Public Expenditure and Economic Growth in Togo

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Abstract

This paper assesses the impact of the level and composition of public expenditure on growth in Togo. To this end, a neoclassical growth model was estimated using the Two-Stage Least-Squares method.The findings highlight that public expenditure during the period 1980–2009 had no significant positive effect on economic growth. However, public consumption had a negative impact and public investment a positive impact on growth. The maximum level at which public consumption becomes harmful to economic growth is estimated at 16%. Similarly, the minimum level of investment required to boost growth is estimated at 5.7%. All things being equal, a reallocation of public expenditure following the estimated optimal composition involves an additional increase in growth of 24%. Moreover, the study finds that increasing public expenditure involves a crowding-out effect, suggesting the need to review the way in which public expenditure can be financed more efficiently.

Keywords: *Public consumption, public investment, economic growth*

1. Introduction

Over the past five decades, Togo's macroeconomic performance was among the worst in sub-Saharan Africa. Real GDP per capita almost stagnated between 1960 and 2008. Yet, after independence, Togo foreshadowed the hope of a booming economy with an annual average growth rate of 4.5% between 1960 and 1973.[1] However, from 1974, with the rate of real GDP growth falling, the economic situation deteriorated considerably and the country began facing an economic crisis in 1980.

To mitigate the crisis, the government, supported by the IMF and the World Bank, implemented a Structural Adjustment Programme (SAP), which focuses on economic stabilization (demand side) and restructuring (supply side). The restructuring was aimed at restoring production efficiency by reducing the distortions that hinder economic growth. The main measures were: the liberalization of international trade, the elimination of domestic price controls, public sector reform, and the restructuring of the banking sector. Stabilization, in turn, would mean reducing aggregate demand to an adequate level that falls within the level of local production and sustainable debt. This aim would be achieved through appropriate monetary and fiscal policies, and an adjustment in the size of government.

Unfortunately, the restrictive fiscal measures applied in the framework of the stabilization component were followed by an accelerated degradation of the public goods supply in the fields of health, education, infrastructure, and social protection, all of whose detrimental consequences on the population's welfare have undermined projected growth. Similarly, renewed economic growth after devaluation in January 1994 did not translate into tangible results, such as reducing poverty, creating jobs and improving the living conditions of the total population (World Bank, 2010).

In 2010, Togo reached the Heavily Indebted Poor Countries (HIPC) initiative achievement point, which allowed a debt remittal of 900 billion CFA Franc. This debt reduction corresponds not only to financial availability, but also to an increase in the government's ability to raise capital on international markets and, therefore, achieve the potential capacity to increase public expenditure. Consequently, between 2010 and 2013 public expenditure was increased sharply from 354 to 557 billion CFA Franc. However, an increase in public expenditure does not necessarily generate economic growth. Gogué and Evlo (2008) have criticized the Togolese government's fiscal policy for its inefficient allocation of public expenditure, which has even led to the crowding out of private enterprises in the period 1974–1979.[2]

The World Bank (2010) has also criticized the government for its inappropriate composition of public expenditure allocated to consumption and investment. Indeed,

over the past 20 years, the ratio of consumption expenditure to GDP has varied between 13% and 25%, against a 1–4% ratio of capital expenditure to GDP. This low share of investment in GDP raises questions about the effectiveness of fiscal policy as an instrument to boost growth in Togo. Theoretically, in a country it is investment that drives growth. According to the "Golden Rule", when the public capital stock increases by US$1, the present value of the extra tax revenues generated by the higher GDP is at least US$1 (Perotti, 2004). As shown by several studies, the effects of a Keynesian investment multiplier are higher than the consumption expenditure multiplier because the increase in investment expenditure does not only increase the aggregate demand, but also the aggregate supply through an increase in aggregate production, while improving the marginal productivity of labour and private capital (Straub and Tchakarov, 2007).

However, this does not prove that in the Togolese context the Keynesian effect of investment expenditure would be larger and more effective than the consumption expenditure effect. Indeed, studies in developing countries have shown a positive relationship between public consumption expenditure and economic growth, and an inverse relationship between growth and public investment. This is the case when there is a misallocation of fiscal resources for capital expenditure, to the detriment of infrastructure maintenance costs (Devarajan et al, 1996; Ghosh and Gregoriou, 2008). Contrary to a commonly held belief, even in industrialized countries, there is no evidence that government investment shocks are more effective than government consumption shocks in boosting GDP. This happens when public investments crowd out private investments (Perotti, 2004).

Thus, arguing that the investment multiplier is larger and more effective than the consumption expenditure multiplier in the case of Togo requires careful empirical analysis. A study of the differential impact of public investment and public consumption is therefore necessary. From these arguments, two specific research questions arise:

To stimulate growth, should the Togolese government increase or reduce the current level of public expenditure?

What would be the most efficient arbitrage between capital and consumption expenditure? In other words, should the government change the composition of public expenditure in order to have a positive impact on growth?

This study, therefore, raises questions about the effectiveness of the allocation of public expenditure, and mainly the effect of a change in the composition of public expenditure. The remainder of the paper is structured as follows: The second section focuses on the stylized facts that relate to the growth profile of Togo; the third section presents the literature review; the fourth section describes the research methodology; and the fifth, the empirical results.

2. Togo's growth profile during 1980–2009: Stylized facts

With reference to Gogué and Evlo (2008), the history of growth in Togo in 1980–2009 can be described by distinguishing three periods: 1980–1989, 1990–1999 and 2000–2009. The stylized facts described below are presented in Table 1,and graphically depicted in Figure 1.

Economic growth 1980–1989

This period can be regarded as one of economic reforms. In the early 1980s, the main macroeconomic indicators pointed to a serious deterioration in the economic situation. External debt rose to 110% of GDP in the first half of the period. The budget deficit and current account deficit of the balance of payments, which reached significant levels in the first half of the period, were 6.80% and 6.40%, respectively. During this period, the Togolese economy was adversely affected by many factors: the second oil shock, falling phosphate prices, a rising dollar and interest rates, and the severe drought that marked the year 1981.

To deal with the situation, the government implemented an SAP. Accordingly, it developed a package of stabilization and adjustment measures, supported by a series of agreements with the IMF and sectorial adjustment loans from the World Bank. These measures aimed to reduce domestic demand, and to open up and liberalize the economy. In this context, various structural reforms were launched in 1983. They touched on all aspects of the economy, including foreign trade, budgetary expenditure, taxation, foreign investment and privatization. Under these reforms, a number of public enterprises lost their monopoly, such as SONACOM, TOGOGRAIN, OPAT . This period saw the birth of SOTOCO, which was established to assist OPAT with cotton marketing. The OTP remained a public enterprise as the government was opposed to its privatization because it represented an important source of income for the regime. To cut public expenses, the government was put a freeze on the recruitment and promotion of civil servants. These measures helped reduce public consumption, the budget deficit and the current account deficit from 19.60%, 6.80% and 6.40%, to 18.46%, 2.40% and 4.72%, respectively, between the two sub-periods. Those measures enabled a real growth rate of 3.62% despite a fall in public investment of around 21% and the stagnation of private investment.

Economic growth 1990–1999

The period 1990–1999 can be divided into two sub-periods: 1990–1994 and 1995–1999. The first sub-period can be considered as the time of the Togolese struggle for democracy. During this period, most macroeconomic indicators deteriorated significantly. Public investment fell sharply (77%), the budget deficit and current account deficit rose to 241% and 48%, respectively, and inflation reached 8%. This terrible performance can be explained by the fact that the democratization process in Togo had been marked by social and political trouble that peaked between 1992–1993 with a general strike for nine months, causing a deterioration of the economic situation that was exacerbated by the suspension of cooperation with the EU and other development partners. Consequently, the economy experienced a recession because of the drastic decline in private investment resulting from the reduction of domestic savings and the inability of the government to attract Foreign Direct Investment (FDI). Therefore, from 1992 to 1993, the growth rate of GDP per capita worsened from -5.9% to -17.4%. This annual rate,which is the worst of the three periods under discussion, can therefore mainly be explained by the nine-month strike that paralyzed the overall production system.

In 1994, the CFA Franc was devalued by 50%. This change in currency parity did not put the economy onto a sustainable growth path due to its weak competitiveness and the low adaptability of the production system. In fact, the growth of real GDP increased from-17% (1993) to 13.9% (1994). However, this increase in growth only lasted for two years (from 1994 to 1996). According to Fiodendji (2005), the sharp increase in growth observed between 1993 and 1994 can be explained more by the improvement of the socio-political situation (the end of the nine-month strike) than by the effects of the devaluation. He also argued that the devaluation caused a decline in competitiveness for the country. Exports decreased, the import bill increased, and the commercial deficit rose sharply: from 3.7% in 1994, to 5% in 1995,10% in 1996, and 16% in 1997.

The second sub-period, from 1995 to 1999, was characterized by ongoing reforms initiated in the previous period as part of the SAPs. Those reforms were along the following lines:

- Reform of customs and financial sector;
- Price and trade liberalization and adherence of Togo to World Trade Organization rules in 1995; and
- Removal of the state monopoly (suppression of OPAT), and privatization of public enterprises or parastatals. Mixed-economy companies emerged: OSAT replaced Togograin in 1998, Telecom took the place of OPTT, and Togo Electricité replaced the CEET. However, the average growth rate of 3.7% achieved in 1995–1999 shows the limits of the efforts that had been made. In 1998 the energy crisis paralyzed the entire production system, resulting in a drastic decline in real GDP. In the second part of the period, the growth rate of real GDP fell to 0.74%.

Economic growth 2000–2009

The period 2000–2009 is characterized by the emergence of the private sector and the resumption of cooperation in 2005. In the first half of the period, private investment increased from 8.66% to 13.27% of GDP, an increase of 53%. However, public investment

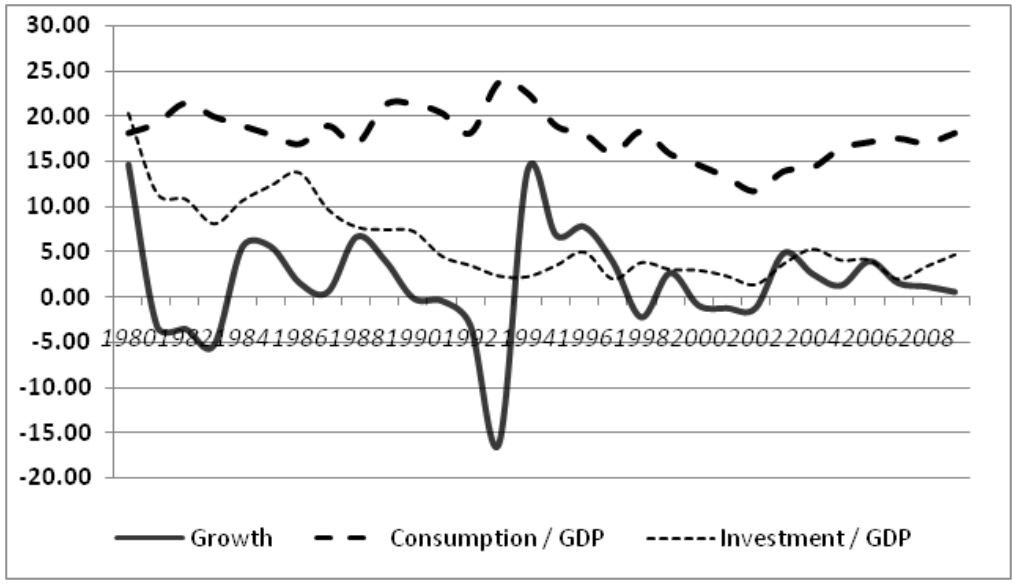
stagnated between 3% and 4% of GDP. During the entire period the budget deficit and current account deficit did not adhere to the convergence criteria of the West African Economic and Monetary Union (WAEMU). These deficits rose from 0.94% to 4.10%,and from 10% to 14%, respectively, between the periods 2000–2004 and 2005–2009. The gradual deterioration of the current account was mainly driven by the deterioration of the trade balance as a result of depressed export activities. Therefore, although private investment rebounded significantly, growth remained soft (less than 2%), despite the average level of inflation which was close to the WAEMU standard of 3%. This shows that the rate of public investment that had been stabilized at between 3%–4% of GDP was insufficient to boost growth in the Togolese economy.

Table 1: Evolution of macroeconomic indicators from 1980 to 2009

	1980–1984	1985–1989	1990–1994	1995–1999	2000–2004	2005–2009
Total public expenditure/GDP (%)	31.84	28.64	25.26	20.96	16.79	20.98
Public consumption/GDP(%)	19.60	18.46	21.28	17.48	13.64	17.32
Public investment/GDP (%)	12.24	10.18	3.98	3.48	3.15	3.66
Private investment/GDP(%)	8.00	7.64	7.38	8.66	13.27	13.05
Total investment/GDP(%)	20.24	17.82	11.16	12.14	16.42	16.71
Budget deficit/GDP (%)	6.80	2.40	8.20	5.28	0.94	4.10
Current account deficit/GDP (%)	6.40	4.72	7.00	9.10	10.10	14.30
Public debt/GDP(%)	109.80	119.20	96.40	98.60	100.60	80.50
Inflation (%)	9.82	0.26	8.08	5.34	1.68	4.56
Real growth (%)	1.56	3.62	-1.26	3.72	0.74	1.64

Source: Author's calculations based on data from BCEAO and ADI (African Development Indicators).

Figure 1: Public consumption, public investment and growth



3. Literature review

A review of economic literature establishes the link between public expenditure and economic growth. Here this link is examined by means of theoretical and empirical approaches.

Theoretical approach

Theoretical discussions about the link between public expenditure and economic growth are based upon the old and controversial debate about the role of government in the economy. In general, this debate is divided according to two main theses. The first argues that public expenditure is a powerful instrument of economic growth. The second claims that public expenditure has, in all cases, a harmful effect on growth. The first thesis, which is the Keynesian view, considers that the regulation of economic activity by government passes through countercyclical stages.

This perspective leads governments to actively support economic agent activities when demand is depressed, and to slow it down when the acceleration of economic activities causes fear about internal and external disequilibrium. Thus, in the short term, public spending can be used to stimulate aggregate demand and boost economic growth. The argument in favour of public spending is that some public expenditure, especially in public investment such as roads, electricity, transportation, telecommunications, education and health, generates externalities that enhance the productivity of private factors and can thus support economic growth (Blejer and Khan, 1984; Aschauer, 1989, Tanzi and Zee, 1997).

The second thesis of the neoclassical view contests the Keynesian multiplier effect and argues that an expansionary fiscal policy has no positive effect on economic activity. The recovery policies for government spending may even have depressive effects on the economy mainly because of the crowding-out effects they exert on investment and private consumption. As a result, these negative effects influence economic agents' anticipation of future consequences of fiscal policy, and lead them to adjust their consumption and savings behaviour accordingly (Barro, 1990).

In fact, the effect of public spending on growth depends on the source of funds used by the government. If these expenditures are financed by higher direct taxes, the net impact on growth may be negative despite a positive effect on the marginal productivity of private capital. If the expenditures are financed by borrowing then economic agents, who take a long view, understand that non-taxation today is a deferral of tax in the future. Consequently, instead of increasing their level of consumption, they save the

extra income due to the non-taxation of today in order to pay future taxes, which tends to reduce demand. Increased public spending is offset by lower private demand, and fiscal policy is thereby reduced. This is known as the theory of Ricardian equivalence.

This thesis, based on the assumption that public spending reduces private investment, is the main argument of the defenders of the existence of a negative relationship between public spending and economic growth. Other arguments, although more marginal, can also be mentioned. Ram (1986) argues that: (1) in the absence of a competition and profit motivation, government generally operates in a non-efficient environment; (2) government regulatory action causes constraints of and excessive additional costs to the economic system; and (3) monetary and fiscal policies of the government create economic distortions and reduce the productivity of the system.

It is further argued that public spending does not necessarily reflect the exact level of agents' preference since public decisions do not result exclusively from the aggregation of individual preferences. Politicians aim to maximize their chances of re-election, thus their behaviour may not reflect an equilibrium,which is not determined solely by the level of the median voter but mostly by the self-interested games of lobbyists and bureaucrats (Mills and Quinet, 1992).

This negative perception of public spending on economic growth is based on the assumption that markets are not always efficient. Therefore, public investment, which is determined arbitrarily, is not efficient when compared with private investment. On the basis of this low productivity of public investment, any increase in public spending would slow down overall economic growth, hinder the accumulation of physical and human capital and reduce the speed of innovation in the private sector (Diamond, 1989).

Empirical approach

As in the case of theoretical developments, there is no consensus on the exact nature of the relationship between public spending and economic growth, particularly in developing countries. The controversy that is highlighted in the theory is also present in the empirical investigation.

With regards to the effect of the level of total expenditure, although consensus seems to have been reached regarding the positive impact of public spending on growth in Organisation for Economic Co-operation and Development (OECD) countries (Ghali, 1999), it varies for developing countries. While Cheng and Lai (1997) found that public expenditure has a positive impact on economic growth in South Korea, Ojo and Oshikoya (1995) have shown that in sub-Saharan African countries an expansionary fiscal policy reduces the growth in per capita GDP of these countries. This result is consistent with that of Ghura and Hadjimichael (1996). Similarly, Tenou (1999), who estimated the determinants of growth in WAEMU countries with panel data, obtained the same result. However, Nubukpo (2007), found no significant relationship between public spending and economic growth for most WAEMU countries. Taking an autoregressive vector approach, Ansari et al (1997) also find no evidence in favour of Keynesian effects of public expenditure in Ghana, Kenya or South Africa.

The empirical literature on the effects of the composition of expenditure has also produced controversial results. Testing a sample of 87 countries, including 25 countries

in sub-Saharan Africa, Véganzonès (2001) pointed out the positive impact of public investment in infrastructure on growth, and a complementary relationship between public and private investment. Knight et al (1993) and Nelson and Singh (1994) also revealed a significant effect of public infrastructure investment on growth, which was particularly significant during the 1980s, using a sample of developing countries. Easterly and Rebelo (1993) came to the same conclusion by considering public investment in transport and communication. However, Khan and Kumar (1997), using a sample of 95 developing countries during the period 1970–90, showed that the effects of private and public investment on growth were significantly different, with private investment being consistently more productive than public investment.

The impact of public spending has mainly been used to explore the differential impact between public investment and public consumption. Gupta et al (2005), using a sample of 39 low-income countries, showed that countries where public expenditure is dominated by salaries tend to have lower growth rates, while those who emphasize capital expenditure experience more rapid growth when the costs are associated with a modest deficit. For the WAEMU countries, Nubukpo (2007) also highlighted the negative effect of public consumption expenditure on growth in the short and longterm, and the long-term positive impact of public investment spending on the growth economies of the WAEMU. The negative effects of public consumption have also been recorded by Barro (1997).

By contrast, Devarajan et al (1996) showed a positive relationship between spending on public consumption (measured in current expenditure as a percentage of total expenditure) and economic growth, and an inverse relationship between the latter and public investment. This result, according to the authors, is explained by a misallocation of fiscal resources for capital expenditure (to the detriment of infrastructure maintenance costs). Ghosh and Gregoriou (2008) obtained similar results for 15 developing countries.

Discrepancies remain when comparing the effects of capital expenditures with the effects of consumption expenditure in industrialized countries. For example, Perotti (2004) showed that contrary to a commonly held belief, there is no evidence that government investment shocks are more effective than government consumption shocks in boosting GDP. For him, the multiplier of the investment is not greater than the multiplier of consumption in four European countries, whereas Straub and Tchakarov (2007) find that investment multipliers are greater than consumption expenditure multipliers in 12 European countries. The latter shows that the increase in investment spending, in general, generates multipliers greater than the increase in consumption spending, because increased capital expenditure not only increases aggregate demand, but also aggregate supply through an increase in aggregate production and an improvement in the marginal productivity of labour and private capital.

Despite the inconclusive nature of the empirical literature, the emerging consensus accepts that changes in the composition of public spending on capital expenditure (health, education and the infrastructure base) tend to have a positive impact on growth.

4. Methodology

Starting point

The starting point is the neoclassical growth model of Solow, who hypothesized that output depends on capital and labour inputs. It is formulated as follows:

$$y = g\,(K, L) \tag{1}$$

where: y stands for growth of real GDP, K stands for growth of capital, and L stands for growth of labour.

This is in line with the extension of the Solow model,as developed by Barro (1990) and Aschauer (1989) , and used by Khan and Kumar (1997), among others, in the literature. In this study, it is hypothesized that output growth depends on the investment used for the capital stock and on the labour force. In linear form, Equation 1 is rewritten as follows:

$$y = a_0 + \alpha_1\ (\frac{I}{y}) + a_2\, L \tag{2}$$

where $a_1 > 0$; $a_2 > 0$ and $\frac{I}{y}$ represents the ratio of total investment to GDP.

Expanded model

Linear model

The expanded form of Equation 2 is specified by expressing growth (y) as a function of private investment (Invpri), public investment (Invpu), public consumption (Conspu, inflation (Inf), index of terms of trade (TOT),and the labour force (Lab). The terms of trade (TOT) is included in the model to account for the fact that Togo is a small open economy. Finally, real GDP lagged by one period is included in the model to improve the quality of prediction. The model to be estimated is formulated as follows:

Impact of the level:

$$y_t = \alpha_0 + \alpha_1 Gdp_{t-1} + \alpha_2 Invpri_t + \alpha_3 Exp_t + \alpha_4 Tot_t + \alpha_5 Lab_t + \varepsilon_t \quad (3)$$

Impact of the composition:

$$y_t = \alpha_0 + \alpha_1 Gdp_{t-1} + \alpha_2 Invpri_t + \alpha_3 Invpu_t + \alpha_4 Conspu_t + \alpha_5 Tot_t + \alpha_6 Lab_t + \varepsilon_t \quad (4)$$

Definition of the variables:

y_t	:	growth of real GDP;
Gdp_{t-1}	:	GDP of the previous year;
$Invpri_t$	:	private investment to GDP;
$Invpu_t$	:	public investment to GDP;
$Conspu_t$	:	public consumption to GDP;
Lab_t	:	labour force; and
Tot_t	:	terms of trade index.

Nonlinear model

Since Barro (1990), it is known that growth is not actually a linear function of public spending. For example, Devarajan et al (1996) showed that the share of production expenditure in the budget can have a positive effect on growth if it is low, and a negative effect if it is high, suggesting a curve that has an upward and downward slope. For this purpose, we extend the model by including the square of total public expenditure in the initial Equation 3, and the square of public consumption and the square of public investment in Equation 4. Therefore Equations 3 and 4 become:

$$y_t = \beta_0 + \beta_1 Gdp_{t-1} + \beta_2 Invpri_t + \beta_3 Exp_t + \beta_4 Exp_t^2 + \beta_5 Tot_t + \beta_6 Lab_t + \gamma_t \quad (5)$$

$$y_t = \theta_0 + \theta_1 Gdp_{t-1} + \theta_2 Invpri_t + \theta_3 Invpu_t + \theta_4 Conspu_t + \theta_5 Invpu_t^2 + Tot_t + \theta_6 Conspu_t^2 + \theta_7 Tot_t + \theta_8 Lab_t + \delta_t \quad (6)$$

Private investment model

Finally, it was necessary to establish a relationship between private investment and public investment in the analysis. From this perspective, private investment is

expressed as a function of public investment (Invpu), public consumption expenditure (Conspu) and a number of control variables, namely real GDP growth ($\mathbf{y}_t$), credit to the private sector ($\boldsymbol{Cred}_t$) and inflation ($\boldsymbol{Infl}_t$). These variables are deemed relevant for the model in accordance with Abou (1999) and Khan and Kumar (1997). The inclusion of public investment and public consumption expenditures allowed for the testing of the crowding-out effect between private investment and public expenditure. Variable credit is included in the model because in developing economies private investment is often constrained by the availability of bank credit. Concerning inflation, when it is high the central bank will raise interest rates and the increase of the cost of credit will decrease private investment. Finally,it is expected that the GDP growth included in the model has a positive effect on private investment because growth raises aggregate demand, which, in turn,positively affects private investment.

In light of the above, we can identify two endogenous variables: GDP growth and private investment.

This leads to two simultaneous equations. The first is the growth equation, Equation 4, and the second is the private investment equation, Equation 7,which is expressed as follows:

$$Invpri_t = \beta_0 + \beta_1 Invpu_t + \beta_2 Conspu_t + \beta_3 yt + \beta_4 Cred_t + \beta_5 Infl_t + \mu_t \quad (7)$$

Equations 4 and 7 are clearly identified as the three variables Gdp_{t-1}, Lab_t and Ite_t in Equation 3 and 4 does not appear in Equation 7, and the two variables $Cred_t$ and $Infl_t$ in Equation 7 are not included in Equation 3 or 4. These variables are used as instrumental variables.

Model estimation and data

The two models, the growth model and the private investment model, are both estimated by a Two-Stage Least-Squares Instrumental Variables (TSLS-IV) regression. Estimations are made by using the instrumental variables as before. The linear growth model is estimated first to determine the level and the composition effect of public expenditure on growth. Then, the non-linear model is estimated by the same method to capture the level of maximum consumption and minimum investment required to boost growth. The data used are annual series covering the period 1980–2009,obtained from the Central Bank of West African States (Banque Centrale des États de l'Afrique de l'Ouest, or BCEAO) database. These are: growth rate of real GDP, growth of the labour force, private investment to GDP, public investment to GDP, public consumption to GDP,credit to the private sector, inflation rate, and terms of trade index.

5. Empirical results

Effect of level and composition of public expenditures on growth

The results of the Two-Stage Least-Squares Instrumental Variables (TSLS-IV) estimations of Equations 3 and 4 are reported in Table 2. In column 1, the results express the growth model with total public expenditure. In column 2, total public expenditure is split into public consumption and public investment. The analysis of the results highlights that the estimated models are robust. Adjusted R^2 and F-statistics are weak, but at acceptable levels. The models do not suffer from autocorrelation. Among the six explanatory variables introduced into Equation 3, three variables are significant. These are GDP (-1), terms of trade, and population. In the disaggregated model (Equation 4), four variables have a significant effect.

According to these results, the total public expenditure variable does not have any significant positive externality effect on growth. This result tends to corroborate earlier findings by Nubukpo (2007) for the WAEMU countries. This absence of a Keynesian effect on total public expenditure raises concerns about the effectiveness of the amount of increase of the public expenditure. Moreover, by investigating the differential impact of public consumption and public investment, the results in column 2 show a negative and significant effect of public consumption and a positive effect of public investment on growth. These results call for some interpretation.

First, the negative effect of public consumption is not in line with Devarajan et al (1996), but is consistent with the findings of Tanzi and Zee (1997), Tenou (1999), and Nubukpo (2007). The latter found that in most WAEMU countries, particularly in Togo, public consumption has a negative effect on growth. How can we explain this result in the Togolese context? A priori, the public consumption as a demand component should, by means of the Keynesian multiplier effect, lead to growth in GDP. Nevertheless, in an open economy, the impact of the multiplier effect on growth is even lower since the economy's marginal propensity to import is high. Given the profile of Togo as a net importer of consumption goods, this could explain the overall negative impact of public consumption on growth. Public consumption here includes wages, transfers, subsidies, and expenditure on goods and basic services that ensure the daily functioning of public administration. They do not necessarily fit in a growth target and correspond to what some authors call unproductive expenditure. Thus, a misallocation of these expenditures,

especially those in favour of transfers and subsidies, could have an adverse effect on growth. Finally, it is not ruled out that the prominence given to consumption over investment expenditure can also harm growth.

By contrast, investment expenditure has a significant and positive impact on growth. This result tends to corroborate the results of most studies in connection with the impact of public investment on growth. However, the mitigated impact of public investment on growth raises questions about the effective allocation of expenditure by government. Either public investment funds were used to finance less productive projects in terms of contribution to economic growth, or they were diverted from their initial purpose. This raises the issue of good governance. Nevertheless, the relatively low level of investment (between 3% and 4% of GDP) could also have contributed to the limited effectiveness of public investments.

Unfortunately, private investment has no effect on growth, probably due to the crowding-out effect on the private sector in the period between the 1980s and 2000s (Gogué and Evlo, 2008). During this period, private investment remained low. An increase in the level of private investment is a relatively recent phenomenon in the Togolese economy.

Table 2: Estimation results of the linear growth model

Real growth	Model 3 coefficients (level effect)	Model 4 coefficients (composition effect)
GDPreal (-1)	-0.08**	0.009
	(-2.43)	(0.00)
Public expenditure	-0.06	-
	(-0.19)	
Public consumption	-	-0.60*
		(-1.78)
Public investment	-	0.03**
		(2.20)
Private investment	0.67	0.59
	(1.34)	(1.26)
Population	2.37**	8.26***
	(2.44)	(3.84)
Terms of trade	0.17*	0.10
	(1.94)	(1.25)
Constant	-24.12	-13.95
	(-0.25)	(-0.46)
Number of observations	30	30
F(.)	4.05	5.96
R^2Adj	0.45	0.37
DW	2.36	2.15

Source: Author's calculation based on data from BCEAO and ADI (African Development Indicators). Values in parenthesis are t-statistics. *=significant at 10%, **= significantat 5%, ***= significant at 1%. Model 3 expresses the growth model with public expenditure. In model 4, public expenditure is split into public consumption and public investment.

Moreover, political instability, although not included in the model, can also be explored in order to understand the arbitrage between consumption and investment expenditures. With the political instability that prevailed during the democratization process, the state had limited resources and was obliged to prioritize particular consumption expenditures, namely wages and security expenditure, in order to mitigate social discontent and reduce the risk of popular uprisings. This policy orientation had a detrimental effect on public investment and, consequently, on growth.

Optimal level of consumption and investment

To determine the threshold values of consumption and investment, a non-linear model is estimated.

Following Barro (1990) and Devarajan et al (1996), the squared value of public expenditure is included in the linear model to take the non-linear form. The results are reported in Table 3 below.

Table 3: Results of the estimation of non-linear model

Real growth	Model (5) coefficients (level effect)	Model (6) coefficients (composition effect)
GDPreal (-1)	-0,01***	-0,03***
	(-4,48)	(-4,20)
Public expenditure	-3,51	-
	(-1,45)	
Public expenditure squared	0,06*	-
	(1,81)	
Public consumption	-	3,58**
		(2,27)
Public consumption squared	-	-0,11 **
		(-2,44)
Public investment	-	-0,80
		(-1,40)
Public investment squared	-	0,70**
		(1,97)
Private investment	2 ,33	0,61
	(0,90)	(0,42)
Population	1,05	0,78
	(0,73)	(0,35)
Terms of trade	0,22	0,03
	(1,07)	(0,40)
Constant	-6,12	-7,40
	(0,54)	(-0,34)
Number of observations	30	30
F(..)	5,12	5,46
R^2Adj	0,37	0,58
DW	2,05	2,65

Source: Author calculations using data from BCEAO and ADI (African development Indicators.*p<0,1 ; **p<0,05 ; ***p<0,01.

By considering Model 5, Table 3 shows that, in contrast with the results of the linear specification, total public expenditure has a negative coefficient with a positive and significant coefficient of the square. The behaviour of this variable suggests that the non-linear specification is preferable to the linear one.

In Model 6, the variables public consumption and public investment show the same trend. The coefficient of public consumption, which has a negative sign in the linear specification, becomes positive and the coefficient of the square in the non-linear specification is negative and significant. The coefficients of public investment with a positive sign in the linear specification become negative in the non-linear specification, with the coefficients of the square positive and significant. Again, this behaviour simply reflects the fact that the non-linear form is the most appropriate specification of the growth model. The change of the signs merely reflects the existence of a curve with two phases: upward and a downward sloping. Thus, the negative sign displayed by the coefficient on consumption in the non-linear specification simply shows that data points cluster along the downward-sloping part of the curve. The function reaches its maximum when the ratio of consumption/GDP is around 16%.[3] That is the maximum level beyond which public consumption essential to the functioning of government becomes harmful to economic growth. Similarly, we can estimate 5,7% of GDP[4] as the minimum level of public investment needed to boost growth in Togo. However, the investment level seems very low, which may be explained by the nature of the data used for the adjustment.[5]

We then simulate what the growth would be if the government reallocated public expenditure following the estimated optimal composition. The result is reported in Table 4 below.

Table 4: Statistics of predicted growth with/without reallocation, 1980–2009

	Effective growth	Growth without reallocation	Growth with reallocation
Mean	1,84	1,76	2,18
Standard deviation	5,61	2,28	1,16

Source: Author's calculations based on data from BCEAO and African Development Indicators (ADI).

All things being equal, a reallocation of public expenditure following the estimated optimal composition involves additional growth of 24%.[6] It appears that by simply changing the composition of public expenditure, the potential to increase economic growth in Togo is higher.

Relationship between private and public investment

A surprising result from the above estimates is that public investment has a significant positive effect on growth, while private investment has no significant effect on growth. Is there a crowding-out effect, or simply a strong correlation between private investment and public investment, which probably picked up the effect of the first? To answer these questions, first we test the correlation between the variables in the model. The Spearman correlation test gives the results shown in Table 5.

Table 5: Correlation coefficients between variables

	Public expenditure	Public consumption	Public investment	Private investment	Terms of trade	Population
Public expenditure	1.00					
Public consumption	0.68	1.00				
Public investment	0.85	0.23	1.00			
Private investment	-0.62	-0.54	-0.23	1.00		
Terms of trade	0.28	0.15	0.34	0.07	1.00	
Population	-0.48	-0.65	-0.41	0.31	-0.12	1.00

Source: Author's calculations based on data from BCEAO and ADI (African Development Indicators).

Table 5 shows that the variables private investment and public investment are fairly correlated with each other. This allows us to proceed with an econometric test of the relationship. Following Abou (1999) and Khan and Kumar (1997), we try to explain private investment (dependent variable) with public investment and other variables such as those expressed by Equation 7. The results are reported in Table 6.

Table 6: Relationship between private and public investment

Dependent variable:	
Private investment	**Coefficients**
Growth	-0.01 (-0.01)
Public consumption	-0.56** (-2.78)
Public investment	-0.22** (-2.23)
Inflation	0.04 (0.54)
Credit	0.16 (0.38)
Constant	9.20** (2.20)
Observations number	30
F (.)	4.22
R^2Adj	0.40
DW	1.10

Source: Author's calculations based on data from BCEAO and ADI (African Development Indicators).*p<0,1; **p<0,05 ; ***p<0,01.

It appears that a 10% increase in public investment leads to a decrease in private investment of 2.2%, showing that there is a crowding-out effect of public investment on private investment. Similarly, a 10% increase in public consumption involves a decrease in private investment of 5.6%. The crowding-out effect of public expenditure can be explained by the financing of public investment (infrastructures, education, health) and consumption through tax increases or by mobilizing domestic saving. This result is not

in line with that of Abou (2007), who found a complementary effect between public and private investment for the period 1970–2003. However, it corroborates the findings of Gogué and Evlo (2008) who showed that during the period 1960–1999 most enterprises in Togo were crowded out.

6. Conclusion and policy implications

This paper attempted to answer two questions in economic policy: In order to stimulate growth in Togo, should the government increase or reduce the current level of public expenditure? To stimulate growth in Togo, should the government change the composition of public expenditure? To answer these questions, a neoclassical growth model was estimated using the Two-Stage Least-Squares method. The estimation of growth models highlighted the fact that public expenditure in the period between 1980 and 2009 did not have a significant positive effect on economic growth. Meanwhile, public consumption expenditure had a negative impact and investment expenditure had a positive impact on growth.

The absence of a Keynesian effect on public expenditure raises the issue of the effectiveness of this expenditure, and makes the case for sound and rigorous management of public finances. But it would be inappropriate to reduce drastically the current level of public expenditure as it remains vital for financing the economy and the fight against poverty. What the results seem to suggest is a change in the current composition of public expenditure. The main lesson from this study is that public expenditure tends to support growth when it is prioritized for investment, but it is likely to slow it down when consumption is favoured. In light of the results, a recommendation is to decrease consumption in favour of investment. The mitigated impact of public investment on growth raises concerns about the effective purpose of the expenditure engaged by government. Either public investments were used to finance less productive projects in terms of contribution to economic growth, or they were diverted from their initial purpose. This raises the issue of good governance of productive resources.

Moreover, the way in which public expenditure is financed plays a crucial role in determining the impact of public expenditure on growth. Indeed, the optimal allocation of total expenditure (both public and private) is vital for achieving sustainable growth in Togo. This allocation implies careful arbitrage between both private and public expenditure. The results show that such arbitrage involves crowding out of the private sector, suggesting the necessity to review the way in which public expenditure is financed. The mobilization of domestic saving and an increase in tax revenues may have a detrimental effect on growth in Togo.

Notes

1. Collier (2003), quoted by Gogué and Evlo (2008), classified Togo among countries with high growth potential: not an insular coastal country, located near large markets of the subregion, and has phosphates rocks.

2. The beginning of the period 1974–1979 was the period of a phosphate boom and a rise in the price of coffee and cocoa. The revenues earned during that period led to an increase in public expenditure, but also an increase in the borrowing capacity of the state. Consequently, the deficit rose by 39%, public debt rose to 116%, and growth was reduced.

3. The coefficient of public consumption squared has a negative coefficient (-0.11) and is significant at the 5% level. This shows that there is a maximum beyond which the growth curve changes direction. This maximum is obtained by solving: $\partial y / \partial Conspu = 0$. Thus, we have: $\partial y / \partial Conspu = 3.58 - 2 * 0{,}11\ Conspu = 0$. Hence $Conspumax = 16.27$.

4. Similarly, the investment coefficient squared is positive (0.70) and significant at a 5% level. This shows that there is a minimum required from where the investment has a positive effect on growth. This minimum is obtained by solving: $\partial y / \partial Invpu = 0$. Then we have: $\partial y / \partial Invpu = -0.80 + 2 * 0{,}70\ Invpu = 0$. Therefore $Invpumin = 5.71$.

5. In fact, during the period studied (1980 to 2009), which covers 30 years, public investment varied only between 1% and 4% over 20 years and was correlated with very low growth rates; seven times negative. If the period were extended, for example from 1960 to 2009, it would have incorporated higher values of investment and the estimated level of investment would be much higher than 5.7%.

6. The growth rate values are predicted values of the estimated functions. To obtain the values for the predicted growth with reallocation, we have taken for investment values 5.7% of GDP and the values of public consumption equal to 16% of GDP; all other variables remain unchanged.

References

Abou, B.N. 2007. *Structure des dépenses publiques, Investissement privé et croissance économique dans les pays de l'UEMOA*. Document d'étude et de Recherche, N°DER/07/04, BCEAO.

Aschauer, D.A. 1989. "Is public expenditure productive?" *Journal of Monetary Economics*, 23: 177–200.

Barro, R. 1990. "Government spending in a simple model of endogenous growth". *Journal of Political Economy*, 98(5): 103–25.

Barro, R. 1997. *Determinants of Economic Growth*. Cambridge, Mass: MIT Press.

Blejer, M. and M. Khan. 1984. *Government Policy and Private Investment in Developing Countries*. IMF Staff Papers, 31(2): 379–403. International Monetary Fund.

Devarajan, S., V. Swaroop and H. Zou. 1996. "The composition of public expenditure and economic growth". *Journal of Monetary Economics*, 37: 318–44.

Diamond, J. 1989. "Government expenditure and economic growth: An empirical investigation". Working Paper No. 89/45. International Monetary Fund.

Fiodendji, K. 2005. "L'impact de la dévaluation du franc CFA sur le solde commercial des pays de la zone franc,dans Ndjieunde G.: Performance économique des pays de la zone franc". Presse Universitaire de Yaoundé, N°12/C06/1205.

Ghali, K.H. 1999. "Government size and economic growth: Evidence from a multivariate cointegration analysis". *Applied Economics*, 31(8): 975–87.

Ghura, D. and M. Hadjimichael. 1996. *Growth in Sub-Saharan Africa*. IMF Staff Papers, 43(3): 605–31. International Monetary Fund.

Ghosh, S. and A. Gregoriou. 2008. "The composition of public spending and growth: Is current or capital spending better?" *Oxford Economic Papers*, 60: 484–516.

Gogué, T.A. and K. Evlo. 2008. "Anti-growth syndromes in Africa: Togo: 1974–1989". In: B.J. Ndulu, S.A. O'Connell, R.H. Bates, P. Collier and C.C. Soludo. *The Political Economy of Economic Growth in Africa 1960–2000*. Cambridge: Cambridge University Press, 1: 150–1, 156–7.

Gupta, S., B. Clements, F. Baldacci and C. Mulas-Granados. 2005. "Fiscal policy, expenditure composition,and growth in low-income countries". *Journal of International Money and Finance*, 24(3): 441–63.

Khan, M. and M. Kumar. 1997."Public and private investment and the growth process in developing countries". *Oxford Bulletin of Economics and Statistics* (59): 69–88.

Knight M., N. Loayzan and D. Villanueva. 1993. *Testing the Neoclassical Theory of Economic Growth*. IMF Staff Papers, 40: 512–41. International Monetary Fund.

Mills, P. and A. Quinet. 1992. "Dépenses publiques et croissance". *Revue Française d'Economie*. 7(2): 29–60.

Nelson, M. and R. Singh. 1994. "The deficit-growth connection: Some recent evidence from developing countries". *Economic Development and Cultural Change*, 43: 167– 91.

Nubukpo, K. 2007. "Dépenses publiques et croissance des Economies de l'UEMOA". *Afrique Contemporaine* 200/2, 222: 223–50.

Ojo, O. and T. Oshikoya. 1995. "Determinants of long term growth: Some African results". *Journal of African Economies*, 4(2): 163–191.

Perotti, R. 2004. "Public investment, another (different) look". Working Paper Series 2977, IGIER, Bocconi University, Italy.

Ram, R. 1986. "Government size and economic growth: A new framework and some evidence from cross-sectional and times series data". *American Economic Review*. 76(1): 191–203.

Straub, R. and I. Tchakarov. 2007. "Assessing the impact of a change in the composition of public spending. A DSGE approach". Working Paper No. 07/168. International Monetary Fund.

Tanzi,V. and H. Zee. 1997. "Fiscal Policy and Long-Run Growth". IMF Staff Papers, 44: 179–209.

Tenou, K. 1999. *Les déterminants de la croissance à long terme dans les pays de l'UEMOA*. Notes d'Information et Statistiques. Etudes et Recherches No. 493, BCEAO.

Véganzonès,M.A. 2001. "Infrastructures, investissement et croissance: unbilandedixannéesde recherches". *Revue d'Economiedu Développement*, 4: 31–46.

World Bank. 2010. *Revue des dépenses publiques*. Volume 1. Mission Résidente de la Banque Mondiale au Togo.