Does Public Transparency and Accountability Impact Sustainable Development Goals? A Case Study of Selected African Countries

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Abstract

Purpose: This study examines the impact of public transparency and accountability on Sustainable Development Goals (SDG) of selected African countries for the period from 2016 to 2017.

Design/methodology/approach: The study adopts hierarchical regression method to determine the impact of public transparency and accountability on SDG performance in Africa. The study examined ten (10) African countries selected randomly from each of the different geographical zones. Two countries from each geographical zones; Nigeria and Ghana from West Africa region, Cameroon and Gabon from Central Africa region, Kenya and Uganda from East Africa region, Egypt and Morocco from North Africa region, South Africa and Zambia from the South African region. SDG was the dependent variable, measured through Sustainable Development Goal Index (SDGI) while independent variables which are public transparency and accountability were measured using Corruption Perception Index (CPI) and Accountability Index (AI) while the study controlled for other variables.

Findings: The empirical evidence presents mixed results, the finding shows that public transparency (CPI) is positively and significantly related with SDG performance while accountability (AI) presents a negative and insignificantly relationship with SDG performance for selected African countries. Also, the findings reveal that other variables such as global competitiveness index (GCI), global peace index (GPI), human development index (HDI) present a negative and insignificant relationship with SDG performance while world governance index (WGI) and environmental performance index (EPI) reveals a positive and significant relationship with SDG performance. The findings also observed that the inclusion of the control variables increased the adjusted r^2 from 51% to 62%.

Practical Implications: This study's findings call for improved public transparency, strong institutional framework, improved advocacy for good governance, holding both private and public institutions accountable for their actions.

Research Limitation: The study was limited by sample size which resulted in only 20 observations. It also suffers from the limitation of robustness in the empirical result. However, it sets the tone for future empirical research on the subject matter.

Originality/value: To the best of the authors' knowledge, this is the first empirical study that examined public transparency and accountability within the context of achieving SDG in Africa. The study, therefore, contributes to growing literature in the area of accounting, accountability, and SDG research in Africa.

Keywords: African Countries; Accountability; Governance; Public Transparency; Sustainable Development Goals

1. Introduction

Reference to public transparency and accountability has become obligatory in critical accounting research. In recent times, especially the last three decades, advocates from various interest groups such as civil societies, regulators, international organization, non-governmental organization (NGO) and environmentalists have demanded

increased public transparency and accountability from African leaders (Lydenberg, Roger & Wood, 2010). These interest groups have pressurized Africa's public officers to show commitment to public transparency due to the high level of corruption, gross under-development, poverty, social injustice and inequality that have been experienced over the decades. African Progress Report (2017) estimated that 138 million households live on less than US$2.50 a day. The report presents a worrisome and ugly picture for the future of Africa. The Rio Earth summit of 1992 and 2002 drew the attention of African leaders on the need to develop the environment and consequently connect the economic, social and environmental issues into an integrated development process known as Sustainable Development Goals (SDG) (Uram, Ozer & Acheampong, 2014; Spence & Rinaldi, 2014). Therefore, public transparency and accountability serve as a link to the actualization of SDG.

In September 2015, about 193 countries of the United Nations member met to adopt the seventeen (17) new SDG to tackle climate change, end social injustice, solve inequalities and end poverty among others by the year 2030; and make the world more prosperous, sustainable and inclusive. These new SDG were built on the former Millennium Development Goals (MDG). In order to ensure countries show commitment to SDG target, countries are now rated on sustainable development matters through the Sustainable Development Goal Index (SDGI). This index objectively evaluates individual country compared to other countries on the issue of sustainable development progress. It is critical therefore for countries to take the issue of public transparency and accountability serious in order to achieve sustainable development goals in no distant time. The report of Global Reporting Initiatives (GRI) (2010) identified public transparency and accountability as a public disclosure requirement that is capable of improving the economic, social and environmental process of any country, which could lead to sustainable development. Public transparency and accountability help the government to show commitment to sustainable development that will be of tremendous benefits to its citizenry. In the same vein, the (GRI) (2010) believe that improved accountability and clear transparency is a major step towards achieving a sustainable global economy.

Recent studies revealed, on the average, that African countries exhibit high level of inequality, increasingly risk of greenhouse gas emissions beyond acceptable thresholds, high mortality rate, and increase in poverty level, low per capita income and gross under-development of critical infrastructures (Ockwell & Mallet, 2012; Uwuigbe & Egbide, 2012; Soobaroyen & Ntim, 2013; Ward & Mahowald, 2014; UNDP, 2015; World Bank, 2015; Tauringana & Chithambo, 2015; Chithambo & Tauringana, 2017; Hopper, Lassou, & Soobaroyen, 2017). All these problems have hampered the development of African countries. Therefore, the issue of sustainable development becomes critical for African countries. Also, the studies of (Everett, Neu, & Rahaman, 2007; Iyoha & Oyerinde, 2010; Bakre & Lauwo, 2015; Erin, Afeisume, & Owodunni, 2016; Olaope, 2016; Akinlolu, 2017) revealed that lack of public transparency and accountability on the part of government and African leaders have hindered critical development in recent times, coupled with high profile cases of corruption of public office holders. In order for African countries to measure up with the developed countries in terms of sustainable development, there is a need to critically examine the subject of public transparency and accountability in Africa. We are motivated therefore to examine the impact of public transparency and accountability on sustainable development goals of selected African countries.

Quite a number of literature on public transparency and accountability exist in Africa (Iyoha & Oyerinde, 2010; Tamoi, Faizah, Yussri & Mustaffa, 2013; Ngatia, 2014; Savocool & Andrew, 2015; Lassou, & Hopper, 2015; Bakre & Lauwo, 2015; Blake *et al.*,

2016) but none of these studies have investigated the impact of public transparency and accountability on sustainable development goals of African countries. Due to the timely importance of this study on African development; we are motivated to examine this study and present our findings that could help solve economic, social and environmental issues within the African context. Against this backdrop, this study, therefore, seeks to examine how public transparency and accountability has impacted the sustainable development goals of selected African countries. Also, this study shows the relevance of public transparency and accountability in improving sustainable development goal in Africa. Overall, the study seeks to answer the research question: do public transparency and accountability impact SDG performance in Africa? This study also recognizes other factors other than public transparency and accountability that affect SDG performance in Africa.

The proposed contribution of this study is in twofold. First, the study adds to accounting literature in the area of public transparency and accountability mechanism and how it supports the actualization of SDG performance in Africa. This study provides original insight on how commitment to accountability and public transparency affect sustainable development goals of African countries. Secondly, the study seeks to examine the expanded purpose of accountability and transparency within the SDG context and its transformative impact on African society.

The rest of the paper is organized as follows. Section 2 discusses the review of the literature and theoretical framework. Section 3 discusses the methodology adopted as well as research design. Section 4 presents information regarding the data analysis and empirical results and Section 5 concludes the paper and presents recommendation.

2. Literature Review

Theoretical Review

There are theories underpinning the motivation behind sustainable development goal studies. These theories are captured under social theories such as political economy theory (Cooper, 1988; Guthrie & Parker, 1990); stakeholder theory (Watts & Zimmerman, 1978; Clarkson, 1995); accountability theory (Gray *et al*., 1995) and legitimacy theory (Deegan & Rankin, 1996; Milne & Patten, 2002; Mousa & Hassan, 2015). Proponents of political economic theory believe that governance is driven based on political, economic and social reasons (Cooper, 1988; Guthrie & Parker, 1990). Political economy perspectives view social responsibility and disclosure (SDG) as a proactive attempt by power holders to portray its own view of its social and political constituency (Guthrie & Parker, 1990; Buhr, 1998). This perception reveals why public institutions engage in SDG drive and endeavors which appears *prima facie* that they are benefiting the society by giving back to it. Gray *et al*. (1995) opined that is practically impossible to isolate economic domain from the social domain. Political economy perspective views the social, economic and political framework within which human life exists. Several authors have invoked the political economy theory in SDG studies (Uram et al., 2014; Janowski, 2016; Olaope, 2016; Akinlolu, 2017; Fleming *et al.,* 2017; Xiao, Norris, Lenzen, Norris & Murray, 2017) due to its suitability in explaining the opportunistic nature of political institutions amongst other theories in accounting for society-people interaction.

Stakeholder theory is another theory that explains the motivation for engaging in SDG activities. Stakeholder theory is a widely used theory in most academic discourse, especially from the management perspectives. Most studies (Gray, 2014; Bebbington & Thomson, 2013; Spence & Rinaldi, 2014; O'Dwyer & Unerman, 2016)

argued that SDG should be anchored on stakeholder theory; since SDG performance primarily focused on the needs of various stakeholders in the society. The theory postulates that society is seen as a dynamic and interdependent network of relationship with a wide variety of stakeholders (Loosemore & Phua, 2011). To support this assertion, Zsolnai (2006) stated that the growth of any society depends largely on how well the government nurtures these relationships effectively and strategically in order to achieve societal objectives. In the same vein, Deegan & Blomquist, (2006) viewed stakeholders' engagement has the process of actualizing SDG which is critical to the survival, attainment, and development of any society of the organization. In the Gray, Adams & Owen (2014), of accountability framework model; accountability theory is based purely on agency relationship between the principal (society) and the agents (public officers). It is expected that society requires the agent to be accountable and disclose relevant information. From the SDG construct, the society has the right to good welfare, better education, good health and soon, all within the SDG framework. Some scholars (Bakre & Lauwo, 2016; Konstantinos & Dimitrios, 2016; Blake *et al.*, 2016) argued that accountability should drive the actualization of the UN 2030 agenda which is SDG. Similarly, Frink and Klimoski (2004); Xiao et al. (2017) emphasized the need for accountability in human service and there is no better time than now when the world is confronted with meeting the needs of its citizenry through a commitment to SDG.

Legitimacy theory has been used by several authors (Deegan, 2002; Holland & Foo 2003; Baughn, Bodie & McIntosh 2007; Adeyemi & Ayanlola, 2015) in a social context to explain social and environmental reporting. Under the SDG framework, Idowu (2014) and Mousa & Hassan (2015) argued that government and those saddled with responsibility are under pressure to disclose and drive sustainable practices in order to enjoy societal goodwill. Also, from the organizational perspective, legitimacy is important to an organization because it attracts the support of its stakeholders. Therefore, organizations especially multinationals support SDG fulfillment from the perspective of organizational legitimacy (Kolk & Perego, 2010; Faisal, Tower & Rusmin, 2015).

This study adopts the stakeholder theory because the whole essence of SDG is the people (stakeholders) (Zsolnai, 2016). There are several benefits of engaging stakeholders in SDG activities, these include: stakeholders are in the best position to contribute to decision affecting their future; it places them in a better position to understand their sustainability issues and take collective responsibility in managing them; it places higher level of trust with stakeholders group and stakeholders feel their interests are being protected. Since stakeholder theory emphasizes the contribution of every citizen in the SDG process, therefore, the issue of transparency and accountability becomes inevitable. Therefore, the concept of public transparency and accountability in stakeholder management are an essential ingredient for the actualization of SDG. Based on this premise, this study adopts the stakeholder theory as a theoretical framework underpinning this work.

Public Transparency

The concept of public transparency has been discussed by different scholars in literature. Carolyn (2009) viewed public transparency as a public value embraced by those in governance to counter corruption and public vices. Simlarly, Lyrio, Lunkes, and Taliani (2018) opined that public transparency means a complex tool of good governance in policies and program to achieve organizational or nation's objective. Also, Laufer (2003), opined that transparency is very crucial to public accountability; he argued that public transparency is a corollary of public accountability. In our

opinion, we define public transparency as openness in carrying out public policies and programs in order to achieve public goals. Both accountability and transparency are both essential bedrocks upon which national development are anchored. Similarly, Adegbite (2009), posited that accountability is the demonstration that work has been done in accordance with established laid down rules and regulation. Mohammed (2014) reported that one of the important instruments to monitor and achieve sustainable development goal in any country is strict adherence to public accountability; which is able to facilitate the growth of SDG. It is therefore imperative for this study to critically examine the role of public transparency in achieving SDG in Africa.

Bakre and Lauwo (2016); Transparency International (2016) opined that the actualization of SDG is connected to the disposition of African leaders toward public transparency and accountability. Bakre and Lauwo (2016) found that accountability in African countries is becoming elusive due to corruption, cronyism, and lack of transparency. In support of this view, GRI (2017) advocated for improved accountability and clear transparency toward achieving SDG in Africa. GRI (2017) study revealed that the major obstacle to the issue of sustainability in Africa is the lack of commitment in terms of transparent policies and being accountable for policies made. In the same vein, Bucher (2018) averred that global accountability architecture is linked to SDG performance and 2030 agenda. His study further reiterated that global leaders should be held accountable for their inaction towards their contribution to the successful implementation of SDG in 2030. Bowen *et al.* (2017) revealed that realizing the aspiration of SDG is connected to ensuring that mechanism exist to hold societal actors accountable regarding the implementation of SDG targets. Okike *et al.* (2015) viewed accountability as an essential ingredient to the economic development of any nation.

Accountability

Ujah (2008); Okike, Adegbite, Nakpodia, and Adegbite (2015); O'Dwyer and Unerman (2016) viewed public accountability as a system where public officers and government officials give an account of their stewardship to members of the public. It can be deduced that accountability means responsibility, feedback, and transparency regarding the reporting mechanism. In our opinion, accountability can be explained as taking responsibility for good governance and being answerable for its resulting consequences. The studies of (Lederman, Loayza, & Soares, 2005; Khan, 2007; Hopper, Tsamenyi, Uddin, & Wickramasinghe, 2009; Arnold, 2012) pointed to high poverty and gross underdevelopment of Sub-Saharan African countries due to poor public transparency, bad governance and lack of accountability. To remedy these anomalies, the African Development Bank (2016) study revealed that clear transparency, strong institutional settings, and improved accountability are the main solutions to the menace of underdevelopment of African countries. Therefore, can we say that the neglect of accountability and public transparency is a major factor for the underdevelopment of African countries? Alawattage and Fernando (2017) examined the importance of social and environmental accountability in the actualization of SDG. They observed that accountability is a crucial factor in the achievement of SDG both at the corporate and country level. The assumption is that better clear transparency and improved accountability will combat the misuse of public funds through corruption which will eventually promote good governance and sustainable development.

Iheriohanma and Oguoma (2010); Iyoha and Oyerinde (2010) opined that transparency and accountability are both crucial factors upon which critical national

development are anchored. In Ghana, Betley, Bird & Ghartey (2012) found that the formulation of policies and law is not enough to facilitate developmental projects. It requires a commitment to public transparency and accountability for any meaningful development to take place. In this era of SDG implementation, strict adherence to clear transparency and enhanced accountability is sacrosanct or else actualization of SDG will become elusive. Rahaman (2010) stated that from a global perspective; economic, social and environmental development is rapidly being driven by government commitment to transparency and accountability in all forms. The lesson that can be drawn based on the assertion of Rahaman (2010), is that underdeveloped countries would not be those that lack resources (human, capital and material) but those countries that cannot account for her resources. In view of this, public transparency and accountability would continue to remain relevant to the development of a viable socio-political economy.

Sustainable Development Goal

On 25 September 2015, the United Nation General Assembly adopted the 2030 agenda for sustainable development goals (SDG) for 193 member countries. This agenda spelled out a set of 17 SDG with 169 targets (United Nations, 2015). These sustainable development goals replace millennium development goals. SDG is a global agenda for sustainable development with the purpose of providing a holistic strategy that combines social inclusion, economic development, and environmental sustainability. Adejumo and Adejumo (2014) viewed SDG as an approach to social, economic and environmental activities with the aim of providing sustainable future for all. Similarly, Bebbington and Larrinaga (2016) opined that for development to be sustainable there must be efficient management of resources (material and human) taken into cognizance both the present and future generation. This "efficient management of resources" cannot be effective without proper accountability and clear transparency on the part of managers or people saddled with such responsibility. Therefore, accountability and transparency is the connecting link between the SDG target and SDG implementation.

Sustainable Development Goals (SDG) is becoming a global phenomenon due to its impact in transforming the world and make it a better place. Sharma (2006); Eweje (2012); Gray (2014) noted that sustainable development is becoming relevant in the current and future business environment. Company's executives, international organizations; NGOs, investors, and stakeholders are becoming aware that integrating environmental, social and governance issues into the nation's strategy and vision is necessary to secure better future for her citizenry. These sustainable development goals replaced millennium development goals (MDG). SDG is a global agenda for sustainable development with the purpose of providing a holistic strategy that combines social inclusion, economic development, and environmental sustainability. The UN 17 SDG entail a common universal vision of how to combine these three pillars (social, economic and environment) of sustainable development into action at the local, national and international level.

Based on the literature reviewed, we develop the following hypothesis:

H_1*: Public Transparency is positively related to SDG Performance.*

H_2*: Accountability is positively related to SDG Performance.*

Sustainable Development Goals (SDGs) Framework

Different frameworks subsist for SDG performance after the pronouncement of the 17 SDG in 2015 (Amoako & Dixon, 2015). There are several SDG frameworks which are: Global SDG Indicator framework developed by the United Nations Statistical

Division (UNSD); World Bank SDG framework developed by the World Bank to monitor sustainable development for countries; European Sustainable Development framework developed by Organisation for Economic Cooperation and Development (OECD); Global Reporting Initiative framework for sustainable reporting developed by Global Reporting Initiative (GRI); KPMG SDG Reporting framework; Environmental Management (ISO 14000, EMAS); Sustainability Accounting Standard Board (SASB) framework for SDG reporting. This study focused on the two main SDG reporting frameworks which are Global SDG framework and World Bank SDG framework. We believe these two frameworks are more robust and comprehensive since they developed more indicators for measuring SDG performance than other SDG framework. These frameworks are discussed below:

(i) Global SDG Indicator framework and;
(ii) World Bank SDG framework

(I) Global SDG Indicator framework

The global SDG indicator framework is the definitive and commonly applied framework for SDG performance. To achieve these SDG, the UN set out a sustainable development strategy which is a set of global indicators/indices to monitor and assess the progress of each member countries against the overall goals and specific targets. The global SDG indicator framework was developed by the United Nations Statistics Commission (UNSC) under the purview of Interagency and Expert Group (IAEG). A total of 230 indicators were developed to measure various performance indices under SDG activities. The indicators were uniquely developed to address each of the goals and target in order to achieve the 2030 agenda for sustainable development.

The UNSC-IAEG developed sustainable development goal index (SDGI) as a performance measure to evaluate the performance of each country. In the study of Carlo, Lorenza, Fabio, and Luca (2015), sustainable development goal index (SDGI) is a strong performance indicator that provides an assessment of sustainability for each pillar of the UN SDG through multi-dimensional sustainability index. They argued that the high value of SGDI tends to address SDG challenges while a lower value of SDGI reflects a poor performance in addressing SDG challenges. Konstantinos and Dimitrios (2016) established that the main essence of SDGI is to provide a detailed database and set of tools to monitor and assess the progress of countries towards the achievement of SDG. SDGI helps countries to identify gaps and obstacles towards attaining sustainable development goals. The Sustainable Development Goal Index (SDGI) helps each country to compare her performance within its region and with other counterparts from the different region at similar levels of overall economic development and the entire world, including the best and worst performer.

(II) World Bank SDG framework

The World Bank (WB) SDG framework is a guideline on SDG implementation and reporting. The WB framework was developed to achieve vision 2030 agenda through three major areas: (i) finance, (ii) data and (iii) implementation. To achieve this target, WB set out a sustainable development framework which is a set of sustainable indicators to monitor the progress and performance of member countries under the United Nations. A total of 169 SDG indicators were developed by WB to assess and measure all the 17 SDGs and its targets. The WB framework builds on 5Ps-people, planet, profit, partnership, and prosperity (World Bank Report, 2017).

Control Variables/Factors Influencing Sustainable Development Goals

We observed there are other factors found in the literature that influence the actualization of SDG other than accountability and public transparency. In our opinion, as revealed by several authors (Spence & Rinaldi, 2014; O'Dwyer & Unerman, 2016; Olaope, 2016; Bucher, 2018); these factors should be taken into consideration when measuring the impact of SDG performance. We highlighted these factors:

Global Competitiveness. In 2004, World Economic Forum (WEF) developed a Global Competitiveness Report (GCR) to assess the ability of countries in response to how they are productive and how efficient they use their resources. Bucher (2018) in his study, found that global competitiveness is one of the major factors that determine the success or otherwise to achieving SDG. Global competitiveness is measured through the Global Competitiveness Index (GCI) which ranks countries how well they have been productive. The GCI is based on twelve pillars of competitiveness: appropriate infrastructure, efficient labor markets, stable macroeconomic framework, strong institutions, good health, and primary education, developed financial markets, efficient goods markets, market size (both domestic and international), technology capacity, innovation, higher education, and sophisticated production processes (WEF, 2010). Similarly, Olaope (2016) found that GCI is a major determinant of good governance and sustainable development in Africa.

Global Peace. Global peace is seen as one of the pillars of sustainable development (Simnett, Vanstraelen, & Chua, 2009); the absence of peace is a major obstacle to development in any society. The Institute of Economics and Peace (IEP) in 2007 developed a Global Peace Index (GPI) to measure the annual changes in respect to global peace at the national, regional and global levels. The vision for Humanity (2013a) revealed that SDG cannot be attained without a relative peace in any country; since peace is correlated to other indicators such as good health, education, regional partnership, and integration. The GPI is based on twenty-three indicators which are grouped into three main categories: (i) societal safety and security (ii) ongoing domestic and internal conflict (iii) militarism. Some of the indicators include a number of deaths from internal organized conflict, level of perceived criminality in society, the impact of terrorism, number of homicides per 100,000 people, level of violent crime, military expenditure as a percentage of GDP, ease of access to small arms and light weapons. To corroborates the study of Simnett, Vanstraelen, & Chua, (2009); GRI (2017) report found that global peace is the most important factor in determining the successful implementation of SDG by 2030.

Human Development

Different authors (Hou, Walsh, & Zhang, 2015; Hak, Janouškova, & Moldan, 2016; Fleming, Wise, Hansen & Sams, 2017) emphasized the role of human development in national development (both socio-economic and political development). Janez and Pieter (2017) explored the relationship between the UN human development index and sustainable development performance. The findings of the study revealed a positive and significant relationship between HDI and sustainable development; in fact, most SDG targets are embedded in HDI indicators. While SDG attempts to evaluate and measure several aspects of environmental sustainability, including global development sustainability, there is also a large drive toward human sustainability for all nations. HDI is measured based on three metrics: health, the standard of living and knowledge (UNDP, 2014). A healthy lifestyle is measured by life expectancy; the level of knowledge is measured by the average number of years of education in a lifetime, and standard of living is measured by Gross National Income (GNI) per capita.

Governance

In contemporary research, governance and development have become inseparable (Laura, Codruta & Maria, 2016). Governance is such an important process and mechanism in effecting sustainable development in any society. Governance is described by (Matt, Hay & Myers, 2010) as the determined and authoritative steering of social processes. These processes include the actions of governmental and non-governmental players such as NGOs, civic organizations, the private sector, and developmental partners. Similarly, Sustainable Development Solution Network (SDSN) (2016) viewed governance as a mechanism that should set a clear guideline to the articulation and implementation of SDG. Also, Stojanovic, Ateljevic, and Stevic (2016) revealed that good governance is a veritable tool for sustainable development. The forum for a new World Governance (FnWG) in 2008 developed World Governance Index (WGI) as an indicator to measure the activities of those charged with governance. WGI is based on five indicators: rule of law; sustainable development; human rights; human development; peace and security.

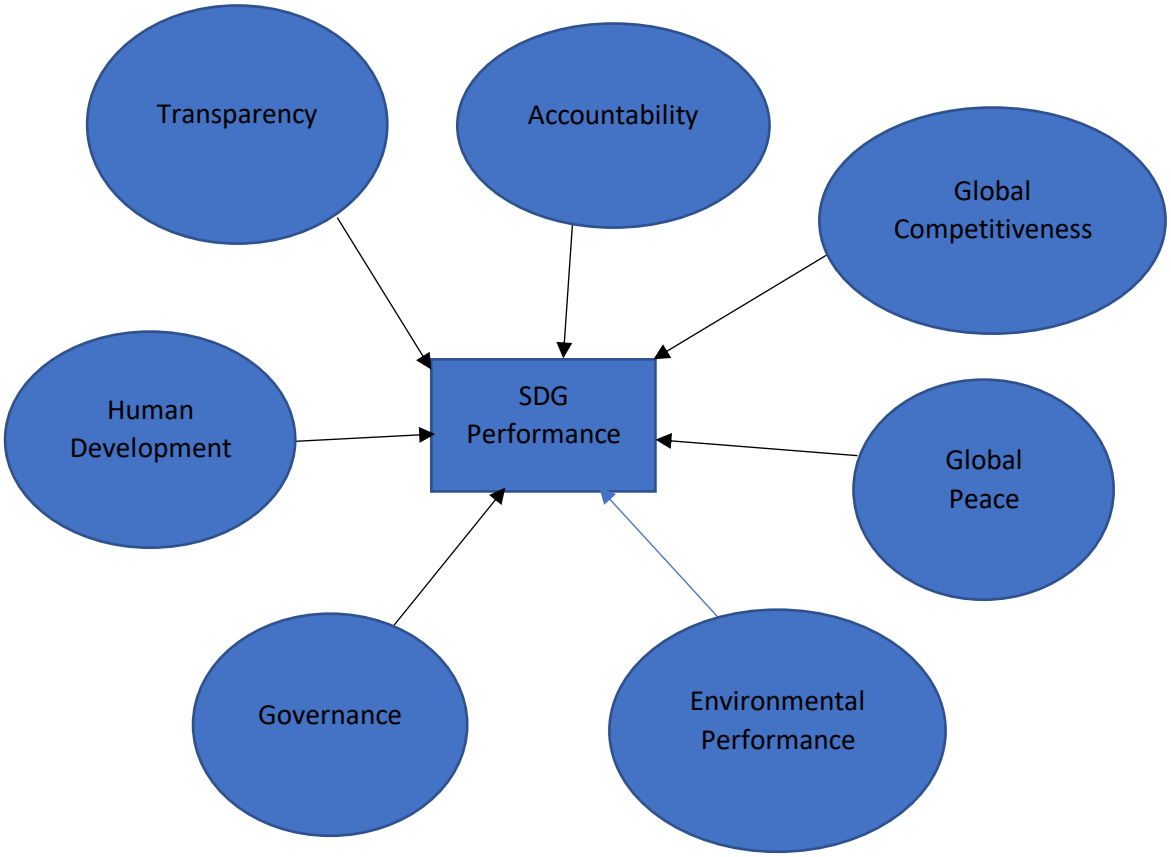
Environmental Performance

One of the pillars of SDG is environmental sustainability (Kroll, 2015; OECD, 2016, Sanyaolu *et al*., 2018); it is argued that one of the critical measures of SDG performance is environmental governance, management, and performance (World Bank Report, 2016). Halkos and Zisiadou (2016) opined that environmental issues in SDG are very important because it covers all living and non-living things that may affect the human existence and their economic survival. One of the goals of SDG is to evaluate and measure several aspects of environmental sustainability. Yale and Columbia University developed a metrics for measuring environmental performance known as "*Environmental Performance Index"*. The motivating factor for the development of EPI was an attempt to measure environmental performance under the MDG established by the United Nations. Some of the EPI indicators include climate and energy; biodiversity and habitat; air quality; clean water and so on.

Conceptual Framework

The conceptual framework depicts the inter-relationship between factors that influence SDG.

Figure 1: Conceptual Framework showing the inter-relationship among factors that affect SDG performance



Source: Developed by Authors (2018)

The conceptual framework forms the basis on which this study is anchored. These factors affect one or more SDG which is depicted below:
Transparency- SDG 1; SDG 10
Accountability – SDG4; SDG 2
Global Competitiveness – SDG 9; SDG 17
Human Development – SDG 8
Governance – SDG 3; SDG 5
Environmental Performance – SDG 6; SDG 7; SDG 12; SDG 13; SDG 14; SDG 15
Global Peace- SDG 11; SDG 16

3. Research Methods

Research Design

The research design for this study is an ex-post factor; the study of Kerlinger (1970) opined that ex-post facto research is also called causal-comparative research. This research design is used when the researcher intends to determine cause and effect relationship between independent and dependent variables with a view to establishing a causal link between them. This research design was employed because of its suitability in research of this nature. Uniform information was collected across the selected countries over a period of two years (2016 to 2017) from all the desired elements. The study could only examine two (2) years since SDG implementation actually started in 2016. The population of the study is comprised of the 54 African

countries. However, purposive sampling techniques was applied to select an equal number of countries based on the geographical zones. We selected two countries each from the five geographical zones in Africa. Nigeria and Ghana from West Africa region, Cameroon and Gabon from the Central Africa region, South Africa and Zambia from the South Africa region, Egypt and Morocco from the North Africa region, Kenya and Uganda from the East Africa region.

Operationalization of Variables

Variable(s)	**Symbols**	**Operationalisation/Definition**	**Apriori Expectation**	**Source**	**SDG Addressed**
Dependent Variable					
Sustainable Development Goal Index	SDGI	To measure sustainable development goal performance for each country		UN Sustainable Development Report (2017)	SDGs 1 - 17
Independent Variables					
Corruption Perception Index	CPI	To measure the effect of public transparency on SDG performance	A decrease in CPI is expected to increase SDGI	Transparency International Report (2017)	SDG 1; SDG 10
Accountability Index	AI	To measure the impact of accountability on SDG performance.	An increase in AI is expected to increase SDGI	Mo Ibrahim Report (2017)	SDG4; SDG 2
Control Variables					
Global Competitiveness Index	GCI	To measure how productive and efficient countries use their resources vis-à-vis its impact on SDG performance.	An increase in GCI is expected to increase SDGI	World Economic Forum Report (2017)	SDG 9; SDG 17
Global Peace Index	GPI	To measure relative peace enjoyed by a country in comparison to other countries and its	An increase in GPI is expected	Institute of Economi	SDG 11; SDG 16

		impact on SDG performance.	to increase SDGI	cs and Peace Report (2017)	
Human Development Index	HDI	To measure relative health, the standard of living and knowledge within the SDG activities.	An increase in HDI is expected to increase SDGI	World Bank Report (2017)	SDG 8
World Governance Index	WGI	To measure the activities of those charged with governance with respect to SDG performance.	An increase in WGI is expected to increase SDGI	World Bank Report (2017)	SDG 3; SDG 5
Environmental Performance Index	EPI	To measure all environmental issues such as climate and energy; biodiversity and habitat; air quality; clean water.	An increase in EPI is expected to increase SDGI	Yale University Report and World Economic Forum (2017)	SDG 6; SDG 7; SDG 12; SDG 13; SDG 14; SDG 15

Source: Developed by the Author (2018)

Model Specification

We developed our models based on the conceptual issues reviewed in the literature. This model captured the public transparency and accountability as the main independent variables examined in this study. The estimated econometric model is expressed in the following equations:

Model 1

$SDGI = f(CPI, AI)$ ..... *Eq. (1)*

$SDGI_{it} = \beta_o + \beta_1 CPI_{it} + \beta_2 AI_{it} + \dot{e}_{it}$ ..... *Eq. (2)*

Where:

SDGI = Sustainable Development Goal Index

CPI = Corruption Perception Index

AI = Accountability Index

$\beta 0$ = Intercept of the regression line, regarded as constant.

i = 1, 2, 3..... 10 indicating the number of countries that were used for the study

t = 1, 2 indicating the time period that was used for this study (2016 - 2017)

$\beta 1 - 2$ = Coefficient or slope of the regression line or independent variables.

$\dot{e}it$ = The error term which account for other possible factors that could affect the dependent variable not captured in the model. (The stochastic error term is assumed to be identically and independently distributed).

Model 2

In order to use the hierarchical regression method, there are control variables (other than the main variables) that were added to know if it has more impact on the dependent variable. The econometric model is stated below:

$SDGI_{=} f\ (CPI, AI, GCI, GPI, HDI, WGI, EPI)$

…… *Eq. (3)*

$SDGI_{it} = \beta_o + \beta_1 CPI_{it} + \beta_2 AI_{it} + \beta_3 GCI_{it} + \beta_4 GPI_{it} + \beta_5 HDI_{it} + \beta_6 WGI_{it} + \beta_7 EPI_{it} + \dot{e}_{it}$ …… *Eq. (4)*

Where:

GCI = Global Competitiveness Index

GPI = Global Peace Index

HDI = Human Development Index

WGI = World Governance Index

EPI = Environmental Performance Index

$\beta 0$ = Intercept of the regression line, regarded as constant.

i = 1, 2, 3….. 10 indicating the number of countries that were used for the study

t = 1, 2 indicating the time period that was used for this study (2016 - 2017)

$\beta 1 - 7$ = Coefficient or slope of the regression line or independent variables.

$\dot{e}it$ = The error term which account for other possible factors that could affect the dependent variable not captured in the model. (The stochastic error term is assumed to be identically and independently distributed).

Data Analysis Techniques

This study used multiple regression analysis. The multiple regression method was used to analyze the data and measure the significant relationship between the dependent and independent variables. Econometric package of E-view, version 10.0 was applied to the data from 2016-2017 for the estimation of the respective models and their coefficient. The multiple regression analysis was complemented by some preliminary statistical analysis like descriptive statistics and correlation matrix, measurement of variables' normality and their relationship respectively. The result of the correlation was used to decide the measurements of the variables that should be included in the multiple regression models.

4. Results and Discussion

This section presents the descriptive and inferential results obtained from the dataset and discussion was made based on the findings.

Table 1: Descriptive Statistics

	SDGI	CPI	AI	GCI	GPI	HDI	WGI	EPI
Mean	0.4372	0.3335	0.3955	0.3925	0.469	0.5495	0.5015	0.627
Median	0.454	0.33	0.395	0.39	0.475	0.555	0.51	0.62
Maximum	0.551	0.45	0.55	0.48	0.55	0.7	0.59	0.74
Minimum	0.361	0.25	0.31	0.33	0.37	0.4	0.41	0.53
Std. Dev.	0.074456	0.067456	0.065089	0.043875	0.050565	0.074302	0.0505	0.063998
Skewness	0.448143	0.219268	0.528623	0.56031	-0.4612	0.080608	-0.2512	0.214847
Kurtosis	2.86078	1.665787	2.728668	2.395309	2.149066	3.180303	2.235461	1.909497
Jarque-Bera	0.685591	1.643699	0.992824	1.351201	1.312435	0.04875	0.697436	1.144861
Probability	0.709783	0.439618	0.608711	0.508851	0.51881	0.97592	0.705592	0.564152
Sum	9.744	6.67	7.91	7.85	9.38	10.99	10.03	12.54
Sum Sq. Dev.	0.105331	0.086455	0.080495	0.036575	0.04858	0.104895	0.048455	0.07782
Observations	20	20	20	20	20	20	20	20

Source: Authors Computation (2018) using E-view 10

The descriptive statistics for the variables examined are presented in Table 1. The dependent variable of SDGI range between 0.361 and 0.551 and a reported mean value of 0.4372. This implies that on average the actualization of SDG performance in this selected countries is about 44%. This performance is below average. From the independent variables, CPI reported a mean of 0.3335, a maximum of 0.45 and a minimum of 0.33. This shows that on average public transparency in Africa is lowA country like Uganda has the lowest rank of CPI while South Africa recorded the highest in terms of CPI (See appendix 1). AI reported a mean of 0.3955, a maximum of 0.55 and a minimum 0.31, which suggests that the sampled countries have a poor accountability attitude. GCI reported a mean of 0.3925, suggesting that on the average, the examined countries are not efficient in their productivity which has a negative impact on the SDGI of selected countries. GPI reported a mean of 0.469 which insinuates that on the average, there is relative peace in the sampled countries. HDI reported a mean of 0.5495, suggesting that on the average, human development is high among the selected countries. This is revealed by the maximum of 0.70 and a minimum of 0.40. WGI reported a mean of 0.5015, suggesting that on average governance among the selected countries are on the rise and been pursed. Furthermore, EPI reported a mean of 0.627 suggesting that on the average, the environmental performance of the selected countries is very high and are been pursued in the actualization of SDGI. This is further attested by the scatter graph analysis shown in appendix 2.

Table 2: Summary of Correlation Coefficients

Correlation Probability	**SDGI**	**CPI**	**AI**	**GCI**	**GPI**	**HDI**	**WGI**	**EPI**
SDGI	1							
CPI	0.573	1						
	0.008*	-----						
AI	0.311	0.705	1					
	0.181	0.005*	-----					
GCI	0.613	0.537	0.232	1				
	0.004*	0.014*	0.323	-----				
GPI	0.428	0.388	0.435	0.383	1			
	0.059*	0.091	0.055	0.095	-----			
HDI	0.441	0.488	0.425	0.675	0.252	1		
	0.051*	0.028*	0.061	0.001*	0.283	-----		
WGI	0.636	0.724	0.516	0.527	0.542	0.568	1	
	0.002*	0.003*	0.019*	0.016*	0.013*	0.008*	-----	
EPI	0.711	0.651	0.442	0.675	0.221	0.341	0.499	1
	0.004*	0.001*	0.051*	0.001*	0.347	0.141	0.024*	-----

Source: Authors Computation (2018) * denotes 5% significance level

Table 2 above, shows the correlation coefficients of the variables examined to measure sustainable development goal index used in the study. As observed, the corruption perception index (CPI) is positively correlated with the sustainable development goal index (SDGI) with a value of 0.573692. Accountability index is positively correlated with the sustainable development goal index (SDGI) with a value of 0.311665. Also, Global competitiveness index (GCI), Global peace index (GPI), Human development index (HDI), World government index (WGI) and

Environmental performance index (EPI) all exhibit a positive correlation with sustainable development goal index with a value of 0.613, 0.428, 0.441, 0.636 and 0.714 respectively. The result implies that these variables influence the actualization of sustainable development goal in the selected countries in Africa.

Table 3: Variance Inflation Factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
CPI	0.129085	109.4423	4.094435
AI	0.116149	136.7418	3.430158
GCI	0.410843	469.9366	5.513016
GPI	0.120812	197.1440	2.153256
HDI	0.092319	208.0975	3.552856
WGI	0.179142	333.7813	3.184675
EPI	0.120914	352.2471	3.452202
C	0.031248	229.2859	NA

Source: Authors Computation (2018) using E-view 10

The results of the test of variance inflation factor is a further confirmation of the absence of the problem of collinearity of the regression variables. The centered variance inflation factor is all clustered around the value of 6.00 which indicates the absence of multicollinearity. The centered variance inflation factor has a benchmark of 10.00, beyond which is an indication of the problem of multicollinearity

Regression Results

Table 4: Hierarchical Regression Analysis

Variable	**Model 1**			**Model 2**		
	Coefficient	t-statistic	*p-values*	Coefficient	t-statistic	*p-values*
CPI	0.35772	2.65329	0.0192*	0.48059	2.17843	0.0209*
A1	-0.29591	-0.18568	0.4219	-0.12208	-0.39216	0.4458
GCI				-0.05279	-0.04406	0.2318
GPI				-0.01014	-0.00521	0.3536
HDI				-0.13192	-0.01512	0.1153
WGI				0.49499	3.01893	0.0007*
EPI				0.36687	2.07832	0.0339*
R^2		0.54			0.65	
Adjusted R^2		0.51			0.62	
Adjusted R^2 Change		0			0.11	
Durbin-Watson stat		2.01613			2.15391	

Source: Authors Computation (2019) *5% significance level

The result of the hierarchical regression analysis is presented in table 4. Model 1 presents the public transparency and accountability variables that are linked with the dependent variable (SDG performance). The result showed a positive and significant

relationship between public transparency (CPI) (0.0192<0.05) and SDG performance (SDGI). On the contrary, the result shows a negative and insignificant relationship between accountability (AI) (0.4219>0.05) and SDG performance. The Durbin-Watson statistic of 2.01613 is not substantially different from the 2.00 benchmark which indicates the absence of serial correlation. The adjusted R^2 value of model 1 revealed 51%, which means that the combination of CPI and AI have 51% impact on SDI performance. Considering the model 2, where control variables (GCI, GPI, HDI, WGI, and EPI) were added to test their impact on SDG performance. From the analysis, GCI (0.2318>0.05), GPI (0.3536>0.005), and HDI (0.1153>0.05) showed a negative and insignificant relationship with SDG performance. On the other hand, WGI (0.0007<0.05) and EPI (0.0339<0.05) revealed a positive and significant relationship with SDG performance. The adjusted R^2 value of model 2 revealed 62%.

Overall, the combination of the explanatory variables of (Corruption Perception Index, Accountability Index), and control variables (Global Competitiveness Index (GCI), Global Peace Index (GPI), Human Development Index (HDI), World Government Index (WGI) and Environmental Performance Index (EPI) produced 62 % of the adjusted R^2. This implies that the addition of the control variables increases the adjusted R^2 from 51% to 62% which gives an increase of 11%.

Restatement of Hypotheses and Discussion of Findings

H_1*: Public Transparency is positively related to the SDG Performance*
H_2*: Accountability is positively related to the SDG Performance*

The regression analysis focused on the impact of public transparency and accountability on SDG while the analysis controlled for other variables. From the hierarchical regression result, the CPI value (p =0.0192<0.05) shows a positive and significant relationship with SDGI. This affirms the hypothesis that public transparency is positively related to SDG performance is accepted. On the contrary, accountability (AI) (p =0.4219>0.05) reveals a negative and insignificant relationship SDGI. This means that accountability is not positively related to SDG performance. Other variables such as GCI (p =0.2318 > 0.05), GPI (p =0.3536 > 0.05), HDI (p =0.1153 > 0.05) present a negative and insignificant relationship with SDG performance while WGI (p =0.007<0.05) and EPI (p =0.0339 < 0.05) shows a positive and significant relationship with SDG performance. Based on this empirical evidence, public transparency and accountability have impacted SDG performance to a reasonable extent for the selected African countries. This answers the research question of this study.

The foregoing results present a major implication for the growth and actualization of SDG in Africa. The positive relationship between public transparency and SDG performance connotes improvement in public transparency for African countries. However, this finding is not consistent with the studies of (Iyoha & Oyerinde, 2010; Lassou, & Hopper, 2016; Bakre & Lauwo, 2015) which documented that lack of public transparency and corrupt practices contributed to poor performance of MDG in Africa. The negative relationship between accountability and SDG performance implies the lack of accountability of African countries. This is a clarion call to institutionalized sound accountability framework, strong institutions, and ethical values in order to achieve sustainable development in Africa. Also, this finding corroborates the study of (Alawattage & Fernando, 2017) which found that accountability is a crucial factor in the achievement of SDG both at the corporate and country level. The assumption is that clear transparency and improved accountability will combat the misuse of public funds which will eventually promote good governance and sustainable development.

Since public transparency has a direct impact on SDG 1 (no poverty) and SDG 10 (reducing inequalities) while accountability has direct consequences on SDG 2 (zero hunger) and SDG 4 (quality education). It is imperative for government institutions to direct their effort in fighting endemic public sector corruption and promote accountability and transparency in public sector governance. The study also documents other variables that affect SDG performance other than transparency and accountability. The study found a negative and insignificant relationship between the Global Competitiveness Index (GCI) and SDGI. The implication of this is that African countries exhibit poor macroeconomic framework, inefficient labor market, poor production process, lack of innovation and small market size. This result has a direct impact on SDG 9 (industry, innovation, and infrastructure) and SDG 17 (partnership for the goals). Consistent with this result, the studies of Olaope, 2016 and Bucher, 2018 found that global competitiveness is one of the major factors that determine the success or otherwise to achieving SDGs.

Furthermore, the regression result reveals a negative and insignificant relationship between the Global Peace Index (GPI) and SDGI. Peace is required for any meaningful development in all countries. The insignificant relationship might be due to domestic and organized conflict, increased in criminality, violence and increased of terrorism in Africa. GPI has a direct influence on SDG 11 (sustainable cities and communities) and SDG 16 (peace, justice, and strong institutions). In recent times, some African countries have witnessed an increase in terrorism which has hindered meaningful sustainable development. Similarly, the regression result shows a positive and insignificant relationship between the Human Development Index (HDI) and SDGI. HDI influences SDG 8 (decent work and economic growth). Studies (Hou *et al*., 2015; Hak *et al.,* 2016; Fleming *et al*., 2017) have shown that poor standard of living, low per capita income and unemployment have negatively affected the growth of sustainable development in Africa. There is a need to address these problems by African leaders if the SDG vision of 2030 would be realized in no distance time.

While other control variables present a negative and insignificant relationship with SDG performance, the findings of World Governance Index (WGI) presents a positive and significant relationship with SDGI from the regression analysis. WGI has a direct impact on SDG 3 (good health and well-being) and SDG 5 (gender equality). This implies that a governance mechanism has improved in selected African countries. This might have contributed to the steady pace of sustainable development in Africa. However, few studies (Laura *et al*., 2016; SDSN, 2016; Lassou & Hopper, 2016) have shown that nepotism, cronyism, miscarriage of justice, non-adherence to rule of law, and violation of human rights have hindered meaningful development in Africa in recent times. Lastly, the Environmental Performance Index (EPI) shows a positive and significant relationship with SDG performance. Within the SDG context, EPI influences the highest number of SDGs; SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), SDG 12 (responsible consumption and production), SDG 13 (climate action), SDG 14 (life below water), SDG 15 (life on land). From the data gathered, in 2017, Morocco and South Africa scored 72% respectively in terms of environmental performance while Zambia and Egypt scored 68% and 62% respectively. While Nigeria and Uganda scored the lowest EPI of 53% each respectively. This result shows that African countries are moving in the right direction in terms of environmental protection, management, and performance.

5. Conclusion

This study focused on examining whether public transparency and accountability affect the performance of SDG in Africa. The approach followed was to analyze ten (10) African countries selected from the five (5) geographical zone in Africa. Bearing in mind that we could only examine two (2) years (2016, 2017); since SDG was globally adopted in 2015. The study documented a mixed result, public transparency (CPI) presents a positive and significant relationship with SDG performance while accountability (AI) presents a negative and insignificant relationship with SDG performance. Global competitiveness index (GCI), global peace index (GPI) and human development index (HDI) present a negative and insignificant relationship with SDG performance while the world governance index (WGI) and environmental performance index (EPI) revealed a significant relationship with SDG performance. This study presents a considerable implication for the future of sustainable development in Africa. This result calls for clear responsibility, transparent governance, credible participatory process, reduced corruption and proper accountability of public resources on the part of those charged with governance.

This study contributes to the growing research in the area of accounting, accountability and sustainable development in Africa. The empirical approach used in investigating the effect of public transparency and accountability on SDG contributes to the quality of this research in the area of sustainable development which reinforces the originality of this study. This study further used other controlled variables such as governance, global peace, human development, environmental performance and global competitiveness as metrics for determining the performance of sustainable development in Africa. To the best of the author's knowledge, this is the first study that used the combination of these variables to measure the performance of SDG in Africa.

The study suffered a few limitations. The study was limited by sample size which resulted in only 20 observations, it also suffers the limitation of robustness in empirical result due to the small sample size. However, it sets the tone for future empirical research on the subject matter. The study used both descriptive and inferential statistics to analyze the various variables. The researchers might not be able to attest to the genuineness and reliability of the data used. However, the findings of this study agree with previous studies (Iyoha & Oyerinde, 2010; Bakre & Lauwo, 2015; Tauringana & Chithambo, 2015; Lassou, & Hopper, 2016; Laura *et al.,* 2016; Olaope, 2016) in the area of public transparency and accountability issues in Africa. This study provides an avenue for future research in the area of accountability and sustainable development in Africa. Future studies could research into the comparative analysis of African countries compared to other continents of the world.

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APPENDICES

Appendix 1: Data Collected for Analysis

	SDGI 2016	SDGI 2017	CPI 2016	CPI 2017	AI 2016	AI 2017	GCI 2016	GCI 2017
NIGERIA	0.361	0.372	0.28	0.27	0.32	0.36	0.33	0.33
GHANA	0.482	0.492	0.43	0.4	0.42	0.48	0.36	0.38
CAMEROON	0.463	0.492	0.26	0.25	0.37	0.39	0.35	0.36
GABON	0.512	0.561	0.35	0.32	0.31	0.38	0.46	0.48
SOUTH AFRICA	0.538	0.579	0.45	0.43	0.44	0.47	0.47	0.44
ZAMBIA	0.418	0.468	0.37	0.38	0.47	0.55	0.42	0.39
EGPYT	0.482	0.496	0.32	0.34	0.4	0.42	0.36	0.39
MOROCCO	0.616	0.651	0.37	0.4	0.42	0.4	0.42	0.4
KENYA	0.441	0.421	0.26	0.28	0.31	0.35	0.39	0.39
UGANDA	0.436	0.463	0.25	0.26	0.32	0.33	0.36	0.37

	GPI 2016	GPI 2017	HDI 2016	HDI 2017	WGI 2016	WGI 2017	EPI 2016	EPI 2017
NIGERIA	0.37	0.39	0.4	0.53	0.45	0.47	0.58	0.53
GHANA	0.51	0.51	0.56	0.59	0.52	0.55	0.58	0.57
CAMEROON	0.48	0.45	0.42	0.57	0.41	0.45	0.57	0.58
GABON	0.52	0.51	0.58	0.7	0.51	0.54	0.67	0.63
SOUTH AFRICA	0.45	0.42	0.62	0.69	0.54	0.57	0.7	0.72
ZAMBIA	0.51	0.55	0.52	0.58	0.5	0.55	0.66	0.68
EGPYT	0.42	0.47	0.55	0.57	0.45	0.48	0.66	0.62
MOROCCO	0.51	0.5	0.51	0.51	0.53	0.59	0.74	0.72
KENYA	0.39	0.45	0.48	0.59	0.41	0.48	0.62	0.61
UGANDA	0.46	0.51	0.51	0.51	0.52	0.51	0.57	0.53

Source: Compiled by the Author (2018)

Appendix 2: Scatter Graph

Figure 1: SDGI and CPI

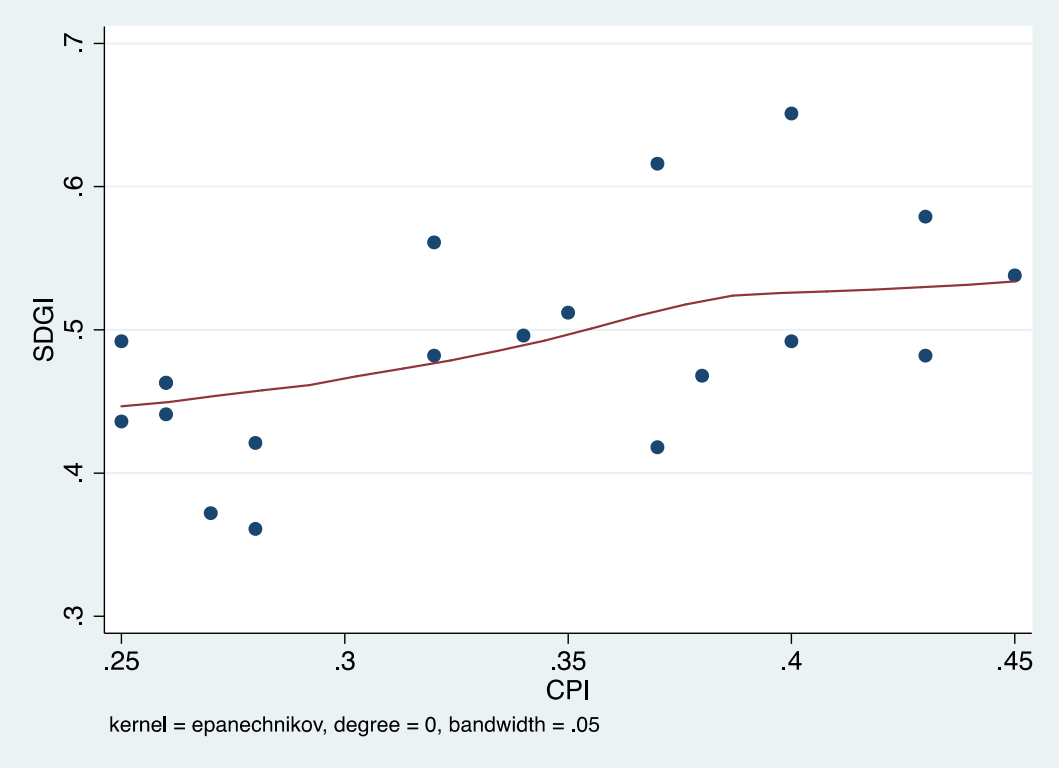


Figure 2: SDGI and AI

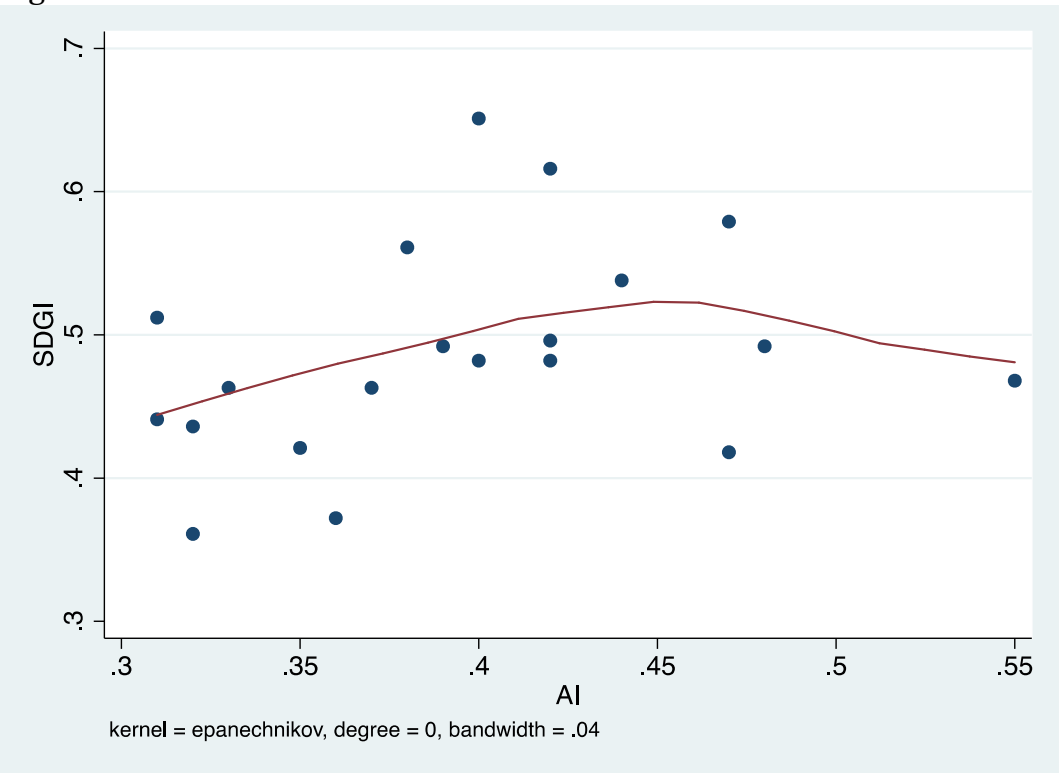


Figure 3: SDGI and GCI

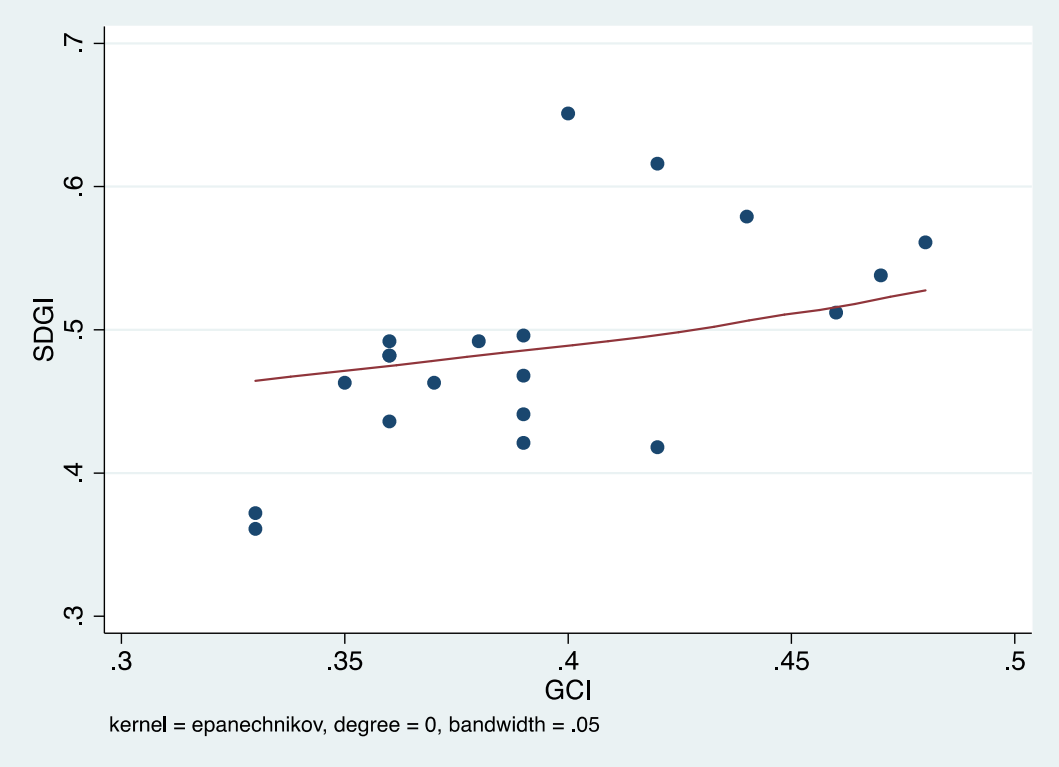


Figure 4: SDGI and GPI

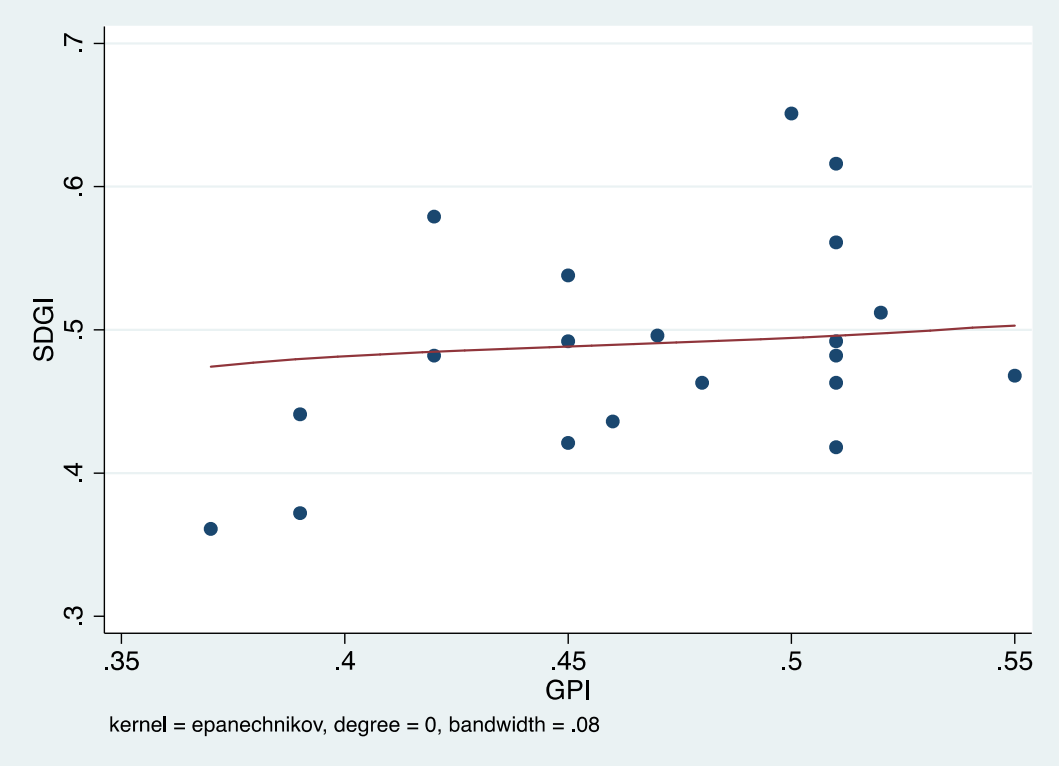


Figure 5: SDGI and HDI

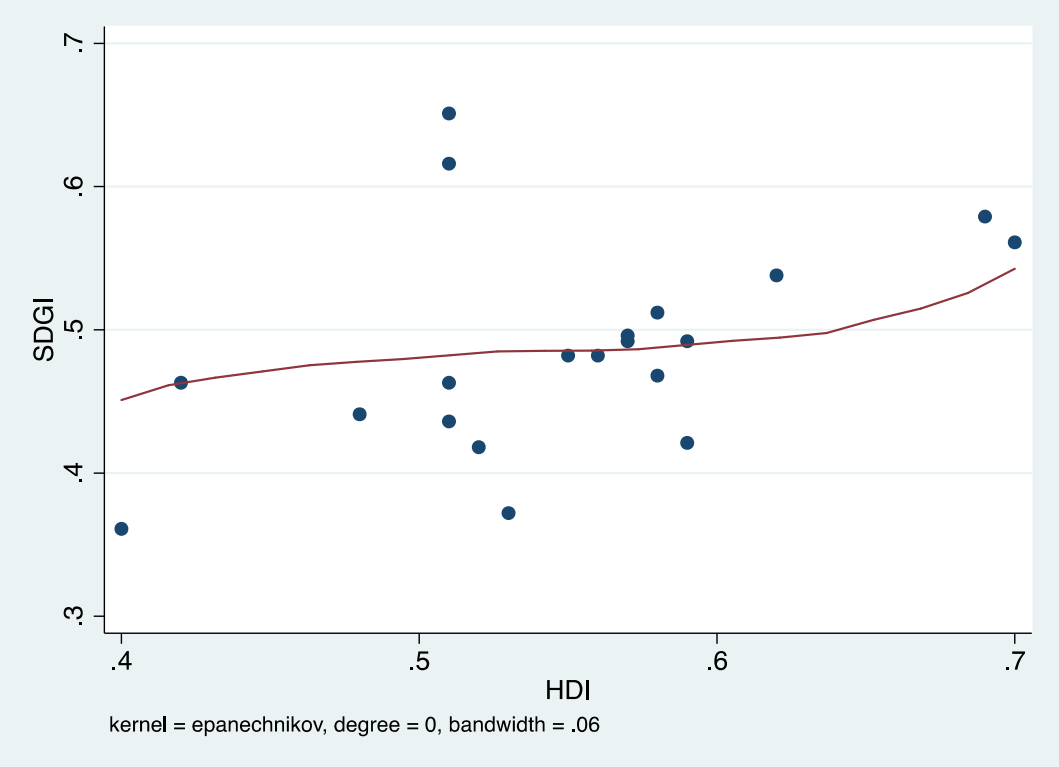


Figure 6: SDGI and WGI

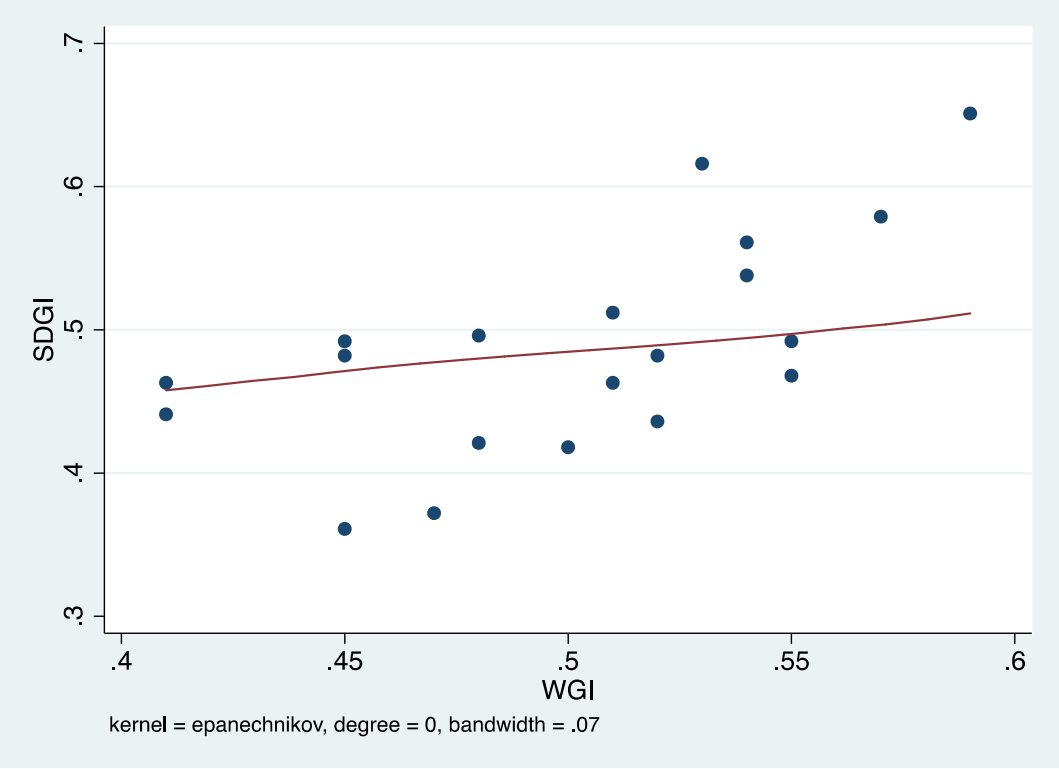
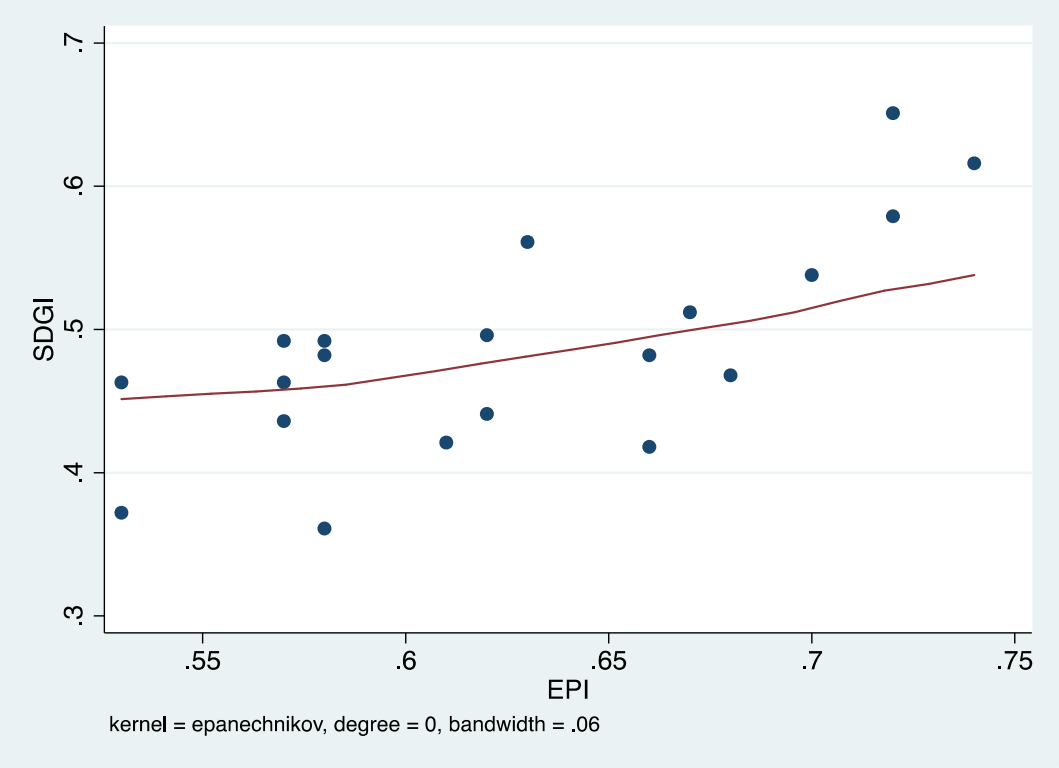


Figure 7: SDGI and EPI



Source Authors Computation (2018) using STATA 13

Appendix 3: List of SDGs

SDGs	Targets
SDG 1	No poverty
SDG 2	Zero Hunger
SDG 3	Good health and well-being
SDG 4	Quality education
SDG 5	Gender equality
SDG 6	Clean water and sanitation
SDG 7	Affordable and clean energy
SDG 8	Decent work and economic growth
SDG 9	Industry, innovation, and infrastructure
SDG 10	Reducing inequalities
SDG 11	Sustainable cities and communities
SDG 12	Responsible consumption and production
SDG 13	Climate Action
SDG 14	Life below water
SDG 15	Life on land
SDG 16	Peace, justice, and strong institutions
SDG 17	Partnership for the goals

Source: Compiled by the Author (2018)