60715	12.01993	1.631219	0.1251
(D(LOG(DEP)))*(D(LOG(TBSS)))	-0.585746	0.945196	-0.619709	0.5454
D(LOG(INVP))	-2.451622	1.879206	-1.304605	0.2131
(D(LOG(INVP)))^2	0.045295	0.085939	0.527059	0.6064
(D(LOG(INVP)))*(D(LOG(PAC)))	16.56820	13.89709	1.192207	0.2530
(D(LOG(INVP)))*(D(LOG(TBSS)))	-0.323425	0.770766	-0.419615	0.6811
D(LOG(PAC))	63.97283	164.7262	0.388359	0.7036
(D(LOG(PAC)))^2	-625.2883	1100.249	-0.568315	0.5788
(D(LOG(PAC)))*(D(LOG(TBSS)))	-84.13847	79.21601	-1.062140	0.3062
D(LOG(TBSS))	11.23526	10.02022	1.121259	0.2810
(D(LOG(TBSS)))^2	0.127625	1.787262	0.071408	0.9441

R-squared	0.616075	Mean dependent var	0.028498
Adjusted R-squared	0.067611	S.D. dependent var	0.030509
S.E. of regression	0.029459	Akaike info criterion	-3.927916
Sum squared resid	0.012150	Schwarz criterion	-2.994707

Source: Auteurs, extrait de Eviews7 à partir des données de la Banque Mondiale

Figure *A 5 :* *Test de la non autocorrélation des résidus du modèle en différence première*

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.198732	Prob. F(2,27)	0.3171
Obs*R-squared	2.854370	Prob. Chi-Square(2)	0.2400

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 07/04/17 Time: 23:19
Sample: 1981 2015
Included observations: 35
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.671265	1.637558	-0.409919	0.6851
LOG(PIB(-1))	0.027057	0.065674	0.411985	0.6836
D(LOG(DEP))	0.152952	0.213541	0.716264	0.4800
D(LOG(INVP))	0.036999	0.125349	0.295166	0.7701
D(LOG(PAC))	2.247872	10.67269	0.210619	0.8348
D(LOG(TBSS))	-0.003024	0.533535	-0.005668	0.9955
RESID(-1)	0.072375	0.228870	0.316228	0.7543
RESID(-2)	-0.363847	0.254503	-1.429637	0.1643

R-squared	0.081553	Mean dependent var	-1.52E-15
Adjusted R-squared	-0.156562	S.D. dependent var	0.171278
S.E. of regression	0.184198	Akaike info criterion	-0.347978
Sum squared resid	0.916082	Schwarz criterion	0.007530
Log likelihood	14.08962	Hannan-Quinn criter.	-0.225257
F-statistic	0.342495	Durbin-Watson stat	1.844222
Prob(F-statistic)	0.926895		

Source: by authors, extract of Eviews7from World Bank

Figure A 6 *:* Test of Ramsey model

Ramsey RESET Test
Equation: UNTITLED
Specification: LOG(PIB) C LOG(PIB(-1)) D(LOG(DEP)) D(LOG(INVP)) D(LOG(PAC)) D(LOG(TBSS))
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.744704	28	0.4627
F-statistic	0.554584	(1, 28)	0.4627
Likelihood ratio	0.686454	1	0.4074

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.019372	1	0.019372
Restricted SSR	0.997425	29	0.034394
Unrestricted SSR	0.978053	28	0.034930
Unrestricted SSR	0.978053	28	0.034930

LR test summary:

	Value	df
Restricted LogL	12.60086	29
Unrestricted LogL	12.94409	28

Unrestricted Test Equation:
Dependent Variable: LOG(PIB)
Method: Least Squares
Date: 07/04/17 Time: 23:25
Sample: 1981 2015
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	43.00585	57.62347	0.746325	0.4617
LOG(PIB(-1))	-2.842172	5.140304	-0.552919	0.5847
D(LOG(DEP))	-1.065693	1.973189	-0.540087	0.5934
D(LOG(INVP))	-0.635129	1.163682	-0.545793	0.5895
D(LOG(PAC))	-20.15112	38.28118	-0.526397	0.6028
D(LOG(TBSS))	-0.025565	0.535810	-0.047713	0.9623
FITTED^2	0.086902	0.116693	0.744704	0.4627

R-squared	0.946572	Mean dependent var	22.07368

Source: Auteurs, extrait de Eviews7 à partir des données de la Banque Mondiale