Does Fiscal Measures Stimulates Private Investment in Africa?

Olatunji Abdul SHOBANDE[1], Chidi Ndubuisi OLUNKWA[2]

Abstract: *The study focuses on the effect of fiscal measures on private investment in selected African countries between 1980-2016. The study adopts Panel Autoregressive Distributed Lag (PARDL) Bounds testing approach developed by Pesaran, Shin and Smith (2001) in estimating the relevant relationship. The results of the long run estimates show that the interest on debt payment, government expenditure, expected inflation, exchange rate and government tax revenue, all have a positive relation with private investment among five selected African countries, suggesting that fiscal measures have crowd in effects on private investment in the long run. While, the results on the short run dynamics show that change in the previous one lagged periods of the variables have negative impacts on private investment, whereas the lagged two of the variables shows positive impacts on private investment in the short run, suggesting that there is a crowd out fiscal measures crowd out private investment in among the five selected African countries. The study recommends that the policy makers need to ensure fiscal discipline, if private investment must survive in African.*

Keywords: *Fiscal Measures, Private Investment, Africa, Exchange rate.*

JEL Classification: *H3, E2, E65*

1. Introduction

The disastrous growth recorded by African countries in the 1980s attributed to a complex internal and external imbalance resulting in the inability of many of these African regions to domestically finance their economic development. While, both the public and private sector can be blamed for this unimpressive performance and inability

---

[1] *Department of Economics, Faculty of Social Sciences, University of Lagos, Akoka, Yaba, Lagos, Nigeria*

[2] *Department of Economics, Faculty of Social Sciences, University of Lagos, Akoka, Yaba, Lagos, Nigeria*

to mobilized resource to finance the destiny of their nations. As it was, the only prescribed option by destiny helpers was that these affected African countries should obtain structural adjustment loans financed by the World Bank. This loan was expected to help these countries to reduce their structural imbalances in paper but led to stagnation of their economic growth in many decades (Hermes and Lensink, 2001). An important part of these new policy initiatives focused on Structural Adjustment Program (SAP) and restructuring of the public sector. One of the notable features of this significant event was the lack of analysis of the significant implication of fiscal deficit when the domestic revenue mobilization is neglected for borrowing on one hand, and the dynamics nature of their macroeconomic behaviour on the other hand.

While, the poor economic performance of many of these African countries continued, the World Bank emphasized the need to reduce the government budget deficit to stimulate private investment. Going by this argument, the needs to reduce the role of government become crucial if private investment must be expanded. As it is, the position of extant literature on the extent to which private investment can act as catalyst for stimulating the economy as remained controversial. Varied studies have argued that expansionary fiscal policy can affect private investment positively and can stimulate growth, relatively few studies recorded negative relationship while some remained inconclusive.

Bearing in mind that, we empirically analyses the impact of fiscal measures on private investment in selected African countries. We claimed the uniqueness in our study is reflected in the adoption of a dynamic model anchored by Autoregressive Distributed Lag model as a departure from earlier studies that adopted static models. We emphasized that the choice of the dynamic model is because relationship between economic variables are not instantaneous and the effects requires a feedback mechanism delay for some period. We argued that previous studies ignore this fact and we are motivated to fill this lacuna in literature.

The remaining part of this paper is divided into six segments. The following part being segment two which focuses on the facts and evolution of the study. Segment three provides a synopsis of the literature review. Following is the theoretical framework and methodological approaches in part four. Results of the study are presented and discussed in the fifth part and the finally the conclusion including policy suggestions.

2. Fiscal Framework in Africa: Stylized Facts

Fiscal measures are instrument used by the government to show commitment to the welfare of the citizen and regulate economic activities. In Africa, the risks of fiscal measures as it influenced private investment remained elevated. These risks are

associated with macroeconomic turbulent, budget execution, policy uncertainty and financial distressed of state owned companies. Currently, fiscal measures in Africa rely on debt and excessive taxes to finance the economy, which have severe implications on private investor survival.

In terms of the structure of government expenditure in Africa, the breakdown into few components will help to isolates the types of spending that are mostly responsible for the increased importance of the government sector in an economy, particularly in the Africa's context. The government spending consists of transfer payment, consumption expenditure and net interest paid government debt (domestic and foreign debts). While transfer payments include government social welfare benefits paid to individual including social security, pensions, payment for health care for senior citizens and N-power assistance for employment, they also grant and aid the state and local governments. Many of these grants end up in financing transfer payments to individual inform of medical program and income support for rural farmers. The second largest category of government spending is defense. It comprises of income security and referments pensions, public order and safety, fire protection and law court and prisons.

In terms of aggregate of government expenditure in Africa, Figure 1 depicts aggregate government expenditure between 1980 and 2016 in 5 selected Africa Countries. We observed that there is an increase in government revenue in Nigeria. Specifically, the increase in the revenue range 4 to 6 percent annually. The four others have a steady increase in government expenditure ranging from 5 to 7 percent annually.
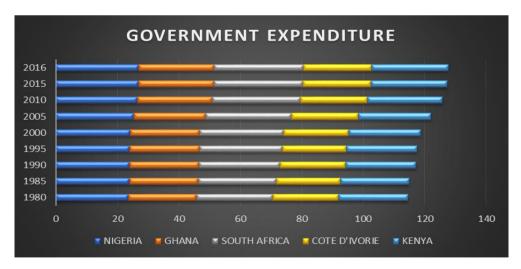

Figure 1: Trend of Government Expenditure

Figure 2 below shows the trend analysis of private investment among the selected five African countries. We observed an irregular pattern of private investment in Nigeria. Specifically, between 1980 and 2005, the country recorded a one-half percent consistent decrease in private investment, but between 2005 and 2017 there has been less than one percent increase in private investment. For rest of the four countries, an unstable pattern of private investment was equally observed, with the exception of South Africa that exhibit an upward trend in private investment.
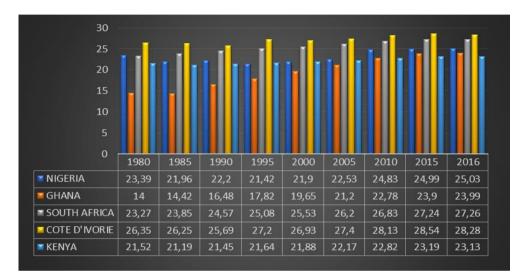
	1980	1985	1990	1995	2000	2005	2010	2015	2016
NIGERIA	23,39	21,96	22,2	21,42	21,9	22,53	24,83	24,99	25,03
GHANA	14	14,42	16,48	17,82	19,65	21,2	22,78	23,9	23,99
SOUTH AFRICA	23,27	23,85	24,57	25,08	25,53	26,2	26,83	27,24	27,26
COTE D'IVOIRE	26,35	26,25	25,69	27,2	26,93	27,4	28,13	28,54	28,28
KENYA	21,52	21,19	21,45	21,64	21,88	22,17	22,82	23,19	23,13

Figure 2: Trend of Private Investment

The exchange rate trend depicted in the figure below shows the elevated level of instability in exchange rate of countries like Nigeria, South Africa, Ghana and Cote d' Ivoire except Kenya that enjoys slightly regular exchange rate movement. This is expected because poor exchange management often results in fluctuation which have critical impacts on private investment in the economy.
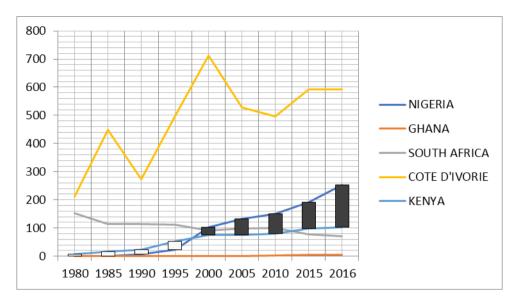
Figure 3: Trend of Exchange rate

3. Review of Related Literature

In the extant literature, the relationship between fiscal measures and private investment has remained controversial, the major point of disagreement being whether government expenditure crowd in or out private investment. While the Classical and Neoclassical economist advocated for free market economy with little or no government intervention. Specifically, the classical economist argued that increase in fiscal measures has significant implication on private investment, since government borrowing are made in the capital market which causes rises in interest rate (Atukeren, 2005) as consequence of competition in available fund. The advocate of the classical economist further claimed that increase in interest rate will increase the cost of capital for private investment which reduce its activities. Besides, the private investor need to surrender part of its profit to government in form of tax which also affects its motivation for been in business. This scenario is popularly known as crowding out hypothesis. Keynes (1936) attack this view on various ground. Keynes claimed that increase in government spending through aggregate demand will help to stimulate private investment and trigger economic growth (Hussain et al, 2009). This notion is called in effects. Obviously, these two economic theories have clearly established that an increase in government spending may have both positive or negative consequence on private investment.

On the empirical front, several studies have been put forward to explain this relationship with mixed results. In a 1998 paper, Akpokodje used a time series data to examine the impact of fiscal policy on private investment in Nigeria. The long run result obtained by the author shows that fiscal policy is weakened by fiscal deficit, as such it crowds out private investment in Nigeria. Blanchard and Perotti shows that increase in public spending have a negative impact on private investment (Blanchard and Perotti, 2002). In (2013, 2014, 2017) paper, Madni analysed the effects of fiscal deficit on private investment in Pakistan using the Autoregressive Distributed Lag Model. The author results revealed that fiscal deficit, rate of interest, inflation and external debt have negative impact on private investment in Pakistan.

Varied using cross countries data also presented more confusing results on the subject. For instance, Hermes and Lensink (2001) analyses the impact of fiscal policy on private investment for a sample of thirty-three Less Developed Countries (LDCs). The main contribution of their study is that the authors show the existence of nonlinear relationship between fiscal policy variables and private investment during the period reviewed. Alesina et al (2012) examined the impact of fiscal policy on private investment using a panel of OECD countries and found that public spending has a sizable negative effect on business investment among the countries during the period reviewed. Sineviene and Vasilauskaite (2012) examined the relationship between fiscal policy and private investment in Baltic State of Estonia, Latvia, and Lithuania. Their results show that there is a strong relationship between tax revenue and private investment during the period reviewed.

In a 2013 paper, Mahmoudzadeh, Sadeghi and Sadeghi, evaluate the effect of disaggregated fiscal spending (Consumption, Capital formation and budget deficit) on private investment in both developed and developing countries using a panel data over the period of 2000-09. Their results indicate that the elasticity of private investment with respect to government capital formation is positively in both groups (crowding out effects), but this complementary effect is greater than in developed countries.

In West Africa, Omojolaibi, Tochi, Okensi and Mesagan (2016) examined the impact of fiscal policy on private investment in five selected West African countries, using annual data between 1993 and 2014. The authors results showed the existence of a significant crowding in effect of government capital expenditure and tax revenue while non-tax revenue showed crowding out effects.

Considering the revealing episodes of how academic papers on fiscal policy and private investment evolved, one will be tempted to suggest that the intellectual debate is capable of generalization, but the evidence documented, and conclusions reached from these previous studies trigger more problems that demand urgent inquiries. Therefore,

judging from the existing literature, the question of convergence in the potential of government spending-private investment nexus remained scarce

4. Methodology

4.1. Theoretical framework

The theoretical foundation of the work is based on the crowd out hypothesis, since it suggests that the possibility for fiscal measures to have severe implication on private investment. Our study draws insight from the work of Madni (2014) who model fiscal policy and private investment in Pakistan. Likewise, Omojolaibi, Okenesi and Mesagan (2016) also used related model in investigating the link between fiscal policy and private investment in selected West African countries. Their model was as specified as follows:

$$PI_{it} = \beta + \sum WX_{itj} + \sum \delta_k FP_{itk} + \mu_{it} \tag{1}$$

Where PI_{it} is private investment, X_{itj} is the GDP growth. To correct the deficiency, observe in their study, we modified and re-specified their equation (1) as:

$$PI = f(IDP, GEXP, GDPDEF, EXCH, GOVTAX) \tag{2}$$

Where PI is private investment proxied with gross fixed capital formation, GEXP is government expenditure, GDPDEF is GDP deflator (expected Inflation), EXCH is exchange rate and GOVTAX is government tax

Furthermore, equation 2 can be written in the following form:

$$PI_t = \alpha_0 + \alpha_1 IDP_t + \alpha_2 GEXP_t + \alpha_3 GDPDEF_t + \alpha_4 EXCH_t + \alpha_5 GOVTAX_t + \mu_t \tag{3}$$

Since the study is employing panel ARDL, the equation can be written in panel form as:

$$\Delta PI_{It} = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta PI_{it-1} + \sum_{i-0}^{p} \alpha_2 \Delta IDP_{it-1} + \sum_{i=0}^{p} \propto_3 \Delta GDPDEF_{it-1} + \sum_{i=0}^{p} \alpha_4 \Delta EXCH_{it-1} + \sum_{i=0}^{p} \alpha_5 \Delta GOVTAX_{it-1} + \sum_{i-0}^{p} \alpha_6 \Delta GEXP_{it-1} + \alpha_7 lnPI_{it-1} + \alpha_8 lnIDP_{it-1} + \alpha_9 lnGDPDEF_{it-1} + \alpha_{10} lnEXCH_{it-1} + \alpha_{11} lnGOVTAX_{it-1} + \alpha_{12} lnGEXP_{it-1} + \varepsilon_t \tag{4}$$

4.2. Estimation Techniques

All variables in the model were tested for unit roots, to verify whether they can be represented more appropriately as difference or trend stationary process. Our estimated techniques follow the Levine, Lin and Chu (2002) introduced panel unit root tests having various specification depend upon the assumption about specific intercepts and trend. This is combined with the Im, Pasaran and Shin (2003) test developed to check unit root in heterogenous panel, along with, Fisher (1932) test for panel unit root. Thereafter, we follow the bound testing approach to cointegration analysis using then Wald test combine with the Pedroni and Kao residual based cointegration approaches to ensure consistency of our results. Next, we adopt a dynamic model (Panel Autoregressive Distributed Lag model, (PARDL)) as a departure from earlier studies that adopted static modelling approaches. This approach is applied irrespective of whether the series is integrated of I(0), I(1) or mutually cointegrated. In this way the pretesting problems associated with the standard cointegration test such as classification of variables into I(0) and I(1) are avoided. While, we claimed that the justification for the choice of the dynamic model is because relationship between economic variables are not instantaneous and the effects requires a feedback mechanism delay for some period. Earlier studies ignore this fact; however, this present study fill the lacuna in literature.

4.3. Empirical Results

4.3.1. Data and Summary Statistics

The data used in this paper is focused on Africa overlapping the period between 1980 - 2016. The scope and coverage are constrained by data availability consideration. The dataset is from both the United Nation Conference for Trade and Development (UNCTAD) and World Development Indicators (WDI, 2017).

Table 1: Data Descriptions

Variables	Measurements	Symbol	Signs
Private Investment	Gross fixed capital formation	PI	No sign
Fiscal Measure	Government Expenditure	GDPDEF	+
Expected Inflation	GDP Deflator	GDPDEF	±
Exchange rate	log (Nominal Effective Exchange Rate)	EXCH	±
Tax	Tax revenue	GOVTAX	+
Debt Servicing	Interest on Debt Payment	IDP	-

Source: World Development Indicators, 2018.

Table 2: Descriptive Statistic Analysis

	Mean	Median	Maximum	Minimum	Skewness	Kurtosis	Jarque Bera	Prob
LPI	23.21	23.20	28.73	13.84	-0.83	3.67	24.77	0.00
LIDP	19.81	19.52	22.40	17.76	0.22	2.05	8.57	0.01
LGEXP	24.01	23.72	29.09	-2.06	0.61	2.53	13.23	0.00
GOVTAX	1.76	1.02	20.90	2.18	1.99	7.02	246.86	0.00
GDPDEF	15.66	10.19	-5.66	18.83	3.03	14.6	1334.4	0.00
EXCH	139.93	81.35	0.01	180.27	1.61	4.53	97.98	0.00

Source: Authors' computation (2018).

Table 3: Correlation Matrix

Correlation	LIDP	LGEXP	LPI	GOVTAX	GDPDEF	EXCH
LIDP	1.000000					
LGEXP	0.527863	1.000000				
LPI	0.457385	0.209693	1.000000			
GOVTAX	-0.025661	0.070729	0.029943	1.000000		
GDPDEF	-0.189532	-0.078469	-0.506469	0.105165	1.000000	
EXCH	-0.004873	-0.391103	0.674711	-0.112532	-0.323821	1.000000

Source: Authors' computation (2018).

4.4. Econometric Analysis

4.4.1. Unit root test

The methods used to confirm the orders of integration are Levine, Lin and Chu test, Lin Pasaran, Shin and Fisher are reported. These are presented in the table 4 below.

Table 4: Panel Unit Root Test

	Levin, Lin and Chu Test		Lim, Pesaran, Shin		Fisher ADF Test		Fisher PP Test	
	Level	First Difference	Level	First Difference	Level	First Difference	Level	First Difference
LPI	0.13	-6.26*	2.9	-6.59*	1.13	60.92*	1.23	84.40*
LIDP	1.78	-7.00*	1.80	-6.93*	5.30	64.83*	5.42	120.58*
LGEXP	-2.65	-3.75*	2.31	-4.79*	6.72	43.01*	13.8	94.63*
GDPDEF	-1.47***	-4.64*	-3.82*	13.68*	36.12*	138.17*	81.7*	140.18*
EXCH	2.33	-4.24*	3.03	-5.26*	5.78	48.21*	3.94	72.93*
GOVTAX	-1.28	-8.88*	-2.13	-9.45*	21.64	92.38*	39.29	124.12*

* indicate 1%, ** indicate 5%, *** indicate 10% level of significance

Source: Authors' computation (2018).

Table 4 shows that some of the variables are I(0) while some are I(1), thus providing justification for the use of ARDL.

4.4.2. Autoregressive Distributed Lag (ARDL) Results ARDL Cointegration Results

Econometric literature argued that regressing a stationary series on non-stationary series has severe implications in drawing policy inference. The data series provides evidence for the use of Autoregressive Distributed Lag (ARDL) technique of analysis. As posited by Pesaran *et al.* (2001), ARDL is more suitable for variables at different order of integration. The F-statistics estimate for testing the existence of long-run relationship between Fiscal measures and private investment among these countries are presented in Table 5. The estimated F-statistics of the normalized equations (Fcal = 36.08) is at 1% significance level. It implies that the null hypothesis of no long-run relationship is rejected at 1% significance level. The implication of the above estimation is that private investment (PI), government expenditure (GEXP), GDP deflator (GDPDEF), exchange rate (EXCH) and government tax (GOVTAX), all have equilibrium condition that keep them together in the long-run.

Table 5: Existence of ARDL cointegration using Wald Test

Test Statistic	Value	df	Probability
F-statistic	36.08	(4, 65)	0.0000
Chi-square	144.33	4	0.0000
Null Hypothesis: C(1)=0, C(2)=0, C(3)=0, C(4)=0			

Source: Authors' computation (2018).

Table 6: Pedroni Residual co-integration test

	Within- Dimension		Between- Dimension	
	Statistic	Weighted Statistic		Statistic
Panel V	-1.43	-1.32	Group rho	2.53
Panel rho	2.16	1.96	Group PP	2.28
Panel PP	2.03*	1.59**	Group ADF	4.18
Panel ADF	2.83	3.44	-2.29	

*Note. * and ** indicate 1%, and 5% level of significance.*
Source: Authors' computation (2018).

Table 7: Kao Residual Co-integration Test

ADF	-2.29**

*(*) ** indicate 5%, 10% level of significant*
Source: Authors' computation (2018).

sTo further verify the claims of the Wald test based on bound testing approach to cointegration analysis as reported in Table 4. The Pedroni and Kao residual cointegration test was conducted to establish the long run relationship. The results presented in Table 6 and 7 above, both confirmed existence of cointegration analysis.

4.4.3. Long Run Coefficient Estimates and Short Run Error Correction Models using the ARDL Approach

The long run and short-run dynamic relationship between fiscal measures and private investment in selected African countries is presented in table 8 along with the short run error correction model using the ARDL approach.

Table 8: Estimated Autoregressive Distributive Lag (ARDL) Results (Long and Short Run)

Dependent Variable: LPI

	Variable	Coefficient	Std Error	t-statistic	Prob
Long-run Equation	LIDP	0.91	0.58	1.57	0.02
	LGEXP	0.53	0.45	1.89	0.09
	GDPDEF	0.05	0.02	1.88	0.06
	EXCH	0.04	0.03	1.62	0.01
	GOVTAX	0.52	0.34	1.53	0.12
Short-run Equation	C	0.02	0.03	0.75	0.45
	D(LPI(-1))	-0.11*	0.20	-0.53	0.01
	D(LIDP)	-0.10	0.07	-1.53	0.12
	D(LIDP(-1))	0.08*	0.09	0.89	0.03
	D(LIDP(-2))	0.37	0.05	1.48	0.24
	D(LGEXP)	0.59	0.59	0.98	0.32
	D(LGEXP(-1))	0.31*	0.55	0.56	0.05
	D(LGEXP(-2))	-0.15	0.36	-0.41	0.02
	D(GDPDEF)	-0.001	0.03	-0.03	0.17
	D(GDPDEF(-1))	-0.002*	0.06	-1.70	0.08
	D(GDPDEF(-2))	0.01	0.02	0.59	0.55
	D(EXCH)	-0.37	0.37	-0.99	0.33
	D(EXCH(-1))	-0.02*	0.02	-0.80	0.01
	D(EXCH(-2))	-0.02	0.02	-1.12	0.03
	D(GOVTAX)	0.05	0.01	4.46	0.00
	D(GOVTAX(-1))	-0.004*	0.05	-0.09	0.02
	D(GOVTAX(-2))	0.05	0.02	1.80	0.07
	ECM(-1)	-0.44*	-0.09	-1.14	-0.05

*(*) ** indicate 5%, 10% level of significant*
Source: Authors' computation (2018).

The long run estimates as reported in Table 8, show that Interest on Debt Payment (IDP), Government Expenditure (GEXP), Inflation (GDPDEF), Exchange rate (EXCH) and Government tax revenue (GOVTAX) all have positive relation with Private Investment (PI) among five selected African countries. This implies that a 1 percent increase in Private Investment (PI), Interest on Debt Payment (IDP), Government Expenditure (GEXP), Inflation (GDPDEF), Exchange rate (EXCH) and Government tax revenue (GOVTAX) will lead to 0.91, 0.53, 0.05, 0.04 and 0.52 percent in Private Investment (PI). Meanwhile, the long run estimation has shown that all the variables statistically significant influencing Private Investment in Africa, except government tax revenue (GOVTAX).

Making inferences from the studies conducted by Odhiambo (2009) and Narayan, Smyth (2008) and Mounir (n.d.), we further estimate the short-run parameters through the error correction model in relation to the long-run parameters estimates. The results of short run estimates are reported in Table 8 using the Autoregressive Distributed Lag Model based on equation (4). The results of the short run dynamics show that error correction factor is correctly signed and statistically significant impact in the short run. This shows rapid rate of adjustment from the short disequilibrium to the long run equilibrium. As it seen from the result, about 44 percent of deviation from equilibrium was corrected within one year. The analysis of the short run estimates shows that change in the previous (one lagged) period of Interest on Debt Payment (IDP), Government Expenditure (GEXP), Inflation (GDPDEF), Exchange rate (EXCH) and Government tax revenue (GOVTAX) have a negative impact on Private investment during the period reviewed. This means that a 1 percent increase in of Interest on Debt Payment (IDP), Government Expenditure (GEXP), Inflation (GDPDEF), Exchange rate (EXCH) and Government tax revenue (GOVTAX) lead to 0.11, 0.08, 0.31, 0.002, 0.2, and 0.004 respectively.

4.4.4. Post Test: Residual Diagnostic Results

Further analysis was carried out to check the ARDL estimates using the serial correlation LM test, Chi-square and Normality test. All presented in Table 8.

Table 9: Post Tests: Residual Diagnostic Tests

Serial Correlation Test	Heteroscedasticity Test	Normality Test
LM stat: 3.6431 (0.9011)	Chi-Square: 4.0349 (0.63332)	Jargue Bera: 24.3561 (0.2462)

Source: Author Computation, 2018.

Evidently, the results of the serial correlation LM test confirmed the absence of serial correlation in the residual of the ARDL estimate. This is because the values of the LM statistics at various lag were not significant, suggesting that residual were conditionally normally distributed, and the estimate can be used for policy inference.

5. Concluding Remarks

The basis of this paper is to make a modest attempt at analyzing the effects of fiscal measures on private investment in selected West African Countries. We adopted the Panel Autoregressive Distributed Lag (PARDL) Bounds testing approach develop by Pesaran, Shin and Smith (2001) in estimating the relevant fiscal measures fundamentals. The results of our long run estimates show that the interest on debt payment, government expenditure, expected inflation, exchange rate and government tax revenue, all have positive relation with private Investment among the selected African countries, suggesting that fiscal measures have crowd in effects on private investment in the long run. While, the results of the short run dynamics show that change in the previous one lagged periods of the variables negative impacts on private investment, whereas the lagged two of the variables shows positive impacts on private investment in the short run, suggesting that there is a crowd out fiscal measures crowd out private investment in among the five selected African countries. We therefore, recommends that the policy makers need to ensure fiscal discipline in budget execution, if private investment must contribute to meaningful growth and development in Africa.

References

Atukeren, E (2005). Interaction Between Public and Private Investment: Evidence from Developing Countries, *International Review for Social Sciences, 58(3).*

Akpdodje, G. (1998). Macroeconomic Policies and Private Investment in Nigeria. In Ben Aigbokhan, ed; *The Nigerian Economic Society, Ibadan, 59-74.*

Blanchard, O. & Perotti, R (2002). An Empirical Characterization of Dynamic Effects of Changes in Government Spending and Taxes Output. *Quarterly Journal of Economics*.

Hermes, N. & Lenslink, R. (2001). Capital Flight and the Uncertainty of Government. *Economics Letter. 71(3), 377-381.*

Hussain, A., Muhammad, S & Akram, K (2009). Effectiveness of Government Expenditure Crowding in or Crowding out: Empirical Evidence in Case of Pakistan. *European Journal of Economics, Finance, and Administration Science, 16, 144-148.*

Kao, C. (1999). Spurious Regression and Residual based Testing for Cointegration in Panel data. *Journal of Econometrics* 90, 1-44.

Keynes (1936). *The General Theory of Employment, Interest and Money. 1936*

Im, K., Pasaran, H., & Shin, Y. (2003). Testing for Unit Roots in Heterogenous Panels. *Journal of Econometrics,* 115, 1-24.

Levine, A., Lin, F & Chu, F (2002). Unit Root Test in Panel data: Asymptotic and Finite Sample Properties. *Journal of Econometrics*, 108, 53-74.

Madni, R (2013). Instrumental Effects of Fiscal Policy for Pakistan Economy. *Romanian Economic Journal, 16(50), 27-50.*

Madni, R (2014). Taxation, Fiscal Deficit and Inflation in Pakistan. *The Romanian Economic Journal, 53, 41-60.*

Madni, R. & Chaudhary, M. (2017). Economic Growth in Context of Institutions and Fiscal Policy. *Pakistan Economic and Social Review. 55(1), 79-98.*

Mahmoudazadeh, M., Sadeghi, S., & Sadeghi, S. (2013) Fiscal Spending and Crowding Out Effect: A Comparison Between Developing and Developed Countries. *Institutions and Economics, 5(1), 31-40.*

Omojolaibi, J., Okenesi, Touch-Nze., & Mesagan, E.P (2016) Fiscal Policy and Private Investment in Selected West African Countries. *CBN Journal of Applied Statistics, 7(1), 278309.*

Pedroni, P. (1997). Panel Cointegration; Asymptotic and Finite -Sample Properties of Pooled Time Series, With an Application to PPP Hypothesis: New Results. *Indiana University Working Paper in Economics.*

Pesaran, M.H., Shin, Y. & Smith, R.J. (2001). Bounds testing approaches to the analysis of the level relationship. *Journal of Applied Economics 16: 289-326.*

Sineviciene, L. & Vasiliauskate, A. (2012). Fiscal Policy Interaction with Private Investment: The Case of Baltic State. *Inzinerine Ekonomika-Engineering Economic, 23 (3), 233-241.*