FDI, IMPORT WEIGHTED TARIFF AND DOMESTIC INVESTMENT IN SUB SAHARAN AFRICAN COUNTRIES

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ABSTRACT

Macroeconomic environment and policy framework are drivers to domestic investment, like other region, SSA region is affected by low return to investment stem from inadequate policy framework especially the SAP 1986, global financial crisis of 2007-2008 and lingering debt crisis. This study used a panel data set of twenty four (24) countries spanned 2006 to 2017. The rationale of exploring SSA countries is due to unstable investment profile which continued to reduce the size of domestic investment. The study employed pooled ordinary least square regression with robust option, the fixed effect and random effect estimation with robust options to ensure robustness of the result. The results of the study revealed that coefficient FDI, law and order, export and GDP exerts positive influence on domestic investment. Corruption and import weighted tariff impact a negative influence on domestic investment. Although SSA may not have kept pace with global ambition and SDG goals, the region had made progress in strengthening indigenous investment through sound macroeconomic environment and fiscal consolidation, corruption hiders investment due to the increasing cost of business and risk associated to it. SSA countries depend on import technology to drive their economies, when import weighted tariffs are high, it deters investors and more so, the negative coefficient shows that SSA countries have poor compliance to tariff guide lines. Thus, strengthening institutional quality will reduce cost of doing business and confidence of domestic investors. There should be a realistic reform of investment policy for domestic firms and legislation to support the activities of investors. There should be improved legal and regulatory framework that can limit investment risk, distortions, restrictions which can stimulate domestic investment.

Key words: *Macro-economic environment, Sustainable Development Goals, Domestic investment, Import weighted tariff, FDI*

1. INTRODUCTION

Investment is clearly a hub and catalyst to growth of a region. No doubt nations strategize development programs to eradicate poverty and related macroeconomic issues that might reduce human welfare. Clearly, reports revealed that poverty consumes almost more than a half of Sub

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Saharan African population. Statistically, out of 736 million persons who survived below $1.90 per day in 2015, Sub-Saharan Africa positioned a population of 413 million. An implication for calories resulting from poor income led calories intake persons to escalate from population of 195 million in period 2014 to about 237 million in year 2017 indicating an upswing from 20.7 per cent in year 2014 to 23.2 per cent in period 2017 (see SDG, 2019). SSA countries have inadequate resources to finance development thus, relying on supportive FDI to fill the resource gap cannot be underestimated (UNCTAD, 2013). For instance, in each year, the regions target is to invest $93 billion per year to match-up finance with developmental goals. The real investment met in the region amounts to $45 Billion which shows that so much is needed to close the gap which is estimated to about $50 billion per year. A large gap always opens between actual and desired capital which result to sorting for different sources of finance. The poor macroeconomic framework and failure of structural adjustment policy program led slow policy response on the light of decayed infrastructure, political stability, low return to investment, poor human skill.

According to UNCTAD (2014) external and domestic sources determines financial investment. Thus the challenge of poor savings leaves SSA countries with no option than outsourcing funds to close the gap. In the year 2012 the amount of savings ratio stood at 17.7 percent in the region, Middle-income countries savings ratio stood at 30.4 per cent, South Asia stood at 25.2 per cent and lastly, Latin America and the Caribbean savings investment gap stood at 22.3 per cent. This indicates that SSA region investment profile is low in terms of savings investment ratio. Statistics also shows that between 2014 and 2015, domestic investment stood at 21.7%. In 2016, it slightly rose to 21.26% and declined sharply to 20.56% in 2017 indicating a 0.7% drop in domestic investment in SSA region. In 2018, it stood at 20.90% and 20.29% in 2019 indicating a sharp drop by 28.44% between 2017 and 2019. Studies have emerged on trade liberalization on domestic investment but few studies employed the static model see Lautier and Moreaub, (2012); Vijayakumar, Sridharan and Sekhara Rao (2010). Similarly, several of these studies estimated trade liberalization in trade ratio different from weighted import tariff. Hence, the estimate did not measure the effect of activities especially cross border operations and forms of restrictive policies such as tariffs (see Shaheen *et al.* 2013 and Adhikary 2012; Serge and Yaoxing 2010). Corruption, bureaucracy and lack of rule of law imply higher direct costs on investors, unfortunately, studies on these variables are relatively scanty. It is in view of the aforementioned this study intends to estimate the relationship that exists among trade liberalization, corruption, law and order and domestic investment

in SSA countries. The low investment return and poor policy framework continued to halt local investment and this also not farfetched from the stability of this region and ineffective policies over time despite excessive dependence on primary commodities and fiscal consolidation. That raised some questionable subject in midst of investors as to whether or not macroeconomic environment play a role in attracting more investment in the region. The outcome is substantially significant to investors to direct their business choices and preferences and goals. Policy makes will build a key policy framework with the view to restructuring the economy to be resilient in the event of global economic crisis and this is possible through reform process tailored towards reducing trade tension and boosting local investment, reducing the associated risk that erode investor confidence hence sustaining good functioning of macroeconomic environment. Thus, to achieve the set objectives, this paper is categorized into five sections including this introduction. Second section presents the theoretical framework and literature review, third section contains the methodology employed in the study and the fourth section presents the empirical results and discussion of findings. Finally, fifth section of the study deals with the conclusion and recommendations.

2. LITERATURE REVIEW

This study is structured into two sub sections. Section 2.1 of the study explores the review of theoretical literatures and 2.2 of this study capture the review of empirical studies.

2.1 Review of Theoretical Literature

The theory on closing investment gap in developing countries postulated that investment is flexible accelerator (Green, 2003 and Gujarati, 2003). According to the theory of flexible accelerator, the more the existing gaps between desired and actual capital stock ensures and widens, the more rapid a firm's ratio of investment. Thus ensues between the capital stock needed for investment and amount of capital stock available. This gap is indicated by Lagrange multiplier function denoting the size of investment that is required to be filled.

SSA economies require additional investment capital to add to the existing capital to close the gap of liquidity or capital constraint to finance investment and by allowing FDI to add to domestic investment (Gross Fixed Capital Formation) shows the significant role FDI plays on liquidity constrained nations. The theory of adopted for this study is the theory of flexible accelerator capital stock adjustment by (Green, 2003).

2.2 Review of Empirical Studies

Several studies have emerged on the nexus between domestic investment and FDI, for instance, a study by Khatib, Alfaled and Alokor (2012) employed the ARDL cointegration technique to explore the determinants of domestic investment using data on Jordan economy spanned the period 1980 to 2005. Result revealed that variables were cointegrated with domestic investment. Both export and GDP are positive and statistically significant. The coefficient FDI has a positive sign although the effect is not significant explaining that FDI crowds in domestic investment however, the effect is not as much as GDP and export.

Borensztein *et al*. (1998) in a study employed the effect of institutions on domestic investment, the study revealed a positive long run between institution and domestic investment Lambsdorff (2002) in another study explored the impact of institutional quality on capital flows employing OLS and two stage least square approach, the study employed panel data set of 60 countries. The coefficient institutional quality and corruption have negative effect on domestic investment.

Desai *et al.* (2005) in a study US multinational firm to find the nexus between domestic and foreign investment, results posits a positive nexus between FDI and domestic investment. the fact that several of these studies have emerged on the topic, they rarely focus on the effect on domestic investment. However, Baliamoune-lutz and Ndikumana (2009) attempted to explore the impact of corruption on domestic investment using sample of 33 African countries for the spanned 1982 to 2001 and applying the generalized method of moment (GMM) the result of the study revealed a negative nexus between series under study.

In another study by Vijayakumar, Sridharan and Sekhara Rao (2010) they employed panel data set on BRICS economies spanned 1975 to 2007 to investigate the factors that influences FDI applying the OLS and least square dummy variable estimators (fixed effect) and Random effect. Result of the study posits a positive and significant relationship between openness to trade and economic stability such as inflation and FDI.

Lean and Tan (2011) employed data on Malaysia from 1970 to 2009 to estimate the nexus between FDI and domestic investment applying the stationarity test approach and Johansen cointegration test. The result of the study reveals a positive statistically significant nexus between FDI and domestic investment. However, coefficients FDI and domestic investment have positive effect on growth.

In another study, Bakare (2011) employed data on Nigeria for the period 1986 to 2009 to investigate the effect of corruption on investment

growth. The study employed the stationarity test and cointegration test, the result of the study depicts that corruption posits a negative influence and it is significant at one percent. Furthermore, GDP had a positive and effect on domestic investment.

Eregha (2012) employed data on ECOWAS to estimate the dynamic nexus between FDI and domestic investment spanning 1970 to 2008 employing stationarity test and cointegration test. The results of the study depicted a cointegration between FDI and domestic investment. The result for granger causality test shows that FDI granger causes domestic investment and domestic investment granger causes FDI in selected ECOWAS countries.

Lautier and Moreaub, (2012) in their study employed 68 countries spanning 1984 to 2004 to empirically explore the linkage between domestic investment and FDI in less developed countries applying the OLS technique of estimation. Rest revealed a positive and significant nexus between domestic investment and FDI, Domestic investment when lagged has a positive and significant influence on FDI. For instance, a one percent change in domestic investment increases FDI by 0.12% on average ceteris paribus.

Similarly, Al-Sadiq (2013) explored the effect of outward FDI on home domestic investment using data for 121 less developed countries spanned 1990 - 2010. This author employed the generalized method of moment approach introduced by Arellono and Bover (1995); Blundell and Bond (1998) which solves for endogeneity and country specific issue related to panel data estimation. The results of the study indicated negative nexus between FDI and domestic investment. Statistically, 1% change in FDI discourages domestic investment by about 29% domestic investment on an average ceteris paribus. Domestic investment can also be used as an instrumental variable when lagged once it also showed a positive sign on current domestic investment. However, the coefficient trade liberalization negatively affects domestic investment.

Farla, Decrombrugghe and Verspagen (2014) in their study explored the link between domestic investment and FDI. The study also investigate the role of institutions and government applying the system GMM technique of estimation, the authors used the lagged value of domestic investment as additional instrument explaining domestic investment. The results of the study shows a positive and significant relationship between FDI and domestic investment which further stressed the argument that FDI crowd in investment but rather crowd out investment. The role of government posits a positive effect on domestic investment. However, the coefficient rent seeking posits a negative and significant impact on domestic investment.

Nguyen, Nguyen and Tran-Nam (2014) in their study explored the linkage between corruption and Economic growth through domestic

investment on 81 countries for the period 2000 to 2012, applying GLS approach with endogeneity and over-identification test, result indicated a positive impact on economic growth through domestic investment, for instance, a one percent change increase in coefficient corruption results to averagely 2.15% change in gross domestic investment over GDP.

Akanbi (2016) in a study examines the determinants of domestic investment in 45 SSA countries for the period 1996 to 2013 applying the two stge least square technique, the result of the study shows that quality of institutions is a strong determinant of domestic investment.

Hamadi and Thanoon (2019) used data on Turkey for the period 970 to 2011applying VAR and error correction model to investigate the determinants of domestic investment, the authors report a positive relationship between FDI and domestic investment.

3. DATA AND METHODOLOGY

The panel data set was employed for this study, it covered 24 SSA spanned 2006 to 2017. What informed the decision on sample size of countries and observation is the data availability which is sampled in the form of non-probability sampling approach. Data used for the study was sourced from World Development Indicators 2014 (import weighted tariff proxy of trade liberalization, export, GDP was used to measure market size, FDI, Gross fixed capital formation was measured using domestic investment) published by World Bank. Institutional quality variables (law and order and corruption) are sourced from International country Risk Guide (ICGR)

The modified model for this study is estimated thus:

$$DI = \beta_0 + \beta_1 Tradlib + \beta_2 Exchrate + \beta_3 Export + \beta_4 InstQuality + \beta_5 Marketsize + \beta_6 FDI \varepsilon_{it} \quad (3.1)$$

Where:

DI = Dependent variable

β_0 = constant or intercept

$\beta_1 \beta_2 \ldots\ldots \beta_6 =$ Slope coefficient in term of explanatory variables

$\varepsilon_{it} = errorterm$ Captures unobserved characteristics.

To introduce the fixed effect with large sample size data set we specify model as;

$$y_{it} = \alpha_0 + \sum_{j=2}^{k} \alpha_j x_{jit} + \sum_{p=1}^{s} \beta_p z_{pi} + u_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.2)$$

Where:
Y denotes the dependent variable
X_j are the observed explanatory variables
Z_p are unobserved explanatory variables

In panel data estimation, we assume the country specific effect and time invariant are possible problems associated with fixed effect estimation therefore, the equation is expressed as:

$$\delta_i = \sum_{p=1}^{s} \beta_p z_{pi}$$
$$y_{it} = \alpha_0 + \sum_{j=2}^{k} \alpha_j x_{jit} + \delta_i + u_{it} \quad \text{.....(3.3)}$$

Thus, δ_i is described as the individual country and unobserved specificity unit effect that could reduce the heterogeneity issues. The changes that exist in the dependent variable is a function of the means of the independent parameters which the Within-groups fixed effects explained.

The estimation has challenge especially missing some important properties of *x* variables that remain constant for an individual.

$$y_{it} - \bar{y} = \sum_{j=2}^{k} \beta_j (x_{ijt} - \bar{x}_{ij}) + (u_{it} - \bar{u}_i) \quad \text{..... (3.4)}$$

The unobserved heterogeneous country specificity effect is corrected applying model 3.3 applying the first-difference of explanatory variables, robust properties of *x* variable is guaranteed, however, no first order autocorrelation is achieved as well. If the heterogeneous unobserved country specificity effects exists and distributed randomly, here it is possible to treat α_i as random parameters, retrieve through a given distribution. It is possible to include the unobserved country specificity effects into the disturbance term to give as

$$y_{it} = \alpha_0 + \sum_{j=2}^{k} \alpha_j x_{jit} + v_{it}$$
$$v_{it} = \delta_i + u_{it} \quad \text{..... (3.5)}$$

The random effects model is preferred to fixed effects model with remain constant for each individual entity remain in the model but have to remove for fixed effects models.

To specify vce (robust) prefix or vce (cluster clustvar) makes Huber/White/sandwich VCE estimator to calculate coefficients estimated in this regression. According to Wooldridge (2020) and Arellano (2003), this approach provides a robust outcome of result by application of robust option in the equation. Such prefix as OLS robust, fixed effect robust allows the removal of correlated coefficients and also provides a more robust outcome of standard errors that may give the best linear unbiased estimate.

4. EMPIRICAL RESULTS AND DISCUSSIONS

This part of the paper discusses the result of the fixed and random effect estimation.

Table 4.1 Fixed and Random Effect Estimation

Variables	Ols(robust)	fe	re	Fe vce rob	Re vce rob
fdi	.091***	.034***	.045***	.034**	.045***
	(.02)	(.016)	(.01)	(.02)	(.02)
tariff	-.149***	-.100**	-.112**	-.100*	-.112**
	(.02)	(.13)	(.09)	(.20)	(.13)
gdp	.036***	1.059***	.057***	1.059***	.057***
	(.009)	(.27)	(.02)	(.42)	(.02)
export	.072**	.166***	.164***	.166**	.164***
	(.05)	(.072)	(.06)	(.11)	(.09)
curr	-.0091*	-.061**	-.047**	-.061**	-.047**
	(.05)	(.051)	(.05)	(.06)	(.05)
laword	.139***	1.441***	.700***	1.441***	.700***
	(.07)	(.39)	(.25)	(.76)	(.38)

Source: Author Computation using STATA 13 Notes:*** ** *denotes statistical significance at 1%, 5% and 10% respectively standard errors. (in parentheses).

The outcome of result in table 4.1 in pooled ordinary least square regression revealed that FDI, GDP, rule of law and order impact a positive effect and significant influence on domestic investment at 1% level of significance. Import weighted tariff posit a negative influence on domestic investment at 1 percent level of significance. Applying OLS with variance covariance matrix estimation vce(robust) option, the R-square shows that 0.4586 changes in

domestic investment in 24 SSA sampled countries is defined by the explanatory parameters included in the model. It is important to note that the pooled OLS does not recognize differences that exist among sampled countries for instance the heterogeneity that exist among countries. The fixed effect estimation with time varying effect is employed owing to its advantage over the pooled OLS. First, it allows for heterogeneity that exists in panel data analysis secondly, intercept varies across countries; it may differ over time indicating time invariant. Thirdly, including the time varying effect, the result of this study revealed that FDI, GDP, law and order and export have positive significance effect on domestic investment.

Similarly, employing the random effect regression which has the feature of common mean value intercept, the result revealed that tariff and corruption have a negative effect on domestic investment at 5% level of significance, however, FDI, GDP, export and law and order revealed a positive effect on domestic investment in 24 SSA countries.

Applying the Hausman specification test to choose between fixed effect and random effect, the hypothesis is followed with rule of thumb. The null hypothesis defines the random model as most appropriate while the alternative hypothesis defines fixed effect estimation as most appropriate. The significant p-value is carefully followed. If the significant p-value is significant at 1%, the alternative hypothesis is most appropriate and if not significant at 1%, the random effect estimation is most appropriate. Although the result showed that random effect approach is appropriate, this study included the vce(robust) option or prefix to solve for heteroscedasticity and autocorrelation. The result shows that import weighted tariff and corruption have negative effect on domestic investment at 5 percent level of significance. However, FDI, export, GDP and rule of law and order revealed a positive influence on domestic investment in SSA countries.

5. CONCLUSION AND RECOMMENDATION

This study empirically explored some fundamental macroeconomic parameters that influences domestic investment applying 24 SSA spanned 2006 to 2017. The study used static effect models such as the fixed and random effect approach. The result shows FDI has a positive nexus with domestic investment supporting no crowding out effect hypothesis, this finding confirm the study by Lean and Tan (2011). The coefficients export, rule of law and order and GDP also impact positively on domestic investment. Corruption and import weighted tariff impact a negatively on domestic investment. Although SSA may not have kept pace with global ambition and SDG goals, the region had made progress in strengthening indigenous investment through sound

macroeconomic environment and fiscal consolidation will reduce cost, increase investment locally. Thus, Fiscal policy must build up resilience when volatility hits the market.

Overall, the fight against corruption does help in increasing investment. Although it is not capable of driving sustainable investment, regulations, institutional quality and policies have affected the success in promoting investment in the region.

Tariff has a significant influence on GFCF. Tariff measure may have recorded little success in driving investment, other policy measures, such as the non-tariff measures that can potentially have an economic effect on investment have a critical role to play in several ways Law and order has a negative effect on GFC. This supports the findings by Lambsdorff (2002). If other institutional quality parameters are supported, they could support greatly in affecting law and order which consequently drives investment as well.

A realistic reform on investment policy, legislation for domestic firms providing for sound and efficient macroeconomic environment which removes all distortions that mitigate the activities of domestic firms in the economy will be necessary.

A successful strategy to increase investment is that there should be improved legal and regulatory framework that can limit investment risk and uncertainty, hence reducing tariff on import will assist to stimulate domestic investment.

Strengthening institutional quality in the economy and Sectoral level which eventually will sustain a healthy business environment for investors both locally and internationally should be a priority for policy makers

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