



Persistent budget deficit and lending interest rates in the West African Monetary Zone

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Abstract

This paper explores lending interest rates' impact on private investments in six West African Monetary Zone (WAMZ) countries from 2004 to 2020. Using the feasible generalized least squares (FGLS) and more robust econometric procedures (LSDV and POLS), the results show that persistent budget deficits have significantly impacted lending interest rates within the WAMZ. The study concludes that country risk premium, foreign interest rate, and money supply are critical predictors of lending interest rates. The study refutes the assertion that budget deficits do not influence lending interest rates and gives credence to the neoclassical hypothesis. This explains that crowding out private investments in the WAMZ is a possible outcome.

Keywords: Budget deficit, lending interest rates, WAMZ, FGLS

1. Introduction

Financing the government budget deficit through borrowing from the domestic market may constrain domestic credit available to the private sector¹, increasing interest rates and consequently may crowd out private investment. The question as to whether or not budget deficit influences the activities of the private sector continues to contend, that is, whether the consequences of government deficits are inflationary (in the sense of raising prices) or deflationary (in the sense of depressing investment and hence economic growth). The general belief is that when governments incur budget deficits, they must design ways to finance such excess expenditures. Domestically, the central bank finances the government deficits through debt monetisation. It purchases government bonds in the private market to keep interest rates relatively lower or print more currency. It can also borrow from international financial institutions like the IMF and secure foreign aid from donor governments and agencies. When governments borrow to finance the deficits, especially from the domestic markets, it competes with private investors for limited savings. The aftermath is an increase in the cost of borrowing and a crowding out of private investment. It is essential to state that budget deficits do stimulate aggregate demand, which is generally acknowledged in the short run; however, the accumulation of budget deficits over time could have an undesirable impact on economic growth and stability (Hemming et al., 2002). In sub-Saharan Africa, persistent budget deficits have been attributed to rising recurrent expenditure over capital expenditure on the budget. Akosah (2013) emphasises that budget deficits negatively affect economic growth in sub-Saharan

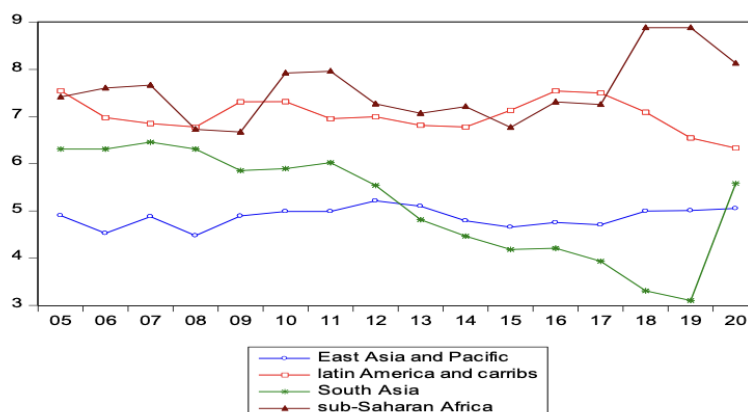
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¹The private sector encompasses all the for-profit businesses that are not owned and controlled by the government.

Africa when budget deficits are used to finance recurrent expenditures, decreasing production capability and revenue potential. Aero and Ogundipe (2016) also establish that productive government expenditure could increase economic growth in developing countries through improved social and economic infrastructure. However, Aisen and Hauner (2006) explain that when deficits are high, domestically financed, and coupled with increased domestic debt, they significantly impact interest rates. While minor deficits² have little influence on interest rates, high deficits could raise interest rates.

Very high-interest rates have generally characterised sub-Saharan African countries. The reasons are typically attributed to weak macroeconomic fundamentals, market inefficiencies and country risk premiums. Tarus and Manyala (2018) expound that high-interest rate spreads in sub-Saharan Africa are attributed to macroeconomic and institutional variables like high inflation, government effectiveness, the rule of law, and political stability. A world bank report (2022) shows that between 2005 and 2020, the average annual interest rates spread, which is measured as the difference between interest charged on loans to private sector customers by banks and the interest paid by commercial or similar banks for demand, time, or savings deposits for sub-Saharan Africa averaged 7.55 percent and the highest being 8.9 percent in 2018.

Figure 1. Trends in the interest rate spread, 2004 t0 2020 (%)



Source: Author’s drawing with data from World Bank WDI Database

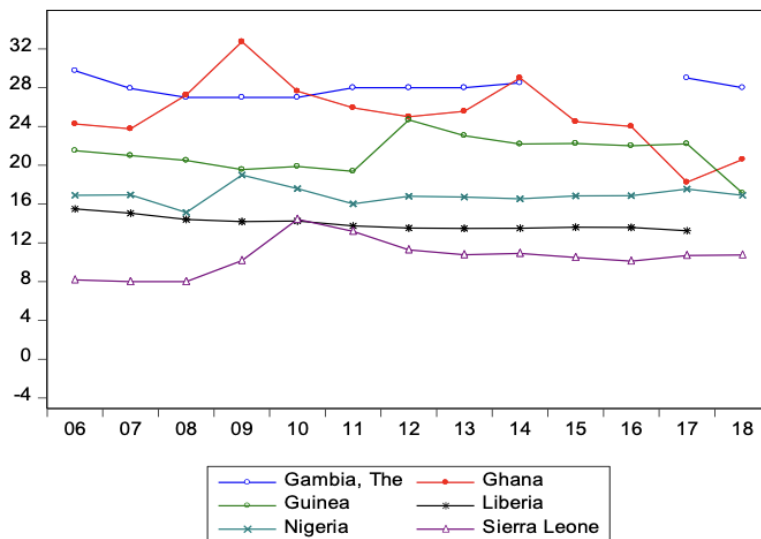
According to Figure 1, obtaining capital in sub-Saharan Africa is relatively more expensive than in other regions. From 2005 to 2020, Sub-Saharan Africa generally exhibits a higher interest rate spread than other regions. Several specific patterns and trends can be observed within the data, highlighting the need for further investigation and attention: The spikes in interest rate spread during 2010 and 2011 for Sub-Saharan Africa indicate a significant increase in the gap between lending and borrowing rates. These spikes could be related to external shocks or internal factors such as changes in monetary policy, increased risk perception, or economic challenges faced by the region during that period. The subsequent spikes in interest rate spread in 2018 and 2019 for Sub-Saharan Africa, followed by a decline, suggest a volatile and dynamic economic environment. Factors such as political instability, shifts in market conditions, changes in regulatory policies, or fluctuations in global economic trends might have contributed to these patterns.

Further analysis is required to understand these fluctuations’ specific drivers and regional implications. The steep drop in interest rate spread observed in 2019 for South Asia could be attributed to various factors. Changes might influence in monetary policy, economic reforms, or improved financial stability in the region. Understanding the specific circumstances and events during that period in South Asia could also provide valuable insights into the drivers of this decline. In contrast, the other regions depicted in the graph generally exhibit lower interest rate spreads than Sub-Saharan Africa. This indicates that financial institutions in Sub-Saharan Africa tended to have

²Minor deficits occur when the deficit grows at a slower pace than GDP, whilst high deficits occur if the deficit grows at faster progression than GDP.

wider gaps between their lending and borrowing rates compared to their counterparts in other regions. The higher interest rate spreads in Sub-Saharan Africa could be attributed to limited access to financing, underdeveloped financial markets, market inefficiencies, and higher perceived risks in the region. Factors such as weaker regulatory frameworks and institutional inefficiencies may also play a role in shaping the interest rate spreads in the region.

Figure 2. Trends in lending interest rates in the WAMZ, 2004 to 2020 (%)



Source: Author's drawing with data from World Bank WDI Database

From Figure 2, the minimum and maximum lending interest rates are 8 percent and 36.5 percent, respectively. The trends in various country activities hardly depict convergence in monetary policy towards a monetary union. This is attributed to diverse economies with varying levels of development, inflation rates, and fiscal and monetary policies. These differences can lead to varying levels of credit risk and, consequently, different interest rates to compensate for those risks. Between 2004 and 2020, except Sierra Leone and Liberia, whose mean lending interest rates are below 15 percent, the rest of the countries are in excess of 15 percent. Because of asymmetric information, high-interest rates have exacerbated the number of defects in the financial market within the zone, introducing some inertia in interest rate settings. Banks charge high loan rates to offset greater risks caused by asymmetric shocks. Adverse selection, moral hazard, and agency costs worsen as loan rates rise.

In summary, changes in interest rates can significantly impact various macroeconomic indicators. Lower interest rates can increase borrowing to help businesses to engage in new endeavours, and increase their operations to reduce unemployment, consumer spending, and investment, potentially raising inflation. Interest rate differentials between countries can influence currency rates. Higher interest rates may encourage saving and impact asset values, while lower interest rates may drive investors towards riskier assets.

This paper explores the relationship between budget deficit and lending interest rates in the West African Monetary Zone (WAMZ).³ The lending rate is essential in household consumption decisions, influencing intertemporal consumption decisions and capital accumulation, growth, and income inequalities across time and geographies. Thus, understanding the factors influencing loan rates is critical for growth policy (Asamoah & Adu, 2016). Furthermore, the lending rate is an important transmission route for monetary policy shocks. Understanding how the lending rate responds to macroeconomic and financial factors, particularly the central bank's policy rate, is critical for evaluating the effectiveness of monetary policy, especially in an inflation-targeting

³The WAMZ consists of six countries in West Africa that plans to introduce a common currency called the Eco. The countries include The Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra-Leone.

regime where the policy rate influences market interest rates, investment and aggregate demand. The WAMZ is explored due to its quest to introduce a common currency to harmonise trade and promote economic development. The countries are expected to be fiscally disciplined to meet the primary convergence criteria to expand the market and attract internal and external investors to improve economic growth.

The remainder of the paper is organised as follows: Section 2 reviews relevant literature related to the study, Section 3 and Section 4 examines the empirical strategy and analysis of the results, respectively. Finally, Section 5 gives the concluding remarks and policy implications.

2. Literature review

The role of interest rates in resource allocation throughout time and their consequences for capital accumulation, long-run growth, and development cannot be overstated (see Blanchard Summers, 1984; Woodford, 2003; Kim & Orphanides, 2012). It is generally asserted that higher public deficits crowd out private investment through higher long-term interest rates (Gale Orszag, 2003; Kumar Baldacci, 2010), more significant inflation (Barro, 1995; Cochrane, 2011), and higher future distortionary taxes (Barro, 1979; Dotsey, 1994), public debt can displace private investments and slow economic development. According to the loanable funds model (see Thomas and Abderrezak, 1988; Cebula, 1999, 2000, 2003; Quayes and Jamal, 2007; Barnes, 2008; Hsing, 2010a, 2010b), households save, which is subsequently lent to enterprises for investment. Increased government expenditure diminishes national savings and the availability of loanable funds, resulting in higher interest rates and the possibility of "crowding out" the private sector. This may also harm a country's balance of payments, resulting in a current account deficit and greater foreign ownership of domestic industries. The loanable funds theory and its implications for interest rates, growth, and trade are rejected by heterodox schools of thought. They see national accounting linkages as fundamentally monetary, with one sector's deficit equaling another's surplus (see Godley, 1999). They doubt the causal relationship between government deficits and higher interest rates, arguing that balance-of-payments deficits may be caused by structural economic problems rather than government borrowing (Thirlwall, 2013). The model is further criticised for primarily focusing on short-term interest rate determination. It may not adequately address long-term interest rates, which various factors, including market expectations and inflation, can influence.

In contrast, Barro (1974) proposed the Ricardian Equivalence Theorem (RET), which was further expanded upon by Barro (1989), Elmendorf and Mankiw (1999), Gale and Orszag (2004), and Kormendi and Protopapadakis (2004). According to the hypothesis, individuals anticipate future tax rises to repay the deficit and increase their savings to offset the predicted tax burden.

Consequently, higher private savings compensate for government borrowing or expenditure increases, with no discernible net impact on interest rates, consumption, or investment. Numerous theoretical objections may be raised about the RET's working assumptions. Critics argue that individuals may not behave as perfectly rational agents, and the theory relies on strong assumptions about expectations and behaviour. The liquidity preference theory, a rival explanation of interest rate determination, was proposed by Keynes (1936) in his "The General Theory of Employment, Interest, and Money". Individuals and firms may choose liquidity during economic uncertainty or poor confidence, resulting in a decline in private investment. Budget deficits might offer additional liquidity to the economy through government expenditure, balancing the decline in private investment and decreasing interest rates. Many studies have investigated the effect of budget deficits on interest rates, and the outcomes are varied predictions on economic theory. The mixed set of results could be due to various econometric approaches, nonlinearity and regime switching, and different lengths of historical data. It is important to establish within the literature that though varying measurements of interest rates are used, their differences are due to the term of the loan (short and long-term loans), the credit risk, and tax treatment. Mankiw (2010) establishes that although there are different economic interest rates, they tend to move together in the same direction.

Within the Economic Monetary Union (EMU), some papers such as (Bernoth et al., 2003 and Codogno et al., 2003), as cited in Faini (2006), conclude that fiscal indiscipline has only resulted in a relatively mild punishment. Thus, a 1 percent increase in the government deficit to GDP ratio has only resulted in a 0.1 percent rise in interest rates, but Faini (2006) establishes that

expansionary fiscal policy embarked on by an EMU member does have a significant quantitative effect on the overall level of real interest rates as well as interest rate spreads within the union. He further reveals that after the establishment of EMU, interest rates are more significant for high-debt countries with unsustainable fiscal policies. Hsing (2015) also found that the Spanish government bond yield was positively associated with the government debt/GDP ratio. They used the EGARCH for the period 1999 to 2014. Perovic (2018) also examined public debts, deficits, and interest rates in 11 central and Eastern European countries from 2006 to 2015. The paper considers forward-looking rather than current values of the explanatory variables that allow for a spatial effect to address the endogeneity problem. The conclusion was that public debt and deficit have had a significant positive effect on long-term interest rates.

Aisen and Hauner (2008) added a different approach to the longstanding question of whether budget deficits affect interest rates. They extended the literature, examining advanced and emerging economies by exploring interactions to explain some of the heterogeneity in the literature by applying a GMM model. The study concludes that budget deficits have a highly significant positive effect on interest rates in the order of about 0.26 percent per 1 percent of GDP for the complete panel. Second, however, this effect varies by country group and period: the results are more significant and robust in emerging markets than in advanced economies.

The literature on the United States suggests a much more significant impact. Laubach (2003) also found statistically and economically effective results. His results revealed a one percentage point increase in the projected deficit-to-GDP ratio is estimated to increase long-term interest rates by about 0.25 percent. Paisani et al. (2006) also found a significant impact of budget deficits on interest rates in the U.S. economy. Another paper by Cebula and Boylan (2019) on the effect of federal government budget deficits and federal personal income tax rates on the real interest rate yield on ten-year U.S. treasury notes using the autoregressive two-stage least-squares estimation found that the treasury yield was positively related to the budget deficit as a percentage of GDP and federal personal income tax. In another intuitive paper where the authors used the Markov regime-switching model for two centuries of annual data (1798-2009), Choi and Holmes (2014) observed that the United States economy switched from a Ricardian equivalence regime where budget deficit did not have any significant impact on interest rates, and another regime of the traditional view of a positive relationship between budget deficits and interest rates. They attribute the transition to weaker economic activity and high national debts. However, Murphy and Walsh (2022) demonstrate that excess spending can have a zero or negative temporary effect on interest rates. They explain that an increase in demand for credit alongside excess government spending will be compensated by an increased supply of credit owing to higher National income. They further establish that when the government finances its deficits through assets, there will be an excess supply of loans, decreasing the long-term interest rates. To test the neoclassical loanable funds theory, Palatiello and Pilkington (2022) employed the ARDL to decompose the relationship between government deficits and long-run interest rates into short and long-term across multiple measures of government deficit and interest rates. They observed a tendency of a positive relationship between deficits and long-term interest rates in the short run but a counter effect in the long run. Their results are consistent with the views of John Maynard Keynes that the long-term rate is highly influenced by monetary policy, central bank credibility and market convention.

In sub-Saharan Africa, the results have generally been significant positive relations between budget deficit and interest rates. Nkalu (2015) investigated the effects of budget deficits on selected macroeconomic variables in Ghana and Nigeria using annual time series data from 1970 to 2013. The empirical findings revealed that budget deficits negatively affect interest rates, economic growth, and inflation. As a result, the evidence supports the neoclassical theory that a budget deficit slows economic growth by crowding out resources. Asamoah (2016) studied the macroeconomic effects of budget deficit on retail interest rate in Ghana using the Autoregressive Distributed Lags model from 1970 to 2013. His findings show evidence of contemporaneous effects from fiscal spending to interest rate, showing that budgetary deficit induces a sizable and robust impact on the retail interest rate in the short run. Odionye and Uma (2013) examined the relationship between budget deficit and interest rate in Nigeria using the Vector Error Correction model (VECM) from 1970 to 2010. In the long run, they reported budget deficits to positively and significantly impact the interest rate. The result supported the Neoclassical view. Also, the evidence from Johansen's

cointegration result indicates a long-run positive relationship between budget deficit and interest rate. Notwithstanding, other papers have also reported no significant impact of budget deficit on interest rates (Kelikume, 2016; Chukwuemeka & Chinyere, 2018; Lamidi, 2022).

In conclusion, a review of the literature has shown that the link between budget deficits and interest rates is frequently dependent on the precise metrics employed to define each component. To quantify budget deficits, researchers have used a variety of measures, including nominal, structural, cyclically adjusted, and primary deficits. Similarly, interest rates have been measured using short-term, long-term, and real interest rates. Other external factors, aside from metrics and methodology, can influence the magnitude of the link between budget deficits and interest rates. External variables that might impact this connection include macroeconomic circumstances, financial market activity, and monetary policy stance.

3. Data and Empirical Strategy

This paper uses a panel dataset gathered from different sources from 2004 to 2020 on six West African countries. The criterion used to create the sample depended on the six countries constituting the West African Monetary Zone, which was inaugurated in 2000 and intended to adopt a common currency to facilitate regional trade and promote economic stability. The timespan for this paper was based on data availability and the inaugural date of the WAMZ. Data on the lending interest rate, inflation, money supply, budget deficit as a percentage of GDP, country risk, and GDP growth rate were gleaned from the World Banks World Development Indicator and the IMF’s Regional Economic Outlook (AFRREO) database, except for Ghana and Guinea’s lending interest rates data which were sourced from the Bank of Ghana and Trading economics database respectively.

In order to estimate the standard reduced form equation of the relationship between lending interest rate and budget deficit in a small open economy, we follow the methodologies by CorreaNunez and Stemitsiotis (1995), Raymond and Moulton (1997), Aisen and Hauner (2008), the empirical model for the study is specified below:

$$\ln i_{it} = \Phi_0 + \Phi_1 \ln i_{it}^* + \Phi_2 \ln r_{it} + \Phi_3 \ln m_{it} + \Phi_4 \pi_{it}^e + \Phi_5 B_{it} + \varepsilon_{it}$$

Where i is the lending interest rate, i^* is the foreign nominal interest rate, r is the countries’ risk spread, M is real money supply, π^e is the expected inflation, and B captures the budget deficit. Φ_i ($i = 1$ to 5) denotes the coefficients of elasticity, ε_{it} is the error term, \ln is the natural logarithm, i is WAMZ countries, and t is the time period. The rationale for the log-log model was premised on the intuition that logarithmic transformation helps minimise the heteroscedasticity problem since it corrects the scale in which the variables are measured from tenfold to twofold (Gujarati, 1995). It also allows a more straightforward comparison of percentage change in the regressand resulting from the percentage change in the regressors (Stock & Watson, 2007).

This paper uses the feasible generalised least squares (FGLS) method to assess the government budget deficit’s effect on WAMZ countries’ lending rates. The FGLS method is used because, unlike the standard error models like the fixed and random effects model, which assumes homoscedasticity of variance across time and units, the assumption of homoscedasticity becomes restrictive for panels where heterogeneity is expected in the disturbance term. This is generally attributed to varying sizes of the cross-sectional units and thus may result in different variations. When the residuals of the panel model exhibit GroupWise heteroscedasticity, serial correlation, and contemporaneous correlation, the FGLS yields reliable and asymptotically effective estimates. Furthermore, when the study’s sample size is relatively smaller and the time period (T) exceeds the cross-sections (N), the FGLS estimate is suitable. However, it is essential to establish that the empirical model was bolstered with the least squares dummy variables (LSDV) and pooled ordinary least squares techniques because they also assume individual country heterogeneity. The descriptive statistic and correlation matrix are presented in Appendices A and B.

3.1. Definition and a priori expectation of variables

The bank lending rate usually meets the private sector's short and medium-term financing needs. This rate is usually differentiated according to borrowers' creditworthiness and financing objectives (World Bank, 2022). The foreign rate is the yield of a one-year U.S. treasury bill. An increase in the foreign nominal interest rate will positively affect the domestic nominal interest rate. For the domestic economy to remain competitive in attracting foreign inflows and preventing outflows of domestic funds, nominal domestic interest should be increased to remain competitive at the international level whenever foreign interest rises. Thus, the expected sign is positive. The countries' risk spread is proxied by the accumulated stock of public debt, which is measured by the gross debt position of a country as a percentage of GDP. It is argued that lending interest rates may be influenced by the budget deficit and how risky a country is in debt accumulation. High risk will increase the nominal interest rate. The money supply is measured by the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveller's checks; and other securities such as certificates of deposit and commercial paper. Tightening monetary aggregates is expected to increase interest; therefore, the expected sign is negative.

Measured by the consumer price index, inflation reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. To measure expected inflation, the study follows much of the literature in assuming that expectations equal current conditions, an extreme form of adaptive expectations where current conditions receive a weight equal to one. This assumption implies that these variables behave like random walks with zero drift, or as Garcia and Perron (1996) point out, agents use available information efficiently. Using Fisher's identity, an increase in expected inflation will increase the nominal interest rate since lenders seek to protect the purchasing power units of their financial assets. Thus, the expected sign is positive. A budget deficit is an overall deficit, the ratio of the gap between total revenue and total debt to GDP in a given fiscal year. A higher deficit is expected to increase the lending interest rate; therefore, the expected sign is positive.

4. Analysis and Discussion of Results

The estimation results of panel research data analysis of the effect of budget deficit on lending interest rate within the WAMZ with the feasible generalised least squares (FGLS), least square dummy variables (LSDV), and pooled ordinary least squares (POLS) methods are shown in Table 1. From the regression output of Table 1, it is observed from Model 1 that four of the five variables used to predict the variability in lending interest rates in the WAMZ were statistically significant. The variables include foreign interest rates, country risk, money supply, and budget deficit. Although inflation did not significantly affect lending interest rates notwithstanding, it is also surprising that the sign of its coefficient needed to be more consistent with economic theory, considering how central banks within the region have put much attention on inflation targeting through the policy rate. Regarding the relationship between budget deficit and lending interest rates, the finding is consistent with (Dua, 1993; Bovenberg, 1998; Laubach, 2009; Odionye & Uma, 2013; and Asamoah, 2016), who concluded a positive effect of budget deficit on various measurements of interest rates, respectively. Notwithstanding, the result contrasts with the findings of (Pandit, 2005; Mukhtar & Zakaria, 2008; Kelikume, 2016), who report no effect of budget deficit on various measures of interest rates and thus give credence to the Ricardian hypothesis.

Regarding the other macroeconomic variables, the results indicate that the foreign interest rate exerts a significant but negative effect on the lending interest rate in WAMZ, *ceteris paribus*, at the 5 per cent significance level. The magnitude shows that a 1 percent increase in foreign interest rate decreases domestic lending interest rate by 0.28 percent. The result contradicts the findings of Aisen and Hauner (2008), who established a positive effect of foreign nominal interest rates on nominal interest rates. The results seem quite surprising as it is generally believed that with the assumption of perfect capital mobility and interest parity, an increase in foreign interest rate induces the domestic Central Banks to adjust the prime rate upward in order to reduce the risk

of capital outflows and protect the value of local currency among the primary trading currency. Hitherto, a good explanation of the results could be attributed to the region's persistent currency depreciation. A weaker domestic currency can make imports more expensive and exports more competitive, potentially boosting domestic economic activity. The domestic central bank might cut its policy rates to support economic growth, lowering domestic lending rates. It is observed from the result that country risk also exerts a positive effect on the lending interest rate and is statistically significant at the 1 percent level of significance.

Table 1. Quality of different infrastructure

Variables	1	2	3
	FGLS <i>ln i</i>	LSDV <i>ln i</i>	POOLED OLS <i>ln i</i>
lni*	-0.2758* (0.1557)	-5.5448** (1.8405)	-0.3704* (0.1857)
lnr	0.2179** (0.0639)	0.369** (0.1033)	0.2648** (0.0806)
lnM2	0.7033** (0.111)	0.7803*** (0.1237)	0.6507*** (0.1403)
ln π^e	-0.0646 (0.0707)	-0.0557 (0.1065)	-0.0834 (0.1019)
lnB	0.057* (0.0316)	0.0707 (0.0493)	0.0886* (0.0451)
Constant	0.2552 (0.4003)	5.6846 (2.1607)	0.3032 (0.5387)
Observations	60	60	60
countries	6	6	6

Note: *ln i* is the dependent variable, ***, **, and * denote rejecting the null hypothesis at the 1%, 5%, and 10% significance levels, respectively. Standard errors are reported in parenthesis. Results were obtained by Stata 15

It implies that a percentage increase in the country risk results in a 0.22 percent increase in lending interest rates, *ceteris paribus*. A high-risk profile implies that the investment climate is unfriendly. This result aligns with the findings of (Aisen Hauner, 2008), who also established a positive effect of risk premiums on the domestic interest rates. Thus, commercial banks charge high-interest rates to safeguard against the risk of default by the general public and investors who contract their loans. Also, a high-risk profile implies that for the central banks to attract foreign loans, they must be willing to offer high-interest rates, which also induces high domestic lending interest rates. It is observed that the relationship between money supply and lending interest rates is positive, and the impact is 0.70 percent. This means that an increase in money supply by 1 percent decreases lending interest rates by 0.70 percent. The result substantiates the Fisher equation view of a positive relationship between money supply and interest rates.

4.1. Robustness

As can be seen, the LSDV and POLS models in columns 2 and 3, respectively, provide similar results to the FGLS except for the budget deficit coefficient, which was insignificant in the LSDV model. Generally, the above results demonstrate the robustness of the static FGLS estimation. It is essential to state that the coefficients for the year variable of the LSDV model were excluded from conserving space and presenting the relevant information.

5. Conclusion

This paper adds to the empirics on the impact of the budget deficit on lending interest rates in the WAMZ from 2004 to 2020. Despite the enormous amount of academic research that has been devoted to the budget deficit-interest rate connection, it is the long-term impact that governments, especially in developing countries, have to consider to be fiscally disciplined. The paper

has established that budget deficits significantly affect the lending interest rate within the WAMZ. The study also concludes that foreign interest rates, country risk premium, and money supply are vital predictors of lending interest rates in the WAMZ. Accumulated deficits send the fear of default signals to investors, and the loss of confidence leads to capital flights; the aftermath is crowding out of private investors. Therefore, implementing measures to reduce budget deficits and achieve fiscal consolidation is crucial to establish a full-fledged monetary union. This involves a combination of spending cuts, revenue increases and structural reforms aimed at improving the efficiency and effectiveness of public expenditure. By bringing government spending in line with revenue, fiscal consolidation helps reduce borrowing needs, alleviate upward pressure on interest rates and improve long-term fiscal sustainability.

Furthermore, enhancing fiscal governance is crucial for promoting fiscal discipline and coordination among member countries. This involves establishing the fiscal council by the central governments to strengthen fiscal rules and frameworks, improving budgetary transparency and independent fiscal institutions and promoting information sharing and coordination among members. Effective fiscal governance mechanisms help ensure responsible fiscal behaviour, discourage excessive deficits and foster trust and cooperation within the union.

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Appendix A. Summary Statistics of Observations

Variable	Observations	Mean	Std. Dev.	Maximum	Minimum
<i>i</i>	93	19.6909	6.5754	36.5000	8.0000
<i>i</i> *	93	4.4195	1.5793	8.0500	3.2500
<i>r</i>	93	57.8957	91.9291	543.4105	7.2761
<i>M</i>	93	23.7601	7.8109	52.4117	9.6607
π^e	93	10.9920	5.4937	34.6953	2.0565
<i>B</i>	93	-6.1318	5.4349	8.7590	-22.940

Source: Authors' computation.

Appendix B. Correlation Coefficient of Observations

<i>Variables</i>	<i>i</i>	<i>i</i> *	<i>r</i>	<i>M</i>	π^e	<i>B</i>
<i>i</i>	1					
<i>i</i> *	0.0584	1				
<i>r</i>	-0.0590	0.2865	1			
<i>M</i>	0.4944	-0.2342	-0.3408	1		
π^e	-0.0002	0.1718	0.0346	-0.1814	1	
<i>B</i>	0.1106	0.4576	0.1162	-0.2794	0.1780	1