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## Article

# Tax incentives, ease of doing business and inflows of FDI in Africa: Does governance matter?

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## GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

# Tax incentives, ease of doing business and inflows of FDI in Africa: Does governance matter?

Adamu Braimah Abille<sup>1\*</sup> and Sulemana Mumuni<sup>2</sup>

**Abstract:** Apart from the corporate tax rates, the ease of doing business (EDB) index accounts for the cross-country or regional differences in the inflows of foreign direct investment (FDI) as established in the literature. However, this study contends that institutional quality indicators are critical to complement the role of the EDB in attracting the desired FDI into Africa. For empirical evidence, the study performs governance indicators-related step-wise system-GMM estimations of the effect of corporate tax, un-interacted EDB, and the interplay between EDB and governance indicators on the net inflows of FDI using data from 2015 to 2019 for 50 African countries. The findings show that the corporate tax rate and the un-interactive EDB have significant negative effects on the inflows of FDI in Africa in the short- and long runs. In contrast, governance indicators such as control of corruption, political stability, regulatory quality, rule of law, and government effectiveness complement EDB to exert positive effects on the inflows of FDI in Africa, albeit the findings are not generally significant. Thus, to attract the desired FDI, the study inter-alia calls for strict institutional quality assurance in Africa.

**Subjects:** Industrial Economics; Econometrics; International Economics; Development Economics

**Keywords:** Ease of doing business; governance indicators; FDI; panel analysis; Africa

## 1. Introduction

The impact of FDI inflows on economic growth, particularly in the host country, has been heavily discussed in the growth and development literature, with most studies concluding that FDI inflows impact positively the economic growth of the host country (See, for example, Alabi, 2019; Farole & Winkler, 2014; Isaac & Matthew, 2017; Sung-ming, 2014; Tee et al., 2017; among others). This argument stems from the fact that inward FDI leads to technology and capital transfers and increases the product value chains, leading to higher economies of scale and consequently better economic outcomes in the host country. While there is broader consensus in the literature regarding the positive impact of FDI inflows on growth, the most important question among researchers and policy analysts is why some countries attract more FDI inflows than others. Studies on the determinants of FDI inflows concentrate on macroeconomic variables such as the market size and potential with little attention being given to corporate tax rates, the ease of doing business index, and the complementary role of institutional quality factors in attracting FDI inflows, in especially developing countries.

Most developing countries have used lower corporate taxes, loose governmental controls, and lower tariff regimes as instruments for FDI attraction (Azémar & Delios, 2008; UNCTAD, 2016). Yet, the level of FDI inflows continues to decline in these countries. For instance, statistics from the World Bank indicate that between 2015 and 2019, the amount of FDI inflows to Sub-Saharan

African countries has fallen from 2.64% in 2015 to 1.73% in 2019. Thus, a whopping 0.91% decline in the inflow of FDI into Sub-Saharan African countries within just 4 years.<sup>1</sup>

Consequently, there is still no clear-cut link between lower corporate tax rates and FDI inflows in developing countries (Azémar & Delios, 2008), particularly in Africa. Thus, are lower corporate tax rates seen by investors as an incentive to invest in one country? Or is it seen as compensation for weak macroeconomic fundamentals? Both theoretical and empirical studies of FDI inflows' determinants indicate that market-based variables are the most important determinants of FDI inflows. However, few empirical studies (Adamu Braimah et al., 2020; Appiah-Kubi et al., 2021; Azémar & Delios, 2008; Bénassy-Quéré et al., 2005; Bucovetsky & Wilson, 1991) have shown that direct fiscal incentives such as lower corporate tax rates play a much significant role in influencing the inflows of FDI in countries with disadvantages in market-based indicators such as market size and potentials. Therefore, this study argues that the corporate tax rates are critical in deriving FDI inflows in the context of Africa, only in the presence of favourable ease of doing business environment complimented with the institutional quality framework.

Against this background, the study contends that aside from the macroeconomic factors and corporate tax rates, institutional factors such as government effectiveness; regulatory quality; political stability and absence of violence/terrorism; control of corruption; rule of law; as well as voice and accountability also play important role in foreign investors' decisions regarding which location to invest. These macroeconomic or market-based determinants are necessary but insufficient to explain the cross-country differentials in FDI inflows. This is evident by reports from the United Nations Conference on Trade and Development (UNCTAD, 2016) and the World Bank (2016), which indicate that countries have over the past decades adopted several changes that favor incoming FDI than those that restrict them. Yet, FDI inflows continue to rapidly vary across countries, and this calls for serious attention as to what other factors are accounting for these variations.

The theory of institutional quality provides us with a limited level of understanding as to the role of the quality of institutions in driving the inflows of FDI into a country. This is because previous studies have used either one or a few of the institutional quality indicators to analyze its effects on FDI inflows (see for examples: Alfaro et al., 2008; Khan et al., 2021; Lu et al., 2014; Pajunen, 2008)). Similarly, the Ownership, Location, Internalization (OLI hereafter) Paradigm or the Eclectic Paradigm propounded by Dunning (1977), which he defined on another occasion in 1988, presents a general framework to identify and evaluate the most important determinants of foreign investment by enterprises and the growth of a foreign investment. The OLI paradigm in its "location" leg underscores the significant role of the peculiarities of the host country, such as its institutions, labor cost, and tariff barriers, in explaining FDI decisions by foreign enterprises or multinational companies (MNEs; Lundan, 2008).

In particular, empirical studies by (Alguacil et al., 2011; Aziz, 2018; Contractor et al., 2020; Lundan, 2008) conducted over the past reveal that institutional quality plays a greater role in influencing firms' decisions regarding which countries to invest in. They contend that to attract more FDI inflows, host country governments should develop their local capacities related to the macroeconomic and institutional environment. Thus, host country governments should design several policies that are aimed only at promoting incoming FDI while controlling or improving their political and economic environment. Additionally, Alfaro et al. (2008) used the institutional quality theory to demonstrate that a country receives an extra \$79 m as incoming FDI per capita compared to an average country in the world when the country moves up in the institutional quality ranking from the 25<sup>th</sup> percentile to the 75<sup>th</sup> percentile. This suggests that the quality of the host country's institutional environment matters most in MNEs' decisions as to which country to invest their loadable funds or capital.

Although institutional and macroeconomic theories explain why some countries receive more FDI inflows than others, these theories have not yet accounted for most of the factors accounting for such disparities (Contractor et al., 2020). The theories use only one or a few of the macroeconomic and institutional quality indicators to make a point regarding their significance in determining FDI inflows. These theories failed to capture most of the institutional quality and macroeconomic indicators. Against this backdrop, the current study leverages the institutional quality indicators provided by the World Bank, the ease of doing business, in addition to the host country's corporate taxation policy to analyze the impacts of these factors on FDI inflows, particularly in Africa.

In all, despite the numerous studies conducted on the FDI-vis-a-vis-Institutional quality scholarship, few studies both theoretical and empirical explore the nexus between these concepts in developing countries, specifically in the context of Africa. This study, therefore, employs the Generalized Method of Moments (GMM) estimators on data from 2015–2019 for a panel of 50 countries<sup>2</sup> in Africa to examine the role of institutional quality using disaggregated governance indicators, corporate tax rates, and the ease of doing business in determining FDI inflows in Africa.

The rest of this paper is organized as follows: the second section discusses the literature review on the subject matter where the associated theoretical and empirical reviews are analyzed; the third section presents the methods and sources of data; the fourth section looks at the estimation strategy; the fifth section presents the results and discussions, while the sixth and final section presents the conclusion and policy directions.

## 2. The literature

This section presents the theoretical and empirical literature relative to the importance of the ease of doing business index as well as the governance indicators in the attraction of FDI inflows in Africa and elsewhere.

### 2.1. Theoretical foundation

MNEs undertake several cross-border tradable activities in goods and factors of production that make them broadly classified in international economics. It is often presumed that while undertaking such activities, MNEs deliver several important contributions in terms of employment, investment, and foreign exchange as well as its spillover potential—thus, the productivity gain resulting from the diffusion of technology and knowledge from foreign firms to domestic producers and workers, and ultimately leads to growth development in the long-run (Farole & Winkler, 2014)

Over the past decades, theories abound in the literature of international and development economics to attempt to explain the reason and purpose for the existence of MNEs. These theories help answer some of the basic questions such as 1) what induces domestic firms to go and produce abroad? 2) What factors enable them to do so? and 3) why do MNEs undertake different forms of investment abroad? As succinctly put by Dunning (1977), “no single theory of international trade can satisfactorily explain all forms of cross-border transactions in goods and services.” However, of the numerous theories that tried to explain international business, MNEs, and FDI, the one developed by Dunning in 1976 received prominent and international support (Sharmiladevi, 2017).

Therefore, the theory underpinning this study is the OLI (Ownership, Location, and Internalization) paradigm or the Eclectic paradigm theory of Dunning (1977), but its origins can be traced back to the mid-1950s. In particular, this study is located within the “locational advantage leg” of the eclectic paradigm theory as it encapsulates the main parameters of the study.

The eclectic paradigm theory makes three propositions that drive foreign investment, namely,

- (1) The (net) competitive advantages which firms of one nationality possess over those of another nationality in supplying any particular market or set of markets. According to

Dunning (2001), these advantages may arise either from the firm's privileged ownership of, or access to, a set of income-generating assets, or from their ability to co-ordinate these assets with other assets across national boundaries in a way that benefits them relative to their competitors, or potential competitors;

- (2) The extent to which firms perceive it to be in their best interests to internalize the markets for the generation and/or the use of these assets; and by so doing add value to them;
- (3) The extent to which firms choose to locate these value-adding activities outside their national boundaries.

The OLI paradigm in its "location" leg underscores the significant role of the peculiarities of the host country, such as its institutions, labor costs, and tariff barriers, in explaining FDI decisions by foreign enterprises or MNEs (Dunning, 2009; Lundan, 2008). This suggests that the nature of the host country's taxation policy, the availability of and supply of low-cost but qualitative labor, and the quality of government institutions all play a significant role in MNEs' decisions regarding where to settle as they are driven by profit motive (Dunning, 2001, 2009).

Similarly, Caves (1971) commenting on the location advantage leg of the tripod eclectic paradigm, contends that the size and growth of domestic markets, the supply of skilled and cheap labor, well-developed infrastructure and institutions, as well as the macroeconomic environment of the host country arguably exert great influence on the decisions of market-driven foreign investors. Dunning (2001, 2009) opined that the variables depicting location (L)—be they labor cost, tariff barriers, the presence of competitors, or agglomerative economics, rest on the tenets of one or other contextually related location theory, and the assumption that investors will seek to locate their value-added activities at the most profitable points in space.

Finally, the location advantage leg of the OLI paradigm theory broadly captures the main parameters (host country's institutional quality and corporate tax rates) considered for this study. Therefore, the OLI paradigm location leg provides us with leeway in modeling the role of institutional quality and tax incentives in driving FDI inflows and is thus suitable for this study.

## **2.2. Empirical review**

This section discusses the related empirical literature on the corporate tax rate-institutional quality-visa-vis-FDI inflows research genre.

### **2.2.1. Relationship between institutional quality and FDI inflows**

Pajunen (2008) in a study to examine the role of institutional factors in determining the inflow of FDI used a relatively new methodological approach of fuzzy-set analysis on data covering the period 1999 to 2003 for 47 host countries. The study also investigates how and why nations with different degrees of membership in different institutional barriers either attract or do not attract FDI. The findings show that institutional factors have diverse influences on FDI attractiveness. The study further indicates that if different regional classifications of countries are analyzed, similar institutions may even have varied outcomes on the attractiveness of FDI. The study thus concluded that the attractiveness of FDI results from a combination of several institutional factors but is not associated with the presence or absence of just one institutional variable.

Moreover, Aziz (2018) conducted a study to investigate the impact of institutional quality on FDI inflows in the Arab region. The study employed the system GMM estimation on data over the period 1984–2012 across 16 Arab countries. The findings reveal that the institutional quality variables of ease of doing business; economic freedom; and international country risk (ICRG) have a positive and statistically significant impact on FDI inflows in Arab countries. Similarly, Tag (2021) employed the system-GMM estimation approach on data from 2000–2016 for a sample of 150 countries to examine the nexus between FDI net inflows and three judicial institutions of property rights protection: judicial contract enforcement; judicial independence; and judicial

impartiality. The study found that there exist positive and statistically significant relationships between FDI net inflows and both judicial independence and impartiality. While judicial contract enforcement was found to have a weak association with FDI net inflows. The study concluded that there is a need to unbundle institutions to effectively understand their influence on FDI net inflows.

Besides, Alfaro et al. (2008) carried out a study to examine the empirical role of different explanations for the lack of capital flows from rich to poor countries-the “Lucas Paradox.” The study found that between 1970 and 2000, low institutional quality was the leading factor responsible for such outcomes. The study then highlights the importance of institutional quality in driving FDI inflows by concluding that enhancing the institutional quality of Peru to that of Australia will imply a quadrupling of foreign investment in Peru. More closely, Mahmood (2018) employed the auto-regressive distributive lag (ARDL) model to perform a time series analysis of the relationship between FDI inflows and institutional stability. The study found that FDI inflows and institutional stability are cointegrated eventually and that institutional stability positively affects FDI inflows as it is an exogenous variable and FDI, is an endogenous variable.

Additionally, Bailey (2018) used a meta-analysis to synthesize and review past research on the nexus between institutional factors and the host country’s FDI attractiveness. The study employed prior tests obtained from 97 primary studies for the analysis. The findings show that institutional quality factors such as political stability; rule of law; and democracy greatly influence FDI attractiveness, while other factors such as corruption, cultural distance, and tax rates deter it. Also, Lu et al. (2014) examine the extent to which the Chinese government supports FDI projects how the host country’s institutional environment interacts with prior entry experience by Chinese firms, and how this interrelationship affects FDI undertaken by Chinese firms. The study used publicly Chinese listed firms spanning the period 2002–2009 and found that Chinese government support and well-developed host country institutions reduce the importance of prior entry experience and greatly increase the probability of FDI entry into a host country.

Furthermore, Bartels et al. (2014) examined the salient features of Location-specific Factors (LSFs) in Sub-Saharan Africa (SSA) about FDI net by MNEs. The study adopted an Exploratory Factor Analysis (EFA) of MNEs consisting of 758 in 2003; 1216 in 2005; and 2402 in 2010 to make a comparison in terms of the variability in LSFs for 10, 15, and 19 SSA countries, respectively. The study found that the most important factors influencing the political-economic and trade dynamics of a host country to FDI inflows are stable over time. The findings further show that in 2010, inputs of production were the most important factor influencing the inflow of FDI in SSA countries followed by political-economic stability.

#### *2.2.2. Relationship between corporate tax rates and FDI inflows*

The previous empirical literature on the corporate taxation-visa-vis-FDI inflow relationships shows that a host country’s corporate taxation highly influences the attractiveness of FDI, though little empirical literature discusses greatly on this in developing countries, particularly in Africa. To begin, Simmons (2003) used constructed indices of corporate tax attractiveness for selected countries to investigate the relationship between the indices and the inflow of FDI. The study found that there is exist a positive and statistically significant relationship between the indices and FDI inflows, and between individual tax system attributes and FDI inflows. Thus, reaffirming the proposition that a host country’s corporate taxation influences the number of FDI inflows. In contrast, Zee et al. (2002) contend that the justification for the use of tax incentives for FDI attractiveness should be limited to the rectification of market failures and that the ideal forms of tax incentives are those that provide for faster recovery of investment costs.

Moreover, Abille et al. (2020); and Etim et al. (2019) conducted a study to investigate whether tax incentives influence FDI decisions by foreign firms. While the former used the panel ARDL model on data covering the period 1975–2017 to explore this relationship in the case of Ghana, the latter used multiple regression analysis to empirically examine the nexus using data from 1999–



2017 for the case of Nigeria. The former study found that tax incentives positively influence FDI decisions in the long run, while it deters FDI decisions over the short term. However, the latter found that even though cost-related corporate tax incentives influenced FDI decisions more than profit-related tax incentives, both were generally insignificant.

In addition to the above, Appiah-Kubi et al. (2021) used the random-effects panel model on data spanning the period 2000–2018 for 40 selected African countries to examine the impact of tax incentives on FDI inflows. The study found that FDI inflows are greatly influenced by lower corporate income tax in Africa. Also, the findings further indicate that FDI inflows are higher in African countries with longer tax holidays and tax withholding than in those with fewer of these fiscal incentives. However, the tax concessions were identified to be insignificantly related to the inflows of FDI in Africa. The study then recommended that there should be a proper restructuring of the tax incentives in Africa to deal with the policy lapses to achieve sustainable development goals.

Furthermore, Haufler and Wooton (1999) analyze the relationship between a country's size, tax competition, and FDI inflows using the case of two countries of unequal size trying to attract a foreign-owned monopolist to invest in their economies. The findings indicate that when national governments have only a lump-sum profit tax or subsidy at their disposal but face exogenous and identical transport costs for imports, then both countries will be willing to offer a subsidy to the firm. Also, the study shows that the firm would prefer to locate in a country with a larger market where it will be able to charge a higher producer price. Perhaps, this suggests that a country's market size influences FDI inflows more than corporate tax rates, especially when both offer similar tax incentives to the investor.

However, De Mooij and Ederveen (2003) analyze the effects of company taxes on the allocation of FDI. This study compares the outcomes of 25 empirical studies by computing the tax rate elasticity under a uniform definition. The findings reveal that the median value of the tax rate elasticity in the literature is around  $-3.3$ . Thus, a percentage point decrease in the host-country tax rate increases FDI inflows by about 3.3%. In the same vein, Bénassy-Quéré et al. (2005) use a panel of bilateral FDI flows among 11 OECD countries from 1984–2000 to examine the role of corporate tax rate differentials in determining FDI inflows across countries. The study found that although agglomeration-related factors are strong determinants of FDI, tax differentials also play a significant role in understanding foreign investors' location decisions.

Last but not least, Desai and Dharmapala (2009) in a study to determine the role of the corporate tax regime in FDI inflows used combined data on US outbound Foreign Portfolio Investment (FPI) and FDI. The results reveal that the residual tax on US multinational firms' foreign earnings skews the composition of outbound capital flows and that a 10% reduction in a host country's corporate tax rate raises US investors' equity FPI holdings by about 10%, controlling for effects on FDI, though the results are not robust when only within-country variation is employed. Similarly, Azémar and Delios (2008) used data on Japanese firm location choices between 1990 and 2000 to investigate the impact of corporate tax rates on Japanese firm locations in developing countries. The study found that even though the tax competition may be strong in influencing FDI inflows in developing countries, such competition should not account for zero effective rates of taxation for these countries.

### 3. Methods and sources of data

This study adopts the system Generalized Methods of Moments (sys-GMM) estimator on data from 2015–2019 for 50 selected African countries to determine the role of tax incentives and the interplay between ease of doing business and governance indicators in FDI inflows into Africa. The 50 African countries are chosen based on the availability of data on the key variables of interest. The dependent variable is FDI net inflows measured as a percentage of GDP, while the independent variables are the ease of doing business index, total tax contribution as a percentage of commercial profits, which is used as a proxy for corporate tax rates, exchange rate, as well as



the six governance indicators (government effectiveness, control of corruption, political stability and absence of violence/terrorism, rule of law, voice and accountability and finally regulatory quality).

Data on FDI net inflows, total tax contribution as a percentage of commercial profits, ease of doing business, and the exchange rate are sourced from the World Development Indicators (WDI) 2021 World Bank Database. Also, data on the six governance indicators are obtained from the Worldwide Governance Indicators (WGI) 2021 World Bank Database.

According to Kaufmann et al. (2004), the six major governance indicators provided by the World Bank are measured twofold, either by a Percentile Rank, which signifies a country's rank among all 199 countries included in the aggregate indicator, with 0 representing the lowest rank and 100 denoting the highest rank; or by a governance score or estimate that ranges approximately between -2.5 and 2.5, that gives a country a score on the aggregate indicator with high values on the indicator corresponding to better governance and lower values corresponding to poor governance. However, it is worth stating that the Percentile Rank measure of the governance indicators is employed in this study for estimation.

The World Bank's Ease of Doing Business (EDB) database (World Bank, 2016) includes variables such as ease of starting a business, ease of enforcing contracts, and ease of resolving insolvency across 189 countries. However, this study uses a composite indicator of the ease of doing business for the empirical analysis. Though criticized in the UNCTAD's (2021) report for over-politicization. The strength of the World Bank EDB dataset lies in its ability to compare the cost of starting similar businesses, the cost of contract enforcement, and the cost of resolving bankruptcies or insolvency across countries. Indeed, the World Bank's EDB indicator currently remains the single most comprehensive index for measuring the ease of doing business across the globe, particularly in Africa.

#### 4. Estimation strategy

Following the example of Appiah-Kubi et al. (Appiah-Kubi et al., 2021), the current study establishes the relationship between the net inflows of foreign direct investment (net-FDI-inflows) and the interplay between ease of doing business and important governance indicators. To achieve this and for comparison purposes, the study fits two distinct models. The first model measures the role of tax incentives and the ease of doing business as well as the governance indicators introduced step-wise into the model in FDI inflows into African countries. A second model measuring the role of the interplay between the ease of doing business and the various governance indicators was also introduced in a step-wise manner in FDI attraction in African countries. The general equation underlying both models is of the form;

$$y_{it} = \sum_{j=1}^p y_{i,t-j} + X_{it}'\beta_i + \gamma_i + \xi_t + \varepsilon_{it} \quad (1)$$

Where  $y_{it}$  is the dependent variable which captures the measure of the net inflows of foreign direct investment (net-FDI-Inflows) into each African country at different times,  $X_{it}$  is a vector of independent variables including the measures of tax incentives, composite index of the ease of doing business (EDB<sub>*i*</sub>) and the various governance indicators, which together with the EDB<sub>*i*</sub> are the treatment variables in this study.  $\beta_i$  is the vector of estimates for these independent variables, the country-specific and time-specific effects, and  $\varepsilon_{it}$  is the idiosyncratic disturbance term.

Equation 1 is re-parameterized to yield equation 2 for the econometric estimation concerning the first model.

$$\ln FDI_{it} = \ln \theta + \alpha \ln FDI_{it-1} + \beta_1 \ln EDB_{it} + \beta_2 \ln EXr_{it} + GoI'_{it} \beta_{3i} + \gamma_i + \xi_t + \varepsilon_{it} \quad (2)$$

Where FDI is the net inflows of foreign direct investment, EDB is the composite index of the ease of doing business, EXr is the exchange rate, and GoI is the vector of governance indicators including; government effectiveness, control of corruption, political stability and absence of violence/terrorism, rule of law, voice and accountability and regulatory quality which are introduced into the model in a stepwise fashion.

Similarly, equation 1 is re-parameterized to yield equation 3 for the econometric estimation in respect of the second model of the study.

$$\ln FDI_{it} = \ln \theta + \alpha \ln FDI_{it-1} + \beta_2 \ln EXr_{it} + \ln \overline{EDB}_{it} * GoI'_{it} \beta_{2i} + \gamma_i + \xi_t + \varepsilon_{it} \quad (3)$$

Where the variables in equation 3 are as defined in equation 2, except that equation 3 measures the effect of the interplay between the ease of doing business on one hand and the governance indicators introduced step-wise.

It is easy to see, from equation 1 and in effect equations 1 and 2 that the potential exists for the lagged dependent variable to be correlated with the disturbance term (at least in the first difference model) due to the measurement error component of the error term resulting from excessive use of proxies, as in the case of this study. If so, estimating (1) with the usual static panel models like the fixed and random effects models, will produce biased estimates as observed in Nickell (1981). Also, the Pooled Ordinary Least Squares (POLS), and Within Group (WG) estimators among others are not options since the underlying data is very short (2015–2019). Furthermore, Nickell (1981) shows that some of these static panel models could lead to inconsistent and biased (downward/upward) estimates, especially if there exist endogeneity and or simultaneity biases. Roodman (2009) notes that the simultaneity/endogeneity biases heighten despite possible bidirectional casualties between the dependent and the independent variables in dynamic panel models. Perhaps, mis-forecasting is the greatest Achilles heel of inappropriately estimating dynamic panel models, such as equations 2 and 3, which have intrinsic cross-sectional heterogeneous effects (Baltagi, 2008).

Against this background and the fact that the cross-sectional units are large (50 countries) and a short period (T), the current study employs the generalized method of moments (GMM) technique first developed by Holtz-Eakin et al. (1988) and given further elaboration in Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). This technique avoids the potential red flags with the estimation of equations 2 and 3.

Even though the underlying data satisfies the GMM condition, compatibility analysis is critical to determine the ideal form of the GMM estimator to fit the data since the difference-GMM, one-step system GMM, and the two-step system GMM come in handy as potential estimators. In this regard, even though the difference-GMM estimator, which relies on earlier period lags of the independent variables as valid instruments to solve the potential endogeneity problem, could have been used to estimate equations 2 and 3, these earlier period lags of the regressors may be poor instruments when the underlying data set is innately persistent (Arellano & Bover, 1995). Additionally, Blundell & Bond (Blundell & Bond, 1998) points out that the difference-GMM gives estimates that are not just biased but with decreased precision when the partial adjustment coefficient or the coefficient of the lagged dependent variable approaches unitary.

Against this backdrop, this study employs the system-GMM estimator of Blundell and Bond (1998) to estimate equations 2 and 3 at their level and differenced forms to deal with potential non-stationarity issues in the data. The system-GMM estimator also uses the moment's condition to deal with potential endogeneity/simultaneity problems in the model. To validate the system-GMM results, the Arellano-Bond test for second-order autocorrelation (AR2) in the first difference errors and the Hansen J-test for

instrument validity is performed to check autocorrelation and instrument proliferation, respectively. As Roodman (2009), pointed to the potential-compromising effect of instrument proliferation on the potency of the Hansen test for valid instruments, the study implemented Roodman's "Collapse" routine in STATA to collapse all internally generated instruments. Given the importance of the long run in economic analysis, the study adopted the delta-method of Papke et al. (2005) to generate the long-run coefficients of equations 2 and 3 as per the formula  $LR_k = \beta_k / (1 - \alpha)$ , where  $LR_k$  = each long run coefficient,  $\beta_k$  = the coefficient of the  $k$ th independent variable and  $\alpha$  = the coefficient of the lagged dependent variable used as regressors.

## 5. Empirical findings and discussions

This study examines the drivers of FDI inflows into African countries with particular emphasis on tax incentives, ease of doing business, and the interplay between the ease of doing business and some disaggregated institutional quality indicators. Thus, the empirical test of the hypothesis involves the impacts of tax incentives, ease of doing business, governance indicators, and the interplay between these factors on net inflows of foreign direct investment in Africa. Consequently, the study first estimates a step-wise system-GMM model involving the disaggregated governance indicators, and the results are reported in Table 1. Subsequently, the ease of doing business index interacted with the various governance indicators and the results are reported in table 2.

Beginning with the findings in Table 1, it can be seen that, save for the GMM models involving the regulatory quality and the voice and accountability, the un-interacted Ease of Doing Business (EDB hereafter) exerts a statistically significant negative effect on the short- and long runs net inflows of foreign direct investment for the African countries in the panel. In particular, the findings show that a percentage rise in the EDB index is associated with about (0.07%, 0.09%, 0.06%, and 0.08%) and (0.09% decline in the net inflows of FDI into African countries in the short and long runs, respectively. As economically counter-intuitive as these findings may be ((Hossain et al., 2018; Anggraini & Inaba, 2020), it should not be surprising in the context of Africa since African countries are notorious for poor institutional quality, which is an integral component used in the construction of the EDB composite index used in this study. The finding is also consistent with the findings of Shahadan et al. (2014) and Khoori (2021), among others.

The next variable is the corporate tax elasticity of the net inflows of FDI into African countries. The findings show that except for the step-wise regression involving the regulatory quality indicator, the corporate tax rate exerts a significant negative effect on the inflows of FDI into Africa in the models over the short- and long runs. The finding where the corporate tax rate inversely relates to net FDI inflows agrees with the a priori expectations and is consistent with the findings of (Abdioglu, 2016; Adamu Braimah et al., 2020; Baccini et al., 2014). In particular, a percentage rise in the corporate tax rate reduces FDI inflows by about 0.012% in the model involving the control of corruption, 0.01% in the models involving governance effectiveness, regulatory quality, and the rule of law, 0.016% in the model involving the political stability and 0.014% in the model involving voice and accountability. The exchange rate even though exerts a short-run positive effect on FDI inflows in Africa across the various models, though the findings are not statistically significant in the models.

All the governance indicators are found to exert a positive effect on the short- and long-run inflows of FDI into Africa, albeit the findings, are not statistically significant for the regulatory quality and the voice and accountability indicators. The significant positive effects of governance indicators such as the control of corruption, government effectiveness, political stability, rule of law, regulatory quality, as well as voice and accountability on net inflows of FDI into Africa indicate the premium foreign investors place on the non-macroeconomic factors before electing to invest in a particular jurisdiction. These findings are consistent with the a priori expectations of the study and in tandem with the findings of (Bannaga et al., 2013; Cole et al., 2009; Gangi et al., 2012; Mengistu & Adhikary, 2011; Saidi et al., 2013; Shah & Afridi, 2015). It is therefore imperative for African countries to work at improving these indicators in conjunction with a sound macroeconomic environment to attract the desired foreign investment to boost their growth and development.

**Table 1. System-GMM estimate - determinants of FDI inflows in Africa**

	Dep. FDI	CoC (1)	GoE (2)	Pos (3)	ReQ (4)	RoL (5)	VoA (6)
SR	L.FDI	0.285*** (0.00)	0.28*** (0.000)	0.263*** (0.000)	0.275*** (0.000)	0.281*** (0.000)	0.276*** (0.001)
	EDB	-0.066** (0.047)	-0.091** (0.026)	-0.059* (0.067)	-0.076 (0.106)	-0.077** (0.042)	-0.058 (0.101)
	TTC	-0.012** (0.019)	-0.01* (0.083)	-0.016*** (0.001)	-0.01 (0.133)	-0.011** (0.049)	-0.014*** (0.007)
	EXR	0.132 (0.333)	0.119 (0.396)	0.122 (0.362)	0.041 (0.771)	0.117 (0.395)	0.070 (0.605)
	COC	0.039** (0.025)					
LR	GOE		0.059** (0.026)				
	POS			0.039** (0.021)			
	REQ				0.046 (0.193)		
	ROL					0.042* (0.059)	
	VOA						0.030 (0.204)
	EDB	-0.093** (0.029)	-0.127** (0.016)	-0.080** (0.043)	-0.105* (0.094)	-0.108** (0.027)	-0.079* (0.080)
	TTC	-0.017*** (0.007)	-0.014* (0.057)	-0.022*** (0.000)		-0.016** (0.027)	-0.020*** (0.001)
	COC	0.055** (0.033)					
	GOE		0.082** (0.030)				

(Continued)

Table 1. (Continued)

	Dep. FDI	CoC (1)	GoE (2)	PoS (3)	ReQ (4)	RoL (5)	VoA (6)
	POS			0.053** (0.021)			
	ROL					0.058* (0.067)	
	System GMM Diagnostics						
	AR (1)	0.006	0.007	0.019	0.015	0.009	0.017 f
	AR (2)	0.253	0.271	0.282	0.251	0.258	0.240
	Hansen J	0.025	0.053	0.027	0.030	0.021	0.016
	No. Instruments	23	23	23	23	23	23
	No. Groups	50	50	50	50	50	50

Standard errors are in parentheses

\*\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Source: Author's Calculation through STATA 14

AR (1) and AR (2) denote the Arellano-Bond test for first and second-order serial correlations in the first difference model.

**Table 2. System-GMM estimate—EDB interaction with institutional quality indicators**

	Dep. FDI	CoC (1)	GoE (2)	Pos (3)	ReQ (4)	RoL (5)	VoA (6)
SR	LFDI	0.286*** (0.000)	0.313*** (0.000)	0.262*** (0.000)	0.296*** (0.000)	0.241*** (0.004)	0.270*** (0.001)
	EDB	-0.331* (0.079)	-0.412** (0.038)	-0.081 (0.478)	-0.296 (0.191)	-0.134 (0.526)	-0.009 (0.928)
	TTC	-0.008 (0.125)	-0.01* (0.093)	-0.015** (0.027)	-0.005 (0.445)	-0.01* (0.065)	-0.015*** (0.004)
	EXR	0.345** (0.031)	0.207 (0.197)	0.146 (0.269)	0.175 (0.240)	0.247 (0.182)	0.037 (0.816)
	EDBCOC	0.008 (0.163)					
	COC	-0.393 (0.212)					
	EDBGOE		0.009* (0.097)				
	GOE		-0.435 (0.143)				
	EDBPOS			0.001 (0.840)			
	POS			0.006 (0.975)			
	EDBREQ				0.006 (0.336)		
	REQ				-0.244 (0.433)		
	EDBROL					0.001 (0.889)	
	ROL					0.007 (0.983)	
	EDBVOA						-0.002 (0.558)

(Continued)



**Table 2. (Continued)**

	Dep. FDI	CoC (1)	GoE (2)	PoS (3)	ReQ (4)	RoL (5)	VoA (6)
	VOA						0.139 (0.431)
LR		-0.463* (0.090)	-0.600** (0.047)				
	TTC	-0.011* (0.088)	-0.014* (0.065)	-0.020** (0.014)		-0.013** (0.035)	-0.020*** (0.001)
	EXR	0.483** (0.032)					
	EDBGOE		0.014 (0.113)				
<b>System-GMM Diagnostics</b>							
	AR (1)	0.006	0.009	0.019	0.032	0.069	0.030
	AR (2)	0.244	0.290	0.314	0.251	0.234	0.234
	Hansen J	0.051	0.088	0.018	0.023	0.058	0.006
	No. Instruments	23	23	23	23	23	23
	No. Groups	50	50	50	50	50	50

Standard errors are in parentheses

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Source: Authors' Calculation through STATA 14

AR (1) and AR (2) denote the Arellano-Bond test for first and second-order serial correlations in the first difference model.

Given the importance of the institutional quality indicators to the investment climate of Africa, the study interacted with these indicators with the ease of doing business index and table 2 presents the system-GMM step-wise regression results of the effect of these interactions on the net inflows of FDI into Africa.

From Table 2, it is instructive to note that except for the model involving voice and accountability, the ease of doing business index-governance indicator interactions exerts a positive effect on the inflows of FDI into Africa, albeit this interactional effect is only significant in the model-involving government effectiveness. The implication is that, in the context of Africa, the ease of doing business index, when complemented well with better institutional quality, will effectively attract foreign investment.

## 6. Conclusions and policy directions

This study examines the role of the ease of doing business and tax incentives as well as the interplay between the ease of doing business index and disaggregated institutional quality/governance indicators in the attraction of FDI inflows into Africa. To achieve this, the study used data for 50 African countries to perform governance indicators-related step-wise system-GMM estimations of the effects on net inflows of FDI of the un-interacted ease of doing business and the ease of doing business index interacted with governance indicators along the corporate tax and exchange rates.

Contrary to expectations and the literature, the findings show that the un-interacted ease of doing business index exerts a significant negative effect on the net inflows of FDI in Africa across almost all the models. The effect of the ease of doing business on net inflows of FDI however turns positive but insignificant when interacted with all governance indicators except that for voice and accountability. This underscores the need for African governments to strengthen their institutions as they play a critical role in complementing the ease of doing business to exert a positive influence on the inflow of FDI in Africa. Indeed, the findings show that the control of corruption, government effectiveness, political stability, and the rule of law exert positive and statistically significant effects on the net inflows of FDI into Africa. This further emphasizes the need for an overhaul of the quality of governance in Africa.

The findings are consistent with expectations and the literature that hikes in the corporate tax rate are inimical to net inflows of FDI into Africa. Thus, an increase in the corporate tax rate is associated with a decline in the net inflows of FDI across all models showing that corporate taxes could be incentive rather than compensation for weak macro fundamentals. It is therefore recommended that the tax administration of African countries embark on reforms that allow them to shift from corporate tax-focused revenue generation to other sources of revenue generation to boost foreign investment.

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### Declaration

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### Notes

1. Statistics from the World Development Indicators Database retrievable from <https://data.worldbank.org/indicator>
2. The four countries excluded for want of data include: Somalia, Zimbabwe, South Sudan and Eritrea

### Correction

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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