



# The Effects Of Government Spending On Private Investments And Economic Growth In Cameroon

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## ABSTRACT

The main objective of this study is to analyze the effects of government spending on private investments and economic growth in Cameroon. On this issue, a majority of empirical studies as well theoretical ones highlight an ambivalent link between the three concepts according to the context, neglecting the effects of the recurrent expenditure. The particularity of this study lies in the integration of this aspect for the period between 1977 and 2010 in Cameroon.

Going from the studies by Nubukpo (2001) and N'Guessan (2003), an ARDL (Autoregressive Distributed Lag) model is used in our methodology, our variables being integrated of order zero and 1. With data from the CD-Rom of the World Bank and African Development Bank (2011) and after carrying out preliminary unit root tests in order to avoid spurious regressions, the

parameters of the model are estimated by OLS (Ordinary Least Squares).

The results show that in the components of government spending, it is public investment that has a significant effect on private investment and economic growth in the short run. However, this public investment has a crowding-out effect on private investment in the long run due to the obsolete state of infrastructures which reduce growth by preventing the development of private investments. It is the same with the effect of recurrent expenditure on growth. Thus, the orientation of public investment expenditure towards durable infrastructures and the rationalization of recurrent expenditure constitute a judicious option to stimulate economic growth in Cameroon.

**KEY WORDS:** Government spending, Private investments, Economic growth, Autoregressive Distributed Lag (ARDL), Cameroon.



## 1. INTRODUCTION

Throughout economic history, countries have witnessed disequilibrium of different scales. These macroeconomic imbalances are: unemployment, inflation or even significant deficits and surpluses in external trade. The crisis of the 30s showed that regulation by markets was insufficient and that, consequently, State intervention remained essential. From a Keynesian point of view, public deficits can contribute to the smoothening of the fluctuations of economic activity. Thus, in a depression, an increase in government spending stimulates private expenditure; the net effect on economic activity varying according to the crowding out effect exerted by the propensity to import and eventual decline of the real interest rate.

Almost all African economies are characterized by a high level of government spending compared to the tax and non tax resources available. The growth of government spending has for long been one of the principal engines of economic growth, while being at the origin of disequilibrium that are increasingly difficult to manage. The rising trend of government spending can initially be explained by the neo patrimonial nature of the State. Since the African States after independence attached a great importance to the quantitative development of the

educational system, we can easily see why the system led to an extremely fast increase in personnel costs: demographic growth that was already too high (about 3%) was increased by the growth in school enrolment (3,3% per annum in low income African countries and 4,7% in middle income countries) (IMF, 2011), leading to a high cumulative increase, generally quite higher than the growth rate of national income.

In these conditions, the budgetary constraint, even applied in a rather loose way, could not allow the wages of civil servants to increase rapidly, or even catch-up with the rising cost of living. In fact, wages were often maintained in nominal terms, except when an increase in the public income left a certain room for manoeuvre. This established fact is due to the small size of African States, which renders basic administrative expenditure like diplomatic representation, customs at the borders and national defence more expensive (Grellet, 1982).

In fact, in accordance with Keynesian logic, government spending can exert a counter cyclical effect on the fundamentals of the economy; particularly consumption and investment. Moreover, in monetary unions, budgetary policy constitutes the principal instrument of response to the various asymmetrical shocks which affect the economies



since monetary policy is common to all member countries. However, for a few years, mainly after the oil crisis of 1970, government spending lost much of its attractiveness as an instrument of regulation of economic activity, since it is a source of distortion which can compromise economic growth. Between 1980 and 1982, the ratio of the public and private investments to the GDP in Cameroon was respectively 5,83% and 18,48% on average (Touna Mama et al., 2003).

During the period of crisis of the Eighties, the budget was in a deficit and any increase in government spending led to a crowding out of private investment due to the rise of the interest rate on loans. In the same manner, government consumption spending and investment in infrastructure fell and this affected the development of private infrastructures. In spite of the multiple budgetary reforms carried out by the State of Cameroon, the growth rate did not increase significantly. Even with the 1994 devaluation, a clear improvement was not observed. After the implementation of multiple reforms in an environment marked by the restructuring of public finances in Cameroon, we ask ourselves the following central question: what are the effects of government spending on private investments and economic growth in Cameroon? In other words, do the components of government

spending have the same effect on private investments and economic growth?

To answer this question, we adopt as main objective to highlight the effects of the components of government spending on private investments and economic growth in Cameroon between 1977 and 2010.

To achieve this goal, we adopt as main hypotheses: the components of the government spending have ambivalent effects on private investments and economic growth.

## 2. LITERATURE REVIEW

The question of the role of government spending on private investments and growth is at the centre of several studies, although its importance is not unanimously recognised by economists. The aim of this section is to present the theoretical and empirical debates concerning the effects of government spending on private investments and growth.

### 2.1 The effects of government spending on private investments and economic growth

#### 2.1.1 The impact of government spending on private investments

Government spending influences the private production function by stimulating the productivity of capital since they create conditions



favourable to production by setting up essential socio-economic infrastructures for the control of economic activities (Calvo, 1985). For Aschaver (1986), in the structure of the government spending, an increase in its investment component has a significant impact on production because it stimulates the profitability of private capital compared to an equivalent increase in government consumption. Government spending thus exerts a positive effect on the total productivity of factors of production of the private sector. In the same manner, Hechler (1993) holds that "it is public capital which takes long to set up and is therefore expensive in terms of installations, which acts positively on private investment". As Greene and Willanueva (1991) put it, "these results suggest that there is a long-term complementarity and a short-term substitutability between public investment and private investment, in the sense that a short-term increase in the investments of the public sector crowds out the investment of the private sector".

### **2.1.2 The impact of government spending on economic growth**

Recurring debates concerning the effects of public intervention were traditionally centred on the question of the "size" of the State, usually measured by the amount of the total government spending. Accordingly, Grier and Tullock (1989) conclude that the ratio of government spending (in

% of the GDP) is negatively correlated with the growth of real income. This result is in conformity with that obtained by Dervis and Cetri (1987).

In the light of new growth models, attention should preferably be focused on the public investment spending that favour the accumulation of productive capital (in a broad sense). Herrera (1997), for example, formalizes a process of endogenous growth in which government spending on education plays a central role. The productive nature of government spending therefore requires a targeting of this expenditure, this requiring a consideration of the precise structure of the spending under official supervision (logic of disintegration of the total government spending). In this respect, neo-classical theorists conclude on the inefficiency of government spending because of the withdrawals it causes and the negative impact on savings which follow ("crowding out" effect). Following this reasoning, we note, with the emergence of new models, a concentration of studies that dwell exclusively on the dynamic effect of government taxation (Jones and al., 1990 ; Yuen, 1990 ; Levine, 1991; Kim, 1992; Zhu, 1992) . A redundant theoretical result then lies in the fact that a high level of taxation harms economic growth, through its harmful effects on the accumulation of capital which is a source of growth (Rajhi, 1996).

Government expenditure indirectly affects economic growth by increasing the marginal productivity of the factors of production supplied by the private sector through the expenditures on education, health and other services which contribute to the accumulation of human capital (Tanzi and Zee, 1997). Following Dévarajan et al. (1996), Ventelou (2002) looks further into the study of government spending s and economic growth through the concepts of productive and unproductive expenditure. They thus distinguish themselves from their predecessors by this separation. Government spending positively affects growth through the spill over effects on the rest of economy (Nelson, 1994).

### **2.1.3 The impact of government expenditure on private investments and growth**

Diamond (1989) is one of the first to carry out an econometric evaluation of the relationship between government expenditure, the private sector and economic growth. After him, a renewed interest in the government spending-economic growth couple was based on theoretical models centred on the productivity of the government expenditure. The study by Herrera (1997) examine the relationship between government expenditure on education and economic growth in the long run through its impact on private investments using an endogenous growth model in which

accumulation of human capital is done in a single sector. He finds that the dynamics of growth is impelled by the State, whose choices of budgetary resource allocation determine the rate of accumulation of human capital. Moreover, Dessus and Herrera (2000) arrive at the conclusion according to which government capital expenditure directly influences private investments and indirectly influences growth. They make use of a panel data model on 29 Latin-American, African and Asian countries observed over an 11 year period (1981 to 1991).

## **2.2 Empirical Studies**

### **2.2.1 Relationship between government spending and private investments**

Blejer and ali (1984a, 1984b), in their pioneer empirical investigation are interested in studying the possibility of the existence of a complementary or substitution relationship between public investment and private investment in developing countries. The authors take as a starting point the investment accelerator to specify the behaviour of private investment in 24 developing countries. The results show that the level of private investment is positively influenced by the trend and level of public investment, which represents according to the authors, the level of the public investment in infrastructure. On the





other hand, variations of public investment around its trend affect private investment negatively.

By using panel data analysis on two different periods (1975-81 and 1982-87), Greene and Willanueva (1991) find that public investment positively affects private investment in the 23 countries of the sample. In fact, as the authors indicate, "the estimated coefficient of the public investment to the GDP ratio (IPUB/Y) is positive and significant, suggesting that in this sample of developing countries, public sector investments are complementary to investment activity in the private sector". Two main approaches are used to analyze the effects of the structure of government spending on private investments. The first is based on the neo-classical production function in which public capital is regarded as a separate input.

The findings of Aschauer (1989a, 1989b) and Munnell (1990) using annual data on the United States show that non military public investments, particularly in infrastructures have a significant effect on the production and productivity of private capital. The analysis done by Aschauer (1990) on data from the developed countries; and Cashin (1995) on cross sectional data are in line with the preceding results. Studies which followed these initial ones like those of Tatom (1991), Holtz-Eakin (1994), and Evans & Karras (1994) show that public investment has a negligible effect on private productivity. Khan and

Reinhart (1990); Khan and Kumar (1997) in their study show that in developing countries, although the public investment contributes to productive and economic performance, private investment has more influence on growth.

Studies by Ramirez (1994, 2000) in Mexico and Latin America respectively, Odedokun (1997) on 48 developing countries, Blejer and Khan (1984a), and Oshikoya (1994) for a panel of African countries show that investment in public infrastructure have a positive effect on private investment. On the other hand, all other public investment (set aside those on infrastructure) rather have a negative effect.

### **2.2.2 Relationship between government spending and economic growth**

Basing himself on countries of the UEMOA zone, Nubukpo (2001) studies the impact of government spending on the growth of the economies of the UEMOA from 1965 to 2000. Using an error correction model, he shows that government spending does not have a significant impact on economic growth in the majority of countries of the Union and that in the long-run, the impact of the government spending differs by country. James and Tullock (1961) are against the idea that the State is the representative of general interest. Chandra (2004) does not find any significant effect of government consumption

expenditure on economic growth in India. Tenou (1999) obtains the same results. By considering the ratio of the budget deficit rather than that of government consumption expenditure, Ghura and Hadjimichael (1996) find a negative and significant relationship with the per capita growth rate in a sample of sub-Saharan African countries. Using data on OECD countries, the results obtained by Dar and Amirkhalkhali (2002) do not support the idea that government spending positively affects economic growth because the coefficients are not statistically significant.

Concerning the contribution of government spending on economic growth in Cameroon, we can cite inter alia Kuitcha (2005) which shows that physical and social infrastructures have a positive impact on economic growth in Cameroon; Ongono (2006) which determines the optimal size of the Cameroonian state, size beyond which any additional expenditure will have a negative impact on growth. Mfoulou (2007) extends his study to the CEMAC zone and arrives at the conclusion that public capital contributes largely to the growth of productivity of private factors of production in the countries of the CEMAC zone. Touna Mama and al. (2002) expose the existence a significant negative relationship between government spending and economic growth.

From another perspective, Atangana (2004) evaluates the equity associated with the distribution of government spending on education in Cameroon while appreciating the evolution of this expenditure and its impact on growth. Kamgnia Dia and al. (2008) undertake a similar study in two key sectors (education and health) but their approach is based on more advanced methodologies. To justify the increase in government spending in Cameroon, Tamba (2005) advances the point of view of state support to the strategies on which the development of the CEMAC zone countries is based. He evaluates this support in two ways: using the share of the government spending in the GDP according to the Wagner grid and using the rate of domestic credit.

### **2.2.3 The relationship between government expenditure, private investment and growth.**

Mansouri (2003) shows that in Morocco, government capital expenditure has a positive effect on private investment and the growth of the real economy. Using a time series model estimated by ordinary least squares, the author shows that government consumption expenditure crowds out private investment and slows down economic growth because of wastage.

Moreover, using a sample of 95 developing countries for the 1970-90 period, Kahn and Kumar (1997) show that the effects of private and



public investment on growth are significantly different; private investment being consistently more productive than public investment. Knight and ali. (1993), Nelson and Singh (1994) also find that the level of public investment in infrastructure has a significant effect on the productivity of the private sector and growth, particularly during the Eighties. N'Guessan (2003) undertakes a panel study in the UEMOA zone for the period from 1970 to 2002. He analyzes on the one hand the effect of public investment on private investment and on the other hand the impact of the composition of government spending on growth. The results show that:

- increases in public investments do not lead to increases in private investments in Benin, Burkina Faso, Mali and Senegal. On the other hand, there lead to increases

in private investment in the Ivory Coast and Togo. For Niger, the impact of the public investment on private investment is not significant.

- recurring expenditures have a negative and significant effect on growth in the short and in the long run, contrary to public investments in infrastructure in the countries of the zone.

Few studies focus on the effects of government spending on the private investments and the level of economic growth in Cameroon. This study comes to fill this void by reorienting and supplementing the approach of N'guessan by first of all examining the impact of government spending (on consumption and investment) on private investments and thereafter on growth from 1977 to 2010.

**Table 1: Budgetary execution (in % of the GDP)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total spending	16,2	16,2	16,0	14,6	14,5	15,7	18,5	18,4	18,6	18,7	19,1
Recurrent expenditure	13,4	13,3	14,0	12,1	11,7	11,8	13,1	14,2	14,5	13,0	13,6
Salaries and benefits	5,2	5,5	5,4	4,7	4,5	4,4	5,3	6,0	5,7	5,5	5,7
Goods and services	4,1	4,0	5,0	3,9	4,1	4,5	4,8	5,2	5,5	4,0	4,2
Subsidies and transfers	1,5	1,6	1,7	2,0	2,2	2,3	2,7	2,8	3,0	3,1	3,4





Interest produced	2,6	2,1	2,0	1,5	0,9	0,5	0,3	0,3	0,3	0,4	0,4
Capital spending	2,8	3,0	2,0	2,4	2,9	4,0	5,5	4,2	4,1	5,7	5,5
Investment from internal resources	0,6	0,8	0,8	0,5	0,7	2,9	3,9	3,4	2,8	3,6	3,4
Financed from external resources	1,9	2,0	1,1	1,8	1,9	0,6	0,9	0,7	0,9	1,7	1,5
Maintainance & participation	0,3	0,2	0,1	0,0	0,3	0,5	0,8	0,1	0,4	0,4	0,5

*Source: IMF (2011).*

Table 1 above shows that government spending is characterized by a low level of capital expenditure which, although in a rise, on average represent only 3 % of the GDP between 2002 and 2009 and less than a quarter of the total expenditure. The main issue is their low rate of completion. This rate was approximately 50 % on average between 2008 and 2010 (IMF, 2011b). Difficulties at the level of the bodies in charge of the engagement of expenditure and management of State liquidity, as well as a limited absorption capacity of the Cameroonian economy are two possible explanations. Moreover, subsidies and transfers are in a rise, mainly because of the rise in subsidies to hydrocarbon companies. Since 2009, these companies have become a subject of concern because the arrears to the national oil

refinery (SONARA) are increasing simultaneously (going from 0,9 % of the GDP at the end of 2009 to nearly 1,2 % of the GDP in 2010). Concerning spendings, they are low, being at the level of 16 % of the GDP on average over the 2002 to 2009 period, of which more than three quarters is linked to recurring expenses, dominated by the salaries.

### 3. METHODOLOGY

In this section, we present the data and their sources, the variables of the analysis and the econometric model specification, as well as the method of estimating it.

The data used in this study is from secondary sources. They come primarily from the data base "CD-Rom" of the World Bank (World



Development Indicators, 2011). But the data on the gross school enrolment rates (primary and secondary), they come from ADB (2011).

Our methodology is based on an approach in 3 stages: the first stage consists in checking the properties of the time series (stationnarity and order of integration) using the tests of unit root of Dickey-Fuller and Phillips-Perron (1981). The second consists in examining the theory of cointegration using Pesaran and ali. (2001) and finally, we carry out the estimation of the ARDL (Autoregressive Regressive Distributed Lag) model.

### 3.1 Test of Stationnarity

In order to avoid a spurious regression, the specification of a model requires that the variables be stationary. However, all tests of cointegration have drawbacks and this makes us believe that the determination of the order of integration using only one test is not reliable (Keho, 2004). This is the reason why we use the tests of Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP).

### 3.2 Test of cointegration of Pesaran et al. (2001)

Applying Fisher's test to the first lags of the variables private investments and growth enable us to test cointegration. The F-statistics are compared with the two values tabulated by

Pesaran et al. (2001): the first value corresponds to the value when the explanatory variable is  $I(0)$  and the second value if it is  $I(1)$ . If the F-statistics are less than the lower value, then there is no relation of cointegration. If it is between the two values, no clear conclusion can be drawn. But if the F-statistics are higher than the tabular value, then there is cointegration between the series.

### 3.3 Specification of the econometric model

Within the framework of this study, the model which was retained is the ARDL (Autoregressive Distributed Lag) developed by Pesaran et al. (2001). Its principal characteristic is to take into account all the interactions of the variables without imposing theoretical constraints on them. Moreover, it does not require that the series be integrated of order 0 or 1. Two equations were specified in our econometric model: The first highlights the relationship between private investment, public investment and growth. The second shows the link between government consumption spending, private investments and growth.

$$\begin{aligned} D\text{Log}(\text{TINVPR}) = & \text{Log}(\alpha) + a_1.D\text{Log}(\text{TINVPIB}) + a_2. \\ & D\text{Log}(\text{DCPIB}) + a_3.D\text{Log}(\text{CREPIB}) + a_4.D\text{Log}(\text{IPC}) \\ & + a_5.\text{Log}(\text{TINVPR}(-1)) + a_6.\text{Log}(\text{TINVPIB}(-1)) \\ & + a_7.\text{Log}(\text{DCPIB}(-1)) + \epsilon t \dots \dots (1) \end{aligned}$$

$$\begin{aligned} D\text{Log}(\text{PIBRH}) = & b_0 + b_1.D\text{Log}(\text{TINVPIB}) + b_2.D\text{Log}(\text{DCPIB}) + b_3.D\text{Log}(\text{CREPIB}) + b_4.D\text{Log}(\text{IPC}) + b_5.D\text{Log}(\text{TBSP}) + b_6.D\text{Log}(\text{TBSS}) + b_7.\text{Log}(\text{PIBRH}(-1)) + b_8.\text{Log}(\text{TINVPIB}(-1)) + b_9.\text{Log}(\text{DCPIB}(-1)) + b_{10}.\text{Log}(\text{TBSP}(-1)) + b_{11}.\text{Log}(\text{TBSS}(-1)) \dots \dots \dots (2) \end{aligned}$$

**Table 2: Summary of the variables and their expected signs (first model)**

Types	Variables	Definitions	Expected Signs
Endogenous	TINVPR	Rate of private investment	
Exogenous	TINVPI B	Rate of public investment	+/-
	IPC	Consumer price index	-
	DCPIB	Recurring expenditures/ GDP	+/-
	CREPIB	Credit to the economy/ GDP	-

*Source: Drawn by authors from literature review*

**Table 3: Summary of the variables and their expected signs (second model)**

Types	Variables	Definitions	Expected Signs
Endogenous	PIBRH	Real GDP per capita	
Exogenous	TINVPI B	Rate of public investment	+
	DCPIB	Recurring expenditures/ GDP	-
	CREPIB	Credit to the economy/ GDP	-
	TBSP	Gross primary school enrolment rate	+



	TBSS	Gross secondary school enrolment rate	+
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*Source: Drawn by authors from literature review*

## IV. Results and discussion

### 4.1 TESTS OF STATIONNARITY

From Table 4 below, the results of the two tests of stationnarity (ADF & PP) converge for the various variables except for credit to the private sector.

**Table 4: Summary of the results of the tests of stationnarity**

Series	Definitions	Level of integration		Level of significance
		ADF	PP	
Log (PIBRHB)	Real GDP per capita	I (1)	I (1)	1%
Log (TINVPR)	Rate of private investment	I (1)	I (1)	1%
Log (IPC)	Consumer price index	I (0)	I (0)	5%
Log (TINVPIB)	Rate of public investment	I (1)	I (1)	5%
Log (TBSP)	Gross primary school enrolment rate	I (1)	I (1)	1%
Log (TBSS)	Gross secondary school enrolment rate	I (1)	I (1)	5%
Log (DCPIB)	Recurring expenditure/ GDP	I (1)	I (1)	1%
Log (C R)	Credit to the economy/ GDP		I (0)	5%



EPIB)		I (1)		1%
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PP = Phillips-Perron; ADF = Augmented Dickey-Fuller

*Source: Estimated by authors using "Eviews 5"*

## 4.2 Test of cointegration

**Table 5: Results of the test of cointegration of Pesaran and al. (2001)**

Country	Dependent Variable	Lag	table	F-stat	Critical value		conclusion
					Upper value	Lower value	
Cameroon	ΔLINVPRIV	1	C(II)	174.7029	3.538	4.428	cointegration
	ΔLPIBHAB	1	C(II)	62.71477	3.272	4.306	cointegration

*Notes: the critical values are drawn from Narayan (2005)*

*Source: authors' computations*





From table 5 above, we observe that all the Fisher values are higher than the critical values of Narayan, indicating the existence of cointegration.

### 4.3 Global and specific Analysis of the variables of the model

#### 4.3.1 Case of the first equation

**Table 6: Summary of the Results of the estimation of the first equation**

Short run coefficients		
Variables	Coefficients	Degree of significance
C	-0.247199 (0.126445)	10 %
DLOG(TINVPIB)	0.066104 (0.031032)	5%
D LOG(IPC)	0.087191 (0.104687)	Non significant
D LOG(DCPIB)	-0.026638 (0.071152)	Non significant
D LOG(C R EPIB)	0.911683 (0.028468)	1%
Coefficients of long term		
LOG (TINVPR (-1))	-0.050252 (0.019375)	5%
LOG (TINVPIB (-1))	-0.052475 (0.012474)	1%
LOG (DCPIB (-1))	0.010070 (0.061848)	Non significant
R <sup>2</sup> : 0.979967 ; R <sup>2</sup> adjusted: 0.974357 ; Durbin-Watson stat: 1.981062		
Statistics-F: 174.7029 ; Prob (F-statistic): 0.00000 ; N: 34		

*The values in brackets represent the standard deviations of the errors*



*Source: Estimated by authors using "Eviews 5"*

## 1) Global Analysis

Summarily, table 7 in the appendix shows that the model is well specified. This is justified by the high values of the coefficient of determination  $R^2$  and adjusted  $R^2$ . This is proof that the model is good for forecasts. Thus the variation of private investment is explained at 97.99% and 97.44% respectively by the regression models. Also, the probability of the F-statistic is significant at the 1% level. This further confirms our assertion. Further more, the coefficient of the variable of adjustment (TINVPR (-1)) is negative and significant at the 5% level, proof that the model is good. The value of the Durbin-Watson statistics is equal to 1.98, which shows the absence of autocorrelation because it is within the conventional interval of the proof of absence of autocorrelation.

## 2) SPECIFIC ANALYSES OF THE EXPLANATORY VARIABLES

### a) Rate of public investment (TINVPI B)

Its sign is in conformity with our expectations. In the short run, it has a positive and significant effect at the 5% level. A 1% increase in public investment leads to an increase of 6.61% in private investment. In the long run, it has a negative sign that is significant at the 1% level, showing that an increase of 1% in this rate leads

to a reduction of 5.25% of private investment. Some explanations can be given for this difference in effects:

- The non renewal of the public infrastructures put in place since the years 1973 contributed to the decrease of private investments in the long run.
- The fact that public investments play a role of substitute and not of promoter for private investments. This was much noticed during the years of the oil crisis where public investments were carried out unproductive companies qualified as "white elephants".

### b) The consumer price index (CPI)

Its sign is against the expected sign. It has a positive effect on private investment. A 1% increase of the price index leads to an increase of 8.72% in the rate of private investment. This can be explained by the fact that:

- A rise of consumer prices could encourage private agents to increase their investments seeing in this rise prospects for profit.
- A shock on demand could lead to a rise of the consumer price index, pushing the private investors to increase the investments.

### c) The ratio to the GDP of credit to the economy (CREPIB)



Contrary to our expectations, the granting of the credit to the private sector has a positive and significant impact at the level of 1% on investment carried out in this sector. A unit increase in the credit granted to the economy increases by 9.12 points the investment of the private sector. This can be explained by the fact that in Cameroon, :

- after the oil crisis in 1980, there was an increase in the rate of saving and a fall in the interest rate allowing the private sector to grant credit to carry out its investment projects.
- The liberalisation of the banking sector increased the number of micro finance establishments to allow the small savers to realise their projects.

#### **d) Ratio of the current government expenditure to the GDP (DCPIB)**

Its sign partially confirms our expectations. It first has a negative sign and a positive one in the

#### **4.3.2 Case of the second equation**

short and long run respectively, although its effect is insignificant on private investment. This could be justified by the fact that:

- In the years preceding the oil crises, the public administration was over-staffed and recurring expenses which are by nature unproductive were in a rise.
- In the short run, an increase in the recurring expenses reduces, all things being equal, the budget allocated to investment projects which promotes private investments thus obliging the state to borrow from banks to cover the deficit. This causes a rise in the interest rate, which crowds out private investments.
- However, an increase in the long-term consumption spending leads to a rise in the demand, causing a rise in private investments in order to satisfy the additional demand.

**Table 7: Summary of the results of the estimation of the second equation**

short run coefficients		
Variables	Coefficients	Degree of significance
C	3.581152 (1.508682)	5 %
DLOG(TINVPIB)	0.101053 (0.048187)	5 %
D LOG(C R EPIB)	- 0.114411 (0.032362)	1%
D LOG(DCPIB)	-0.241461 (0.084406)	1 %
D LOG(IPC)	-0.039551 (0.117158)	insignificant
DLOG(TBSP)	0.408790 (0.784604)	insignificant
DLOG(TBSS)	0.212264 (0.639957)	insignificant
Coefficients of long term		
LOG (GDP RH (-1))	-0.399446 (0.122845)	1%
LOG (TINVPIB (-1))	0.052178 (0.035917)	insignificant
LOG (DCPIB (-1))	-0.344249 (0.113755)	1%
LOG (TBSP (-1))	1.483877 (0.634694)	5%
LOG (TBSS (-1))	0.134443 (0.197339)	insignificant
R <sup>2</sup> : 0.766631 ; R <sup>2</sup> adjusted: 0.644390 ; Durbin-Watson stat: 1.814180		
Statistics-F: 6 2.71477 ; Prob (F-statistic): 0.000166 ; N: 34		

*Source: Estimated by authors using "Eviews 5"*

**N.B:** The values in brackets represent the standard deviations of the coefficients.

## 1) Global analysis

From table 6 in the appendix, we can see that 76,66 % of the total variation of economic growth in Cameroon is explained (following the coefficient of determination) and 64,44 % (following the adjusted coefficient of determination) by the explanatory variables (TINVPIB, IPC, DCPIB, C R EPIB, TBSP, TBSS, Tinvpib(-1), Dcpib(-1), Tbsp(-1), Tbss(-1), Pibrh(-1)) retained in the regression equation. Thus the model is globally good and can be used for forecasting. Moreover, the test of global significance of the parameters revealed that the probability of the Fisher test statistics is greater than 1%. This shows that the model is globally well specified. Also, the coefficient of the adjustment variable Pibrh(-1)) is negative and significant at the 1% level.

The main explanatory variables (TINVPIB, DCPIB) respectively have positive and negative signs which corroborate with our expectations. However, public investment is significant only in the short-run though its sign is in conformity with our expectations. However the

public consumption spending has negative and significant effects on growth at the 1% level in the short run and in the long run. Other variables (IPC, CREPIB, TBSP, TBSS) also have signs in conformity with our expectations.

## 2) Specific analyses of the explanatory variables

### a1) Rate of public investment (TINVPI B)

Its sign is positive and significant in the short run at the 5% level, but is insignificant in the long-run. This can be explained by the following reasons:

- The insufficient and obsolete nature of infrastructures negatively impact on growth, whereas the impact of a unit improvement of the infrastructures on the growth of real GDP per capita is estimated at 4,5 points (IMF, 2011). Thus, the positive effect of infrastructures (roads, railways...) realized during the period of the oil crises was only short term because most of them were not renewed in the long run.





- Cameroon suffers from the problem of the remoteness of rural zones. The public investments in this field are not significant. However, the development of infrastructures such as roads and accessibility to markets are of capital importance in these zones (Kamajou, 1984).
- In addition, government spending is characterized by a low level of capital spending which, although in rise, represent only 3 % of the GDP on average between 2002 and 2009 and less of a quarter of the total spending. The problem lies primarily in their weak rate of execution. This rate was approximately 50 % on average between 2008 and 2010 (IMF, 2011b). Difficulties at the level of the bodies in charge of the engagement of the expenditure and management of State liquidity, as well as a limited capacity for of absorption of the Cameroonian economy, are two possible explanations of this weak execution.

#### **a2) Ratio to the GDP of credit to the economy (CREPIB)**

The coefficient of credit to the economy is preceded by a negative sign as expected. An increase in the credit to the economy negatively

affects the growth rate. An increase of 1 % in the credit to the economy lowers the growth rate by 11.44 %. We can therefore hold that the oil crisis of 1974, the debt crisis of the beginning of the Eighties, the financial and banking crisis of the late eighties affected the Cameroonian economy durably in spite of well designed objectives of its economic policy among which we can cite inter alia the five-year plans of the 60 and 70 decades, structural adjustment programs of the Eighties and Nineties and the liberalization and restructuring of the banking and financial environment at the beginning of the Nineties, not forgetting the devaluation of CFA franc in 1994.

Largely defended by Mc Kinnon and Shaw (1973), these policies condemn the interventions of the state on capital markets and preach financial and banking reforms. This positive relationship between the credit to the economy and the growth rate show the significant role that Cameroon occupies in CEMAC zone and more especially its competitiveness in this zone.

#### **a3) Consumer price index (IPC)**

It has a negative sign, and consequently affects the growth rate negatively. This can be due to the reasons below:

- Cameroon, because of the trade relationships that it has with its partners



makes the general level of prices to be affected in one way or another by the prices of imported goods. The direction in which the prices vary is not known beforehand. When it results in inflation, we talk of imported inflation. Rogoff (1985) studied the impact of openness on the level of inflation.

- Cameroon does not have a good production capacity and this affects the degree of substitution between the national and foreign products. The difference between the effective production and the potential production is traditionally presented as a significant factor in inflationary tensions in Cameroon.

#### **a4) Human capital (TBSP, TBSS)**

The gross primary school (TBSP), and secondary school (TBSS) enrolment rates whose signs are in conformity with our expectations are proxies of human capital, though they are not significant. Some plausible explanations are that:

- The contribution of the young graduates from secondary education to growth is insignificant. Or rather, this contribution is not well known, given that 30% of the population considered are unemployed and 45% of them are in the informal sector.

- The increase in the supply of educated workers is more in the public administration relative to the private sector.

#### **a5) Ratio of government consumption spending to the GDP (DCPIB)**

Government consumption expenditure has a negative effect on growth as expected, both in the short and in the long run. These results are contradictory not only to those of Devarajan and ali.(1996) who find a positive effect of the government consumption spending on the growth, but also to those of Easterly and Rebelo (1993) and especially Tanzi and Zee (1997) who advocate for a differentiation between the direct and indirect effects of government spending on growth: A priori, government consumption spending which increases demand and causes, through the Keynesian multiplier effect, an increase in the short-run GDP is not found in Cameroon, this because of structural rigidities (absence of infrastructures, of qualified labour ...) which reduces or slows increases in investment. Nevertheless, in an open economy, the impact of the multiplier effect on growth reduces, the higher the marginal propensity to import of the economy. Private consumption represented 81.2 percent of the GDP in 2006, as against a 16.7 percent for investment. A real engine of growth in Cameroon,



government consumption increased by 4.9 percent in 2008 for three main reasons: recruitments in education and health, the resumption of salary advances in the public service and the increase of the basic wage of civil servants. But these did not have as consequence a revival of demand and investment in the short or in the long run.

## 5. CONCLUSION AND RECOMMENDATIONS

### 5.1 Conclusion

The main objective of this study was to analyze the effects of the components of government spending on private investments and economic growth in Cameroon from 1977 to 2010. More specifically, it was a question of evaluating on the one hand the impact of government investment and consumption spending on private investments; and the other show the effects of these same components on growth. To achieve this goal, we carried out the preliminary unit root tests. This enabled us to use the Autoregressive Distributed Lag (ARDL) model. The main results of our analyses are as follows:

- Public investment has a positive and significant effect on growth at the 5% level in the short run, but has a very significant (1%)

crowding out effect on private investment in the long run.

- The rate of public consumption spending has a negative effect in the short run and a positive effect in the long run, but this effect is insignificant on private investment in Cameroon.
- Public investment has a positive and significant effect at the 5% level in the short run on the growth rate. Its impact is also positive but insignificant in the long run.
- The rate of public consumption has a negative and very significant effect (1%) in the short in the long run on growth.

Most of the results presented thus confirm the majority of the hypotheses of the study.

### 5.2 Recommendations

From this study, we find that the orientation of public capital expenditure towards sectors of support for private activity, particularly public investment in infrastructures like electricity, roads and potable water and the rationalization of recurrent spending would contribute significantly to economic growth in Cameroon.

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