FISCAL POLICY AND CURRENT ACCOUNT IN SUB-SAHARAN AFRICA (1980-2015)

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ABSTRACT

This study examined the impact of fiscal policy on current account in sub-Saharan Africa for the period of 1980-2015. The study used pooled OLS, Fixed effect and Dynamic GMM techniques for the analysis. We examine the relationship between fiscal policy and current account in 21 sub-Saharan African countries. We also examine the impact of fiscal policy on current account in 9 oil-producing countries and 11 non-oil producing countries in sub-Saharan Africa to see if the fiscal policy will exact different impact on current account due to the effect of oil price volatility on oil-producing countries. In the full sample and non-oil producing countries, the results show that fiscal policy proxy by government consumption has a negative and significant impact on current account. In the oil-producing countries, the results show that an increase in government consumption could not exalt a significant impact on current account due to the saving of proceeds of oil boom and reinvest it in abroad. In all the estimations both in the full sample, non-oil and oil-producing countries the results show that an increase in investment and interest rate worsen the situation of the current account. While an increase in GDP growth improves current account significantly.

Keywords: *current account, fiscal policy, sub-Saharan Africa, panel data, Dynamic GMM.*

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I. INTRODUCTION

The relationship between fiscal policy and the current account has been a major debate for some decades among the scholars and policymakers. A new dimension was added into the debate after the 2008 financial crisis as many governments adopted expansionary fiscal stimulus packages to stabilize their economies. Going by evidence in the theoretical literature, there are two major components of the current account studies. They are Mundell-Fleming approach which were popularised by Mundell (1968) and Fleming (1967) and Ricardian equivalence approach [Barro (1974, 1989)] to explain such variations in the deficits. The Mundell-Fleming approach believes that budget deficits cause current account deficits by stimulating income growth or exchange rate appreciation. This are supported by various studies such as Darrat (1988), Abell (1990), Bachman (1992) and Bahmani-Oskooee (1992) while the Ricardian approach on the other hands believes that financing of budget deficits, either through reduced taxes or by issuing bond does not in any way alter present value wealth of private households since both temporarily reduced taxes and issuance of bonds represent future tax liabilities. This proposition is supported by Kaufmann, *et al,* (2002), Evans (1989) Miller and Russek (1989), Enders and Lee (1990) and Kim (1995). In the literature, various channel through which fiscal policy affect current account have been identified. This includes direct impact through demand, impact through the real exchange rate and impact on interest rates and country risk premia. According to Abbas, Bauhgo-Hagbe, Fatas, Mouro and Velloso (2010) changes in the government's consumption or investment demand for tradable goods is one of the most direct ways in which fiscal policy can affect the external account. They explain further that government accounts for a large part of domestic demand, so that, depending on the import propensity, shifts in the government import demand function translate into movements in the trade balance. The result applies more generally, in a Keynesian context, to changes in the fiscal "stance". Thus, a fiscal expansion, whether implemented through a tax reduction or spending increase, will tend to increase demand (including for imports) and the trade deficit, as long as agents are not fully Ricardian. The impact through the real exchange rate is explained through the altering of relative price of non-tradable (the real exchange rate) due to higher government spending on non-tradable such as the services or real estate sectors which induce a real appreciation, which in turn can shift private consumption and production away from, tradable. The ensuing worsening in the current account can be prolonged insofar as resource shifts are not easily reversed.

Regarding the channel of the impact of interest rates and country risk premia, fiscal tightening is capable of reducing interest rates and external debt which in turn improves the current account balance. At the same time, lower risk premia can also increase capital inflows, which can boost demand and real appreciation pressures and eventually worsen the current account (expansionary fiscal contractions). Conversely,

fiscal expansions that are deemed unsustainable can generate capital flight and force a rapid external account adjustment.

This study contributes to the literature by examining the relationship between fiscal policy and the current account in sub-Saharan Africa. In sub-Saharan Africa there are oil and non-oil producing countries. Due to the fact that the relationship between the fiscal policy and the current account of oil-producing countries is influenced by the oil price. Therefore, the impact of fiscal policy on the current account in oil-producing countries and non-oil producing countries might differ. Therefore, in this study, we will examine the relationship between fiscal policy and current account in sub-Saharan Africa as a whole and also look at the relationship in oil-producing and non-oil producing countries. The remaining parts of the study is organised as follows. Section ii focused on the theoretical and empirical literature. The methodology is presented in section iii. Section iv presents the measurement of variables and data source. The empirical results are discussed in Section v., and section vi concludes the study.

II. LITERATURE REVIEW

Christiane and Isabel (2008) analysed the relationship between fiscal policy and the current account of the balance of payments and considers the roles of Ricardian equivalence changes in this relationship. To achieve their objective, the authors estimated a dynamic panel threshold model for 22 industrialised countries in which the relationship between the current account and the government balance is allowed to alter according to the government debt to GDP ratio. The results show that for countries with debt to GDP ratios up to 90% the relationship between the government balance and the current account is positive, i.e. an increase in the fiscal deficit leads to a higher current account deficit. For very high debt countries, this relationship, however, turns negative but insignificant, suggesting that a rise in the fiscal deficit does not result in a rise in the current account deficit. Implicitly this result suggests that households in very high debt countries tend to become Ricardian. Estimating the same model for the 11 largest euro area countries shows that the relationship between the government balance and the current account turns statistically insignificant when the debt to GDP ratio exceeds 80%.

Javid, Javid, and Arif (2010) empirically investigated the effects of fiscal policy on the current account and macroeconomic variable such as real output, interest rate and exchange rate for Pakistan over the period 1960–2009. This study adopted a structural Vector Autoregressive model (VAR) approach for the analysis. The authors identified the exogenous fiscal policy shocks after controlling the business cycle effects on fiscal balances. Contrary to the predictions of the most theoretical models, the results found that an expansionary fiscal policy shock (or a government budget deficit shock)

improves the current account and depreciates the exchange rate. This dynamics according to the author seems to be explained by a combination of factors such as, a fall (increase) in investment driven by crowding-out (crowding-in) caused by changes in real interest rates following fiscal shocks and movement in private savings can account for the paradoxical negative correlation between exogenous fiscal shocks and the current account which support the Ricardian view [Christiane and Isabel (2008) and Kim and Roubini (2008)].

Abbas *et al.* (2011) investigated the relationship between fiscal policy and the current account. The study used of large sample from both advanced and emerging economies. The study used panel regressions, an analysis of large fiscal and external adjustments, and vector auto-regressions statistical methods for the analysis. The study found that on average, a strengthening in the fiscal balance by 1 percentage point of GDP is associated with a current account improvement of 0.3-0.4 percentage point of GDP. This relationship is much stronger in emerging and low-income countries, when the exchange rate is flexible; when the economies are more open when output is above potential, or initial debt levels are above 90 percent of GDP, and when using methods robust to endogeneity issues.

Bakarr (2012) examined both short and long-run relationship between budget and current account deficits in Sierra Leone using bounds test approach and Toda Yamamoto causality analysis and the study covered the period of 1980-2012. The study found that budget deficit, real GDP and political instability are positively impacted current account deficit in the long run. The short-run results show that budget deficit and political stability significantly impacted current account deficit in Sierra Leone during the study period. Also, the study found uni-directional causality running from budget deficit to current account balance and from current account balance to real GDP, with no feedback effect. The study found no causal relationship between the current account balance and the remaining explanatory variables, aimed at providing incentives to increase revenue mobilization and rationalization of government expenditure.

Endegnanew *et al*, (2012) focused the attention of their study on Microstates whom they defined as countries that less than 2 million people in population. The study made use of both panel and VAR model while their sample data covered the period 1973 – 2004. The authors used OLS, fixed effects and GMM estimations for the panel analysis. The study found a positive and significant relationship between a cyclically adjusted fiscal balance and the current account balance. In addition, the VAR method shows that the impact of a fiscal policy shock on the current account balance is slow in the long term during the study period.

Olasunkanmi and Babatunde (2013) examined the effects of fiscal policy shocks on the current account as well as the dynamic interactions among fiscal policy shocks and current account with the other macroeconomic variables: real output, real interest rate and exchange rate for Nigeria over the periods 1980:1-2010:4. The identification of fiscal policy shocks is achieved through structural VAR approach proposed by Blanchard and Perotti (2002). The results of this study indicated that the expansionary fiscal policy shock has a positive effect on output, exchange rate and negative impacts on current account balance and interest rate. By implication, this study suggests that fiscal policy can stimulate economic activity through expenditure expansions at a cost of lower interest rate and exchange rate appreciation in the medium term and a sustained current account balance will enhance output via fiscal consolidation.

Gossé and Serranito (2014) base their study on panel data for OECD countries covering the period 1974 – 2009. Their study differs in they are interested in determining the long run determinants of the current account balance based on the argument that the current account balance is affected differently by its long run and short-run determinants. Using vector error correction models (VECM), they find that the fiscal balance is one of the long-run determinants of the current account balance due to evidence of a cointegration relationship between the two variables.

Alozious (2015) investigated the relationship between fiscal policies and the current account balance in 30 OECD countries. The study covered the period of 1994 to 2011. Ordinary Least Square, fixed effects and GMM models were used as the estimation techniques. The author proxy fiscal policy by military expenditures and found that military expenditures matter for the current account dynamics in OECD countries during the study period as an increase in military expenditures deteriorates the current account balance.

Aloryito, Senadza and Nketiah-Amponsah (2016) used data for 41 countries from 2000 to 2012 to test the twin deficits hypothesis for SSA. The study adopted system Generalised Method of Moments (GMM) estimation technique for the analysis. The major conclusion drawn from the results indicates that fiscal deficits tend to improve the current account and vice versa, thereby rejecting the twin deficits hypothesis in favour of the twin divergence proposition. The findings, nonetheless, have policy relevance for the region.

III. METHODOLOGY

In recent time, the use of panel data analysis is very more common in econometric research since it is very valuable for comparing the performance of units (countries). In this study, panel data is a combination of time series data and cross-section. The model to be estimated isthis study is expressed as:

$$CUR_{it} = \alpha_0 + \beta_1 INV_{it} + \beta_2 GOVC_{it} + \beta_3 INT_{it} + \beta_4 RGDP_{it} + \mathcal{E}_{it} \quad (1)$$

where

CUR is the current account, INV is total investment, GOVC is the government consumption which is used to proxy fiscal policy, INT is the interest rate and RGDP is the gross domestic product.

By deducting CUR_{it-1} from both side of equation (1), we arrive at the following dynamic panel equation

$$\Delta CUR_{it} = \alpha_0 + \beta_1 CUR_{it-1} + \beta_2 INV_{it} + \beta_3 GOVC_{it} + \beta_4 INT_{it} + \beta_5 RGDP_{it} + \mathcal{E}_{it} \quad (2)$$

for i = 1, 2, ...N and t = 2, 3, ... T

where ΔCUR_{it} denotes difference of current capital, it measures the current account. The coefficient of $\beta_1 CUR_{it-1}$ denotes the speed of convergence of current capital to its steady state level.

We used three methods of estimations, namely panel OLS regression, fixed effect and Dynamic Generalized Method of Moment (GMM) in this study. The pooled OLS models were estimated with cross-section effects and they were corrected for cross-section correlation, period arbitrary serial correlation, time-varying variances in the disturbances and observation specific heteroskedasticity. However, panel pooled OLS estimation has been criticised in the literature for ignoring possible country-specific effects and therefore result in biased estimations. Veerbek (2012) argued that the economic models based on panel data estimated with fixed effects perform better than pooled OLS since it filters out possible endogeneity problems related to the standard errors. Fixed effect model also has the advantage to control for omitted variables (Dranove, 2012).

Nevertheless, Chinn and Prasad (2003) stated that controlling for fixed effects while estimating models of the current account eliminates a meaningful analysis of the estimates based on economic theory since it does not take into consideration the individual country variation in the current account. Taking all the weaknesses of pooled OLS and fixed effect into consideration and in order to overcome the weaknesses, this study considers dynamic GMM. Dynamic GMM is very necessary when estimating the determinants of the current account balance. Thisis based on the argument that the current account balance is influenced by its lag due to partial adjustment effects (Nickel and Vansteenkiste, 2008). According to Moral-Benito and Roehn (2014), neglecting the impact of partial adjustments in the current account would result in biased estimates. Furthermore, the closer the coefficient of the dynamic variable to unit (1), the slower the current account balance adjusts in response to shocks or in other words, the more persistent is the current account (Ghosh *et al.*, 2008).

Hence, pooled OLS and fixed effect will be used to estimate equation 1. We use dynamic GMM to estimate equation (2) to care of omitted variables and solving the endogeneity problem and more importantly, to serve as a robustness check for other estimators.

IV. MEASUREMENT OF VARIABLES AND DATA SOURCE

The econometric estimations rely on annual unbalanced panel data for 21 sub-Saharan African countries. The panel data, therefore, covers the period from 1980 to 2015 and these data were obtained from World Bank Development Indicator (WDI) and International Monetary Fund database. Specifically, data on current account and investment are obtained from the International Monetary fund while data on interest rate, government consumption and GDP were obtained from World Bank Development Indicator (WDI). We choose countries in the sample on the basis of data availability, giving us a total of 21 sub-Saharan African countries out of a possible 47 in the full sample. The oil-producing countries consists of 9 countries, while the non-oil producing countries consist of 11 countries. Additionally, the use of an unbalanced panel data set in this study does not in any way compromise the results of this study as the omitted data are very few. The study makes use of the following variables. Current account as percentage growth of GDP, Government consumption is the general government final consumption expenditure (% of GDP). Total investment as % GDP and interest rate. Table 1 below provides a summary of the variable. The list of the countries is presented in table1 below.

Table 1: Measurement of Variable and Source

Variables	Measurement	Source
DEPENDENT VARIABLE		
Current Account % GDP.	The dependent variable is defined as the current account balance as a ratio of GDP. The data for this variable is extracted from the International Monetary Fund World Economic Outlook (IMF WEO).	IMF, World Economic Output (WEO) 2017
	Explanatory Variables	
RGDP (constant 2010 US Dollars)	RGDP is the keymacro variable representing the general economic performance. RGDP is included to control for the cyclical components of the government budget deficit.	(WDI), 2017
Real Interest Rate	Real interest rate is an important macro variable that can provide a clue to the transmission of fiscal policy. This variable, RIR, may be related to monetary policy actions that we would also like to control for.	(WDI), 2017
Total Investment % GDP	Current account balance is the difference between its savings and investments, as result of this investments are a major determinant of the current account balance. Studies such as Bussière et al. (2004) and Nickel and Vansteenkiste (2008) controlled for investments in their current account regressions. Bussière et al. (2004) argued in their study that a temporary high spike in investments worsens the current account balance.	IMF, World Economic Output (WEO) 2017.
Government consumption % GDP	Government consumption is the general government fi nal consumption expenditure. According toEndegnanew, AmɵYartey, and Turner-Jones (2012) government consumption is one of the less criticised as proxy of current account.	(WDI), 2017

Table 2: List of countries used in the estimations.

Full sample	Oil-producing countries	Non-Oil Producing Countries
Cameroon	Cameroon	Botswana
Cote d' Ivoire	Cote d'Ivoire	Congo Republic
Equatorial Guinea	Equatorial Guinea	Gambia
Gabon	Gabon	Kenya
Ghana	Nigeria	Malawi
Nigeria	South Africa	Sierra Leone
South Africa	Chad	Uganda
Chad	Congo Democratic	Zimbabwe
Congo Democratic	Ghana	Mauritania
Botswana		Swaziland
Congo Republic		Central Africa
Gambia		
Kenya		
Malawi		
Sierra Leone		
Uganda		
Zimbabwe		
Mauritania		
Swaziland		
Central Africa Republic		
Burundi		

V. Empirical Results

Before proceeding with the panel data analysis, there is the need to confirm the integrated order of the variables used in this study. To provide an analysis of sensitivity and robustness, this study carries out a broad array of panel unit root tests: the LLC (Levin et al., 2002), the IPS (Im et al., 2003), and the ADF- and PP-Fisher chi-square (Maddala and Wu, 1999). The results of the unit tests are presented in table 3 below.

Table 3: Unit Root Test

Variable	Levine.*et al*		Im. *et al*		ADF		PP		Order of Integration
	level	1st diff	level	1st diff	level	1st diff	level	1st diff	
CUR	-3.63***	-10.06***	-4.91***	-14.99***	94.77***	268.29***	149.81	1472.90***	I(1)
INT	-3.10***	-10.67***	-3.71***	-9.71***	126.86***	293.45***	261.8	3024.22***	I(1)
INV	-3.07**	-8.40***	-2.09**	-15.18***	-63.92**	265.21***	57.21***	926.89***	I(0)
GOVC	-3.23***	-13.97***	-3.03**	-14.62***	69.06**	260.36***	61.54**	825.27***	I(0)
GDP	-5.91***	-11.37***	-9.08***	-22.40***	160.78***	433.40***	314.41***	3390.9****	I(0)
Oil producing countries									
CUR	-3.50***	-7.78***	3.58	-9.21***	43.46	106.57***	42.08***	706.49***	I(1)
INT	-3.01**	-6.44***	-2.23**	-3.97***	51.14	102.65***	110.80***	1044.7***	I(1)
INV	-2.29**	4.96***	-2.10**	-10.20***	-31.48**	119.296**	27.97*	370.96***	I(0)
GOVC	-2.51**	-8.80***	-2.73**	-9.01***	36.03**	103.7***	29.27**	264.92***	I(0)
GDP	-3.15***	-8.37***	-4.79***	-13.86***	55.81***	169.81***	93.39***	1272.7***	I(0)
Non-oil producing countries									
CUR	-1.60*	-6.33***	-3.39***	-11.84***	51.25***	161.73***	107.73***	766.41***	I(0)
INT	-2.24**	-9.78***	-3.48***	-11.84***	-51.25***	161.73***	107.73***	766.41***	I(0)
INV	-2.06**	-6.85***	-0.92**	-11.24***	-32.44*	145.92***	29.24	555.92***	I(1)
GOVC	-2.08**	10.88***	-1.64**	-11.53***	-33.03	156.66***	32.27	560.34***	I(1)
GDP	-5.39***	-7.79***	-7.86***	-17.63	104.96***	263.36***	221.02***	2113.1***	I(1)

Note: *, **, *** indicates statistical significance at the 1%, 5% and 10% level respectively.

The results of unit root tests show that in the full sample, total investment, government consumption and GDP are stationary at levels while current account and interest rate are stationary at first difference. The order of integration in the oil-producing countries is the same as the full sample as only the current account and interest rate that are not stationary at level. In the non-oil producing countries, the order of integration is contrary to what was obtained in the full sample and in the oil-producing countries as current account,and interest rate are stationary at a level while the remaining variables are the integration of order one (I(1)). Since the integrated orders of all the variables do not exceed one, the difference dynamic GMM technique we use is appropriate.

Following the results of the unit root tests, we proceed to cointegration test to determine if there is long-run relationship between the variables. The results of the cointegrated test are presented in table 4.

Table 4: Cointegration Results

Full Sample		
	with trend	without trend
Panel v- stat	-3.6046	-1.9441
	(0.9998)	(0.9741)
Panel rho- Stat	-0.2060	-0.1686
	(0.4184)	(0.4330)
Panel PP-stat	-6.0003***	-2.4642**
	(0.0000)	(0.0069)
Panel ADF	-5.5095***	-1.6928**
	(0.0000)	(0.0453)
Group rho- stat	1.9686	0.5524
	(0.5524)	(0.7097)
Group PP- stat	-8.2653***	-5.6544***
	(0.0000)	(0.0000)
Group ADF- stat	-6.6833***	5.0523***
	(0.0000)	(0.0000)
Oil producing Countries		
	with trend	without trend
Panel v- stat	-2.4981	-1.3958
	(0.9938)	(0.9186)
Panel rho- Stat	0.7224	1.2491
	(0.7650)	(0.1302)
Panel PP-stat	-3.0044**	0.3684
	(0.0013)	(0.6437)
Panel ADF	-0.0153**	0.0109
	(0.0013)	(0.5043)
Group rho- stat	2.050	1.9767
	(0.9954)	(0.9756)
Group PP- stat	-3.9773***	-1.9523**
	(0.0000)	(0.0255)
Group ADF- stat	-2.9426**	-1.3115*
	(0.0016)	(0.0948)
Non-oil producing Countries		
	with trend	without trend
Panel v- stat	-2.4594	-1.1914
	(0.9930)	(0.8833)
Panel rho- Stat	-1.2354	-1.8340
	(0.1083)	(0.033
Panel PP-stat	-6.5123***	-5.3180***
	(0.0000)	(0.0000)
Panel ADF	-6.0957***	-4.4166***
	(0.0000)	(0.0000)
Group rho- stat	0.2983	-1.0431
	(0.6172)	(0.1485)
Group PP- stat	-7.5473***	-5.8585***
	(0.0000)	(0.0000)
Group ADF- stat	-6.3502***	-5.6263***
	(0.0000)	(0.0000)

Note: *, **, *** indicates statistical significance at the 1%, 5% and 10% level respectively.

From the full sample, the cointegration test shows that panel PP-stat, panel ADF, group PP-stat and Group ADF are significant, which indicated a long-run relationship between the variables. However, Panel v – stat, Panel rho - Stat and Group rho - stat are not significant, which means they accept the null hypothesis of no cointegration. Since the number of statistics tests that reject the null hypothesis of no cointegration is greater than the number of statistics that accept the null hypothesis we conclude that there is long-run relationship between the variables. In the oil-producing countries, with the trend the number of statistics that reject the null hypothesis is greater than the

number of statistics that accept the null hypothesis. However, in the test without trend the number of statistics that accept the null hypothesis of no cointegration is greater. Based on the conflicting results obtained from the test with trend and without trend we cannot conclude that there is long run or no long-run relationship in oil producing countries. In the non-oil producing countries, the number of statistics that reject null hypothesis of no cointegration is greater the number of statistics that accept the null hypothesis of cointegration. We can, therefore, conclude that there is long relationship between the variables.

After examining the unit root test and panel cointegration test, we now focus our attention on the panel data results. To examine the relationship between current account and fiscal policy we use pooled OLS, fixed effect and dynamic Generalised Method of Moment (GMM). The results of the full sample are presented in table 5 below. The results of pooled OLS are presented in column 2. The column 3 contains the fixed effect results while the Dynamic GMM results are presented in column 3. The dynamic GMM provides a robustness check for the pooled OLS and fixed effect results.

Table 5: Panel data estimates of full sample

Variables	Pooled OLS	Fixed effect	Dynamic GMM
CUR_{-1}	-	-	-0.0468* (-17.5883)
C	2.2413 (1.6107)	15.9513* (9.3953)	-
gdp	-0.1345** (-2.2349)	-0.0858** (-1.8031)	0.0413* (6.0553)
govc	0.0441 (0.5610)	-0.4960* (-5.7398)	-0.9947* (-10.0752)
int	-0.1584* (-4.7368)	-0.0868** (-2.7331)	-0.1247* (-10.0436)
inv	-0.2755* (-6.6771)	-0.5878* (-13.0032)	-1.3195* (-81.4573)
R^2	0.17	0.58	-
Adjusted R^2	0.16	0.50	-
F-Statistics	27.763	10.85	-
D-Watson stat	0.759	1.04	-
J-Statistics	-	-	17.9
Instrument rank	-	-	21
No of Observation	562	562	527
Cross section Included	21	21	21

***denote significant at 1%, ** significant at 5 % and *** significant at 10%**

The pooled OLS results in column 2 of table 5 show that economic growth has a negative impact on the current account in sub-Saharan Africa. The government consumption, which is used to proxy fiscal policy has a positive but insignificant impact on the current account. Therefore, conclusion cannot be drawn. Both the interest rate and investment are negative and statistically significant, at 1%. The fixed effect results in table 3 show that economic growth, government consumption, interest rate and investment have a negative and significant impact on the current account. Economic growth and interest rate are significant at 5%, while fiscal policy and investment are significant at 1%. The Dynamic GMM results show that lagged dependent variable which is lagged current account, has a negative impact on the current account. The lagged current account is statistically significant at 1%. The dynamic GMM results show that GDP has a positive and significant impact on current account. Government consumption is negative and significant at 1%. Interest rate and investment are negative and both are significant at 1%.

The panel results of non-oil producing countries are presented in table 6 below. Panel pooled OLS, fixed effect and Dynamic GMM are used for the estimation of the relationship between current account and fiscal policy. The results of the pooled OLS are presented in column 2. In column 3, the results of fixed effect are presented, and the last column contains the results of dynamic GMM.

Table 6: Panel data estimates of non-oil sample

Variables	Pooled OLS	Fixed effect	Dynamic GMM
CUR_{-1}	-	-	0.1837* (6.1520)
C	5.4534* (3.9022)	5.1761** (2.9791)	-
gdp	0.1942** (2.1082)	0.0285 (0.3584)	0.1837** (2.2295)
govc	0.1598** (2.2040)	-0.2400** (-3.1586)	-0.1262 (-0.5184)
int	-0.1115* (-3.3739)	-0.0511 (-1.6338)	-0.1845* (-5.8653)
inv	-0.0771*** (-1.9202)	-0.3052* (-6.5527)	-0.8940* (-12.8274)
R^2	0.05	0.52	-
AdjustedR^2	0.04	0.44	-
F-Statistics	5.56	7.062	-
D-Watson stat	0.714	1.100	-
J-Statistics	-	-	7.92
Instrument rank	-	-	11
No of Observation	367	367	347
Cross section Included	11	11	11

***denote significant at 1%, ** significant at 5 % and *** significant at 10%**

From the polled OLS results in table 6, GDP has a positive impact on current account in non-oil producing countries in sub-Saharan Africa and statistically significant at 5%. Government consumption is positively signed and statistically significant at 5% which means government consumption positively impacted current account in non-oil producing countries in sub-Saharan Africa. Interest rate and investment are both negative and statistically significant at 1% and 10% respectively. The fixed effect results show that GDP has a positive and insignificant impact on current account. Government consumption is negative and significant at 5%. Interest rate and investment are both negative but interest rate is insignificant while investment is significant at 1%. From dynamic results, the lagged dependent variable has a positive impact on current account and statistically significant at 1%. GDP is positive and significant like pooled and fixed effect results. Government consumption is negatively signed but insignificant. Interest rate result is not different from pooled OLS and fixed effect results as it is negative and also significant at 1%. Investment is negative and significant at 1%.

The panel results of oil-producing countries are presented in table 7 below. Column 1 consists of the results of the pooled OLS while Fixed effect and dynamic GMM results are presented in column 2 and 3, respectively.

Table 7: Panel data estimates of oil sample

Variables	Pooled OLS	Fixed effect	Dynamic GMM
CUR_{-1}	-	-	0.1501* (3.9226)
C	6.5289* (3.9635)	8.0699* (3.9724)	-
gdp	0.2202*** (1.9160)	0.0142 (0.1520)	0.2160** (2.7327)
govc	0.2856** (3.1880)	-0.1243 (-1.3819)	-0.2769 (-1.5222)
int	-0.1268** (-3.3739)	-0.0475 (-1.3530)	-0.1928* (-7.5767)
inv	-0.1292** (-1.9202)	-0.5635* (-6.5527)	-1.0618* (-5.7066)
R^2	0.08	0.59	-
Adjusted R^2	0.07	0.51	-
F-Statistics	6.32	7.23	-
D-Watson stat	0.72	1.11	-
J-Statistics	-	-	5.10
Instrument rank	-	-	8
No of Observation	271	271	257
Cross section Included	8	8	8

***denote significant at 1%, ** significant at 5 % and *** significant at 10%**

The pooled OLS results in table 7 show that GDP has a positive impact on current account in oil-producing countries in sub-Saharan Africa and statistically significant at 10%. Government consumption is also positive and significant at 5%. Both interest rate and investment are positive and statistically significant at 5%. From the fixed effect results, GDP is positively related to current account but statistically insignificant. Government consumption, interest rate and investment are negative, but only the investment is significant. The lagged dependent variable in dynamic GMM is positive and significant at 1%. GDP has a positive impact on current account in oil-producing countries and statistically significant at 5%. Government consumption, interest rate and investment have a negative impact on current account and they are statistically significant at 1% apart from government consumption which is not significant.

The government consumption, which is used to proxy fiscal policy is positive and insignificant from the pooled OLS results of the full samples. Nevertheless, in the fixed effect and dynamic GMM results, government consumption is negative and significant at 1%. Based on the results of fixed effect and dynamic GMM which serve as robustnesscheck, we conclude that fiscal policy has a negative impact oncurrent account in sub-Saharan Africa. This finding is consistence with Olasunkanmi and Babatunde (2013) and Abbas *et al.* (2010).From the full sample, using fixed-effect results a unit increase in government consumption will worsen the current account by 50 units. The increase in government consumption could worsen current account as an increase in government consumption can lead to an increase in importation in the economy and increase the net foreign indebtedness. Government expenditure also affects private sector spending as shown by Tanner (1994) and private consumption, according to Galí *et al* (2007) which can lead to an increase in importation. If the increase in the government consumption leads to increase in importation through the spending of private sector and private consumption, the current account will negatively be impacted. The high import content of government capital spending couple with openness to trade in sub-Saharan Africa is a channel through which current account is worsened. The returns from the export through trade openness could not offset the capital spending of the government.

In non-oil producing countries, government consumption is positive and significant in pooled OLS. However, it is negative in both fixed effect and dynamic GMM results but only significant in fixed-effect result. Based on the value adjusted coefficient of determination, the fixed effect result performed better than pooled OLS. We conclude that the increase in government consumption in non-oil producing countries worsens the current account.

In the polled OLS results of oil-producing countries, government consumption is positive and significant. In the fixed effect and dynamic GMM, government consumption is negative but not significant in both. The negative and insignificance of government consumption in both the fixed effect and dynamic GMM results in the oil-producing countries could be a result of an increase in oil prices. The sharp increase in oil price through 2008 provided the opportunity for the oil-producing countries to save the proceed from the oil boom or either using it to build their foreign reserves or reinvested it abroad. This, therefore, makes the deterioration in the current account to be insignificant.

Investment has a negative and significant impact on the current account balance in full sample, non-oil producing countries and in oil-producing countries. This provides strong evidence that investments worsen the current account, which is in line with economic theory since a country's current account balance is the difference between

its savings and investments. Additionally, the results isconsistence with the findings of Bussière *et al,* (2004) and Alozious (2015) who also find a negative and significant relationship between investments and the current account balance for OECD countries.

The impact of GDP growth on the current account balance appears to be ambiguous in the full sample. The negative and significant coefficient of GDP growth under OLS and fixed effect estimations and the positive and highly significant coefficient under dynamic GMM estimation make the analysis difficult. But in the oil-producing and non-oil producing countries all the estimations show that increase in GDP improves current account in sub-Saharan Africa. This result is consistence with Abbas *et al,* (2010) and Alozious (2015).

The negative and significant impact of interest rate on current account could be as a result of fiscal expansions which increases interest rates, including the interest rate on external debt and thereby worsen the current account.

VI. CONCLUSION

This study examined the impact of fiscal policy on the current account in sub-Saharan Africa. Though several studies have examined the relationship in emerging and developed countries only a few studies examined the relationship in sub-Saharan Africa while most of these studies used VAR model. We examined this relationship by using panel data and also examined the relationship in oil and non-oil producing countries in sub-Saharan Africa to see if fiscal policy will exact different impact on current account due to the influence of oil. This study found that a fiscal policy has negative and significant impact on the current account in the full sample and non-oil producing countries. In the oil-producing countries of sub-Saharan Africa, fiscal policy has a negative impact oncurrent account but not significant which implies that the presence of oil influences the impact of fiscal policy on current account.

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