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Should fiscal policy be abandoned in a monetary union?: The case of countries of Central African Monetary and Economic Community

Faut-il abandonner la politique budgétaire en union monétaire?: cas des pays de la Communauté monétaire et économique de l'Afrique Centrale

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Abstract

The objective of this paper is to study the effects of fiscal policy on economic activity in the countries of the Monetary and Economic Community of Central Africa over a period of high public debt. Based on SVAR modelling with shock identification using the Choleski method, applied to quarterly data from 1992 to 2012, we find that public spending shocks have negative effects on economic growth in all countries of this union. These effects are favoured by deflation, which discourages supply, and rising interest rates, which crowd out demand. In terms of economic policy recommendations, sanctions for non-compliance with multilateral surveillance criteria should take account of the state of the economic situation (the scale of recession).

Keywords: Fiscal policy; public expenditure; public debt; SVAR model; multilateral surveillance.

Résumé

L'objectif de cet article est d'étudier les effets de la politique budgétaire sur l'activité économique des pays de la Communauté monétaire et économique de l'Afrique Centrale sur une période d'endettement public élevé. Sur la base d'une modélisation SVAR avec une identification des chocs par la méthode Choleski, appliquée aux données trimestrielles de 1992 à 2012, nous constatons que les chocs de dépenses publiques ont des effets négatifs sur la croissance économique dans tous les pays de cette union. Ces effets sont favorisés par la déflation qui décourage l'offre, la hausse des taux d'intérêt qui évince la demande. En termes de recommandation de politique économique, les sanctions pour non-respect des critères de surveillance multilatérale devraient tenir compte de l'état de la conjoncture économique (l'ampleur de la récession).

Mots-clés : Politique budgétaire ; dépenses publiques ; dette publique ; modèle SVAR ; surveillance multilatérale.

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Introduction

The recent covid-19 crisis has given renewed impetus to fiscal stimulus policies around the world. The aim was to halt spread of disease and support economic activity. Monetary unions were not spared; budgetary rules were left to rest in order to combat health and economic crisis. In fact, this was a symmetrical shock that affected different economies of monetary unions. The question of fiscal intervention would therefore have been different if the shock had been asymmetric.

Like the European Union in 1997, CEMAC[1] governments also adopted rules on budget deficits and debt levels (multilateral surveillance criteria) in 2001 which were substantially modified in 2017. But unlike European Union, under convention governing the Economic Union of Central Africa (EUCA) and revised in 2009 in Cameroon, non-compliance with surveillance criteria leads to sanctions that are independent of economic situation. Excessive deficits and high public debt are sanctioned by the condition of non-compliance with structural adjustment programmes adopted between the state concerned and the supranational institution (EUCA). The country concerned is exempted from compliance with criteria if it experiences an exceptional event.

The rationale for waiving fiscal policy in the sanctions procedure would be that it has negative effects on growth in case of accumulating budget deficits and/or high public debt. Therefore, fiscal adjustments are a better solution. As fiscal policy is the main tool for stabilising economic activity in monetary union, the question is whether it should be abandoned in event of non-compliance with multilateral surveillance criteria in CEMAC countries.

The effects of fiscal policy on economic activity continue to animate debate on both size and sign of fiscal multiplier. Three main currents of thought are distinguished: neoclassical and new classical currents, Keynesian and new Keynesian currents, and anti-Keynesian or non-Keynesian currents.

According to the Keynesian and New Keynesian current, there are always dysfunctions in economic activity and the price system on market does not allow actions of different groups of economic agents to be balanced. Indeed, unemployment is involuntary, wages are poorly indexed to prices and information is incomplete in all markets (Keynes, 1936; Akerlof, 1970; Rothschild & Stiglitz 1976; Blanchard, 1979; Hemming and al. 2002; Montousse, 2002). Consequently, insufficient demand does not stimulate economic activity. It is therefore

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[1] CEMAC is the Economic and Monetary Community of Central African Countries created in 1994. It includes six countries: Cameroon, Central African Republic (CAR), Chad, Equatorial Guinea, Gabon, Republic of Congo and Equatorial Guinea.

necessary to increase public spending in order to encourage consumption and/or investment demand.

Regarding the extent of its effects on economic activity, neoclassical current believes that if public spending is financed by taxes than they can have negative effects on supply of labour. For the so-called "monetarist" neoclassicists, notably Milton Friedman, the criticism is also based on crowding-out effect created by the financing of public spending through issuance of government securities that will be held by households. Indeed, these securities reduce available savings and put government in competition with entrepreneurs. Consequently, they lead to an increase in interest rates, and therefore a decrease in demand (Guerrien, 2000). According to the new classics, only a discretionary increase in public spending has positive effects on consumption and growth (Barro, 1974, 1989).

Finally, according to the anti-Keynesian current, its effects on economic activity can be negative especially when the government's financial condition creates uncertainty among private economic agents about future tax policy. Indeed, a high public debt or an accumulation of budget deficits can be perceived as unsustainable by economic agents. They save enough to prepare themselves against an inevitable and high increase in future taxes, thus leading to a decrease in consumption, investment and therefore economic activity (Giavazzi & Pagano 1990, 1996; Bertola & Drazen, 1993).

However, most of econometric work that finds these so-called anti-keynesian effects does not specify the temporary or permanent nature of public spending, the nature of equilibrium (short-run or long-run) or is carried out on panel data (Créel and al., 2005). According to Auerbach & Gorodnichenko (2017), a discretionary increase in public spending does not pose a problem for fiscal sustainability in a context of high public debt.

The debate in the empirical literature remains centred on the discretionary nature of fiscal policy measures. How to identify discretionary changes, i.e., those unforeseen by private agents, while excluding budgetary decisions exogenous to economic activity. This research has given rise to several approaches for identifying fiscal policy shocks through VAR (vector autoregression) models, thus compensating for simultaneous equation models (Blanchard and Perotti 2002).

Diop & Diaw (2014) study the impact of public expenditure and tax revenue shocks on macroeconomic stability in five WAEMU[2] countries on quarterly data from 1984 to 2010.

[2] WAEMU is the West African Economic and Monetary Union created in 1994. It includes 8 countries: Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal and Togo.

Using the SVAR (structural VAR) model with identification of shocks according to Choleski method, they find that: public expenditure and tax revenue shocks are persistent (7, 8 to 9 quarters before cancelling out), expenditure or tax revenue shocks have negative effects on growth, except in Senegal and Burkina Faso where there are positive effects of public expenditure. They explain these negative effects of public expenditure shocks on growth by ricardian behaviour among private economic agents, a crowding-out effect on private investment and deflation that is not favourable to the supply side. But the authors do not study the effects of public spending shocks on interest rate.

For Cameroon, Mao Takongmo & Kenfack (2006) find that financing the economy through a budget deficit has negative effects on economic activity in expansion but positive effects in recession. The authors use a Markov regime-switching model. However, this methodology does not specify the discretionary nature of fiscal policy.

This article does not aim to determine thresholds of public debt at which effects of fiscal policy on economic activity become negative (Nikel & Tudyka, 2014). This is because economic agents may ignore government's budget constraint or trust them that debt problem will be solved (Alésina & Perotti 1995). Instead, it is concerned with conditions under which these negative effects are realised.

Thus, it is more in line with logic of policy mix in monetary union. In this case, common monetary policy stabilises symmetric shocks, while fiscal policy deals with asymmetric shocks. Let us assume that a stimulus by public spending leads to a crowding out of demand by interest rates, leading to a fall in activity, and central bank cannot intervene. This situation therefore justifies an ex-ante abandonment of fiscal policy, particularly in the event of non-compliance with rules of multilateral surveillance as provided for by sanctions in CEMAC.

The objective of this paper is to study the effects of fiscal policy on economic activity during a period of high public debt in CEMAC countries. This study aims to contribute to the literature on negative effects of fiscal policy on economic growth, particularly its effects on interest rates as a channel, based on a meticulous use of structural VAR modelling in CEMAC countries. The rest of work is divided into three sections: methodology, results and conclusion.

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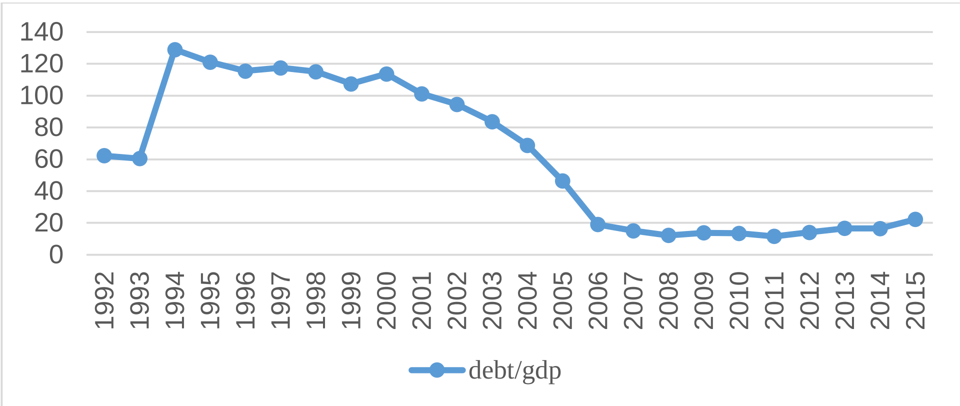
1. Methodology

1.1. Description of study period

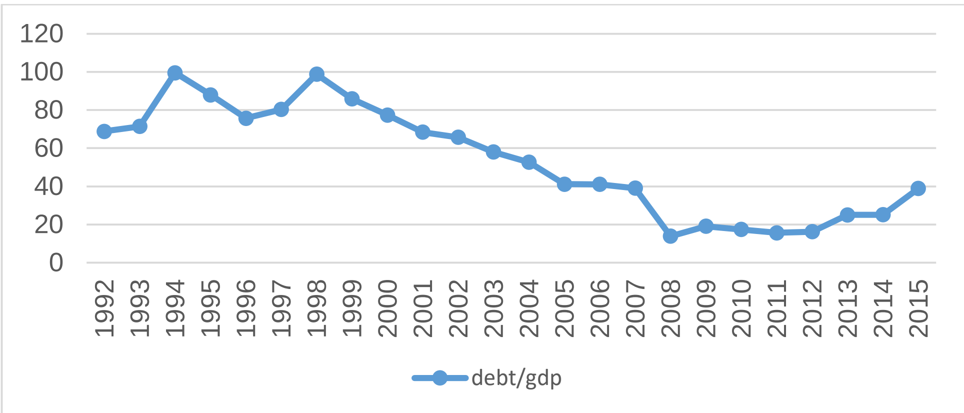
The figures below characterise the period of high public debt in CEMAC countries. In general, it can be noted that after a peak due to the devaluation in 1994 until 2012 CEMAC countries have reduced their external debt (major part of the total debt). This is explained by the numerous structural adjustment programmes followed (ESAF[3] and HIPC[4]). However, since the oil shock of 2013 there has been an increase in external debt in these countries. It should also be noted that Cameroon, CAR, Congo and Chad reached the HIPC completion point in 2006, 2009, 2010 and 2015 respectively. The data comes from the World Bank (International Debt Statistics)

Fig 1. Period of high debt in Cameroon



Source: Authors

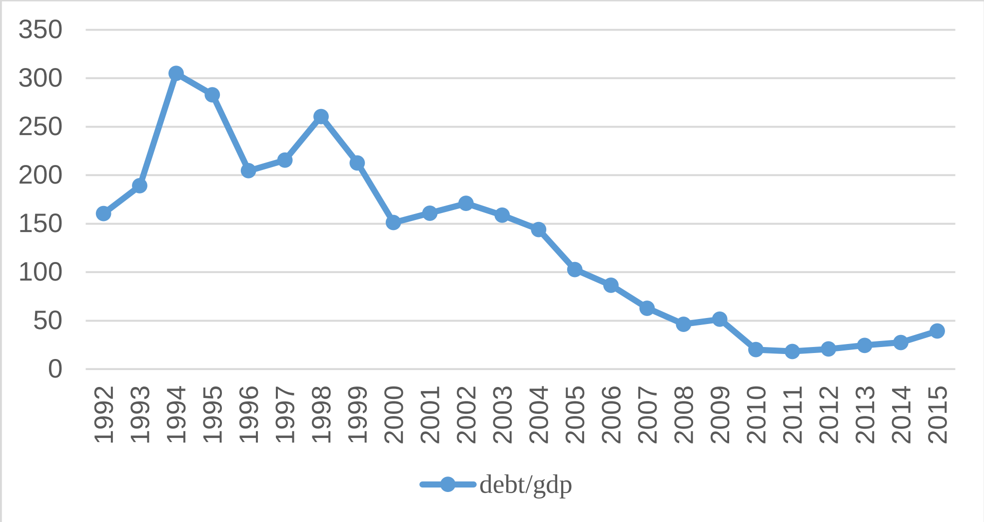
Fig 2. Period of high debt in Gabon



Source: Authors

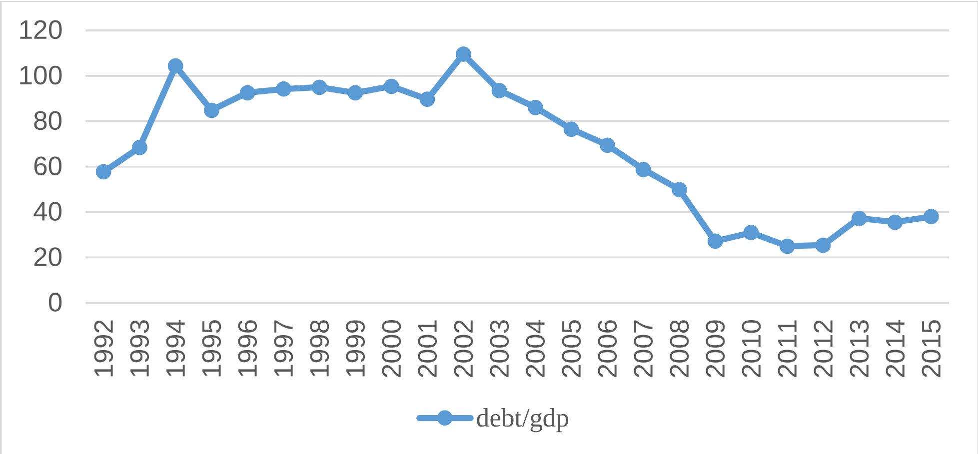
[3] ESAF means Enhanced Structural Adjustment Facility.
[4] HIPC means Heavily Indebted Poor Countries.

Fig 3. Period of high debt in Cameroon



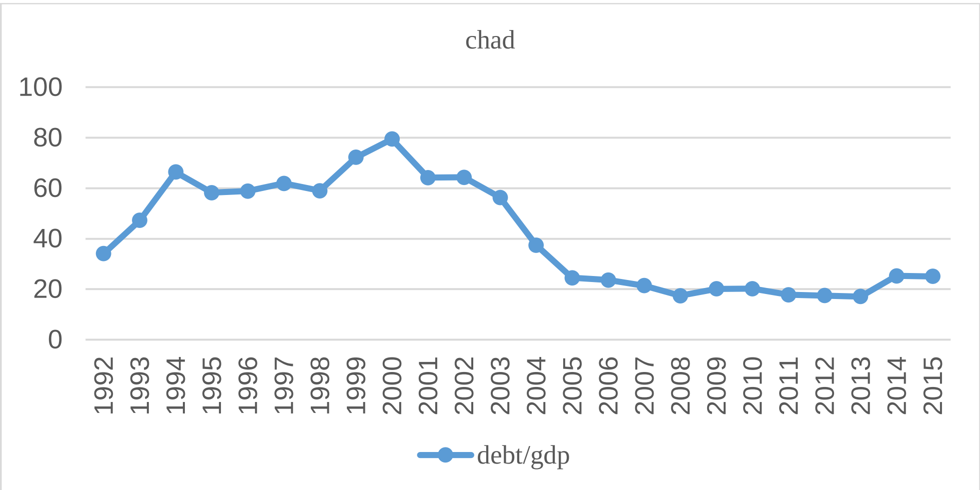
Source: Authors

Fig 4. Period of high debt in Central African Republic (CAR)



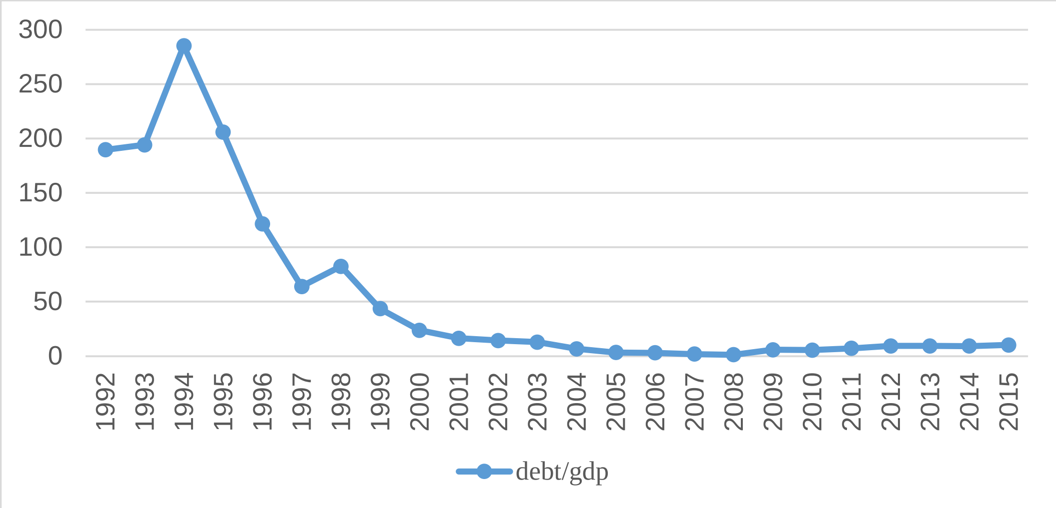
Source: Authors

Fig 5. Period of high debt in Chad



Source: Authors

Fig 6. Period of high debt in Equatorial Guinea



Source: Authors.

1.2. Model and estimation technique

Since inflation in developing countries comes from outside and influences the dynamics of their activity, VAR model we are going to estimate includes growth rate, inflation rate, budgetary revenues and public expenditures. Moreover, according to the anti-Keynesian theory an increase in public spending leads to a decrease in demand, and if demand is lower than supply, then there is deflation which discourages supply. Increased government spending can also be financed by increased taxes to stimulate economic activity (Haavelmo 1945; Chari & Kehoe 1999). This is why budget revenues is introduced into the model. Finally, growth rate is introduced to measure effects of fiscal policy on level of economic activity. These countries have committed themselves to maintaining their economic growth at a minimum of 7% per year in the framework of United Nations programme for sustainable development by 2030.

Augmented Dickey-Fuller (ADF) tests are performed to ensure that variables are stationary. The latter are introduced into model in first differences or levels provided that they are stationary. This is because we are only interested in short-term relationships between variables. The model in its matrix form is written:

$$\mathbf{A}\,\boldsymbol{Y_t} = \boldsymbol{A_0} + \sum_{i=1}^{p} \boldsymbol{B_i Y_{t-i}} + \boldsymbol{U_t} \tag{1}$$

Where $\boldsymbol{Y_t} = \begin{matrix} \boldsymbol{gdp_t} \\ \boldsymbol{inf_t} \\ \boldsymbol{br_t} \\ \boldsymbol{exp_t} \end{matrix}$ $\quad \boldsymbol{U_t} = \begin{matrix} \boldsymbol{u_{1t}} \\ \boldsymbol{u_{2t}} \\ \boldsymbol{u_{3t}} \\ \boldsymbol{u_{4t}} \end{matrix}$; $\boldsymbol{A_0} = \begin{matrix} \boldsymbol{a_1} \\ \boldsymbol{a_2} \\ \boldsymbol{a_3} \\ \boldsymbol{a_4} \end{matrix}$ $\quad$ A= $\begin{matrix} \boldsymbol{1} & \boldsymbol{d_{12}} & \boldsymbol{d_{13}} & \boldsymbol{d_{14}} \\ \boldsymbol{d_{21}} & \boldsymbol{1} & \boldsymbol{d_{23}} & \boldsymbol{d_{24}} \\ \boldsymbol{d_{31}} & \boldsymbol{d_{32}} & \boldsymbol{1} & \boldsymbol{d_{34}} \\ \boldsymbol{d_{41}} & \boldsymbol{d_{42}} & \boldsymbol{d_{43}} & \boldsymbol{1} \end{matrix}$; $\boldsymbol{B_i}$ $= \begin{matrix} \boldsymbol{b_{1i}} & \boldsymbol{k_{1i}} & \boldsymbol{c_{1i}} & \boldsymbol{z_{1i}} \\ \boldsymbol{b_{2i}} & \boldsymbol{k_{2i}} & \boldsymbol{c_{2i}} & \boldsymbol{z_{2i}} \\ \boldsymbol{b_{3i}} & \boldsymbol{k_{3i}} & \boldsymbol{c_{3i}} & \boldsymbol{z_{3i}} \\ \boldsymbol{b_{4i}} & \boldsymbol{k_{4i}} & \boldsymbol{c_{4i}} & \boldsymbol{z_{4i}} \end{matrix}$ **;** p is number of delays; u_{1t} , u_{2t} , u_{3t} and u_{4t} innovations of each of the variables in their respective equations. Each variable being written as a linear function of its past values and also of the other variables and their past values. In this system of equations, it is generally imposed that innovations are uncorrelated and identically distributed according to the law of zero mean and constant variance. They are then called structural or orthogonal shocks. In fact, this is what we are looking for as they are very likely to be correlated in reality. To gain more degrees of freedom, reduced form of model is usually used:

$$\boldsymbol{Y_t = C + \sum_{i=1}^{p} D_i Y_{t-i} + V_t} \qquad (2)$$

Where $\boldsymbol{C = A^{-1} A_0}$; $\boldsymbol{V_t = A^{-1} U_i}$ and $\boldsymbol{D_i = A^{-1} B_i}$.

The estimation of this autoregressive process is done by ordinary least squares (OLS) method in matrix form. Optimal lag is one that minimises information criteria (AIC or SC) and for which residuals are not autocorrelated. Breusch-Godfrey autocorrelation tests on estimated residuals of the reduced form of VAR allow us to be reassured that we are not losing information on dynamics of our variables in each of equations. Optimal lag for each of six CEMAC countries is p*=2.

The process can also be written as a moving average MA (∞) if roots of characteristic polynomial are all inside trigonometric circle: this is stationarity condition of model.

Thus, we have:

$$\boldsymbol{Y_t = G + S_0 U_t + S_1 U_{t-1} + + S_2 U_{t-2} + S_3 U_{t-3} + \ldots = G + \sum_{i=1}^{\infty} S_i \, U_{t-i}} \qquad (3)$$

The matrices $\boldsymbol{S_h}$ represent impulse response matrices of system. They allow us to obtain the effect of a structural shock to government expenditure or revenue on growth rate over h quarters. We are only interested in cumulative responses, interpreted as fiscal multiplier at the end of h quarters or years.

The short-run restrictions based on characteristics of CEMAC economies allow us to obtain orthogonal structural shocks from a Choleski decomposition of the variance and covariance matrix of estimated residuals of reduced VAR model. These restrictions are similar to those of

Diop & Diaw (2014) in their study of public expenditure and tax revenue shocks on macroeconomic stability in WAEMU countries. They are related to the lags in response and implementation of fiscal policy, the lags in response of output to fiscal policy and inflation in these countries:

- Government spending shocks have no instantaneous effect on output, prices and tax revenues;
- Output and inflation rates do not react instantly to a shock to tax revenues;
- Output does not change instantaneously to a price shock.

We thus obtain a lower triangular matrix of A, with normalized diagonal (diagonal terms are all equal to 1),

$$A = \begin{matrix} 1 & 0 & 0 & 0 \\ d_{21} & 1 & 0 & 0 \\ d_{31} & d_{32} & 1 & 0 \\ d_{41} & d_{42} & d_{43} & 1 \end{matrix}.$$

All estimates, including quarterly data, are made using EVIEWS 9 software.

1.3. Data source and measurement of variables

The study runs from 1992 to 2012. Data come from the French Bank (the Franc Zone reports from 1994 to 2013). The variables are defined as follows:

- Expenditure divided by nominal GDP (total expenditure=current expenditure excluding interest +capital expenditure): exp;
- Budgetary revenues divided by nominal GDP (budgetary revenues excluding grants): br;
- Average consumer price inflation: inf;
- The growth rate of output: gdp.
- The short-term interest rate on deposits: r. Data come from the International Monetary Fund (International Financial Statistic)

2. Results

The results of the estimates are reported in tables, reflecting the multipliers at the end of the first and second year.

2.1. Public expenditure shocks on growth and inflation in CEMAC countries

Table 1. Public expenditure and tax rate shocks on growth

Country	Multiplier at the end of the first year		Multiplier at the end of the second year	
	Expenditure	Tax rate	Expenditure	Tax rate
Cameroon	-0,14	-0,13	-0,64	-0,44
Gabon	-0,2	-0,59	-1,89	-2,78
Congo	-0,67	-0,06	-0,65	-0,17
Equatorial Guinea	-0,63	-2,66	-1,65	-3,58
CAR	-0,2	-0,85	-0,33	-3,4
Chad	-0,15	-0,56	1,14	-0,86

Source: Authors

The table above shows that there are negative effects of public expenditure shocks on growth in the CEMAC countries, positive only at the end of the second year in the CAR. Private economic agents in CEMAC countries are "ricardian": they reduce their demand in the face of an increase in public expenditure as they anticipate an increase in future taxes. On the tax rate side, an increase has negative effects on growth in the CEMAC countries. The financing of increased public expenditure through taxes slows down economic activity in the CEMAC countries.

Table 2. Public expenditure shocks on inflation

Country	Multiplier at the end of the first year	Multiplier at the end of the second year
Cameroon	-0,73	-0,76
Gabon	-0,29	-0,05
Congo	0,52	1,06
Equatorial Guinea	-0,14	-0,34
CAR	0,4	2,18
Chad	0,51	0,55

Source: Authors

In Congo, CAR and Chad public expenditure shocks have positive effects on inflation, while they are negative for the other CEMAC countries. The increase in public expenditure therefore creates unfavourable deflation for the supply side in some CEMAC countries.

2.2. Public expenditure shocks on interest rate in CEMAC countries

In this section, we will add the interest rate on deposits to the above VAR model. The response times of monetary policy are less than those of fiscal policy. The restrictions for identifying orthogonal structural shocks are as follows:

- Government spending shocks have no instantaneous effect on output, prices, interest rates and tax revenues;
- Output, inflation and interest rates do not react instantly to a shock to tax revenues;
- Output and inflation do not change instantaneously to an interest rate shock;
- Output does not change instantaneously to a price shock.

Countries not shown in the tables below are those for which errors are autocorrelated or not all roots of the lag polynomial lie inside the trigonometric circle.

Table 3. Public expenditure and tax rate shocks on growth

Country	Multiplier at the end of the first year		Multiplier at the end of the second year	
	Expenditure	Tax rate	Expenditure	Tax rate
Cameroon	-0,09	-0,03	-0,53	-0,16
Congo	-0,64	-0,07	-0,63	-0,14
Equatorial Guinea	0,63	-2,53	1,21	-3,15
CAR	0,48	-1,37	1,45	-3,66

Source: Authors

Table 4. Public expenditure shocks on interest rate

Country	Multiplier at the end of the first year	Multiplier at the end of the second year
Cameroon	0,09	0,17
Congo	0,01	0,1
Equatorial Guinea	0,004	0,18
CAR	0,05	0,18

Source: Authors

In Congo and Cameroon, public expenditure shocks have negative effects on growth and positive effects on the interest rate. The rise in interest rates is therefore unfavourable to demand in these two countries. While in the Central African Republic (CAR) and Equatorial Guinea, public expenditure shocks have positive effects on growth and the interest rate. Rising interest rates crowd out demand and are responsible for the negative effects of the public expenditure shocks found above.

Conclusion

The objective of this paper was to study the effects of fiscal policy on economic activity during a period of high public debt in CEMAC countries.

Based on SVAR modelling which identifies shocks using Choleski method on quarterly data from 1992 to 2012, we find that public expenditure shocks have negative effects on growth in all CEMAC countries. These effects are favoured by deflation which discourages supply and rising interest rates which crowd out demand.

According to Créel and al. (2005), most of work that finds negative effects of government spending on economic activity does not specify the state of economy (recession or expansion). The authors show that a discretionary increase in tax-finance public spending can have positive effects on economic activity during a recession.

With regard to Cameroon, Mao Takongmo & Kenfack (2006) find that financing economy through a budget deficit has negative effects on economic activity in expansion but positive effects in recession. They thus confirm that the procyclicality of fiscal policy shocks, encouraged by long reaction times, favours the realisation of the negative effects of public spending shocks on economic activity.

In terms of economic Policy recommendations, sanctions for non-compliance with multilateral surveillance criteria should take into account the state of economic situation (the scale of recession). The effects of fiscal policy according to the phases of economic cycle in all these countries in periods of high public debt will complete this study.

References

Alésina, A. & Perotti, R. (1995). Fiscal expansions and adjustments in OECD countries. Economy policy, 21, 207-247.

Akelof, G.A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. Quarterly Journal of Economics, 84 (3), 488- 500. https://doi.org/10.2307/1879431

Auerbach, A. & Gorodnichenko, Y. (2017). Fiscal stimilus and fiscal substainability. NBER Working Paper No. 23789.

Barro, R. (1974). Are Government Bonds Net wealth? Journal of Political Economy, 82, 1095-1117. http://dx.doi.org/10.1086/260266

Barro, R. (1981). Output effects of government purchase. Journal of political economy 89 (6), 1086-1121. http://dx.doi.org/10.1086/261024

Bertola, G., Drazen, A. (1993). Trigger Points and Budget cuts: Explaining the effects of Fiscal Austerity. American Economic Review, 83, 11-26.

Blanchard, O. (1979). Wage Indexing Rules and the Behavior of the Economy. Journal of Political Economy, 87(4), 798-815. http://dx.doi.org/10.1086/260793

Blanchard, O., Perotti, R. (2002). An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output. Quarterly Journal of Economics, 117 (4), 1329-1368. DOI: 10.1162/003355302320935043

Créel, J., Ducoudre, B. & Mathieu, C. (2005). Doit-on oublier la politique budgétaire ? Une analyse critique de la nouvelle théorie anti-keynésien des finances publiques, OFCE Review, 1(92), 43-97.

Chari, V. & Kehoe, P. (1999). Optimal fiscal and monetary policy", NBER Working Paper 6891.

Diop, M & Diaw, A. (2014). Politique budgétaire et stabilité macroéconomique en union monétaire : cas de l'UEMOA. OFCE Review, 137, 1-34. DOI 10.3917/reof.137.0181.

Feldstein, M. (1982). Government deficits and aggregate demand. Journal of Monetary Economics, 9, 1-20. https://doi.org/10.1016/0304-3932(82)90047-2

Giavazzi, F. & Pagano, M. (1996). Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience. Economic Policy Review, 3, 67-112. https://doi.org/10.2307/3585135

Guerrien B (2000) *Dictionnaire d'analyse économique*. La Découverte.

Haavelmo, T. (1945). Multiplier Effects of a Balanced Budget. Econometrica, 13 (4), 311-318. https://doi.org/10.2307/1906924

Keynes, J. (1969). The General Theory of Employment, Interest and Money. Payot.

Mao Takongmo, C.O. & Kenfack, M.E. (2006). Effets des politiques budgétaires sur l'activité économique des pays de la CEMAC, *DELAC DES PAYS - cirpee.uqam.ca.* ,1-54.

Montousse, M. (2002). Théories économiques. Bréal.

Nikel, C. & Tudyka, A. (2014). Fiscal Stimulus in Times of High Debt: Reconsidering Multiplier and Twin Deficits. Journal of Money, Credit and Banking, 46 (7), 1313-1344.

Rothschild, M. & Stiglitz, J. (1976). Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information. Quarterly Journal of Economics, *90* (4), 629-649.