International Journal of Social Sciences and Management Review

Volume: 06, Issue: 06 November - December 2023

ISSN 2582-0176

THE EFFECT OF PUBLIC INVESTMENT BUDGET EXECUTION ON ECONOMIC GROWTH IN CAMEROON: A BUDGETARY SIGHT

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https://doi.org/10.37602/IJSSMR.2023.6603

ABSTRACT

In 2009, the Cameroonian authorities adopted a long-term development vision, one of the major challenges being strong and equitably distributed growth. Now in the second phase of this vision, the problem of growth remains with the same sensitivity. In an attempt to achieve the growth target, set out in the National Development Strategy, they have placed particular emphasis on monitoring the implementation of the PIB. This article discusses the implications of PIB implementation for economic growth in Cameroon. Using ARDL modelling on quarterly data from 2012 to 2020, we show that the increase in public investment expenditure execution results into a growth deterioration in the first quarter, but from the third quarter onwards we start to see an improvement in growth of 0.057 points following a one-point increase in public investment expenditure execution. It is therefore recommended to put in place a strategic committee be set up to monitor and follow up on the recommendations made at the various PIB monitoring meetings, with the goal to subsequently improve the level of execution in order to benefit from these effects on economic growth.

Keywords: economic growth, PIB implementation.

1.0 CONCEPTUAL ENVIRONMENT AND RATIONALE

Cameroon faces enormous challenges in terms of economic growth. Indeed, one of the government's major public policy objectives, as set out in the National Development Strategy 2020-2030 (NDS30), is to put in place favourable conditions for achieving an average annual economic growth rate of 8.1% and 8% in the non-oil secondary sector (NDS30, 2020). However, at the start of the implementation of this development strategy, the Cameroonian economy is already facing a number of exogenous shocks that could compromise the achievement of this objective, in notably the combined effects of the COVID-19 pandemic, the persistence of security crises and the fall in world oil prices. These effects have led to poor performance in certain components of public spending, such as the level of execution of the Public Investment Budget, which fell from 1445 to 1054 billion FCFA between 2019 and 2020, i.e. a decline in the level of execution of the PIB of almost 400 billion FCFA. This has contributed to real GDP growth contracting by 2.4% in 2020, compared with 3.7% in 2019.

It will be recalled that the occurrence of negative externalities has in the past prevented the achievement of the growth objective, in especialy that of the Growth and Employment Strategy Paper (DSCE). Indeed, the evaluation of the DSCE has shown that its implementation has

Volume: 06, Issue: 06 November - December 2023

ISSN 2582-0176

substantially raised the growth path from 3% during the PRSP period to 4.6% during the 2010-2018 period. This average growth, which was nonetheless 0.8% points below the 5.5% target set in the ECSP, nonetheless testifies the resilience of the Cameroonian economy to various economic and security shocks.

In addition to the above-mentioned socio-economic factors, a number of other obstacles to the successful implementation of the PIB are often noted in the reports produced by the MINEPAT. This raises the question of the extent to which implementation of the PIB is actually contributing to economic growth.

The aim of this paper is to assess (using an empirical modelling tool) the effect of Public Investment Budget (PIB) execution on economic growth. As the Public Investment Budget is a component of public spending (30% of the overall budget), it is an essential determinant of Gross Domestic Product.

2.0 OVERVIEW OF THE EMPIRICAL LITERATURE

Beyond the twists and turns of the classical-Keynesian controversy, developing countries have been implementing Keynesian-inspired policies over the last few decades through economic policies aimed at achieving the desired growth objectives. Indeed, from the classical point of view, an economic policy based on stimulating public spending would have depressive effects on the economy, due to the fact that public spending crowds out private investment and the expectations of economic agents (Feldstein, 1982; Barro, 1990). However, Keynesians support the idea that public spending is an engine of economic growth (Arrow and Kurz, 1970) and that market failures are corrected by appropriate economic policies. The National Development Strategy 30 (NDS-30) is the reference framework for implementing Cameroon's economic, social and cultural policy.

Empirically, several authors have used VAR modelling to study the link between public investment and economic growth in recent years. Sturm (1998) shows that public investment in infrastructure has a positive influence on output in Holland, and this is the conclusion reached by Mittnik and Neumann (2001) in their analysis of the dynamic effects of public investment for six industrial countries. Cullison, E. W. (1993) follows the same methodological line and shows that public spending on education and vocational training has had a clear impact on economic growth. Kumo, W. (2012) finds similar results in their Granger causality test between public investment in infrastructure and economic growth in South Africa for the period 1960 to 2009. The author finds a strong correlation between public investment in infrastructure and GDP growth, even in the long term.

Some authors also use panel modelling to determine the link between the two variables. Canning and Bennethen (2000) obtained elasticities for public investment in roads and electricity (taken separately) of 0.09, which reveals a fairly weak correlation between public investment and growth in these countries. Syed et al (2007) examine the causal relationship between public investment and economic growth in the Three Little Dragons (Korea, Singapore, Taiwan) using dynamic panel modelling over the period 1971-2000. Their results demonstrate a long-term impact of both public and private investment on economic growth, as well as a bidirectional causality between public investment and growth in the 3 countries. Finally, and without being exhaustive, Kongphet Phetsavong and Masaru Ichihashi (2012) use

Volume: 06, Issue: 06 November - December 2023

ISSN 2582-0176

the same methodology to study the impact of public and private investment on economic growth in developed Asian countries. They find that public and private investment have a positive impact on growth in these countries. However, they find that an increase in public investment from 4.9% to 8% can reduce the positive effect of FDI on economic growth.

Many other methodological approaches different from the two previous ones have been used in the literature. Bendoma et al (2016) use ARDL modelling to analyse the effect of public investment on growth in Cameroon over the period 1975-2015. In fact, they assess two things: firstly, the direct effect of public investment on growth, and secondly, the indirect effect of private investment on economic growth. They arrive at the following results: (i) public investment has a negative impact on long-term growth; (ii) there is no spillover effect from private investment to public investment; and (iii) any shock to economic growth observed in a given year can be fully absorbed after two years.

Makuyana (2018) uses the same methodological approach in his study of the impact of public and private investment on economic growth in Zambia for the period 1970 - 2004. He concludes that, in both short and long term, private investment has a greater impact on growth than public investment, but the contribution of long-term investment to growth can be strengthen by increasing investment in public infrastructure in Zambia.

3.0 METHODOLOGICAL APPROACH

This section presents the methodology used to achieve the above objective by applying the Autoregressive Staggered Lag (ARDL) approach. This method not only makes it possible to distinguish between the short-term and long-term effects of implementing the PIB on economic growth, but also to take into account any feedback effects between the variables included in the model. Given that the government pays for services rendered, we assume that the physical implementation of the PIB corresponds to its financial implementation, which is approximated by Gross Fixed Capital Formation or Public Investment (IPu). The data will be quarterly or rendered as such and seasonally adjusted over the period 2012 to 2020. For reasons of relevance and comparison, we will add other variables to the model, such as Operating Budget or Public Final Consumption (CFPu), Private Investment (PI) and Private Final Consumption (CFP), in order to understand their impact on Economic Growth (GDP) at the same time.

4.0 MAIN RESULTS OF THE IMPACT OF THE PIB IMPLEMENTATION RATE ON ECONOMIC GROWTH

The attached results, obtained after performing econometric techniques, show that the adjustment coefficient or recall force is negative and statistically significant, that guarantees an error correction mechanism and therefore the existence of a long-term relationship (cointegration) between variables. A number of other findings also emerge:

- the existence of a long-term, stable and positive relationship between economic growth and the level of public investment spending. In fact, a 1 percentage point increase in public investment spending translates into a 0.057 percentage point improvement in economic growth. The purpose of public investment spending is to increase the quality and quantity of public fixed assets, thereby creating a framework conducive to economic growth. This is the case for

Volume: 06, Issue: 06 November - December 2023

ISSN 2582-0176

the various infrastructure projects launched throughout the study period (major structural projects);

- in the short term, a 1 percentage point increase in public investment spending from one quarter to the next results in a 0.0004 percentage point deterioration in growth, due to the extroverted nature of public investment spending. Indeed, most major investment projects often involve importing inputs, which contributes to short-term imports. However, over the following three quarters, growth improved by 0.093 points, as a result of the initial increase in public investment.

The mixed influence of public investment spending on economic growth is also the result of the crowding-out effects that public investment spending exerts on private investment. In fact, for the 2020 financial year, for example, the President of the Republic has authorised the Minister of Finance to issue public securities on the domestic market, in particular treasury bonds, for a maximum amount of 320 billion, intended to finance the development projects set out in the Finance Act. These issues will compete with the financing needs of private companies, most of which do not have access to the financial markets.

In addition, under developed state of Cameroon's economic structures and systems, coupled with the administrative delays in processing certain files relating to the execution of public contracts (accounts, etc.) and the security crisis in certain regions of the country, would also justify such counter-intuitive results in the short term. However, the perspective of time is an important variable not to be ignored here. Overtime, the effects of these variables are mixed: at least one year must pass before we can expect to see public investment spending stimulate economic growth.

The observation of the mixed effects mentioned above has also led us to look for a possible threshold above which public investment spending could have a positive effect on economic growth during the first quarter. To do this, we defined and introduced two ratios into the model (IPU/GDP and $(IPU/GDP)^2$). The results show that the coefficients on the two variables have the same sign, which invalidates the hypothesis of the existence of a threshold. Clearly, with regard to the evidence provided by the data in our sample, there is no threshold at which the execution of public investment expenditure could be expected to fall below a certain level.

5.0 PUBLIC POLICY RECOMMENDATIONS

It is important for Cameroon to increase its public spending by placing the emphasis on investment expenditure, to the detriment of operating expenditure, which has limited growth potential. This recommendation is fully in line with the objectives set out in the National Development Strategy (NDS30), which for the decade 2020-2030 sets the level of investment spending at at least 40% of the overall budget, compared to 30% over the 10 years (2010-2020) of implementation of the Growth and Employment Strategy Paper (GESP).

In addition, an improvement in the level of execution of public investment expenditure will make it possible to gain additional points on economic growth. Particular attention must be paid to the following up of the recommendations made during the sessions of the Cadre de Concertation, the Reviews and the Regional and National Committees, with the aim to

Volume: 06, Issue: 06 November - December 2023

ISSN 2582-0176

improving the implementation of the PIB. The creation of a strategic committee to monitor and follow up the recommendations of these various bodies will help to achieve this improvement.

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Appendix 1: Model validation test

Tableau 6: Pesaran de cointégration de Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	284.6669	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15
Actual Sample Size	32		Finite Sample: n=35	
		10%	2.331	3.417
		5%	2.804	4.013
		1%	3.9	5.419
			Finite Sample: n=30	
		10%	2.407	3.517
		5%	2.91	4.193
		1%	4.134	5.761

Tableau 1 : Jarque-Bera normality test for residuals

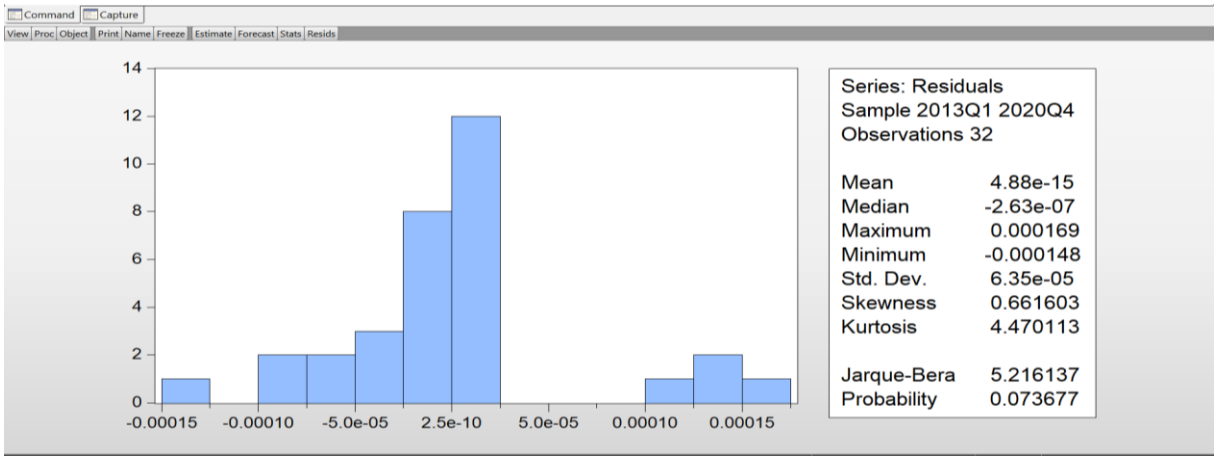

Tableau 2 : Result of autocorrelation test on residuals

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.388853	Prob. F(1,1)	0.6450
Obs*R-squared	8.959397	Prob. Chi-Square(1)	0.0028

Tableau 3 : Breusch-Pagan-Godfrey heteroskedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.176437	Prob. F(28,3)	0.9963
Obs*R-squared	19.90970	Prob. Chi-Square(28)	0.8677
Scaled explained SS	0.134939	Prob. Chi-Square(28)	1.0000

Appendix 2: ARDL model estimation results

Tableau 4 : Results of the estimation of the long-term relationship

Volume: 06, Issue: 06 November - December 2023

ISSN 2582-0176

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNI	-0.054857	0.002664	-20.59175	0.0024
LIPU	0.057001	0.011009	5.177901	0.0353
LIP	0.132460	0.029751	4.452235	0.0469
LCFPU	0.006137	0.014975	0.409848	0.7216
LCFP	0.853122	0.046159	18.48225	0.0029
C	0.628901	0.149579	4.204471	0.0522

EC = LPIB - (-0.0549*LNI + 0.0570*LIPU + 0.1325*LIP + 0.0061*LCFPU + 0.8531*LCFP + 0.6289)

Tableau 5 : results of the estimation of the short-term relationship

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LPIB(-1))	-0.065691	0.019124	-3.435049	0.0753
D(LPIB(-2))	-0.279721	0.026830	-10.42586	0.0091
D(LPIB(-3))	1.496682	0.031416	47.64074	0.0004
D(LNI)	-0.038554	0.000907	-42.50789	0.0006
D(LNI(-1))	0.015046	0.000450	33.41423	0.0009
D(LNI(-2))	-0.008512	0.000502	-16.96571	0.0035
D(LNI(-3))	0.060533	0.001366	44.31228	0.0005
D(LIPU)	-0.004157	0.001642	-2.531881	0.1270
D(LIPU(-1))	0.028118	0.001805	15.57370	0.0041
D(LIPU(-2))	0.092645	0.001959	47.28927	0.0004
D(LIPU(-3))	-0.059593	0.001925	-30.96292	0.0010
D(LIP)	0.140144	0.002436	57.53379	0.0003
D(LIP(-1))	0.050007	0.002636	18.97380	0.0028
D(LIP(-2))	0.100283	0.002813	35.64793	0.0008
D(LIP(-3))	-0.112102	0.003975	-28.20463	0.0013
D(LCFPU)	0.337677	0.004636	72.84125	0.0002
D(LCFPU(-1))	0.318898	0.004405	72.39000	0.0002
D(LCFPU(-2))	0.167625	0.002979	56.26422	0.0003
D(LCFPU(-3))	0.192825	0.004173	46.20972	0.0005
D(LCFP)	0.623832	0.003142	198.5658	0.0000
D(LCFP(-1))	-0.240177	0.016358	-14.68284	0.0046
D(LCFP(-2))	0.084628	0.022257	3.802325	0.0627
D(LCFP(-3))	-1.292241	0.025361	-50.95374	0.0004
CointEq(-1)*	-2.414016	0.027039	-89.27862	0.0001

R-squared	0.999999	Mean dependent var	0.019694
Adjusted R-squared	0.999998	S.D. dependent var	0.081573
S.E. of regression	0.000125	Akaike info criterion	-15.02326

