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Budget deficits, money supply and price level in West Africa

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ABSTRACT

Using West African Economic and Monetary Union (WAEMU) dataset for 1970 to 2013, and Pesaran et al. (2001) methodology, this study examines the effect of budget deficit and money supply on inflation. Evidence shows that there is a long run relation among the variables in all countries except Mali. Price and budget deficit are positively related in Niger and Togo, and negatively related in Benin and Senegal. Further, money supply and price are positively related in Burkina Faso, Cote d'Ivoire and Senegal. Results from the Granger causality tests indicate that deficits cause money growth in Cote d'Ivoire, Mali and Togo, and cause the price level in Senegal. There is no causality from money supply to inflation in the short-run. Results suggest that idea that budget deficits are not inflationary in WAEMU countries. Hence, the policy of reducing inflation should focus on other macroeconomic and structural determinants of inflation across WAEMU.

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1.0 Introduction

Inflation is an undesirable factor due to its adverse effects on consumption, investment and economic growth. For this reason, price stability is the primary goal of monetary policy for almost all central banks. Understanding the sources of inflation is therefore a subject of interest of policymakers as well as monetary authorities. Among the possible sources of inflation, budget deficits and money supply are those whose importance has grown over years. Theoretically, there are several competing views explaining the impacts of budget deficits and money growth on inflation. The conventional wisdom of monetarist view opines that inflation is always and everywhere a monetary phenomenon, and monetary authorities can maintain a sustainable inflation rate by the control of the money supply. In this framework, budget deficits are inflationary only to the extent that they are monetized. The Keynesian view suggests that budget deficit leads to inflation by stimulating aggregate demand and driving up the real interest rate. The Ricardian equivalence proposition contends that increases in budget deficits do not alter aggregate demand, interest rates and the price level because economic agents anticipate that current tax cuts by the government will be financed by future tax hikes (Barro, 1989). Contrary to these views, the fiscal theory of price level contends that inflation rate is dependent upon the coordination between monetary and fiscal authorities. Under the monetary dominant regime, monetary policy determines the price level and fiscal policy remains reactive (Sargent and Wallace, 1981). In the fiscal dominant regime, however, the price level is determined by the government's inter-temporal budget constraint and monetary policy is reactive. In the strong version of the theory, the price level is determined merely by fiscal variables and monetary factors play no role in price determination (Leeper, 1991; Sims, 1994; Woodford, 1994).

Empirical studies examining the relationship between budget deficits, money supply and inflation have also produced conflicting results. While some studies (see Metin, 1998; Darrat, 2000; Neyapti, 2003; Nguyen, 2015) provided evidence showing that budget deficits contribute to inflation, others (see Karras, 1994; Brown and Yousefi, 1996; Hondroyiannis and Papapetrou, 1997) failed to find any direct impact of budget deficit on inflation. Furthermore, most existing studies focus either on the nexus of money-inflation or deficit-inflation. But little effort has been made to test these two links in the same framework. In addition, despite the burgeoning literature on the relationship between deficit, money and inflation, very few studies have been conducted for Sub-Saharan African countries. This study therefore attempts to investigate the topic for the member countries of the West African Economic and Monetary Union (WAEMU). Budget is the core instrument in the hand of these countries for attainment of sustainable economic growth target. They experienced persistent deficits over the period from 1980 to 1990. Faced with the vicious circle of these deficits, WAEMU embarks on economic and fiscal reform programs aiming at raising tax revenues and restructuring tax systems. Thus, since 1994 the WAEMU member countries have adopted convergence criteria aiming at explicit targets for deficits and inflation rate. To meet the convergence criteria, the member countries should, among others, keep public deficit at a minimum of zero percent of GDP and keep inflation rate under 3%. To the best of our knowledge, there has not been empirical analysis investigating the relationship between money, deficits and the price level in the context of the WAEMU member countries. This study seeks to fill the gap by addressing the following questions: what are the impacts of budget deficits and money supply on the price levels in WAEMU countries? What is the effect of budget deficit on money supply? How do budget deficit, money supply and price interact with each other? To address these questions, we apply the bounds test to cointegration developed by Pesaran et al. (2001). The variables under study are the consumer price index, the money supply ratio to GDP and budget deficit as share of GDP. The results reveal a positive relationship between price and deficit in Niger and Togo, and a negative relationship between the two variables in Benin and Senegal. On the contrary, budget deficits have no significant impact on price in Burkina Faso and Cote d'Ivoire. Furthermore, money growth increases price in Burkina Faso, Cote d'Ivoire and Senegal. We also find that in the short run budget deficits cause money growth in Cote d'Ivoire, Mali and Togo, and prices in Senegal. These findings suggest that deficits are not inflationary in the WAEMU member countries. Therefore, the policy of reducing prices should focus on other macroeconomic and structural determinants of inflation.

The rest of the study is organized as follows. Section 2 reviews the literature on the relationship between deficit, money and inflation. Section 3 outlines the econometric methodology. Section 4 analyses the empirical results. Finally, Section 5 provides summary and gives some policy implications.

2.0 Literature review

The relationship between deficit, money supply and inflation has long been the subject of debate among economists. This is because a clear understanding of the link between these variables is of crucial importance in ensuring that effective stabilization policies can be implemented effectively. Over the years, a number of theories have been developed to explore the relationship between budget deficit, money supply and inflation. The quantity theory of money predicts that increases in money supply give rise to inflation, provided that the velocity of money is constant (Fisher, 1911). The monetary approach assumes that money supply and inflation are positively related through the assumption of neutrality of money (Friedman, 1968). The neutrality of money refers to the hypothesis that changes in the quantity of money affect the nominal but not the real variables of the economy. In the monetary framework, money supply is exogenously determined and controlled by the monetary authorities. Inflation occurs when money supply expands more rapidly than money demand. Budget deficits are inflationary only if it is monetized to increase the monetary base of the economy (Hamburger and Zwick, 1981). The Keynesian view argues that money is important but is not responsible for changes in price levels. Instead, structural factors play important role suggesting that money supply is not an effective instrument to control price changes. The Keynesian view suggests that government budget deficit leads to inflation by stimulating aggregate demand and driving up the real interest rate. The Ricardian equivalence proposition contends that increases in budget deficits do not alter aggregate demand, interest rate and the price level because economic agents anticipate that current tax cuts by the government will be financed by future tax hikes (Barro, 1989). In anticipation of future taxes, they will not consider themselves wealthier and therefore will not increase their consumption. The proponents of the fiscal theory of price level emphasize the role of fiscal policy in price determination. They highlight the importance of fiscal and monetary policy coordination while ensuring price stability (Sargent and Wallace, 1981). According to them, monetary policy cannot permanently control inflation. Under the so-called "monetary dominant" regime, monetary policy determines the price level, and fiscal policy remains reactive. The government balances its inter temporal constraint taking the inflation as given. Sargent and Wallace (1981) argue that, in this coordination scheme, inflation is completely under the control of the monetary authority. In the "fiscal dominant" regime, however, the price level is determined by the government's inter-temporal budget constraint, and monetary policy is reactive that is money supply reacts to price level changes to bring the money demand equation in

balance (Carlstrom and Fuerst, 2000). In the strong version of the fiscal theory of price level, introduced by Leeper, (1991); Sims, (1994); Woodford, (1994), the price level is determined merely by fiscal variables, and monetary factors play no role in price determination. Price levels adjust to ensure the government's inter-temporal budget constraint and the adjustment is driven by individuals' wealth effect which raises aggregate demand thereby creating inflation and leaving no role for the monetary authority. The fiscal theory of price suggests a direct correlation between inflation and budget deficits.

Some attempts have been made to test the validity of these theories. Giannaros and Kolluri (1986) examine the relationship between government deficits, money growth and inflation for ten industrialized countries during the period 1950 to 1981. The results show that fiscal deficits do not increase the money supply and the inflation rate. Using the VAR methodology, De Haan and Zelhorst (1990) investigate the budget deficit, money growth and inflation relationship for 17 developing countries from 1960 to 1985. They find that in the majority of countries budget deficits do not cause monetary expansion. The studies by Chang (1994) for Taiwan, Cottarelli et al. (1998) for 47 industrial and transition countries, Metin (1998) for Turkey, Catão and Terrones (2003) for emerging market countries, Neyapti (2003) for 54 developed and less developed countries, and Jalil et al. (2014) for Pakistan, also provide evidence showing that budget deficits contribute to inflation. However, the studies by Barnhart and Darrat (1989) for the US, Karras (1994) for 32 countries, Brown and Yousefi (1996) for developing countries, and Hondroyiannis and Papapetrou (1997) for Greece fail to find any direct impact of budget deficit on inflation. Hondroyiannis and Papapetrou (1994) support the hypothesis of bidirectional causality between deficit and price level in Greece. Darrat (2000) tests whether high budget deficits have any inflationary consequences in Greece over the period 1957-1993. The empirical results show that besides money growth, budget deficits have also played a significant and direct role in the Greek inflationary process. Tekin-Koru and Özmen (2003) investigate the long-run relationship between budget deficits, inflation and money growth in Turkey. Their results reject the validity of both the monetarist view and the pure fiscal theory of price. Using causality tests, Ashra et al. (2004) find bidirectional relationship between money and price, but not between deficit and inflation in India for the period from 1950 to 2001. Narayan et al. (2006) analyze the case of Fiji and find that money supply and deficit have statistically significant positive impacts on inflation. They also find that in the short-run there is unidirectional causality running from money supply to inflation and bidirectional causality between money and deficit, and in the long-run both deficits and money supply cause inflation. Nguyen (2015) examines the effects of fiscal deficit and money supply on inflation in nine Asian countries over the period of 1985-2012. Using the pooled mean group estimator and the panel differenced GMM estimator, He find evidence that money supply increases inflation only in the pooled mean group estimation whereas fiscal deficit has a positive impact on inflation in both methods of estimation.

Regarding the African countries, the empirical evidence is also mixed. Using an error-correction model, Sowa (1994) estimates an inflation equation for Ghana over the period 1963-1990. The study find that inflation in Ghana is influenced more by output volatility than by monetary factors, both in the long run and in the short run. He also reports a positive relationship between government budget deficits and inflation, and strongly recommends control of inflation-targeting policies to keep the budget deficit as low as possible. Durevall and Ndung'u (2001) use a dynamic error correction model of inflation for Kenya and find that money supply affects prices only in the short-run. Anoruo (2003) uses the Johansen cointegration procedure and Granger causality tests to show that money supply causes both budget deficits and inflation rate in South Africa. He also finds bidirectional causal relationship between deficits and inflation. Solomon and De Wet (2004) find a positive relationship between budget deficit and inflation in Tanzania due to massive monetization of deficits by monetary authorities. Dembo Toe and Hounkpatin (2007) examine the relationship between money growth and inflation in the WAEMU using the VAR methodology. They find that price of imported goods, nominal exchange rate and money growth are among the drivers of inflation rate in the WAEMU zone. Diop et al. (2008) examine the determinants of long-run inflation in the WAEMU countries over the period 1970-2005. Using the ARDL approach they find that money supply, foreign prices of imported goods, supply constraints in the agricultural sector and nominal exchange rate are the significant determinants of long-run consumer price index in the WAEMU countries. Zonon (2003) also confirms the role of money supply and price of imported goods in explaining inflation in Burkina Faso. Wolde-Rufael (2008) investigates the causal link among inflation, money and budget deficit in Ethiopia over the period 1964 to 2003 using the bounds test approach and Granger causality tests. He finds evidence of a long-run relationship among the variables with money supply and budget deficit causing inflation. But, deficit has no impact on money growth. In the case of Nigeria, Nyong and Odubekun (2002) examine the effects of monetary financing of budget deficit on macroeconomic instability. They find that monetary financing of fiscal deficit in Nigeria is partly responsible for liquidity in the money market and inflation. Chimobi and Igwe (2010) find bilateral causality between budget deficit and inflation in Nigeria, whereas Awe and Shina (2012) report a causal relationship running from budget deficit to inflation, and Ogunmuyiwa (2008) supports the reverse causality from inflation to budget deficit. Further, Olusoji and Oderinde (2011) and Dockery et al. (2012) find no significant causation between fiscal deficits and inflation in Nigeria over the period 1970 to 2006. Recently, Chukwu (2013)

finds a long-run relationship between budget deficits, money growth and price level in Nigeria over the period 1971 to 2008 with unidirectional causality running from budget deficit to money growth and then from money supply growth to price level. Raji *et al.* (2014) applies the bounds test to Nigerian data covering the period 1970 to 2010. They find a short-run causality running money supply and budget deficit to price level while the long-run results indicate bidirectional causality between money supply and price level. As we can see, empirical studies on African countries are very limited. Nigeria is the country that has been extensively examined. This study contributes to the empirical literature by investigating the case of seven African countries that have not previously examined.

3.0 Data and methodology

3.1 Model

This study examines the existence and direction of the relation between budget deficit, money supply and price level. To that end, the model that consists of budget deficit and money supply as determinants of inflation is defined as follows:

$$P_t = \theta_0 + \theta_1 D_t + \theta_2 M_t + \mu_t \tag{1}$$

where P indicates the price level, D is budget deficit and M is broadly defined money supply. The θ_1 and θ_2 coefficients are the parameters which show respectively the effects of budget deficit and money supply on price level.

3.2 ARDL bounds test to cointegration

The study uses the autoregressive distributed lag (ARDL) bounds test developed by Pesaran *et al.* (2001) to depict the long run relationship between the variables. The advantages of ARDL bounds testing method over other alternative methods are as follows: first, the technique allows the use of variables which differ from order integration (I (0) and I (1)). Second, the ARDL bounds test solves the endogeneity problem of explanatory variables and the inability to test hypotheses on the estimated coefficients in the long-run. Third, the technique estimates both long-run and short-run parameters simultaneously. Fourth, it provides better results for small sample data (Haug, 2002). The bounds testing procedure is based on the following ARDL-ECM equation:

$$\Delta P_{t} = \phi_{0} + \phi_{1} P_{t-1} + \phi_{2} D_{t-1} + \phi_{3} M_{t-1} + \sum_{i=1}^{m} \gamma_{1i} \Delta P_{t-i} + \sum_{i=0}^{n} \gamma_{2i} \Delta D_{t-i} + \sum_{i=0}^{p} \gamma_{3i} \Delta M_{t-i} + \mu_{t}$$
(2)

The presence of cointegration is tested by restricting all estimated coefficients of lagged level variables equal to zero. That is, the null hypothesis of no cointegration is: $\phi_1 = \phi_2 = \phi_3 = 0$. This hypothesis is tested by the mean of an F-test. The asymptotic critical values are provided by Pesaran *et al.* (2001). An important issue in applying the bounds testing procedure is the selection of the lag structure (m, n, p). In this study, lag length on each variable was selected using the general-to-specific approach with maximum lag set to five. As cointegration indicates only whether or not a long-run relationship exists between the variables, we provide information on the direction of causal relationships through Granger causality tests.

3.3 Granger causality test

To examine the causal relationship between the variables we use the Granger causality framework. In the presence of a long-run relationship, Granger-causality test requires the inclusion of a lagged error correction term within a vector error correction model (VECM). Accordingly, Granger-causality analysis involves estimating the following equations:

$$\begin{pmatrix}
1 - L \begin{pmatrix}
P_t \\
D_t \\
M_t
\end{pmatrix} = \begin{bmatrix}
\alpha_1 \\
\alpha_2 \\
\alpha_3
\end{pmatrix} + \sum_{i=1}^{p} \begin{pmatrix}
1 - L \begin{pmatrix}
\beta_{1i} & \gamma_{1i} & \phi_{1i} \\
\beta_{2i} & \gamma_{2i} & \phi_{2i} \\
\beta_{3i} & \gamma_{3i} & \phi_{3i}
\end{pmatrix} \times \begin{bmatrix}
P_{t-i} \\
D_{t-i} \\
M_{t-i}
\end{bmatrix} + \begin{bmatrix}
\lambda_1 \\
\lambda_2 \\
\lambda_3
\end{bmatrix} ECT_{t-1} + \begin{bmatrix}
e_{1t} \\
e_{2t} \\
e_{3t}
\end{bmatrix}$$
(3)

where (1-L) stands for the difference operator and ECT_{t-1} denotes the lagged residuals of the long-run relationship. The lag length p is determined using the Akaike Information Criterion (AIC). The significance of the differenced explanatory variables indicates the existence of short-run causality, whereas the significance of ECT_{t-1} indicates

the existence of long-run causality. For instance, $\gamma_{1i}\neq 0$ shows that deficit Granger-causes price whereas the reverse causality is indicated by $\beta_{2i}\neq 0$.

The empirical analysis is carried out for seven member countries of the West African Economic and Monetary Union (WAEMU), namely: Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal and Togo. The variables under study are the logarithm of the consumer price index as the price level, the money supply ratio to GDP and budget deficit as share of GDP. All variables were obtained from Central Bank of West African States and World Development Indicators of World Bank. All data cover the time period of 1970/1972 to 2013.

4.0 Empirical results and discussion

Before starting estimation, we test for the order of integration of the series by means of unit root tests. This step is important in order to ensure that variables are not integrated of order two or higher. Moreover, the bounds test requires the dependent variable to be a I(1) series. To this end, we perform the well-known unit root test of Phillips and Perron (1988). This test has been performed under the model with constant and trend for the level series and with constant for series in first difference. The results displayed in Table 1 show that all the variables are non-stationary in their level but are stationary after taking the first difference, with the exception of budget deficit variable which is stationary in Benin, Burkina Faso and Mali. This result shows that there may be a long-term relation between budget deficits, money supply and price level and indicates the possibility of cointegration analysis.

Table 1: Unit root tests									
Country	P	D	M	ΔΡ	ΔD	ΔΜ			
Benin	-2.018	-3.865	-2.391	-4.353	-11.434	-7.312			
Burkina Faso	-1.469	-4.307	-3.236	-6.682	-12.381	-7.623			
Cote d'Ivoire	-0.954	-2.559	-1.646	-3.761	-5.321	-7.414			
Mali	-2.228	-6.481	-3.604	-4.482	-25.873	-7.549			
Niger	-2.247	-3.197	-1.672	-4.046	-10.344	-5.572			
Senegal	-2.010	-3.042	-1.411	-4.382	-10.167	-6.625			
Togo	-2.111	-3.506	-1.580	-4.865	-10.373	-7.058			
<i>Notes</i> : Critical values at the 5% level are -3.518 (level) and -2.933 (difference).									

The second step of our empirical analysis consists in testing cointegration among the variables using the bounds testing approach. The results of the bounds F-test statistics along with long-run coefficients are displayed in Table 2. From the table we can see that the computed F-statistic exceeds the upper critical values at 5% level of significance for all countries except Mali. Accordingly, we reject the null hypothesis of no cointegration among the variables and conclude that there is a long-run relationship among budget deficit, money supply and price level for all countries, except Mali.

The estimates of the long-run parameters show that deficit increases price levels in Niger and Togo. On the contrary, budget deficit reduces price level in Benin and Senegal. Therefore, fiscal policies that reduce budget deficits would be good for households in Niger and Togo. For Burkina Faso and Cote d'Ivoire, fiscal deficit is not a significant driver of price levels. On the other hand, the results provide evidence supporting the monetary view of a positive long run-relationship between money supply and inflation in Burkina Faso, Cote d'Ivoire and Senegal. This implies that a continuous increase in the supply of money relative to GDP leads to an increase in price levels in these three countries.

Table 2: Results of bounds test for cointegration						
		Long-run relationship				
Country	F-Stat.	Deficit	Money			
Benin	5.338*	-0.156 (-2.358)*	0.031 (1.398)			
Burkina Faso	5.705*	-0.003 (-0.067)	$0.076 (5.101)^*$			
Cote d'Ivoire	$4.354(1)^*$	-0.055 (-0.669)	0.199 (6.675)*			
Mali	2.460	-	-			
Niger	5.054^*	$0.037~(2.456)^*$	-0.005 (-0.746)			
Senegal	6.242*	-0.131 (-1.994)*	0.056 (2.254)*			
Togo	5.903*	$0.060 (3.046)^*$	-0.005 (-0.909)			
Note: Critical values for F-statistics are taken from Pesaran et al. (2001). *						
indicates that the null hypothesis of no cointegration is rejected at the 5% level.						

The results of the Granger-causality tests are reported in Table 3. Starting with the analysis of long-run effects, there is a unidirectional causality running from deficit to price in Benin, Niger, Senegal and Togo and from money

supply to price in Burkina Faso, Cote d'Ivoire and Senegal. This result confirms our previous finding that a long-run relationship exists between deficit, money supply and price level. With regard to the short-run causality, the results indicate that budget deficit causes money growth in Cote d'Ivoire, Mali and Togo, and price level in Senegal. This supports the proposition of monetarists that increase of deficits induces higher money supply. There is however no causality from money supply to deficit and inflation in the short-run. Contrary to the monetary view, inflation is not everywhere a monetary phenomenon in the long-run. Money growth has significant impact on price only in Burkina Faso, Cote d'Ivoire and Senegal. Overall, our results for Niger, Togo, Burkina Faso, Cote d'Ivoire and Senegal accord with those of Dembo Toe and Hounkpatin (2007), Diop *et al.* (2008) and Zonon (2003), but contradict with Olusoji and Oderinde (2011) and Dockery *et al.* (2012) who found no significant causation between fiscal deficits and inflation. Mali is the only country where we fail to find significant impact of money and deficit on price. In this country, indeed, variations in consumer price index are largely driven by changes in food prices and therefore by the agricultural sector production.

		Table 3: Results	of Granger causality t	ests					
Short-run causal variable									
Country	Dep. var	Price	Deficit	Money	ECT _{t-1}				
Benin	Price	-	0.138 (0.710)	0.633	-0.056 (-3.305)*				
				(0.426)					
	Deficit	1.404 (0.236)	-	0.467	1.276 (1.423)				
		` ,		(0.494)	` ´				
	Money	1.387 (0.238)	0.125 (0.723)	-	-0.774 (-0.880)				
Burkina Faso	Price	· · ·	2.479 (0.115)	0.218	-0.110 (-2.704)*				
				(0.640)	,				
	Deficit	0.030 (0.861)	-	2.197	0.946 (0.459)				
		,		(0.138)	,				
	Money	0.129 (0.718)	0.051 (0.821)	-	1.466 (1.043)				
Cote d'Ivoire	Price	-	0.028 (0.865)	0.677	-0.019 (-2.444)*				
			()	(0.410)	()				
	Deficit	1.362 (0.243)	_	2.104	0.401 (0.776)				
	Dericie	11002 (012 10)		(0.146)	0.101 (0.770)				
	Money	0.928 (0.335)	2.866 (0.090)**	(0.110)	-0.075 (-0.187)				
Mali	Price	0.720 (0.505)	3.538 (0.170)	1.608	0.075 (0.107)				
Man	11100		3.330 (0.170)	(0.447)					
	Deficit	2.980 (0.225)	_	1.020	_				
	Deffet	2.700 (0.223)		(0.600)					
	Money	3.164 (0.205)	5.476 (0.064)**	(0.000)					
Niger	Price	3.104 (0.203)	0.001 (0.968)	0.556	-0.172 (-2.490)*				
Nigei	rice	-	0.001 (0.900)	(0.455)	-0.172 (-2.490)				
	Deficit	0.255 (0.613)		0.025	-1.802 (-0.794)				
	Delicit	0.233 (0.013)	-	(0.873)	-1.002 (-0.794)				
	Monorr	0.412 (0.520)	0.136 (0.711)	(0.873)	0.269 (0.143)				
Conogol	Money	0.412 (0.520)	20.464 (0.000)*	0.000	` ,				
Senegal	Price	-	20.464 (0.000)	0.000	-0.052 (-2.237)*				
	D - 6: -:+	2 000 (0 070)**		(0.980)	1.014.(2.412)*				
	Deficit	3.099 (0.078)**	-	0.000	1.814 (2.413)*				
	14	0.725 (0.201)	0.402 (0.402)	(0.995)	0.245 (0.405)				
TT.	Money	0.735 (0.391)	0.493 (0.482)	0.014	-0.345 (-0.407)				
Togo	Price	-	0.001 (0.972)	0.814	-0.176 (-3.547)*				
	D 0 1	0.004 (0.050)		(0.366)	0 (00 (4 000)				
	Deficit	0.001 (0.969)	-	0.308	-3.630 (-1.399)				
		0.004.17.77	- 000 (6 · · · ·	(0.578)	0.40-44				
	Money	0.986 (0.320)	7.980 (0.004)*	-	2.688 (1.058)				

Note: Statistics for short-run causality are Chi2-statistics with *p-values* in parentheses. Column ECT_{t-1} shows coefficients on ECT_{t-1} with *t-statistics* in parentheses. The asterisks * and ** denote statistical significance at the 5% and 10% levels, respectively.

5.0 Conclusion and policy implications

This study has investigated the causal relationship between budget deficit, money supply and price dynamics in the member countries of the West African Economic and Monetary Union. It made use of the ARDL bounds testing procedure and Granger causality tests. The empirical evidence reveals a positive relationship between price levels and budget deficits in Niger and Togo, implying that an increase in budget deficit lead to an increase in prices.

Hence, for the level of prices to be reduced in these two countries, governments need to cut down the level of expenditure or increase significantly the level of tax revenues. The study finds a negative relationship between deficits and prices in Benin and Senegal, while deficits do not have any significant impact on price in Burkina Faso and Cote d'Ivoire. Furthermore, the results reveal that money expansion increases price levels in Burkina Faso, Cote d'Ivoire and Senegal. Results from the short-run Granger causality tests indicate that budget deficits cause money growth in Cote d'Ivoire, Mali and Togo, and prices in Senegal. There is no causality from money supply to deficit and inflation in the short-run. Thus, the widely accepted belief that deficits are inflationary does not hold in the case of WAEMU member countries. Budget deficits cannot be held responsible for inflation in WAEMU countries. Therefore, the policy of reducing price levels should focus on other macroeconomic and structural determinants of inflation such as agricultural production, economic growth, trade openness and policy regime. The control of budget deficits is, however, essential to achieve sustainable economic growth and the long run macroeconomic stability of the Union.

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