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The Effect of Corruption on Foreign Direct Investment in West African Sub-Region

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Abstract

The debate bothering on impact of corruption on foreign direct investment (FDI) inflows has been on the rise since the past century. Is corruption a hurting hand – raising uncertainty and transaction costs for foreign investors – or a helping hand – lubricating the wheels of commerce in the presence of pre-existing government or bureaucratic failures, which would attract FDI? As theoretical thoughts and empirical evidence show that the nexus between corruption and FDI is unsettled, this paper tries to take another step. It examines the link between corruption and FDI flows to the West African subregion. Using several econometric models on a strongly balanced panel of 16 West African countries spanning from 2003 to 2014, we find evidence that corruption is an insignificant determinant of FDI. Furthermore, we found that FDI in West Africa responds positively to both civil liberties and level of democracy. Corruption in West Africa does not necessarily hinder foreign investments. Hence, corruption should be handled based on logical legal proceedings that neither threaten the security of international investors nor encroach on their freedom and rights which are the real stimulants of FDI in West Africa rather than low corruption.

Keywords: civil liberties, corruption, democracy, FDI, West Africa

JEL Classification: F23, P48

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1. Introduction

Since the turn of the last two decades, foreign direct investment (FDI) flows amongst economies have soared intensely along with economic globalisation. Developing countries no longer view FDI with suspicion – as a means to either neoimperialism or recolonization. Friendly policies that aim to encourage FDI inflows are now replacing controls that once restricted the easy entry and smooth operations of foreign firms. Interestingly, in 2012 and for the first time in history, developing countries received the lion share of world FDI at 52 percent. This was a breakthrough in FDI flows reaching this group of countries (Organisation for Economic Cooperation and Development [OECD], 2014).

The World Bank (2015) showed that the annual FDI inflow to the low-income countries (LICs) has snowballed from 0.75 percent of their total gross domestic product (GDP) in 1994 to 4.40 percent of their GDP in 2014.

Given the import of FDI as a potential source of economic growth and prosperity, chiefly for developing economies, national governments vigorously initiate and pursue programmes and policies to attract FDI. As developing countries, as well as advanced economies, are indicating growing interest in pulling FDI, the race for FDI inflows is rising.

It is an accepted truth that a larger proportion of FDI's are executed *via* MNCs. Generally, MNCs' decision to invest in certain locations is influenced mainly by the host countries' solid economic *sine qua non*. These fundamentals include safe macroeconomic environment, large market size, sound fiscal and monetary policies, physical infrastructure and skilled labour (Dunning, 1994). Lately, however, more key factors such as good governance, political

economy variables and quality of institutions (including corruption) have been included as determinants of FDI flows².

Over time and space, corruption has been a persistent trait of human societies as well as a latent phenomenon. It exists throughout the world – from developing economies such as Nigeria, Papua New Guinea and St. Vincent and the Grenadines to transition nations such as Bulgaria, the Czech Republic and Macedonia to developed countries like the United Kingdom (UK), the Netherlands, amongst others – in different forms and shades. Both theoretical thoughts and experimental evidence reveal that the impact of corruption can be multifaceted, persistent and yet ambivalent. However, according to Lawal (2007), corruption is more acute in economies where the integrity and independence of institutional frameworks such as the judiciary and legislature are compromised; political bootlicking becomes rampant and conventional; the freedom and proficiency of the public sector has been disintegrated; and civil society organisations (CSOs) lacks the medium to cry out and mount public pressure against corrupt practices and persons in the government.

Western Africa is one of the five 5 subregions in Africa³. Sixteen countries make up this subregion⁴, and most of these countries face similar economic conditions. For the current 2017 fiscal year, the World Bank classified only five countries in this subregion as lower middle income and the rest as low-income economies⁵.

This work builds on previous academic research on corruption and FDI to investigate the nature of this relationship among the countries in West Africa. It serves to contribute to existing literature by not accepting the argument that corruption has an injurious effect on FDI. Hence,

² See Smarzynsk and Wei (2000); Aidt (2009); Barassi and Zhou (2012); Quazil (2014); Delgado, McCloud and Kumbhakar (2014); Haque and Kneller (2015)

³ Others are Northern Africa, Central Africa, Eastern Africa and Southern Africa

⁴ These sixteen countries constitute the Economic Community of West African States (ECOWAS). See Table A1 in the appendix for the list of the countries.

⁵ See appendix for the list of countries in West Africa and their World Bank current classification by income.

leaders in the region should respond appropriately by utilising the scarce resources at their disposal to build qualitative institutions that guarantee the security, freedom and rights of investors, while de-emphasising anti-corruption campaigns if hitherto they were used to spur economic growth *via* foreign direct investment.

The rest of the paper is structured as follows: Section 2 reviews previous scholarship on the impact of corruption on FDI; Section 3 begins with the hypothesis, followed by an analysis of the empirical methodology used and, the sources and description of the selected data. The main empirical results of the study are presented and discussed in Section 4 while Section 5 concludes with the relevant policy implications.

2. Review of Related Literature

A good way to begin the empirical literature review is to consider the influential work of Mauro (1995). Using Business International (BI) corruption index and a set of 67 countries, he showed that corruption is negatively related to investment ratio per GDP. The author also proved that the investment rate of Bangladesh would rise by almost five percent of GDP if it improved its integrity level to that of Uruguay. In a subsequent study, Mauro (1997) used a more robust data sample of 94 countries and the Political Risk Services (PRS) group's corruption index to provide further proof of his previous results.

Wei (2000a) investigated the nature of the relationship between corruption and FDI by focussing on bilateral stocks of FDI between 45 host countries and 12 source countries. To proxy corruption, he used three measures of corruption – Business International (BI), International Country Risk Group (ICRG) and Transparency International (TI) corruption indices. With the aid of OLS, quasi-fixed effects and modified Tobit estimation, he identified a significant negative relationship between corruption and FDI. He discovered that raising the corruption level of Singapore to that of Mexico will have the same effect on FDI as raising the tax rate by over twenty percent points. In a following paper, Wei (2000b) reaffirmed that host

country corruption reduces inward FDI substantially after controlling for FDI related government policies.

Egger and Winner (2005), on the other hand, affirmed the ‘greasing the wheels’ hypothesis by showing empirically that corruption acts as a stimulus for FDI. Using a sample of 73 developed and less developed countries spanning the period 1995–1999, they measured FDI as the nominal stocks in US\$ deflated by the investment deflators available from the World Bank and used CPI as a proxy for corruption level. With the aid of a fixed effect model and the Hausman-Taylor Generalized Least Square (GLS), they found that both the short run and long run impacts of corruption are positive.

In their empirical work, Kolstad and Wiig (2013) estimated the effect of host country corruption on extractive industry FDI inflows to 81 countries in the period 1996–2009. With the aid of fixed effect regression analysis, they found a positive relationship between corruption and extractive industry FDI. However, they added that FDI increases at a diminishing rate as corruption increases more than proportionately.

Delgado, McCloud and Kumbhakar (2014) undertook a detailed reanalysis of the nexus between corruption, FDI and economic growth with the aid of a generalised empirical growth model. They used a newly refined nonparametric form of a general method of moments (GMM) estimator that assumes the primary conditioning variables such as FDI enter linearly into the regression model, while allowing the intercept and slope coefficients to vary non-parametrically (either linearly or nonlinearly) with respect to certain environmental factors (corruption, for example) to estimate the generalized regression model. Using a balanced panel data of 60 non-OECD countries from 1985 to 2002, and measuring FDI and corruption level as the percentage of net FDI inflows relative to GDP in constant 2002 dollars and CPI respectively, they found that corruption has a significant non-linear role in the FDI-growth nexus. This, in turn, erodes the efficacy of FDI at enhancing growth rates in various developing

economies. Hence, they concluded that developing economies with insignificant or low returns to FDI might gain significantly from pursuing corruption reduction programmes and policies. Using cross-sectional data from 52 developing countries and two different corruption indices, Akçay (2001) investigated the relationship between corruption level and FDI. He failed to find evidence of any significant effect of corruption on FDI.

Table 2: A Summary of Other Readings on the Impact of Corruption on FDI

Paper	Sample	FDI Proxy	Corruption Proxy	Methodology	Findings
Godinez and Liu (2015)	34 home countries, 12 host countries (2006-2009)	FDI inflows	CPI	Random Effects Logistic Regression	Corruption distance has an asymmetrical impact on FDI
Bellos and Subasat (2012)	15 transition countries (1990-2005)	FDI inflow	CPI	Panel gravity	Corruption does not hinder FDI
Javorcik and Wei (2009)	262 firms (1989-1995)	Inward FDI	WDR; Neumann (1994); Kaufmann, Kraay and Zoido-Lobaton (KKZ)	Single-equation probit approach	Corruption does not only reduce inward FDI but also shifts the structure of ownership towards joint ventures
Kholdy and Sohrabian (2008)	22 countries (1976-2000)	Net inflow of investment to GDP	CPI	Multivariate Error Correction Model	FDI may jump-start financial development in developing countries which experience a higher level of corruption
Habib and Zurawicki (2002)	89 countries (1996-1998)	FDI inflows	CPI	OLS and Probit models	Corruption is a serious hurdle for foreign investments. FDI inflow into a host country reduces as the absolute difference between the host and home countries' levels of corruption increases.

CPI – Corruption Perception Index; WDR – World Development Report; BPI – Bribe Payers Index; GCB – Global Corruption Barometer

Regional Studies – a Precis

Regional studies have found varying results. Focussing on Asian economies, Alemu (2012) examined the relationship between corruption and FDI. He found that about 9.1 percent decrease in FDI inflow would be triggered by a one percent increase in the level of corruption. In like manner, the impact of corruption on FDI in East and South Asia has been found to be negative and significant (Quazi, 2014). Using FDI inflows to 40 countries from three different blocs (Asia, OECD and emerging economies) spanning the period 1991 - 1997, Zhao et al. (2003) showed that lack of transparency and corruption significantly diminished the volume of FDI inflows irrespective of regions and economic classifications. On the contrary, Helmy (2013) found that FDI varies positively with corruption in MENA. Whereas, Biglaiser and DeRouen (2006) showed that corruption in Latin America does not have a significant impact on FDI. Furthermore, Demekas, Ribakova and Horvath (2005) revealed that in Southern European countries, corruption does not have a significant effect on FDI inflows. In the same vein, an analysis of investment flows and corruption in African countries by Breslin and Samanta (2008) found no conclusive evidence that corruption is an alarming challenge that threatens FDI inflow into developing countries.

This paper intends to contribute to existing literature by examining how certain factors, especially corruption, affect FDI in Western Africa. The nexus between corruption and FDI in Western Africa is explored, which to the best of our knowledge, has not been studied hitherto.

3. Empirical Methodology and Model

Research on regional basis shows neither consistent results nor an apparent relationship. Our central argument, therefore, is that corruption does not help or hinder the inflow of FDI into the subregion when considered in the light of certain political factors that are prevalent in the region. This leads to the formulation of our hypothesis:

Corruption is not significantly related to foreign direct investment (FDI) in West African countries.

Model

$$FDI_{i,t} = f(FDI, CPI, GDPPC, INF, PRYE, TRADE, CL, POL)$$

$$FDI_{i,t} = \beta_{0i,t} + \beta_1 FDI_{i,t-1} + \beta_2 CPI_{i,t} + \beta_3 GDPPC_{i,t} + \beta_4 INF_{i,t} + \beta_5 PRYE_{i,t} \\ + \beta_6 TRADE_{i,t} + \beta_7 CL_{i,t} + \beta_8 POL_{i,t} + \varphi_{i,t}$$

Where:

FDI = Net FDI inflows as a percentage of GDP

FDI_{t-1} = One period lagged values of FDI⁶

CPI = Corruption Perceptions Index corruption from 0 (most corrupt) to 10 (cleanest)

GDPPC= GDP per capita in current US\$

INF = Inflation

PRYE = Primary school enrolment for both sexes

TRADE= Total trade as a percentage of GDP

CL = Civil Liberties

POL = Polity Score

i = Country fixed effect

t = Year fixed effect

φ = Stochastic error term

β_0 = Intercept

β_1, \dots, β_8 = Coefficients of respective explanatory variables

⁶ The inclusion is necessitated by the fact there may be significant inertia in adjusting to changes in economic environment.

Methodology

The model adopted here is based on prior econometric studies on this topic and follows the empirical works of Wei (2000a), Jensen (2008), Helmy (2013), and Quazi (2014). A panel analysis using time and country observations will provide the framework for assessing the relationship between corruption and FDI. An important characteristics of our model is the use of one period lagged values of the dependent variable (FDI) as part of the explanatory variables. Such dynamic panel models present substantial problems for estimation such as heterogeneity, endogeneity and serially correlated errors (Nickell, 1981).

We estimate several models employing different panel estimators – panel least squares, fixed effects (FE) and dynamic System Generalized Method of Moments (DSGMM). The latter method builds upon the weakness of the former. While OLS gives a *prima facie* kind of evidence, it is, however, insufficient for determining this relationship because it does not account for time-invariant country characteristics. A FE model remedies this shortcoming because it accounts for observations that are time-constant as well as those that vary with time but constant among countries. While the fixed effects technique eliminates the problem of heterogeneity, the methodology does not adequately address the problem of endogeneity and reverse causality. Hence, to remedy the above challenges, we employ the SGMM. Consequently, this aids to improve the efficiency of the dynamic panel data estimators (Arellano and Bond, 1991; Arellano and Bover, 1995). Finally, to correct for potential heteroscedasticity, robust standard errors are used in all specifications.

Data Sources and Description

This study uses a strongly balanced panel of 16 countries in Western Africa spanning the period 2003 to 2014 to examine the impact of corruption on FDI inflow into the subregion. The description of the data used in this work is presented here.

Table 3: Description of Main Variables

Variable Name	Explanation	Source	A priori Sign	Previous Studies
<i>Dependent Variable</i>				
FDI	Net FDI inflows ⁷ to host country relative to GDP, measured in US dollars	World Development Indicators (2015)	n/a	Delgado et al. (2014); Jensen (2008)
<i>Explanatory variables (all lagged by one period)</i>				
CPI⁸	Continuous variable measuring corruption from 0 (most corrupt) to 10 (clean)	Transparency International Reports (2000 – 2015)	None	Kolstag and Wiig (2013); Barassi and Zhou (2012); Aidt (2009); Egger and Winner (2006)
GDPPC	Proxy for the level of a country's economic development	World Development Indicators (2015)	+	Quazil (2014); Delgado et al. (2014); Javorcik and Wei (2009)
INF	Proxies the macroeconomic stability of a country and measured by the annual price change.	World Development Indicators (2015)	-	Delgado et al. (2014); Kolstag and Wiig (2013)
PRYE⁹	Measured by the number of children enrolled in primary school, it is a proxy for the human capital of a country	World Development Indicators (2015)	+	Aidt (2009)
TRADE	Measured by the percentage of total trade relative to GDP, it is a proxy for a country's level of trade.	World Development Indicators (2015)	+	Mathur and Singh (2013); Jensen (2008); Habib and Zurawicki (2002)
CL¹⁰	An ordinal variable that measures civil liberties from 0 (not free) to 60 (free)	Freedom House Report (2015)	+	Lambsdorff (2003)
POL¹¹	Proxies a nation's democratic level on a scale of -10 (more	Polity IV Country Reports (2015)	+	Jensen (2008)

⁷ Since this measure shows the share of FDI in an economy, it is considered to be superior to actual FDI net inflows (Jensen, 2008).

⁸ See http://www.transparency.org/files/content/pressrelease/2013_CPISourceDescription_EN.pdf for a detailed description of the data sources and how the scores are computed. ICRG index for robustness check.

⁹ While we acknowledge the inadequacy of primary school enrolment as a measurement of skills because it only accounts for the formal type of education without including other types of education (for example, the Almajiri education), our pragmatic decision when selecting this indicator is based on the constraints set by the availability of comparable data.

¹⁰ Developed by Freedom House

¹¹ This score drawn from Polity IV database measures how democratic a country is.

autocratic) to +10
(more democratic)

4. Analysis of Results and Findings

There is neither evident trend nor obvious relationship between corruption and FDI from the descriptive analyses of the available data. The scatter plot in figure 4 does not show any obvious visual relationship by examining the average CPI of West African countries with its average FDI from 2003 to 2014. In the same vein, ranking the same set of countries using their CPI score for 2014 coupled with their inward FDI do not also produce any noticeable trends as seen in Table 4. However, even in the presence of a correlation or trend in these pictorial analyses, it will still be vital to identify a more correct and reliable relationship using econometric methods. Such analysis will make it possible to control for other factors and therefore, yield a more reliable result of what the relationship might look like.



Fig. 4: Relationship Between Average CPI and FDI in SSA Countries (2000 – 2014) (Sources: Transparency International; World Bank, 2015)

Table 4: West African Countries Ranked by 2014 CPI Score (Most to Least Corrupt) and FDI Net Inflows

Country	CPI Score	FDI (% GDP)
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<i>Guinea-Bissau</i>	1.9	2.09901
<i>Guinea</i>	2.5	8.54460
<i>Nigeria</i>	2.7	0.81896
<i>Gambia</i>	2.9	3.33811
<i>Togo</i>	2.9	6.46429
<i>Mauritania</i>	3	9.91572
<i>Sierra Leone</i>	3.1	14.27075
<i>Cote d'Ivoire</i>	3.2	1.34888
<i>Mali</i>	3.2	1.65260
<i>Niger</i>	3.5	9.41381
<i>Liberia</i>	3.7	18.03118
<i>Burkina Faso</i>	3.8	2.72598
<i>Benin</i>	3.9	3.94094
<i>Senegal</i>	4.3	2.18840
<i>Ghana</i>	4.8	8.70971
<i>Cape Verde</i>	5.7	7.07792

Sources: *World Bank (2015); Transparency International (2016)*

4.1 Empirical Results

In this section, we will attempt to assess the impact of corruption on FDI in the West African countries using a strongly balanced panel data of 16 West African countries. Panel analysis provides the opportunity of increasing the sample size by increasing the number of observations. Nevertheless, expanding the panel analysis to incorporate a large number of years is hindered by the unavailability of data for many of the variables. To cite only one example, CPI appeared only in 1995 but did not comprise most West African countries until 2003. Accordingly, to estimate models with a high number of observations we concentrated on the years for which observations of data most existed, that is, from 2003 till 2014. A total of four regression specifications are estimated, and the results are presented in Table 5.

Table 5: *Panel Data Estimation*

Dependent variable: FDI

Explanatory variables	Model 1 Bivariate	Model 2 OLS^a	Model 3 OLS^b	Model 4 FE	Model 5 DSGMM
FDI _{t-1}		0.203 ^{***} (1.98)	0.615 ^{***} (1.86)	0.603 ^{***} (2.01)	0.459 ^{**} (1.46)
CPI	0.161 ^{***}	0.143 [*]	0.073	0.175	0.128

	(1.56)	(1.21)	(0.86)	(1.12)	(0.98)
GDPPC		0.00007**	0.0001***	0.00006**	0.00006**
		(2.33)	(2.67)	(2.23)	(2.00)
INF		-0.072*	-0.044	-0.0048	-0.056
		(-1.24)	(-1.34)	(-0.37)	(-0.87)
TRADE		0.021***	0.013***	0.0072	0.018**
		(4.57)	(4.54)	(1.39)	(3.27)
PRYE		4.28e-08**	4.43e-08**	4.51e-07**	4.11e-07**
		(2.10)	(2.36)	(2.32)	(2.24)
CL			0.030**	0.047**	0.036**
			(2.22)	(2.11)	(2.13)
POL			0.123***	0.108	0.054
			(2.85)	(1.05)	(0.27)
Constant	0.770	-0.167	-0.134	-3.112	-2.873
	(2.27)	(-0.55)	(-0.44)	(-2.72)	(-1.63)
Observations	163	123	113	113	113

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Robust t-statistics in brackets.

The nexus between past and current FDI levels appears to be both positive and significant, showing the existence of positive autocorrelation. In all the appropriate models, with the exception of the fifth, the first lag of FDI turns out to be significant at 1 percent level.

Moreover, the coefficients are far less than unity which assures us of the absence of unit root problem, and hence, the problem of weak instrument.

An OLS bivariate specification which shows the isolated relation between corruption and FDI is presented in model 1. The regression result shows that there is a strongly statistically significant positive relationship between corruption reduction and FDI¹². Taking the contrapositive statement implies that there is a significant negative relationship between corruption and FDI. We will be interpreting my results in this light. Consequently, a 0.16

¹² It should be noted that CPI scores range from 0 (most corrupt) to 10 (most clean). Thus, a higher CPI score indicates less corruption, and therefore the positive coefficient of CPI means that a higher CPI score (i.e. less corruption) leads to an increase in the inflow of FDI.

percent reduction in FDI relative to GDP will be triggered by one-point decrease on the CPI (indicating more corruption). This relationship is supported by economic theory; however, other factors that may potentially affect FDI inflow must also be considered.

In Model 2, four other relevant explanatory variables (GDP per capita, inflation, trade and human capital) are added to model 1. The coefficient of CPI, though smaller than that of model 1, remained positive and fairly statistically significant at 10 percent significance level. The estimated coefficient suggests that a 0.14 percent drop in FDI/GDP will accompany a one-point decrease in the CPI score. Thus more corruption leads to less FDI inflow. Also, all the other four explanatory variables possess the *a priori* signs and are statistically significant at different levels of significance.

Furthermore, in order to control for political factors, we included two more independent variables (civil liberties and polity) to model 2. Still using OLS to estimate model 3, GDP per capita still turns out to be statistically significant and appropriately signed, although the coefficient is relatively small. Inflation possessed the proper sign but, in this case, does not significantly affect FDI inflow into West Africa. Similar to what was obtained in model 2, trade and human capital are both properly signed and statistically significant at 1 percent and 5 percent significance levels respectively. More importantly, the two additional variables representing institutional/political factors – civil liberties and polity – possess the *a priori* signs and are statistically significant at 5 percent and 1 percent significant levels respectively. Precisely, a one point increase in civil liberties (more freedom) will translate into a 0.03 percent increase in net FDI relative to GDP. In like manner, a 0.123 percent increase in FDI/GDP will accompany a one-point increase in polity (indicating less autocracy). Although the variable of interest – corruption – in this instance is still negatively related to FDI, however, and even more notably, it is not statistically significant.

Models 4 and 5 have quite similar results, except that the coefficients of the latter are relatively smaller than that of the former. Furthermore, while the first lag of FDI is significant at 1 percent level in Model 4, it is significant at 5 percent level in Model 5. The effect of GDP per capita, for both models, is positive and robustly significant, although very small in magnitude. This is similar to the results of Smarzynsk and Wei (2000). Inflation, in accordance with economic theory, turns out to be negatively correlated; however, its magnitude is not statistically significant in all the models. This is consistent with the findings of Delgado et al. (2014). While trade maintains the proper sign but not statistically significant, human capital is found to be positively and significantly related to FDI at 5 percent significance level: notwithstanding, its magnitude is negligible. This corroborates the results of Alemu (2012) and Helmy (2013)¹³. Consequently, human capital is a fair determinant for FDI in West Africa subregion.

Civil liberties and political stability possess the a priori sign, but only civil liberties appear to be statistically significant at 5 percent significance level in both models. Thus, it is robustly related to FDI inflow into SSA. This is supported by Lambsdorff¹⁴ (2003).

Focusing on the main explanatory variable, the CPI turns out to be similar to what was obtained in the previous model – positive¹⁵ but statistically insignificant. Thus, there is an insignificant relationship between corruption and FDI. Progressing from model 2 to model 5, the significance of corruption disappears when political factors such as civil liberties and polity are added as controls to the model. This shows that in the presence of certain political variables, corruption does not influence net inflows of FDI and therefore, not important in attracting FDI into Western Africa.

¹³ Although Alemu (2012) and Helmy (2013) used secondary school result to proxy human capital, their findings are similar to mine

¹⁴ Lambsdorff (2003) got a negative statistically significant result because he ranked civil liberties from 0 (free) to 7 (not free) which is the contrapositive of what we did in this study. (See Table 3 in Chapter 3)

¹⁵ Remember that a positive CPI coefficient implies a negative relationship between corruption and FDI

Summarily, while previous studies suggest that corruption may be helpful or harmful (Habib and Zurawicki, 2002; Egger and Winner, 2005; Javorcik and Wei, 2009; Kolstad and Wiig, 2013; Delgado et al., 2014), this study finds no significant relationship between corruption and FDI, at least in the case of SSA.

4.2. Diagnostic Tests

Table 6: Diagnostic Tests for Estimation Results of Model 5 in Table 5

Wald χ^2 test			Sargan OID test			Arellano-Bond Serial Correlation Test		
Statistic	d.f.	p-value	Statistic	d.f.	p-value	Lag	Statistic	p-value
12672.63	12	0.00	24.61	48	1	Lag 1	-1.12	0.15

Table 6 provides diagnostic test results for the estimated the GMM model (model 5). This table reports the Wald χ^2 test statistic which measures the overall applicability of the model and tests the null hypothesis that all coefficients of a model are simultaneously zero. For model 5, the null hypothesis is conclusively rejected, supporting the validity of the model.

Given that in most GMM models, over-identification (OID) can be a featuring challenge, we carried out the Sargan OID test to check if the GMM model (model 5) is plagued with such weakness. The Sargan OID test statistic reported in Table 6 shows that null hypothesis of valid OID restrictions is not rejected for the model. This supports the validity of the model used. However, as a further diagnostic check, we checked the applicability of the Sargan OID test to the model. This is in line with the thoughts of Arellano and Bond (1991) that moment conditions of a GMM model can only be valid if there is no serial correlation amongst the idiosyncratic errors of the model. The Arellano-Bond test statistic presented in Table 6 clearly shows that the null hypothesis of the Arellano-Bond serial correlation test is not rejected, hence, validating the Sargan OID test.

4.3. Robustness Check

As noted in Section 3, the Transparency International CPI is preferred because it has a greater country coverage as well as incorporates the information of other data sources. We used the International Country Risk Guide¹⁶ (ICRG) corruption index to test the robustness of the results. All models are the similar as in the previous analysis, except for the corruption variable.

The results from Table 7 suggest that the corruption index maintains the correct *a priori* sign in all the models but is statistically significant only in model 1 and 2. For the rest of the models, the corruption term turns out not to be statistically significant. This is similarly to what was obtained in the initial analysis.

Table 7: Regression Results using ICRG as Corruption Variable

Dependent variable: FDI

	Model 1	Model 2	Model 3	Model 4	Model 5
Explanatory variables	Bivariate	OLS	OLS	FE	DSGMM
FDI _{t-1}		0.398*** (2.10)	0.554*** (2.21)	0.581*** (1.98)	0.517*** (2.02)
ICRG	0.156** (1.89)	0.124* (1.35)	0.134 (1.03)	0.169 (1.29)	0.156 (1.08)
GDPPC		0.000** (1.43)	0.0001 (2.43)	0.000 (0.50)	0.000 (1.03)
INF		-0.006*** (-3.18)	-0.063*** (-9.23)	-0.004 (-1.26)	-0.003 (-1.21)
TRADE		0.011*** (6.27)	0.017*** (6.27)	0.014* (1.27)	0.011* (1.32)
PRYE		2.21e-08** (1.99)	1.38e-08** (1.12)	4.67e-07** (2.53)	4.28e-07** (2.49)
CL			0.077** (1.07)	0.031* (0.82)	0.025* (0.88)

¹⁶ ICRG, a monthly publication since 1980, currently ranks 140 developing, emerging and frontier economies based on their political risk, economic risk and financial risk ratings. The composite scores ranges from 0 (very high risk) to 10 (very low risk).

POL			0.109**	0.321	0.226
			(2.32)	(0.70)	(0.68)
Constant	0.557	-0.411	-0.111	-2.58	-2.87
	(2.99)**	(-1.38)	(-0.21)	(-1.78)	(-1.53)
Observations	163	123	113	113	113

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Robust t-statistics in brackets

Furthermore, both civil liberties (CL) and polity possess the expected signs and are statistically significant at 5 percent significant level respectively in model 3. This is consistent with the previous analysis. On the other hand, while civil liberties (CL) maintain its statistical significance at 10 percent significance level in models 4 and 5, polity turns out not to be statistically significant; although it maintains its *a priori* sign. Other explanatory variables are similar to what was obtained in the main results in Table 5.

5. Conclusion and Policy Implications

In this paper, we employed panel setting with several econometric specifications in an attempt to examine the nexus between corruption and FDI flows into the West African countries. The panel that extended from 2003 to 2014 on 16 West African countries clearly reveals an insignificant negative relationship between corruption and FDI in the presence of civil liberties and polity. This counterintuitive relationship did not differ with the variation in model type, whether it is panel OLS or fixed effects. In addition, while polity proved significant only in panel OLS model, civil liberty turns out significance in all the models.

The insignificant relation between corruption and FDI could have the following implications: first, other determinants might appear to wield more influence on FDI than corruption, thereby crowding out the potential effects of corruption. Even if the relationship is merely coincidental and not causal, an increase in other determinants will likely push up FDI even in the presence of increasing corruption. Hence, the rise of corruption does not have any significant effect on FDI. Furthermore, in most model specifications, the two control variables, GDP per capita (GDPPC) and human capital (PRYE), proved to be significant and positively correlated with

FDI inflows to West Africa. The results imply that income or wealth is one of the important factors that prompt FDI in West Africa as elsewhere. In the same vein, human capital is a fair determinant for FDI in West Africa subregion.

Equally significant and fundamental to FDI in West Africa is the civil liberties indicator (CL) which exhibits a positive relationship with FDI. This has a serious implication. Democracy ensures that the civil and political rights of citizens are provided and secured. This, in turn, will guarantee economic liberties such as the right and freedom of capital mobility in and out of the country, personal property protection, ability to trade freely in international markets, amongst others. Foreign investors value economies which do not only guarantee these rights, but also provide strong and reliable legal and institutional frameworks where rights can be enforced. Consequently, the less autocratic a country is, the more it is likely to attract FDI. This might be why some developing countries, like Nigeria and Sierra Leone, with poor CPI score but high civil liberties index have a record of high FDI inflows.

Another important policy implication from this research is that corruption in West Africa does not necessarily discourage foreign investors. Therefore, corruption should be treated based on logical legal proceedings that neither threaten the security of international investors nor encroach on their freedom and rights which are the real stimulants of FDI in West Africa rather than low corruption. The governments in this subregion have a vital role to play in attracting foreign investors: developing and maintaining strong and dependable legal and financial frameworks that would expedite actions for potential investors and secure their property and civil rights is very imperative. Moreover, to draw more FDI into the subregion for the sake of its economic prosperity and progress, political institutions must ensure they are committed to some considerable level of policy consistency as well as maintain the required policy flexibility that will create an economic and political environments multinational corporations (MNCs) desire.

It is noteworthy to state that despite the empirical results from this study finds no convincing evidence against corruption in terms of FDI attraction, this is by no means accepting corruption as a social good neither should the findings from this study be interpreted as encouragement for corrupt administrations. According to Aidt (2003), it is more socially beneficial to institute policies that aim at eliminating corruption rather than excusing and evading it.

Although this paper contributes to the several literatures on corruption and FDI, it is not without some caveats. First, the sample used for estimation spans the period 2003 to 2014, based on data availability. The time frame may not be long enough to estimate the long-run relationship corruption and FDI. A study using a sufficient panel data may be a profitable exercise. Furthermore, there are several scholastic opportunities in this area of economics which have not been fully explored. It would be a fruitful venture to investigate the effectiveness of the numerous anti-corruption agencies in West Africa and their impacts on FDI, given that most countries in the region remain corrupt.

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APPENDIX

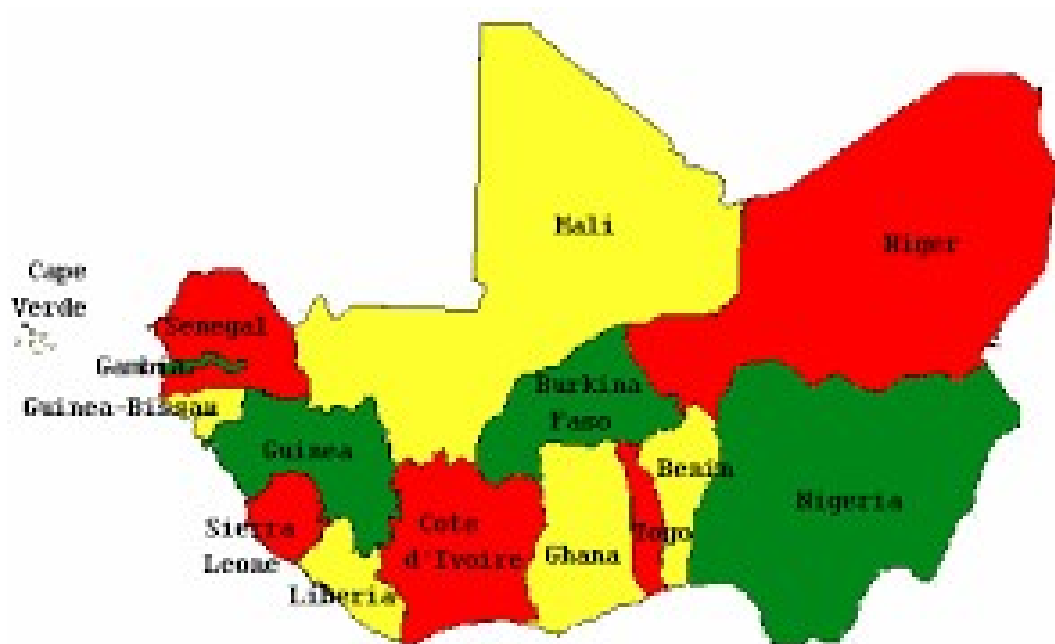


Fig. A1: Map of West African subregion (Source: worldmap.org)

Table A1: List of Countries in West Africa (By Income Group)

Lower Middle Income

Cape Verde, Cote d'Ivoire, Ghana, Mauritania, Nigeria,

Low Income

Benin, Burkina Faso, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Senegal, Sierra Leone, the Gambia, Togo

Table A2: Summary Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
FDI	192	6.78	11.00	-0.26	89.48
CPI	168	2.94	0.85	1.40	6.00
GDPPC	192	860.75	756.59	133.5	3766.11
INF	190	5.77	6.90	-3.84	34.70
TRADE	184	78.99	46.23	30.73	321.63
PRYE	156	2288955	4279717	67023	2.29e+07
CL	192	33.43	10.59	13	53
POL	176	-0.77	1.23	-1.89	2.39