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Budget Deficit, Public Debt And Economic Growth In The DRC: What About The Effectiveness Of The Stability Pact? Study From 1981 To 2021

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Résumé – Dans cet article nous recourons à une approche séquentielle pour apprécier la relation existante entre les déficits publics, la dette publique et la croissance économique en RDC de 1981 à 2021, tout en accordant une importance particulière sur le sens et l'amplitude de cette relation lors que les déficits publics sont conformes aux normes du Pacte de stabilité afin de de positionner la RDC sur le débat de l'importance du pacte de stabilité conclu en Août 2020 entre son gouvernement et la Banque centrale du Congo. Pour y arriver, nous faisons recours aux modèles à seuil et ARE. Nos résultats confirment l'impact non linéaire du déficit public sur le taux de croissance en fonction du niveau d'endettement à court terme. Il se dégage également que les dépenses publiques productives n'exercent pas d'impact significatif estimé sur la croissance, de même que la dette publique. Aussi, la dette publique peut également exercer un effet non linéaire sur la croissance lorsque les niveaux déficits publics respectent la règle du Pacte de stabilité, soit moins de 3%.

Mots clés – Déficits publics, Croissance économique, Politique macroéconomique, Modèle TAR, Modèle ARE, Modèle AR

Abstract – In this article we use a sequential approach to assess the existing relationship between public deficits, public debt and economic growth in the DRC from 1981 to 2021, while placing particular emphasis on the direction and amplitude of this relationship during that public deficits comply with the standards of the Stability Pact in order to position the DRC on the debate on the importance of the stability pact concluded in August 2020 between its government and the Central Bank of Congo. To achieve this, we use threshold and ARE models. Our results confirm the non-linear impact of the public deficit on the growth rate depending on the level of short-term debt. It also appears that productive public spending does not have a significant impact on growth, as does public debt. Also, public debt can also have a non-linear effect on growth when public deficit levels respect the rule of the Stability Pact, i.e. less than 3%.

Keywords – Public deficits, Economic growth, Macroeconomic policy, TAR model, ARE model, AR model

I. INTRODUCTION

The Congolese economy during the period 1973-2001 was characterized by counterintuitive developments in key aggregates, which are at the origin of the mechanisms of economic derailment, particularly during the period 1989-1996 were observed(Ersel and Özatay, 2008; Nachega, 2005). Indeed, this period was characterized by a decline in income and production and an increase in unemployment. At the same time, weakening production, political and security shocks and the lack of quality reforms in the public sector led to a decline in tax revenues, leading to a sharp increase in public debt around the 1990s. Economic slowdown, coupled with fiscal irregularities and dependence on central banks, has created serious fiscal and monetary imbalances. As a result, the public deficit reached 10.2% of GDP in the 1990s, with public debt exceeding 70% with the use of monetary financing.

To deal with the financial deterioration of public accounts, combined with galloping inflation, the Congolese authorities undertook political-institutional reforms in the early 2000s, cooperation with international institutions and bi- and multilateral

partners as well as the establishment macroeconomic stabilization strategies through budgetary consolidation, which resulted in budgetary discipline leading to a restoration of the financial situation of States thanks to a combination of reductions in public spending and increases in taxation as well as as the improvement of the business climate.

Despite this momentum, the global crisis of 2009 nevertheless highlighted the fragility of this fiscal consolidation. Indeed, the economy and public finances of the DRC have not been spared by this international financial crisis. Economic growth went from an average of 6%, 2003-2008, to 2.8% in 2009, thus implying a reduction in public revenue and maintaining the public deficit above 3% of GDP which resulted in the maintenance of the level debt at more than 65%.

In Solow-style "exogenous" growth models, even if budget deficits can have a negative impact during the transitional dynamic, they do not affect long-term growth, since this only depends on technical progress and rate of growth of the active population, which are considered exogenous. "Endogenous" growth models, in which economic policies can possibly exert a lasting (or even permanent) impact on growth, are more conducive to highlighting non-neutrality in the financial policy of States.

In these models, two scenarios can be considered regarding the effect of public deficits in the long term. In the first scenario, higher deficits today lead to higher debt tomorrow, and higher debt burdens crowd out the steady-state growth rate. The second scenario defends the contrary idea that a higher deficit today can provide resources to finance productive public spending (such as infrastructure investment) that can raise the growth path. From an extension of the endogenous growth model of Barro (1990) with productive public spending, Minea and Villieu (2009), however, show that the first scenario is the most probable, a positive effect of long-term debt does not which can only appear in the case of multiple equilibria or when the initial situation of the economies is already far removed from the "first best" criteria(Minea* and Villieu, 2009).

II. LITERATURE ON THE EFFECTIVENESS OF THE STABILITY PACT: BUDGETARY DISCIPLINE

Many recent works focus on the behavior of budgetary authorities. In the debate on the importance of the Stability Pact, Mélitz (2000) and Wyplosz (2002) show in very different ways that the countercyclical response to major deficits diminishes with the emergence of disciplinary norms(Frémont et al., 2000; Wyplosz, 2002); this work also shows that fiscal policies based on stability pacts significantly correct the increase in debt. These results are contested by Galí and Perotti (2003), who show that disciplinary norms do not reduce the countercyclical responses of the authorities' discretionary policies.(Galí and Perotti, 2003).

Furthermore, some studies still reveal asymmetries in budgetary behavior over the cycle. Studies by Buti, Franco and Ongena (1997) and Wyplosz (2002) emphasize that fiscal policy cannot generate sufficient surpluses to cope with economic downturns during periods of economic improvement(Buti et al., 1997; Wyplosz, 2002). If the economy slows, fiscal policy will appear procyclical. Likewise, these studies show that the composition of budgetary adjustments in terms of changes in public spending and changes in taxes is asymmetric, leading to an increase in the size of the public sector in certain countries. Public spending, a preferred tool of economic regulation, tends to increase to stimulate economic activity during periods of economic slowdown. Taxes will follow the same upward trend to stabilize the growth of the debt.

These actions appear to contradict the recommendations of the Stability Pact. Schmitt-Grohé and Uribe (1997) and Rocheteau (1999) argue that the implementation of balanced budget rules could destabilize overall activity and even lead to an increase in unemployment if it was based on poor allocation of expenditure and resources. taxes. With this in mind, public spending should follow a downward trend in order to give lasting credibility to the new regime of budgetary discipline, and tax revenues should also fall to reinvigorate productive incentives and increase the flexibility of markets and their capacity to adapt. to cyclical disturbances(Rocheteau, 1999; Schmitt-Grohé and Uribe, 1997). It has also been shown that reducing taxes can promote the absorption of shocks and is not incompatible with the strengthening of automatic stabilization mechanisms.

This is why we discuss in this article the importance of initiating this debate to measure the importance of the stabilization agreement concluded in August 2020 by the Congolese government, the budgetary authorities through its Ministry of Finance and Budget and the Congolese government. The Central Bank of Congo is the monetary authority.

2.1. Literature on the relationship Public deficit, Public debt and Economic growth

In the macroeconomic literature, two theories oppose each other on the effect of a budgetary "adjustment": according to Keynesian theory, a reduction in public spending produces an amplified fall in activity, through the multiplier effect due to the associated fall in consumption. In a Ricardian world, on the contrary, the reduction in public spending is exactly offset by a

proportional increase in consumption, since the present value of the tax levies anticipated by the household decreases; the effect is therefore zero on the activity(Bentour, 2020; Majid and Driouchi, 2023). Consequently, deficits should be reduced in the event of excess demand (classic situation) but allowed to increase in the event of excess supply (Keynesian situation), any attempt at budgetary consolidation in a period of recession risking causing a vicious circle and prove unsuccessful. These are mainly the facts observed in the DRC over the last four decades, more precisely during the period 1981-2021.

Since the mid-1990s, an abundant empirical literature has been devoted to examining episodes of "strong" budgetary adjustments, in an attempt to identify "anti-Keynesian" effects.(Alesina et al., 2002). In typical cases, a budgetary consolidation gives rise to an acceleration of growth, and the counterintuitive reaction of activity would come from the anticipations of private agents on the future evolution of public finances. Court et al. (1996) find, for example, that of the 19 large-scale budgetary restrictions identified in the OECD over the period 1971-1995, 9 were accompanied by above-average GDP growth.(Dessus and Herrera, 1996). Alesina & Ardagna (1998) identify, for their part, 51 cases of strong budgetary consolidation, from which they highlight 7 expansionist episodes(Alesina and Ardagna, 1998).

Even if monetary conditions may have played a large role in the experiences of budgetary consolidation, the most marked episodes remain mysterious, particularly with regard to consumption behavior. Thus, in their careful examination of large-scale budgetary adjustments, Cour et al. (1996) highlight the importance of initial conditions (these adjustments generally respond to a strong deterioration in public finances), and show that household saving behavior is clearly correlated with the effect of adjustments on growth: the consumption function seems to become unstable at the time of budgetary adjustments. In their empirical study, Giavazzi & Pagano (1990) attribute these counterintuitive behaviors to the "expectations channel" of fiscal policy, first exposed by Feldstein (1982): if households interpret a change in fiscal policy as a a signal of future changes in taxes, budgetary contractions can give rise to expectations of future tax reductions which, if sufficiently large, overcome the recessive effect and cause an expansion of aggregate demand(Giavazzi and Pagano, 1990).

III. METHOLOGICAL APROACH

3.1. Data used

The data considered in this study cover the period from 1981 to 2021. We distinguish, taking into account the objectives of this paper, three groups of variables for the empirical analysis including that relating to economic activity, those relating to the macroeconomic framework and those understanding the field of public finances. Table 1 provides information on their definitions and measurements.

Table 1. Definition and measurement of variables

Definition		Measure	Sources
Endogenous variable			
GDP growth by head	Relative change in GDP real/head	% annual	BCC
Macroeconomic variables (control variables)			
Inflation	Change in price index	Logarithm of % of annual average	BCC
Exchange rate	CDF price versu	% annual	BCC

Budget variables			
Budget balances	Public finance balances	% of GDP	BCC
Productive spending	Public capital expenditure	Logarithm of millions of CDF	BCC
Debts	External debt stock	% of GDP	DGDP

Therefore, it appears that the economic growth rate is the dependent variable while the exchange rate and the inflation rate make it possible to control the effects of the public deficit on growth. For the public finance sector, we consider both the budgetary balance, the public debt, and productive public expenditure (public investment). The latter will allow us not only to evaluate the quality and relevance of budgetary policy both for episodes marked by budgetary indiscipline and for those where budgetary policy was orthodox, but also to control the mechanism of transmission of the effects of debt on economic growth in the short and long term.

Furthermore, taking into account the objective pursued in this study, aiming to determine not only the episodes but also the extent of the effects of the public deficit and debt on growth, and based on the preliminary results of the regime tests (thresholds), we will carry out the quantitative evaluation by distinguishing the following four regimes (episodes): (i) 1981-1989; (ii) 1990-2001; (iii) 2002-2009; (iv) 2010-2021.

3.2. Equations to estimate

We estimate two main equations in this paper in order to capture, on the one hand, the effects of public deficits, public debt, productive public expenditure (capital expenditure) as well as inflation and the exchange rate in order to decide on their short and long term relationships and, on the other hand, we characterize the effects of the persistence of public deficits and public debt on growth following the different episodes (regimes) as well as the extent respectively of the debt and public deficits in order to indicate the importance of the rule established by the stability pact.

We expect the effects of budgetary variables to be insignificant in the long term given the theory that in the long term, economic growth depends only on technology and population growth (Solow, 1957). But also, we expect that regimes with low levels of public debt (or public deficits) are characterized by positive and significant coefficients of public deficits (or public debt) and that episodes marked by a high level of public debt (or public deficits) provide negative and insignificant coefficients of public debt (or public deficits). These latter claims highlight the need for the application of the stability pact to regulate the effects of debt as well as budgetary policy on economic growth.

We also expect a positive and significant impact of the macroeconomic framework as well as productive spending in the short term, but not significant in the medium and long term given the requirements mentioned above. To achieve this, we use the autoregressive model with staggered lags (ARE) to estimate the first equation (Equation 1) and the threshold effects model (TAR) to estimate the second equation (Equation 4).

Model 1: Autoregressive model with staggered lags (ARE).

Considering Yt as the dependent variable and Xt as the vector of explanatory variables, the ARE model takes the following general form:

$$Yt = f(Xt, Yt_{-\tau}, Xt_{-\vartheta}) \quad (1)$$

Taking into account our analytical framework, the vector Xt was composed of five (05) explanatory variables, namely: public deficit (as a % of GDP), public debt (as a % of GDP), productive expenditure (in logarithm of millions of CDF), the inflation rate (in % of annual average) and the exchange rate (in % annual), the vector $Yt-\tau$ represents the lag of the explained variable

(growth rate in % annual) while the vector $Xt-\vartheta$ is formed from the delays in the public deficit and the public debt. As for the explained or endogenous variable of the model Yt, it was represented by the economic growth rate (in %), measured exactly by the relative variation in real GDP per capita. Explicitly, our empirical analysis model takes the form:

$$Yt = \Omega + \sum_{i=1}^{\tau} \alpha i Yt\ i + \sum_{j=0}^{\vartheta} \beta j Xt\ j + \varepsilon t \qquad (2)$$

The error term εt is assumed to follow a normal distribution with zero mean and constant variance: $\varepsilon_t \sim nid\ (0, \sigma_\varepsilon^2)$. The parameters βj provide information on the short-term effects of the components of the vector Xt on the explained variable Yt. In the long term, that is to say in a stationary equilibrium situation, with a model formulation of the type $Y = \Pi + \varphi X + u$, the long term effects of the independent variables contained in the vector Xt on the variable endogenous Yt, are given or measured using the parameters φ. These are determined by the following ratio:

$$\varphi = \sum \beta j / (1 - \sum \alpha i) \qquad (3)$$

3.1.1. Threshold effect models used: TAR model

Threshold models were introduced by Tong and Lim (1980) in order to essentially highlight the existence of asymmetric dynamics during the economic cycle (see also Tong, 1990). Referring to the US GDP growth rate, Potter (1993) showed that the standard autoregressive model should be rejected in favor of a threshold model. He further established that this model correctly accounts for the existing cyclical asymmetry, in particular by studying non-linear response functions following shocks of different size and sign. Thus, the process Yt, assumed stationary for t = 1, 2, …, n, follows a threshold model with two regimes defined as follows:

$$Y_t = \begin{cases} \emptyset(01) + \emptyset(1) Xt + \varepsilon t(1) si\ Zt \leq s \\ \emptyset_0^{(2)} + \emptyset^{(2)} X_t + \varepsilon_t^{(2)} \quad si\ Z_t > s \end{cases} \qquad (4)$$

Where the vectors Xt and $\emptyset(j)$ are given by $Xt = (Yt-1, \dots, Yt-p, V1, \dots, Vk)'$ and $\emptyset(j) = \left(\emptyset_1^{(j)}, \dots, \emptyset_m^{(j)}\right)$ with j = 1, 2 and $m = p + k$. The vector Vi, with i = 1, 2, …, k, contains the

exogenous variables. Error terms $\varepsilon_t^{(j)}$ are independent white noises with variance $\sigma(2j)$. The model becomes piecewise autoregressive when $Xt = (Yt-1, \dots, Yt-p)'$. The transition variable Zt, is one of the variables of Xt, that is to say a delayed endogenous variable, $Yt-d$ (d being the delay parameter), or an explanatory variable. Its choice can be guided by economic theory or by an atheoretical solution. The model specification procedure then makes it possible to decide which variable to retain. An equivalent writing of the threshold model (4) is obtained by introducing a transition function:

$$Y_t = \left(\emptyset_0^{(1)} + \emptyset^{(1)} X_t\right) \mathbb{I}\{Z_t \leq s\} + \left(\emptyset_0^{(2)} + \emptyset^{(2)} X_t\right) \mathbb{I}\{Z_t > s\} + \varepsilon_t \qquad (5)$$

The parameter s identifies or detects the threshold from which a change in regime or state of the system is observed. To meet the ambitions of this paper, the variable Zt includes two transition variables, namely the public debt (for the TAR 1 estimation) and the public deficit (for the TAR 2 estimation). In the context of our study, a threshold value corresponding to zero assumes exactly the existence of two regimes, namely: a positive budget balance regime and a negative budget balance regime. The value of the threshold thus provides a first economic interpretation of the regimes which characterize the dynamics of the process under study.

IV. Results and Discussions

The evaluation is carried out for the entire period, i.e. from 1981 to 2021, and consisted of: (i) carrying out an analysis of the stationarity of the variables retained in order to justify, in part, the choice of the methodological approach followed to econometrically diagnose the effects of public deficits and debt on growth; (ii) discuss the meaning and significance of the causal

links existing between the different variables; (iii) estimate a first ARE model with a cointegration test to characterize short-term and long-term dynamics, the aim being to establish the mechanisms for transmitting the effects of public debt and deficit under the control of expenditure productivity, inflation and the exchange rate; and (iv) estimate a second TAR model to discuss both the change in episodes (periods or regimes), due to the dynamics of the budgetary balance and public debt, and the magnitude of the effects of the latter on growth. . The results will make it possible to better understand the effects of budget deficits and debt in the DRC for the period 1981 – 2021 and to determine the crucial importance of maintaining the stability pact.

4.1. Assessment of stationarity

Proceeding with direct estimation without being reassured of the stationarity of the series can lead to misleading results and therefore not provide useful information on the question under examination. Therefore, in order to rule on the stationarity of our series, we use two types of tests, retained on the basis of the reputation of their robustness in the econometric analysis of chronicles. These are the following tests: (i) Augmented Dickey-Fuller (ADF) and (ii) Kwiatkowski-PhillipsSchmidt-Shin.

Table 2. Variable stationarity matrix

Variable	**ADF value**		**KPSS value**		**Comments**
	In level	In Difference 1st	In level	In Difference 1st	Integration Order
Economic growth	1.85	5.98*	0.38	0.07*	Integrated of order 0
	(0.35)	(0.00)			
Budget balance	1.99	6.11*	0.41	23*	Integrated of order 1
	(0.29)	(0.00)			
Public debt	0.72	5.36*	0.19	0.11*	Integrated of order 1
	(0.83)	(0.00)			
Productive spending	1.63	8.32*	0.13	0.08*	Integrated of order 1
	(0.46)	(0.00)			
Inflation rate	1.14	6.83*	0.40	0.22*	Integrated of order 1
	(0.68)	(0.00)			
Exchange rate	3.38**	-	0.73	0.46	Integrated of order 0
	(0.01)				

Note: The selection criterion used in this test is that of Schwarz (SIC). The values in the parentheses (…) give the p-values of each model retained. The signs (* and **), associated with the ADF and KPSS values, indicate stationarity at the respective thresholds of 1% and 5%. The ADF and KPSS values given here are given in absolute values. NB: All the ADF and KPSS values given in the table come from models with constants without trend, except for the variables “Public debt and Productive expenditure” for which the model with constant and trend was necessary. In the event of a conflict of results between the ADF and KPSS tests, we retained those provided by the ADF test.

It emerges from our analyzes that all the variables retained in our paper are not stationary in level, except the exchange rate which is integrated of order 0, i.e. I (0). To do this, we integrated them by taking the first differences of the raw data. After this intervention, these variables were made stationary, or integrated of order 1.

Furthermore, it is clear from Table 2 that the variables retained in this study are not all integrated in the same order and their dynamics are not linear. This relevant information justifies the choice made on ARE and TAR models which are the most suitable for these scenarios.

4.2. Causality Analysis

The analysis of cause and effect relationships (see Table 3) revealed that economic growth is the most endogenous variable among all the variables. Indeed, causal tests affirm that public deficits as well as public debt have had a significant influence on economic growth.

Table 3: Causality between variables

		(0)	(1)	(2)	(3)	(4)	(5)
(0)	Economic growth	-	0.01			0.00	
(1)	Budget balance	0.09	-			0.00	
(2)	Public debts			-	0.04		
(3)	Productive spending	0.02			-		0.04
(4)	Inflation rate	0.00			0.03	-	
(5)	Exchange rate						-

Note: The values entered in the table are the p-values associated with the different causality tests carried out. A value less than 0.05 (5%) means significant causality at the 5% threshold; a value less than 0.01 (1%) means significant causality at the 1% level and a value less than 0.1 (10%) means significant causality at the 10% level. NB: Causal links that are not significant and not useful for the analysis have not been provided in order to allow a sober reading of the table. Source: Authors based on data from the BCC (2020) and WDI (2020).

This evidence, established in Table 3, confirms the following: (i) the profile of economic growth is significantly caused by the evolution of public deficits, productive expenditure and price dynamics. It should be noted that the causality between growth and public deficits is bidirectional. This reflects the fact that the public revenues of the Congolese State depend on the evolution of the economic situation on the one hand, and that the State exercises an influence on economic activity through its public investments.

Furthermore, a bidirectional causal relationship also emerged between economic growth and the inflation rate. This evidence, reflecting the Phillips relationship, best represents the two observed temporal profiles of these two variables in the DRC, mainly during the period 1990-2001.

Finally, the results also demonstrate an indirect impact of public debt on growth via productive expenditure. Which verifies one of the assertions established in the previous lines in the sense that governments go into debt to finance productive (investment) expenditure in order to increase productive capacity and therefore encourage economic growth (Barro, 1990; Minea and Villieu (2009) in order to guarantee its level of sustainability of public finances.

4.3. Evaluation of Model 1

Considering the results of the analysis of short and long term dynamics shown in Table 4, we conclude that in the short term, the persistence of budget deficits negatively and significantly influences economic growth because, being a source of inflation particularly because of the low quality of spending (low level of productive spending), public deficits are also the basis of the negative impact of prices on short-term growth. However, in the short term, public debt had a positive effect on economic growth overall between 1981 and 2021. Growth is also positively and significantly impacted by its previous trend (its lagged values).

This is very relevant and refers to a very important reality in the sense that the persistence of public deficits seriously harms the capacity of the State to intervene to encourage economic growth in the near future because any deficit increases the stock of debt as well as related services. The experiences since the independence of the DRC to date are tangible proof of this fact.

Table 4: Estimation of model 1 with the ARE model

Model 1: Short and long term determinants of economic growth		
Endogenous variable	Economic growth	Economic growth
Deadline	Short term	Long term
Exogenous variables	Coefficients (P-value)	Coefficients (P-value)
Economic growth (-1)	0.994*	-
(0.00)		
Budget balance	0.084	-2,577
	(0.27)	(0.85)
Budget balance (-1)	-0.098	-
(0.19)		
Public debt	-0.105*	-0.378
	(0.00)	(0.84)
Public debt (-1)	0.103*	-
(0.00)		
Productive spending	-0.085	-55,112
	(0.80)	(0.81)
Inflation rate -0.926 -24.927 (0.16)	(0.83)	
Exchange rate	0.001	0.106
	(0.07)	(0.83)
Constant	2,059**	367,198
	(0.03)	(0.83)
R-Square	**0.98**	
Fisher statistic (P-value)	**1215 (0.00)**	

			Lower bound	Upper bound
10% threshold			2.63	3.35
5% threshold			3.1	3.87
1% threshold	4.13	5		

Note: The signs (*) and (**) denote significance at the 1% and 5% thresholds respectively. The 10% threshold was not considered to maintain the quality of established relationships.

As for public debt, it also has a negative and significant effect on economic growth during our analysis period. This shows how poor debt management has had harmful repercussions on the temporal profile of growth, particularly during the 1990s. This evidence is very relevant because the Congolese government cannot engage in Ponzi games, involving financing the debt with new debt. Indeed, the accumulation of debt generates additional costs, sometimes unsustainable, which mean that even if the debt was initially contracted to finance productive public expenditure, it could still exert a negative influence on public finances through increase in public spending in the short term, which should cover an increasing part of the financial costs linked to past debts, and on long-term economic growth. As a result, staggered debt is also one of the main explanatory factors of the economic drift in the DRC. These results converge with the conclusions of Minea and Vilieu (2011).

It is therefore appropriate for the government to strengthen budgetary measures intended to minimize budget deficits through the strengthening of monitoring – evaluation and control mechanisms (eg the Stability Pact in force while maintaining the financing of expenditure on a cash basis) to maximize the revenue on the one hand, that is to say raising its level of tax pressure (set at 10% of GDP in 2021) which remains very low compared to the average for Sub-Saharan Africa (estimated at 15% of GDP in 2021) according to the recent IMF publication (October, 2021), and to ensure the correct direction of public spending by favoring productive ones, i.e. investment expenditure while ensuring their execution throughout the expenditure chain. Also, although the DRC has one of the lowest rates of public debt located at 12% of GDP (IDA, 2020), the Congolese government should remain vigilant on debt issues which could undoubtedly continue for a long time. puzzle in case of uncontrolled accumulation. Furthermore, the negative effects of inflation on growth refer to the fact that the upward dynamics of prices tends to inflate nominal incomes and thereby reduce the real value of the internal resources of the State which has repercussions on Economic Growth. However, these effects do not last because in the long term, the price adjustment would neutralize them. This explains the fact that all the determining variables of the dynamics of economic growth become insignificant in the long term.

Indeed, the non-significance of all the variables considered in this first model reveals that the long-term dynamics of economic growth would not essentially depend on budgetary factors or even on the macroeconomic framework but rather on other structural factors such as technology and demographic growth which is a function of the level and especially the quality of reforms and development planning (PNSD, DPSI, PDI, etc.) or other exogenous factors such as structural or one-off shocks. However, to guarantee effectiveness in the government's reaction following these shocks, the government would have to find itself ex ante in a situation of discipline (rigor) in budgetary and monetary management in order to always have room for maneuver. in its budgetary leverage to counter economic cycles.

4.4. Evaluation of model 2

Before moving on to the estimation of the threshold model, it is necessary to test the presence of a threshold effect and to specify the threshold variable for which linearity is most strongly rejected. In this paper, we have identified 2 threshold variables among the 6 present for each of the two equations to be estimated with the TAR model. Indeed, the candidate threshold variables are the budget deficit as a % of GDP and the public debt as a % of GDP.

To test the existence of "threshold variables", whose value causes the behavior of monetary variables to change in the DRC, we used the "Sum of Squares of Residuals (SSR)" test. Among these candidate threshold variables, we retain those which represent a greater non-linearity effect for each of the equations. So the variable which presents a maximum of regimes in our model. This is equivalent to retaining the variable that minimizes the Sum of Squares of Residuals (SSR).

After implementing this test, we found the following results: (i) For the estimation of the first TAR equation, the budget balance was retained as a threshold variable with 4 regimes and (ii) For the estimation of the second equation TAR, public debt was retained as a threshold variable also having 5 regimes.

The results presented in Table 5, relating to the estimation of the TAR 1 equation, attest that for periods characterized by strong budgetary indiscipline, i.e. with public deficits estimated at more than 12.9% of GDP, economic growth is negatively and significantly impacted by public debt through productive expenditure which also exerts a negative and significant influence. It also emerges that these levels of deficits also contribute significantly to the decline in growth. These conclusions match those established by several other authors in the literature.

It should be noted that the effects of the public deficit as well as those of the public debt, through productive expenditure, on economic growth improve significantly as the volume of the deficit declines over time. This shows the importance of structural adjustment and the application of the rules established by the stability pact to smooth the behavior of the budgetary authority to ensure better intervention against the economic situation. Indeed, this evidence attesting that budgetary policies, based on the stability pact, significantly correct the increase in debt and improve growth meets the work of Mélitz (2000), Wyplosz (2002), Buti and Sapir (2002), Ballabriga and Martinez-Mongay (2002). Furthermore, the macroeconomic framework also had a negative effect on economic growth for very high levels of public deficits. This impact tends to improve over time.

Table 5: Evaluation of model 2 using the TAR model

Endogenous variable	TAR 1	TAR 2
	Economic growth	**Economic growth**
Transition variables	Budget balance	Debt
Thresholds	]– 12,89 ; – 6,33 ; –4,6[	]22,31 ; 27,31 ; 47,08 ; [
Exogenous variables	SBG < - 12,89 (Period : 4year)	Debt < 22,31 (Period :Of 9year)
Diet Interval 1	1.218* (0.00) -0.321* (0.00) -5.206* (0.00)	0.480*** (0.06) 0.163 (0.17) -1.637** (0.04)
	- 12.89 ≤ SBG < - 6,33 (Period :Of 6year)	22.31 ≤ Debt < 27,31
Budget balance		
Public debt		
Productive spending		(Period: 8 years)

Diet Interval 2			
Budget balance	-0.391* (0.00)		49.782* (0.00)
Public debt	-0.439* (0.00)		495.894* (0.00)
Productive spending			16.663* (0.00)
Interval Diet 3	- 6.33 ≤ SBG < -4,6 (Period: 7 years)	27,31≤ D	(Period: 4 years)
Budget balance	0.598 (0.48)		0.326 (0.47)
Public debt	-0.008 (0.56)		-0.870** (0.01)
Productive spending	1.259* (0.00)		1.467 (0.14)
Diet Interval 4	-4.6 ≤ SBG (Period: From 24 years)		47.08 ≤ Debt <73.01 (Period: 8 years)
Budget balance	0.264* (0.00)		0.590* (0.00)
Public debt	0.048* (0.00)		
Productive spending	1.837* (0.00)		-0,050 (0,33) -0,615 (0,29)
Diet Interval 5			73,01 ≤ Dette (Period: From 12 years)
Budget balance			-0.170 (0.57)
Public debt			-0.234* (0.00)
Productive spending			1.058*** (0.09)
	Variables without threshold		
Inflation	-2.841* (0.00)		-3.07* (0.00)
Exchange rate	-0.001* (0.00)		0.001 (0.35)
Adjusted R-Square	**0.95**		**92**
Fischer statistic (P-value)	**182.978 (0.00)**		**96.003 (0.00)**

Note: (*), (**) and (***) denote significance at the 1%, 5% and 10% thresholds respectively.

As for the results of the estimation of the TAR 2 equation, it also appears that at high amplitudes of public debt stock, i.e. the Debt-GDP ratio of more than 70%, the persistence of public deficits destroys economic growth. and debt becomes very harmful to the economy. However, it is clearly established that when the volume of debt declines, public finances become pro-economic growth despite the fact that the macroeconomic framework remains unfavorable to economic growth.

Overall, the estimated equations are of very good quality given the different respective adjusted coefficients of determination are all at 95%. Also, reading Table 5 clearly shows that the dynamics of the public deficit and that of the debt were important factors explaining the economic growth profile recorded in the DRC as well as the resulting macroeconomic instability. And therefore, once smoothed and reduced from the beginning of the 2000s, the effects and as well as the direction of influence of budgetary balances and debt on my growth have improved significantly, thus causing an improvement in the macroeconomic environment and a takeoff in economic growth.

Such a rhythm is an achievement to be preserved with great rigor in the macroeconomic and structural management of the State based on orthodox rules which guarantee a healthy climate and coherence in the coordination of policies in order to avoid ending up in a game zero-sum or even negative in terms of achieving the objectives set ex ante. It is therefore up to the government to make the necessary efforts and carry out the necessary reforms in order to guarantee lasting budgetary discipline and effective independence of the Central Bank of Congo, as recommended by the stability pact.

The implementation of reforms aimed at cleaning up public finances is all the more urgent in the DRC. A high unemployment rate, an infrastructure deficit, a low and mediocre capacity for health and education coverage, a large informal part of the economy and banks having accumulated bad debts will require in the near future a greater budgetary effort through concrete, quality investments to promote progress.

V. Conclusion

In this work, we tried to assess the existing relationship between public deficits, public debt and economic growth to provide a rigorous assessment of the episodes and amplitudes of the impact of public finances on the growth experienced by the DRC. from 1981 to 2021 in order to rule on the importance of the existence of the Stability Pact. After analysis, we came to the conclusion that public deficits and public debt had a negative and significant impact on economic growth during periods characterized by large volumes of debt and persistent public deficits.

Conversely, a continuation of the growth of public debt at a rate as high as that of the 90s beyond the threshold from which deficits have a harmful effect on growth, rendering expansionary budgetary policies ineffective in the event of relapse in activity. It therefore seems that the Congolese authorities must resolve to bear the cost of budgetary consolidation immediately imposed by the Stability Pact, in order to restore future economic policy margins. Therefore, we insisted on the fact that the Congolese government should not risk playing the Ponzi strategy.

Infine, this paper can be extended with more targeted analyzes and oriented towards several possible directions. It would therefore be relevant to focus on evaluating the effectiveness of the various programs carried out by Congolese governments since 1960 to date, using intervention models, in order to say whether the macroeconomic and financial results obtained, manifested by the changes in the regimes (trends) of the related aggregates, should indeed be attributed to these reforms and development plans. It would also be interesting to construct theoretical models that could allow the diagnosis of the micro-founded causes and consequences of budgetary indiscipline both in a context of total, partial and absent independence of the Central Bank while taking into account as many of the characteristics of the Congolese economy. Therefore, our future research could move in this direction to enrich the debate.

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