

MACROECONOMIC PERFORMANCE AND THE BUDGET DEFICIT IN JORDAN: A TRIGGER POINT FOR CHANGE IN THE AFTERMATH OF COVID-19

Muhanned Obeidat^{*}, Ahmad Al-Tarawneh^{**}, Ghassan Omet^{**},
Mohammad Khataybeh^{**}, Basheer Khamees^{***}

^{*} Corresponding author, Department of Finance, Business School, University of Jordan, Amman, Jordan
Contact details: Department of Finance, Business School, University of Jordan, Queen Rania Street 266, Amman, Jordan
^{**} Department of Finance, Business School, University of Jordan, Amman, Jordan
^{***} Department of Accounting, Business School, University of Jordan, Amman, Jordan



Abstract

How to cite this paper: Obeidat, M., Al-Tarawneh, A., Omet, G., Khataybeh, M., & Khamees, B. (2022). Macroeconomic performance and the budget deficit in Jordan: A trigger point for change in the aftermath of COVID-19 [Special issue]. *Journal of Governance & Regulation*, 11(2), 340–345.
<https://doi.org/10.22495/jgrv11i2siart13>

Copyright © 2022 The Authors

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ISSN Print: 2220-9352
ISSN Online: 2306-6784

Received: 20.01.2022
Accepted: 27.05.2022

JEL Classification: E6, E1, H2, H63
DOI: 10.22495/jgrv11i2siart13

No one doubts that COVID-19 will widen the budget deficit in most, if not all, developing countries. This development (widening public deficit) is particularly important for countries like Jordan. Indeed, since 1965, all governments have witnessed a deficit in their budgets. Within this context, the primary purpose of this paper is to examine the impact of real gross domestic product (GDP) on the fiscal deficit in the Jordanian economy. To examine the impact of real GDP on the real fiscal deficit of Jordanian government, we use annual data that covers the period 1992–2019 and use some relevant econometric techniques (stationarity test, co-integration, vector error correction model (VECM), and variance analysis) to realize the primary objective of the paper. The documented evidence indicates that the underlying long-run relationship between fiscal deficit and GDP is stable. In addition, the results indicate that real GDP takes on increasing weight in explaining the variability in the fiscal deficit over time. Considering the fact that real GDP affects (positively) the fiscal deficit, the government should use the implications of COVID-19 on the budget, as a “trigger” point for change. The government should re-examine its public spending and where possible, seek savings, and greater spending efficiency levels. The government must also re-examine the current tax law, and make the necessary changes to make the system generate not only more tax revenues but more diversified tax revenues as well.

Keywords: Jordan, Fiscal Deficit, GDP, Tax Revenues, Public Debt, Public Spending

Authors' individual contribution: Conceptualization — M.O. and A.A.-T.; Methodology — M.O. and G.O.; Investigation — M.O., A.A.-T., M.K., and B.K.; Resources — M.O. and B.K.; Writing — M.O. and A.A.-T.; Supervision — G.O.; Funding Acquisition — M.K.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Immediately after its onslaught on the global economy, it has become clear that COVID-19 would affect (negatively) economic growth and the status of public finances of countries in general, and

developing countries in particular. As far as public finance is concerned, two challenges have emerged. First, as public spending levels increase, and public revenues decrease, the result is only widening budget deficits. Second, the widening budget deficits would only increase public debt.

No one doubts that the budget deficit of most, if not all, developing countries would widen. These deficits, however, need financing from either borrowing from the domestic market, or from international sources. If financed from the domestic market, the issue of the impact of extra public borrowing on domestic interest rates and the crowding-out effect become relevant. Similarly, if financed from international sources, the issue of foreign debt sustainability becomes relevant. In either case, increases in public debt have serious repercussions on the financial and economic performance of these countries.

Within the context of the subject matter of public finance, it is interesting to note that not a single Jordanian government, since 1965, has managed to witness a surplus in its budget. During the periods 1965–1980, 1981–2000, and 2001–2019, the mean annual budget deficit to gross domestic product (GDP) ratios were equal to -17.9 percent, -10.8 percent, and -7.1 percent respectively. In addition, whilst all Jordanian governments have relied on public debt in managing their affairs, recently, public debt to GDP ratio has been witnessing a rising trend. For example, the 2012 general government debt to GDP ratio, which was equal to 80.2 percent, has increased to 95.2 percent by the end of 2019. This proportion tends to increase in the next years. COVID-19 should be a “trigger point” for change. It does not make sense to have consistent budget deficits in Jordan. Therefore, the status of public finance needs to be improved in order to ensure long-term economic development (Shkarlet, Dubyna, Hrubliak, & Zhavoronok, 2019).

Based on the above argument, this paper's main objective is to examine the impact of the size of the Jordanian economy (GDP) on the budget deficit. Given Jordan's public finances, this is an important issue to examine. If higher levels of GDP result in widening budget deficits, the government should re-examine its tax law and make it more elastic. This is the only way to keep up with the performance of the economy.

The rest of the paper has four more sections. In Section 2, we briefly summarize some of the relevant literature. In Sections 3 and 4 we outline the research methodology and present and discuss the estimated econometric results. Finally, in Section 5, we summarize the main findings of the paper and outline policy implications.

2. LITERATURE REVIEW

In the economics literature, a myriad of theories explains the relationship between the budget deficit and macroeconomic variables such as the size of the economy. These include the Neoclassical and Keynesian theories.

The Neoclassical theory argues that budget deficits lead to a rise in the general level of interest rates and crowds-out private consumption and hence, slower growth. The Keynesian view, on the other hand, argues that increases in public spending and widening budget deficits raise aggregate demand, improve confidence in the economy and crowds-in private investment and hence, promote economic growth. To make matters even more empirical, the Ricardian theory views budget deficits have no relationship with macroeconomic variables.

Over time, scholars have examined the factors that affect fiscal deficits in developing and developed economies. The diversity of results from these studies suggests that determinants of fiscal deficits differ across countries. In other words, while some papers report a positive relationship between budget deficits and macroeconomic fundamentals such as real GDP, and some report a negative relationship, others report no relationship in the first place. The results are really country-specific and time-specific.

Those that examine the determinants of the fiscal deficit in individual countries include Ammama, Mughal, and Khan (2011), Rahman (2012), Apergis and Danuletiu (2013), Rahma, Perera, and Tan (2016), Epaphra (2017), Umoh, Onye, and Atan (2018), Tung (2018), and Okoye, Omankhanlen, Okorie, Ahmed, and Okoh (2020).

Brima and Mansaray-Pearce (2015) examine the economy of Sierra Leone in terms of the determinants of fiscal deficit. Using the period 1980–2014, Johansen co-integration analysis, vector error correction model (VECM), and Granger causality analysis, the result clearly shows that the exchange rate, GDP, and money supply have a negative and significant impact on the budget deficit. The inflation rate, on the other hand, has a positive impact.

Epaphra (2017) examines the determinants of the fiscal deficit in Tanzania. Based on the period 1966–2017 and the estimated vector autoregressive (VAR) and VECM results, it is reported that real GDP and the exchange rate have a significant and negative impact on the budget deficit. The inflation rate, money supply and lending interest rate, on the other hand, have a positive impact.

Tung (2018) examines the effect of fiscal deficit on economic growth in Vietnam and finds a strong negative relationship between fiscal deficit and economic growth in both the short and long run. The results also indicated that fiscal deficit had a negative influence on foreign direct investments, private investments and net exports. Similarly, Akoto (2020) assesses the impact of budget deficit on economic growth in Ghana and finds that deficit financing has a negative impact on Ghana's economic growth.

Alam, Sadekin, and Saha (2022) examine the determinants of macroeconomic variables on the fiscal deficit in Bangladesh. Again, based on the period 1980–2018, Johansen co-integration analysis, VECM, and Granger causality analysis, the results indicate a positive long-run relationship between real effective exchange rate, inflation, volume of trade, and money supply with the budget deficit. GDP, on the other hand, has a negative one.

Recent papers that examine the determinants of the fiscal deficit in a cross-country setting include Roubini and Sachs (1989), Jajkiewicz and Drobniszová (2015), Arjomand, Emami, and Salimi (2016), Navaratnam and Mayandy (2016), Barişik and Baris (2017), Arif and Hussain (2018), Woledetensaye (2020), and others. For example, Woledetensaye (2020) examines the determinants of the budget deficit in two regions (East and West African countries). Using the period 2000–2017, and dynamic panel data, the results indicate that unemployment, broad money supply, and population growth significantly impact (positive) the budget deficit. GDP and inflation rate show no relationship.

Relative to the above-mentioned literature, it is useful to note that in a recently published paper that reviews the empirical literature, Mawejje and Odhiambo (2020) state, among others, economic growth, unemployment rate, GDP per capita, level of urbanization, inflation, aid, military spending, and the quality of budgetary institutions are important determinants of the budget deficit.

3. RESEARCH METHODOLOGY

To examine the impact of real GDP on the real budget deficit in Jordan, we specify the below model:

$$BD_t = \lambda + \beta GDP_t + \varepsilon_t \quad (1)$$

where, BD and GDP are the natural logarithm of the real fiscal deficit and the natural logarithm of real GDP respectively. We hypothesize that the sign of the parameter λ and β are to be positive. The error term (ε) is assumed to be independently and identically distributed. The subscript (t) denotes time (1992-2019).

To estimate the above equation (1), we first test the data for their stationarity. We then determine the optimal lag structure and then estimate the co-integrating relationship among the two variables using the Johansen-Masulius procedure (maximum eigenvalue and trace test).

$$\lambda_{max} = -T \log(1 - \lambda_{r+1}) \quad (2)$$

where the suitable null is $r = g$ co-integrating vectors with ($g = 0, 1, 2, 3, \dots$) against the alternative which is $r \leq g + 1$.

$$\lambda_{trace} = -T \sum_{i=r+1}^k \log(1 - \lambda_i) \quad (3)$$

where, the null is $r = g$ against the general specification $r \leq 1$.

Based on our co-integration results, we then estimate a VECM model to examine the long-run and short-run causality dynamics. That is:

$$\Delta BD_t = \alpha + \lambda e_{t-1} + \sum_{i=1}^n b_i \Delta GDP_{t-i} + \varepsilon_t \quad (4)$$

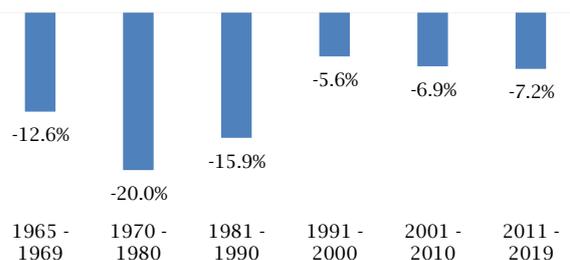
If the error correction term (λ) is negative and statistically significant, we can argue that there is a long-run convergence between both variables. Finally, we use variance decomposition analysis to examine the strength of GDP in explaining the variability of the budget deficit over time.

4. RESULTS AND DISCUSSION

Before we present and discuss the empirical results, it is worth raising a few observations about the status of public finance in Jordan.

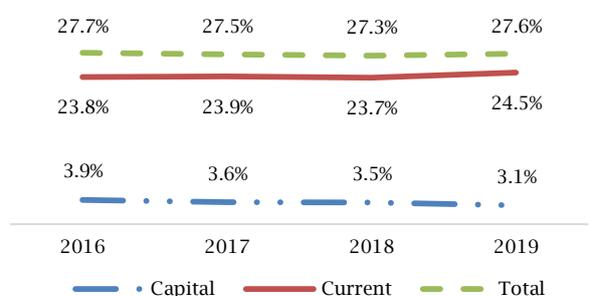
Since 1965 (the first year of officially published national statistics), not a single Jordanian government has witnessed a surplus in its budget. If one looks at these deficits, one can clearly see three trends. First, the period 1965-1980 witnessed rising budget deficits. Second, the period 1990-2000 witnessed decreasing budget deficits. Third, since the fiscal year 2000, public deficits have been trending upwards. Indeed, due to the implications of COVID-19 on public finance, the budget deficit to GDP ratio is expected to increase in the next few years.

Figure 1. Budget deficit to GDP ratio



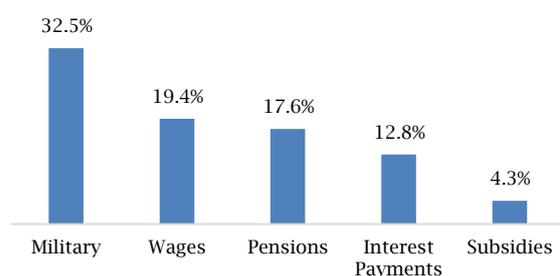
On average, the total public spending to GDP ratio hovers around 28 percent of GDP. While current spending is much higher than capital spending, it is useful to note that the total public spending to GDP ratio in many advanced economies is much higher. For example, during the period 2017-2019, the mean annual public spending to GDP ratio in France, Finland, and Denmark was equal to 56.0 percent, 53.6 percent, and 51.3 percent respectively.

Figure 2. Public spending to GDP ratio



Few items account for a large proportion of total spending in Jordan. Indeed, the military, wages and salaries of public employees, pensions, and interest payments on public debt account for more than 80 percent of total current spending.

Figure 3. Major components of public spending (2016-2019)



Total tax revenues to GDP ratio in Jordan is also low in Jordan. For example, never mind the exceptionally high tax to GDP ratio in Denmark (46.1 percent), the prevailing ratio in Jordan (14.8 percent) is much lower than in, for example, France (30.6 percent), Italy (29.0 percent) and the UK (27.2 percent). The relatively low tax to GDP ratio notwithstanding, it is peculiar that sales tax make-up about 70 percent of total tax revenues. Naturally, this observation implies that tax revenues in Jordan are not diversified.

Figure 4a. Tax revenues to GDP ratio

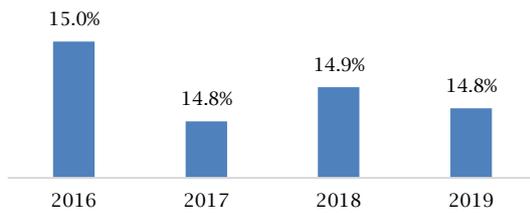
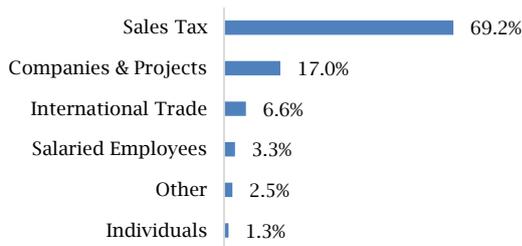


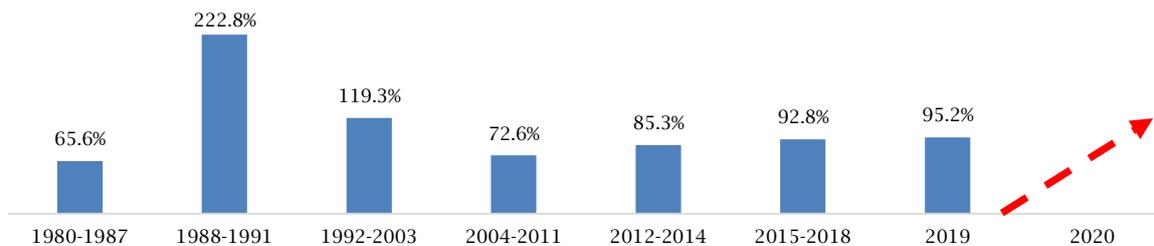
Figure 4b. Composition of tax revenues



The huge budget deficits during the period 1965-1990 could not, but result in reciprocal increases in the general government's debt to GDP ratio. During the period 1988-1991, the mean annual debt to GDP ratio stood at more than double the size of the economy. Actually, the year 1989 witnessed a devaluation of the local currency by around 50 percent.

Whilst the period 1992-2011 witnessed consistent decreases in public debt, since the fiscal year 2012, the public debt to GDP ratio has started to increase again. Actually, it increased from 70.7 percent in 2011 to 80.2 percent in 2012, and to 95.2 percent by the end of 2019. The negative implications of COVID-19 on the performance of the national economy (GDP) in 2020 and on public finance will increase the debt ratio even further. Indeed, the International Monetary Fund (IMF) expects real GDP in Jordan to witness a -5 percent real GDP growth rate. In addition, already, the Ministry of Finance's published figures indicate that total public revenues will decrease by around 12 percent in the next few years.

Figure 5. General government debt to GDP ratio



As stated in the introduction, the primary objective of this paper is to estimate the impact of the size of the Jordanian economy (GDP) on the budget deficit. Below, we present and discuss the empirical results.

First, the unit root test (Dickey-Fuller) shows that real fiscal deficit and real GDP are stationary in their respective first-difference forms.

Table 1. Augmented Dickey-Fuller unit root test

	None	Constant	Constant & trend	None	Constant	Constant & trend
Real GDP	2.709	-0.440	-2.459	-3.918*	-3.899*	-3.841*
Real budget deficit	2.044	-2.372	-2.317	-4.797*	-5.456*	-5.884*

Note: * significant at the 99 percent level.

Second, estimating the Johansen co-integration test, we estimate the unrestricted VAR and determine the optimal lag length criteria. Based on

the results, reported in Table 2, we can state that the optimal lag length for fiscal deficit and GDP is 3.

Table 2. VAR lag order selection criteria (endogenous variables: *BD* & *GDP*)

Lag	LogL	LR	FPE	AIC	SC	HQC
0	-25.34633	NA	0.033480	2.278861	2.377032	2.304906
1	43.19870	119.9538*	0.000155	-3.099891	-2.805378*	-3.021757
2	48.79259	8.856996	0.000137	-3.232716	-2.741860	-3.102491
3	54.78497	8.489209	0.000119*	-3.398747*	-2.711549	-3.216434*
4	57.11916	2.917735	0.000142	-3.259930	-2.376389	-3.025526

Note: * significant at the 99 percent level. LR — likelihood ratio test, FPE — final prediction error, AIC — Akaike information criterion, SC — Schwarz information criterion, HQC — Hannan-Quinn criterion.

Third, based on the lag length of 3 periods, we report the long-term co-integrating relationship between fiscal deficit and GDP in Table 3. In both cases, the trace statistic and the maximum

eigenvalue statistic, indicate that there is at least one co-integrating relationship exists. This finding implies that there is a long-run relationship in the relationship.

Table 3. Johansen multivariate co-integration test: *BD & GDP*

Hypothesized No. of CE(s)	Eigenvalue	Trace statistic	0.05 critical value	P-value	Eigenvalue	Max-Eigen statistic	0.05 critical value	P-value
None *	0.484922	19.45753	15.49471	0.0120	0.484922	15.92247	14.26460	0.0271
At most 1	0.136960	3.535060	3.841466	0.0601	0.136960	3.535060	3.841466	0.0601

Note: * at least one co-integration relationship.

Following the above-mentioned estimations, we now estimate a VECM for the relationship. We report the results of this analysis step in Table 4.

The error correction terms are negative and statistically significant. This finding implies that there is a long-run equilibrium relationship between the fiscal deficit and GDP and total tax revenues. In the long run, the impact of the increase in real GDP on the real fiscal deficit is +0.910.

Long run relationship:

$$\ln(BD)_{t-1} = 0.563 + 0.910 \times GDP \quad (5)$$

The variance decomposition results indicate that the variability in real fiscal deficit is lagged by its own variance.

Table 4. Results of the VECM

Variables	$\Delta \ln(BD)$
ECT (-1)	-0.936*
D(BD) (-1)	0.120
D(BD) (-2)	0.047
D(BD) (-3)	-0.079
D(GDP) (-1)	-2.005
D(GDP) (-2)	1.888
D(GDP) (-3)	2.264
Constant	-0.103
Adjusted R ²	0.331

Note: * significant at the 99 percent level.

However, it should be noted that over time, real GDP reflects a growing power in explaining the variability in the fiscal deficit.

Table 5. Variance de-composition analysis

Period	Standard error	Fiscal deficit	GDP
1	0.248698	100.0000	0.000000
2	0.270091	96.02602	3.973978
3	0.295466	96.03408	3.965918
4	0.355742	79.94004	20.05996
5	0.411871	69.51265	30.48735
6	0.447162	66.15507	33.84493
7	0.470423	65.11163	34.88837
8	0.491588	64.61179	35.38821
9	0.512386	64.14198	35.85802
10	0.532365	63.68806	36.31194

Relative to the above-mentioned observations, we now examine the residuals for serial correlation of the Lagrange multiplier (LM) residual diagnostic

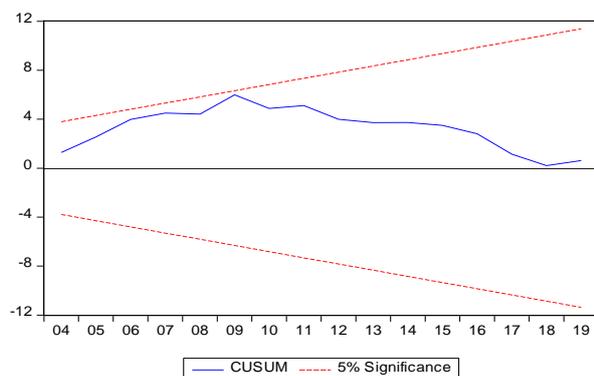
test. The results shown in Table 6 reveal that the model does not suffer from serial correlation.

Table 6. Breusch-Godfrey serial correlation LM test (market index, GDP & infaltion)

F-statistic	0.238583	Prob. F (3.13)	0.8679
Obs. × R-squared	1.252429	Prob. chi-square (3)	0.7405

Finally, we report in Figure 6, the CUSUM test for the parameters' structural stability. The CUSUM plots for the estimated error correction models (ECMs) show no movement outside the 5% critical lines. Therefore, the estimated ECM is stable.

Figure 6. Plot of CUSUM (fiscal deficit and GDP)



5. CONCLUSION

The purpose of this paper is to investigate the impact of real GDP on the fiscal deficit in Jordan. As customary in such an exercise, because the data is time series and covers the period 1992–2019, we have used time series econometric techniques. The empirical results indicate the existence of a long-run relationship between real fiscal deficit and real GDP. Real GDP has a positive and significant impact on the performance of the fiscal deficit.

The fact that real GDP affects (positively) the fiscal deficit, the government should use the ongoing implications of COVID-19 on the budget, as a “trigger” point for change. The government should re-examine its public spending and where possible, seek savings, and greater spending efficiency levels. The government must also re-examine the current tax law, and make the necessary changes to make the system generate not only more tax revenues but also more diversified tax revenues.

Finally, there are a few limitations in this study that should be noted. To elaborate, one of the major limitations of this study is that it did not take into consideration the sources of financing the budget deficit whether they are domestic or foreign sources

of financing. Moreover, the study did not foresee the impact of other relevant variables such as inflation, money supply, interest rates and exchange rates which have provided significant results in other studies like Emmanuel (2013).

REFERENCES

1. Akoto, D. (2020). Deficit financing in Ghana and its impact on the economy. *Journal of Finance and Economics*, 8(1), 6–12. Retrieved from <http://www.sciepub.com/JFE/abstract/11414>
2. Alam, M. M., Sadekin, M. N., & Saha, S. K. (2022). The impact of macroeconomic variables on the budget deficit in Bangladesh: An econometric analysis. *South Asian Journal of Business Studies*, 11(2), 216–234. <https://doi.org/10.1108/SAJBS-05-2020-0141>
3. Ammama, Mughal, K., & Khan, M. A. (2011). Fiscal deficit and its impact on inflation, causality and co-integration: The experience of Pakistan (1960–2010). *Far East Journal of Psychology and Business*, 5(3), 51–62.
4. Apergis, N., & Danuletiu, D. C. (2013). Public deficit, public debt, corruption and economic freedom: Some empirical evidence from Romania. *The Romanian Economic Journal*, 16(48), 3–22. Retrieved from <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1054.8446&rep=rep1&type=pdf>
5. Arif, A., & Hussain, M. (2018). Economic, political and institutional determinants of budget deficit volatility: A panel data analysis. *International Journal of Economics and Business Administration*, 6(3), 98–114. <https://doi.org/10.35808/ijeba/166>
6. Arjomand, M., Emami, K., & Salimi, F. (2016). Growth and productivity: The role of budget deficit in the MENA selected countries. *Procedia Economics and Finance*, 36, 345–352. [https://doi.org/10.1016/S2212-5671\(16\)30046-6](https://doi.org/10.1016/S2212-5671(16)30046-6)
7. Barişik, S., & Baris, A. (2017). Impact of governance on budget deficits in developing countries. *Theoretical and Applied Economics*, 24(2), 111–130. Retrieved from http://www.ectap.ro/impact-of-governance-on-budget-deficit-in-developing-countries-salih-barisik_abdullah-baris/a1272/
8. Brima, S., & Mansaray-Pearce, E. A. (2015). Budget deficit and macroeconomic variables in Sierra Leone: An econometric approach. *Journal of Economics and Sustainable Development*, 6(4), 38–52. Retrieved from <https://www.iiste.org/Journals/index.php/JEDS/article/view/19992/20520>
9. Emmanuel, U. C. (2013). An analysis of the relationship between fiscal deficits and selected macroeconomic variables in Nigeria, 1970–2011. *IOSR Journal of Business and Management (IOSR-JBM)*, 12(6), 19–27. <https://doi.org/10.9790/487X-1261927>
10. Epaphra, M. (2017). Analysis of budget deficits and macroeconomic fundamentals: A VAR-VECM approach. *Journal of Economics and Management*, 30(4), 20–57. <https://doi.org/10.22367/jem.2017.30.02>
11. Jajkovic, O., & Drobiszová, A. (2015). The effect of corruption on government expenditure allocation in OECD countries. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(4), 1251–1259. <https://doi.org/10.11118/actaun201563041251>
12. Mawejje, J., & Odhiambo, N. M. (2020). The determinants of fiscal deficits: A survey of literature. *International Review of Economics*, 67, 403–417. <https://doi.org/10.1007/s12232-020-00348-8>
13. Navaratnam, R., & Mayandy, K. (2016). Causal nexus between fiscal deficit and economic growth: Empirical evidence from South Asia. *International Journal for Innovation Education and Research*, 4(8), 1–19. <https://doi.org/10.31686/ijer.vol4.iss8.575>
14. Okoye, L. U., Omankhanlen, A. E., Okorie, U. E., Ahmed, A., & Okoh, J. I. (2020). Economic determinants of deficit financing in Nigeria. In K. S. Soliman (Ed.), *Proceedings of the 33rd International Business Information Management Association (IBIMA) Conference* (pp. 9185–9192). Retrieved from <http://eprints.covenantuniversity.edu.ng/13789/#.YmEvvHZBxPY>
15. Rahma, E., Perera, N., & Tan, K. (2016). Impact of oil price shocks on Sudan's government budget. *International Journal of Energy Economics and Policy*, 6(2), 243–248. Retrieved from <https://www.econjournals.com/index.php/ijeeep/article/view/1924>
16. Rahman, N. H. A. (2012). The relationship between budget deficit and economic growth from Malaysia's perspective: An ARDL approach. *International Conference on Economics, Business innovation IPEDR*, 38, 54–58. Retrieved from <http://www.ipedr.com/vol38/011-ICEBI2012-A00020.pdf>
17. Roubini, N., & Sachs, J. D. (1989). Political and economic determinants of budget deficits in the industrial democracies. *European Economic Review*, 33(5), 903–938. [https://doi.org/10.1016/0014-2921\(89\)90002-0](https://doi.org/10.1016/0014-2921(89)90002-0)
18. Shkarlet, S., Dubyna, M., Hrubliak, O., & Zhavoronok, A. (2019). Theoretical and applied provisions of the research of the state budget deficit in the countries of Central and Eastern Europe. *Administration & Public Management Review*, 32, 120–138. Retrieved from <https://www.ceeol.com/search/article-detail?id=963997>
19. Tung, L. T. (2018). The effect of fiscal deficit on economic growth in an emerging economy: Evidence from Vietnam. *Journal of International Studies*, 11(3), 191–203. <https://doi.org/10.14254/2071-8330.2018/11-3/16>
20. Umoh, O. J., Onye, K. U., & Atan, J. A. (2018). *Political and institutional determinants of fiscal policy persistence in West Africa* (Munich Personal RePEc Archive (MPRA) Paper No. 88452). Retrieved from https://mpa.ub.uni-muenchen.de/88452/1/MPRA_paper_88452.pdf
21. Woledetensaye, W. A. (2020). Determinants of budget deficit in selected East and West African countries: A dynamic panel data approach. *Global Journal of Economics and Business Administration*, 5, 29. Retrieved from <https://escipub.com/ijeba-2020-02-1005/>