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Does Environmental Sustainability Mediate the Effect of Institutional Quality on Inclusive Development in Sub-Sahara Africa

Dobdinga Cletus Fonchamnyo[1] & Giyoh Gideon Nginyu[2]

[1] Associate Professor, Vice Dean in Charge of Teaching and Programming, The University of Bamenda, Cameroon

[2] Ph.D. Candidate, Faculty of Economics and Management Sciences, The University of Bamenda, Cameroon

Correspondence: Giyoh Gideon Nginyu, Ph.D. Candidate, Faculty of Economics and Management Sciences, The University of Bamenda, Cameroon.

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Abstract

This study was set to investigate the effect of institutional quality and environmental sustainability on inclusive human development in 35 Sub-Sahara Africa over the period 2010 to 2017. The results of a structural equation modelling following Baron and Kenny (1986) showed that the effect institutional quality on inclusive human development is partially mediated by environmental sustainability.

Keywords: environmental sustainability, institutional quality, inclusive development

1. Introduction

Efforts to reduce environmental degradation remain vital due to its strong correlation with economic growth and wellbeing. While energy consumption is necessary for driving economic development in every economy, high energy consumption leads to environmental degradation through pollution (Sugiawan *et al.*, 2019). However, efforts to reduce environmental degradation have been indescribable since most of the major polluting countries have failed to fulfil their commitment to reduce their pollution levels (Sugiawan *et al.*, 2019). Therefore, policies aimed at reducing environmental degradation by limiting energy consumption, might pose a serious threat to aching higher wellbeing. If such a correlation exists, then there is a potential trade-off between economic development and environmental degradation which needs to be carefully addressed (Antonakakis *et al.*, 2017).

Institutional constraints have also been considered to be a vital challenge for an environmentally sustainable economy as well as inclusive development. Development differentials between countries have been speculated to be due to differences in the institutional factors between countries which affect growth rates as well as inclusiveness within countries (Olanrewaju *et al.*, 2020). Nevertheless, contextualising the role played by institutional quality on wellbeing is still one of the most challenging issue in development literature.

According to Stiglitz *et al.* (2010), in a report "the Commission on the Measurement of Economic Performance and Social Progress", it is indeed important that measures of development move beyond income measures like GDP, which is still a dominant indicator for economic and social progress. This has been the main motive behind the development of the human development index which was proposed as a feasible alternative to the conventional gross domestic product for evaluating the progress in well-being of a nation since it took into consideration all dimensions of wellbeing. Subsequently the inequality adjusted human development was developed to take care of inequality in the dimensions of wellbeing between members of a society. If all these things are necessary in the assessment of development, it therefore seem insufficient to look only beyond income and averaging but also beyond today. Both the poor and the rich have to become more humanised to be liberated from misery and therefore the best measure of wellbeing is the inequality adjusted human development index

which will be used I this study to measure inclusive human development.

Though recent empirical studied have tried to establish a link between institutional quality and inclusive development, institutional quality and environmental sustainability as well as environmental sustainability and inclusive development across countries and over time, the mediation effect of environmental sustainability on the effect of institutional quality on inclusive human development have not yet been exploited. In other words, the direct and indirect effect of institutional quality through environmental quality seem lacking behind and therefore this is the main motive of this paper.

2. Literature Review

Based on the work of North (1981), the field of development has recognised the importance of institutional quality in achieving inclusive development in an economy. In the same light, according to Acemoglu and Robinson (2013) the failure and or success of any economy is largely dependent upon its political institution, and not the geographical, economic institutions, value systems or culture. Economic growth is dependent on a variety of factors but these factors are more important only within a framework of good quality institution (Olanrewaju *et al.*, 2020).

It has been establishing in the literature that institutional quality promotes economic growth both across countries, and over time (La Portal, 1998; Chang, 2011; Acemoglu & Robinson, 2013; Onwusu & Odhambo, 2014; Kebede & Takyi, 2017). For example, based on a System-Generalized Method of Moments and fixed effects estimation technique Nawaz, Iqbal and Khan (2014) found that institutions exert positive effect on the long-run growth in a panel of 35 Asian countries from 1996 to 2012. Ntow-Gyamfi *et al.* (2022) found from a difference GMM in a sample of 48 African countries from 1990 to 2016 that, institutional quality promoted inclusive growth. In a study to investigate the effect of institutional quality, inequality, and foreign aid on inclusive growth in 48 African countries spanning from 2002 to 2018 based on a two-step system generalised method Nketia et al. (2020) found that all dimensions of institutional quality except government effectiveness influences positively inclusive growth and income inequality also had a negative influence on inclusive growth. These results are in line with other others like La Portal, 1998; Chang, 2011; Acemoglu and Robinson, 2013; Onwusu and Odhambo, 2014 and Kebede and Takyi, 2017.

Goel *et al.* (2013) examined the effect of institutional quality on environmental pollution with primary focus on the effect of corruption and the shadow economy. Using a two-stage least square estimation technique on a panel of 144 countries from 2004 to 2007, it was found that both more corrupt countries and countries with large shadow sectors have qualitatively and quantitatively similar effects in yielding fewer emissions. Using a GMM estimation technique in 25 SSA countries over the period 1996 to 2010, Abid, (2016) found that democracy, government effectiveness, political stability, and control of corruption reduces CO2 emissions and on the other hand, rule of law and regulatory quality increases CO2 emissions. Asongu and Odhiambo (2020) investigated the importance of government quality in moderating the prevalence of environmental degradation on inclusive human development in 44 sub-Saharan African countries over the period 2000 to 2012. Based on a GMM they found that, Regulation quality, rule of law and corruption control modulates CO2 emissions to exert a net negative effect on inclusive human development. the corresponding interactive effects were found to be positive, indicating that good governance needs to be enhanced to achieve positive net effects on inclusive human development

Based on an empirical evidence on 44 Sub-Sahara African countries over the period 2000 to 2012 and using a GMM technique, Asongu (2017) found a net negative effects CO2 emissions on inclusive human development. Mirza et al. (2019) also found in a sample of 81 developing countries from 2010 to 2014, that ICTs and CO2 emissions has a negative effect on inclusive human development. Asongu (2018) found from his study in 44 Sub-Saharan African countries from 2000 to 2012 that, CO2 emissions negatively affect inclusive human development. In the context sub-Saharan African Asongu and Odhiambo (2019) investigated the extent to which CO2 emissions influence inclusive human development in 44 sub-Saharan African countries where they found that, CO2 emissions deteriorate human development. Shah (2016) Rich (2017) and Boogaard et al. (2017) Asongu (2018) Mohmmed et al. (2019) also showed that environmental degradation negatively affects life expectancy as well as human health. Asongu *et al.* (2017) from a system GMM in a panel of 40 SubSaharan African countries from 2000-2012 CO2 emissions deteriorate inclusive human development. Based on a Fixed Effects and Tobit regressions in a panel of 44 Sub-Saharan African countries from 2000 to 2012 Asongu et al. (2019) found that, improvement in ICT would significantly diminish the harmful effect of CO2 emissions on inclusive human development.

Besides, the direction of causality between growth and institutional quality is less certain, and rather could as well run the other way round (Olanrewaju, Aremo, & Binuyo, 2020). For instance, Akbar *et al.* (2021) found from a VAR model in 33 OECD countries from 2006 to 2016 that CO2 emissions significantly escalate the healthcare expenditures, healthcare investments also escalate CO2 emissions as a result of higher energy use,

healthcare investments lead to an improvement in the overall quality of living and CO2 emissions significantly deteriorate human health and wellness in these countries. Dhrifi (2019) also found from a panel data from 45 African countries over the period 1995 to 2015 that there is a positive relation between institutional quality and health on one hand, and a negative relationship between environmental degradation and health on the other hand. Moreover, it was also found that, the direct and negative effects of environmental degradation on health may be decreased by the indirect and positive effects through institutions quality and macroeconomic variables. Based on the research work of Asongu and Odhiambo (2020) on a panel of 44 sub-Saharan African countries from 2000 to 2012 regulation quality modulates carbon dioxide emissions to exercise a net negative effect on inclusive development. Institutional governance (corruption control and the rule of law) modulates CO2 emissions to also exert a net negative effect on inclusive human development. Fortunately, the corresponding interactive effects are positive, which indicates that good governance needs to be enhanced to achieve positive net effects. Asongu and Odhiambo (2020) investigated the importance of government quality in moderating the effect of environmental degradation on inclusive human development in 44 sub-Saharan African countries from 2000 to 2012. Based on a generalised method of moments estimation technique, it was found that regulation quality, control of corruption as well as rule of law modulates CO2 emissions to exert a net negative effect on inclusive development.

Away from the existing literature, this paper aims to provide empirical evidence the mediating role of environmental sustainability on the effect of institutional quality on inclusive human development by using the foremost biodiversity and inequality adjusted human development index to measure inclusive human development and environmental sustainability respectively and employing a SEM technique.

3. Methodology

Data for this study were collected from several sources which are all secondary covering a period 2010 to 2017 for 35 Sub-Sahara African countries. Data on inclusive human development was gotten from the United Nations development program as it was captured by the inequality adjusted human development. More so, data on environmental sustainability was measured by bio capacity from environmental footprint network. Institutional quality variables were gotten from World Governance indicated as proposed by Kaufmann *et al.* (2010). Lastly, the remainder of the variables were gotten from World Development Indicators.

To attain the objective of the study, we are going to employ a structural equation modelling (SEM). The model can be specified as follows

$$\text{ES} = \text{f}(\text{IQ}) \tag{1}$$

$$\text{IHDI} = \text{f}(\text{ES, IQ, TD, FI, DA}) \tag{2}$$

Where, ES, IHDI, IQ, UB, DA, FI and TD are environmental sustainability, inclusive human development, institutional quality, urbanization foreign direct investment and trade openness. Econometrically, the above model the above model can be specified as follows,

$$ES_{it} = \delta_1 + \delta_2 IQ_{it} + \varepsilon_{it} \tag{3}$$

$$IHDI_{it} = \alpha_1 + \alpha_2 ES_{it} + \alpha_3 IQ_{it} + \alpha_4 TD_{it} + \alpha_5 FI_{it} + \alpha_6 DA_{it} + \varepsilon_{it} \tag{4}$$

SEM consists of a system of linear equations. SEM was used for several reasons; first it shows the relationship among hidden structures that are not directly measured, secondly it takes in to account possible mistakes in the measurements of the observed variables the classic regression approach assumes no measurement error that is potential measurement errors is usually neglected and finally, it is a very useful method to analyse highly complex multiple variable models and to reveal direct and indirect relationships between variables (Meydan & Şen, 2011; Çelik & Yılmaz, 2013).

There are four main types of structural equation models; Path Analysis Models which is established only with observed variables, Confirmatory Factor Analysis Models where factors are revealed from relations among variables and the observed variables can be loaded on any factor or on multiple factors, Structural Regression Models which is regression models formed between latent variables in structural equation models and consists of a combination of measurement model and structural model and Latent Change Models also known as “latent curve analysis” or “latent growth curve models” are models that describe longitudinal variation in time series (Raykov & Marcoulides, 2006) as in this study.

The variable starting the causality relation between the independent and the dependent variable is called as mediator variable (Wu & Zumbo, 2008). It is also called as intervening variable (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). It can also be defined as the variable that transfers the indirect effect of an independent variable to the dependent variable. Analysis of mediator variable is based on the hierarchical

regression method introduced by Baron and Kenny in 1986. In order to apply this method, the following conditions must first be met (Baron & Kenny, 1986)

There are two methods to investigate mediation. The first method which is the commonly known Baron and Kenny approach is adjusted by Iacobucci *et al.* (2007) for use with structural equation modelling and the second approach is that of Zhao *et al.* (2010). If the independent variable is X, the mediating variable is M and the dependent variable is Y then mediation can be investigated as follows; If both or one of the X on M and M on Y coefficients is not significant, then there is no mediation, When both of the X on M and M on Y coefficients are significant, then there is "some" mediation, If the Sobel's z-test is significant and the X on Y coefficient is not significant, then there is complete mediation, If both the Sobel's z-test and the X on Y coefficients are significant, then there is partial mediation, If the Sobel's z-test is not significant but the X on Y coefficient is significant, then there is partial mediation, If neither Sobel's z-test nor the X on Y coefficient are significant, then there is partial mediation.

According to Zhao *et al*. (2010), if neither Monte Carlo z-test nor the X on Y coefficient are significant, then there is no mediation, if Monte Carlo z-test is not significant and X on Y coefficient is significant, then there is only direct effect and then no mediation, if Monte Carlo z-test is significant and X on Y coefficient is not significant, then there is only indirect effect mediation or full mediation, if both of the Monte Carlo z-test and X-Y coefficient are significant and their coefficients point in same direction, then there is complementary mediation that is partial mediation, if both of the Monte Carlo z-test and X-Y coefficient are significant and their coefficients point in opposite direction, then there is competitive mediation. This work is going to employ the Baron and Kenny approach.

4. Results and Discussion

The presentation of the results begins with the presentation of summary statistics as presented on the table below.

Table 1. Descriptive Statistics and correlation analysis

Variable	Obs	Mean	Std. Dev.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)
IHD	298	.343	.083	.208	.69	1.000					
ES	304	.085	.157	0	1	0.274	1.000				
IQn	312	.411	.199	0	1	0.559	-0.087	1.000			
TD	295	.381	.211	0	1	0.209	0.223	0.229	1.000		
FI	312	.107	.102	0	1	-0.066	0.064	0.008	0.370	1.000	
DA	312	.1	.103	0	1	-0.384	-0.134	-0.192	0.043	0.484	1.000

Source: Constructed by author from secondary data (2022)

The table above shows that the sample size was just 312 observations. This is because the time period was short due to the fact that data on inequality adjusted human development was available just from 2010. All the variables are normalised to fall within a minimum and maximum value of 0 and 1 respectively on the other hand the inequality adjusted human development was no more normalised since it and index between 0 and 1.

After descriptive statistics, the cross-sectional dependence test (CD) proposed by Pesaran (2004) is applied to examine whether the individual unites in the panel has cross-sectional dependence or not because as stated by Dogan and Seker (2016), one should check the presence of cross-sectional dependence when a panel study is carried out. Table 2 shows the results of the result of the CD test.

Table 2. Cross-sectional dependence and unite test

	First data set	
variable	CD-test (p-value)	Unite rote (p-value)
IHD	0.000	0.000
ES	0.000	0.000
IQ	83.04	0.000
DA	0.000	0.000

TD	0.498	0.000
FI	0.000	0.000

Source: Constructed by author from secondary data (2022)

The outcome shows the associated p-values for all the variables are less than 0.1 meaning that the alternative hypothesis of cross-sectional independence is accepted. This implies that the variables under investigation have cross-sectional dependence.

After CD test, the stationary properties of the variables are analysed by applying the unit root test. As seen from the results depicted in Table 3, all the variables are stationary at level. We applied the Pesaran's simple panel unit root test which is applied presence of cross section dependence. It is applied in heterogenous panels with cross-section dependence (Pesaran, 2003). Parallel to Im *et al.* (2003) test, it is based on the mean of individual DF (or ADF) t-statistics of each unit in the panel. Null hypothesis assumes that all series are non-stationary.

Before the analysis proper, its important investigate the specification of our panel model, that is, if the model employed portray homogenous or heterogeneity slopes across panels.

Table 3. Testing for slope heterogeneity

H0: slope coefficients are homogenous	
Delta (p-value)	1.010 (0.312)
adj. (p-value)	3.566 (0.000)

Source: Constructed by author from secondary data (2022)

It was found that the panel portray heterogeneous slopes across panels as the adjusted p-value is significant. We can therefore do continue with the panel analysis.

The table below presents the empirical results of the effect of institutional quality on environmental sustainability inclusive human development. Column one of table presents the baseline model of effect of institutional quality and environmental sustainability on Inclusive human development after which the different dimensions that were used to construct the institutional quality index are added alternatively to see the robustness of our results. These variables are alternatively added to also gate more insides on the effect of institutional quality on inclusive human development and to avoid multi-collinearity since they are highly correlated among themselves.

Table 4. The mediation effect of environmental sustainability on the effect of institutional quality on inclusive human development

	Direct effect		Indirect effect	Total effect
VARIABLES	EVS	IHD	IHD	IHD
ES_		0.0266***		0.0266***
		(0.00783)		(0.00783)
IQ	0.140***	0.0156***	.0037218***	.0193474***
	(0.0138)	(0.00192)	(.0011559)	(0.00192)
UB		-0.122***		-0.122***
		(0.0210)		(0.0210)
DA		-0.181***		-0.181***
		(0.0445)		(0.0445)
FI		0.0289		0.0289
		(0.0415)		(0.0415)
TD		-0.00577		-0.00577

		(0.0189)		(0.0189)
var(e.ES_)		0.248***		0.248***
		(0.0212)		(0.0212)
var(e.IHD)		0.00320***		0.00320***
		(0.000274)		(0.000274)
Constant	1.390***	0.398***		0.398***
	(0.0301)	(0.0218)		(0.0218)
				0.0266***
Observations	274	274	274	274
chi2(4)	72.14	72.14		
Prob > chi2	0	0		
Number of Countries	35	35	39	39

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Constructed by author from secondary data (2022)

From the second column of the table below, institutional quality has a positive and significant effect of environmental sustainability. Our results are in line with those of Gani (2012) who found that, rule of law, political stability as well as control of corruption have a negatively effect on CO2 emissions per capita in developing countries and those of Mavragani *et al.* (2016) who found that environmental performance Index is positively correlated to each of the institutional quality indicators.

From the third column, it is also found that environmental sustainability has a positive and statistically significant effect on inclusive human development. The findings are in line with those of Asongu *et al.* (2017) who claimed that Carbon dioxide degradation has a negative effect on inclusive human development in Sub Sahara African countries and those of Asongu and Odhiambo (2019), who found who had similar results in 44 sub-Saharan Africa countries.

It was also found that, institutional quality has a positive and statistically significant effect on inclusive human development. The findings are also in line with the findings of Olanrewaju *et al.* (2019), Yinusa *et al*. (2020) who found that institutional quality is a dominant driver of inclusive growth in Nigeria. It also confirms the public choice theory of Stigler (1971) and Peltzman (1976) on the benefits of good institution on the societal welfare. Institutional quality creates a conducive environment for an equitable distribution of resources and therefore giving every member of the society to participate to development activities as well as benefiting from the fruits of development. Institutional quality creates employment where unemployment and underemployment are rampant. Institutional quality also eases technological transfer especially in technologically backward countries.

More so from column 4 it was found that institutional quality has a positive and significant effect on inclusive human development through environmental sustainability. The findings in line with those of Woldegiorgis (2020) who claimed that institutional quality increases inclusive human development in 21 African countries.

To better investigate the mediation effect, it is important conduct the Baron and Kenny approach of mediation test or indirect effect test.

Table 5. Significance testing of indirect effect (standardised)

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	0.100	0.100	0.100
Std. Err.	0.031	0.031	0.031
z-value	3.209	3.229	3.199
p-value	0.001	0.001	0.001
Conf. Interval	0.039, 0.161	0.039, 0.160	0.039, 0.162

Source: Constructed by author from secondary data (2022)

From the Baron and Kenny approach to testing mediation the effect of institutional quality on environmental sustainability (X on M) has coefficients B=0.524 and p=0.000 (STEP 1), the coefficients of the effect of environmental sustainability on inclusive human development (M on Y) is B=0.191 and p=0.001 (STEP 2) and the coefficients of the effect of institutional quality on inclusive human development (X on Y) is B=0.419 and p=0.000 (STEP 3). Since STEP 1, STEP 2 and STEP 3 as well as the Sobel's test above are significant, there is therefore partial mediation.

Based on the Zhao et al. (2010) approach to testing mediation the coefficients of the effect of institutional quality on inclusive human development (X on Y) with B = 0.419 and p = 0.000 (STEP 1). As the Monte Carlo test above is significant, STEP 1 is significant and their coefficients point in same direction, you have complementary mediation (partial mediation) RIT = (Indirect effect/Total effect) (0.100/ 0.519) = 0.192. Meaning that about 19 % of the effect of IQ on IHD is mediated by ES RID = (Indirect effect/ Direct effect) (0.100/ 0.419) = 0.238, That is, the mediated effect is about 0.2 times as large as the direct effect of IQ on IHD.

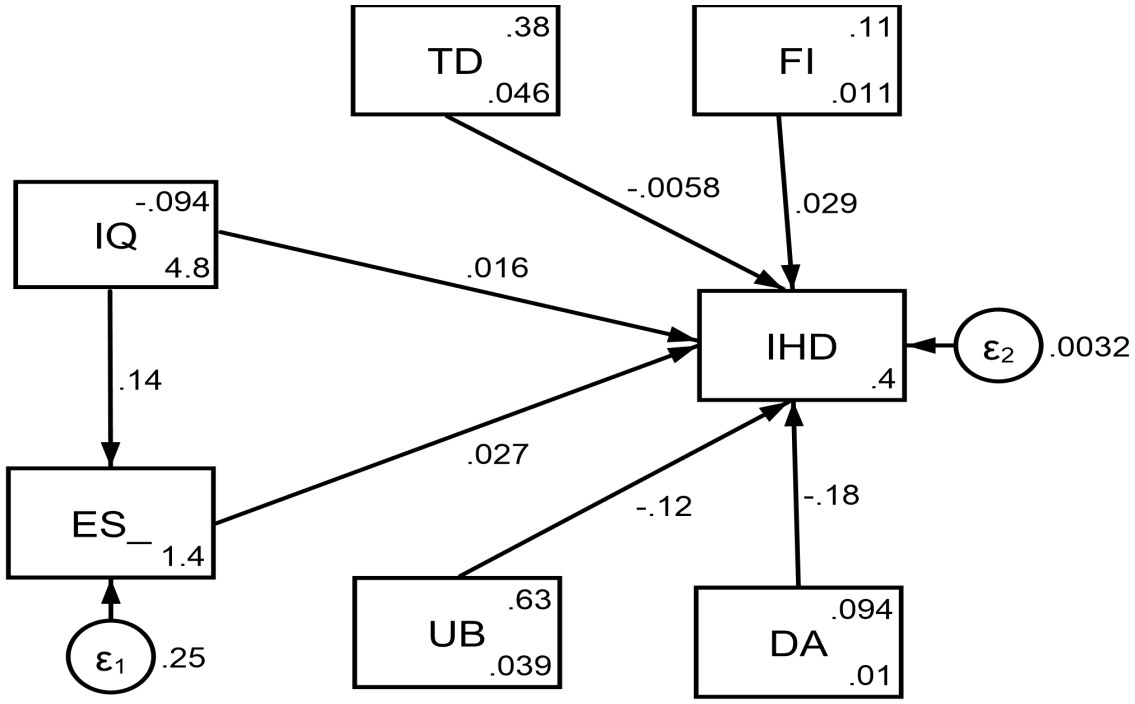

Figure1. The mediation effect of environmental sustainability on the effect of institutional quality on inclusive human development

Source: Constructed by author from secondary data (2022)

It is obvious today that inclusive human development is the ultimate development is the intrinsic development goal that every member of the society participates in a countries development and also enjoy the fruit of development for it takes into consideration every member of the society. Despite the complexity of the concept of inclusive human development, this study was designed to investigate the mediating role of environmental sustainability on inclusive human development in 35 SSA over the period 2010 to 2017. Based on a SEM technique, it was found that, environmental quality partially mediates the effect of institutional quality on inclusive human development.

5. Recommendation

The governments of sub-Sahara African countries should foster its environmental laws to help foster environmental sustainability and reduce the environmental haven hypothesis effect from the developed countries. The population of sub-Sahara African countries should participate the inclusive fight for environmental sustainability by going for the planting of environmentally friendly trees, use of organic manure and stope the boning of farms which pollutes the environment and also exposes the soil to erosion.

References

Abid, M. (2016). Impact of economic, financial, and institutional factors on CO2 emissions: Evidence from

Sub-Saharan Africa economies. *Utilities Policy*.

Akbar, M., Hussain, A., Akbar, A., and Ullah, I. (2021). The dynamic association between healthcare spending, CO2 emissions, and human development index in OECD countries: evidence from panel VAR model. *Environment, development and sustainability, 23*(7).

Antonakakis, N., Chatziantoniou, I., and Filis, G. (2017). Energy consumption, CO2 emissions, and economic growth: an ethical dilemma. *Renew Sustain Energy, 68*, 808–824.

Asongu, S. A. (2018). CO2 emission thresholds for inclusive human development in sub-Saharan Africa. *Environmental Science and Pollution Research, 25*(26), 26005–26019.

Asongu, S. A., and Odhiambo, N. M. (2019). Environmental degradation and inclusive human development in sub-Saharan Africa. *Sustainable Development, 27*(1), 25–34.

Asongu, S. A., and Odhiambo, N. M. (2019). Inclusive development in environmental sustainability in sub-Saharan Africa: Insights from governance mechanisms. *Sustainable Development, 27*(4), 713–724.

Asongu, S. A., and Odhiambo, N. M. (2020). Governance, CO2 emissions and inclusive human development in sub-Saharan Africa. *Energy Exploration and Exploitation, 38*(1), 18–36.

Asongu, S. A., Le Roux, S., and Biekpe, N. (2017). Environmental degradation, ICT and inclusive development in Sub-Saharan Africa. *Energy Policy, 111*, 353–361.

Asongu, S. A., Nwachukwu, J. C., and Pyke, C. (2019). The comparative economics of ICT, environmental degradation and inclusive human development in Sub-Saharan Africa. *Social Indicators Research, 143*(3), 1271–1297.

Asongu, S. A., Roux, S. L., and Biekpe, N. (2017). Environmental Degradation, ICT and Inclusive Development in Sub-Saharan Africa. *Energy Policy, 111*, 353–361.

Asongu, Simplice; Le Roux, Sara; Biekpe, Nicholas (2017). Environmental Degradation, ICT and Inclusive Development in Sub-Saharan Africa, AGDI Working Paper, No.WP/17/038, African Governance and Development Institute (AGDI), Yaoundé.

Azam, M., Khan, A. Q., Abdullah, H. B., and Qureshi, M. E. (2016). The impact of CO2 emissions on economic growth: evidence from selected higher CO2 emissions economies. *Environmental Science and Pollution Research, 23*(7), 6376–6389.

Bhattacharya, M., Churchill, S. A., and Paramati, S. R. (2017). The dynamic impact of renewable energy and institutions on economic output and CO2 emissions across regions. *Renewable Energy, 111*, 157–167.

Boogaard, H., van Erp, A. M., Walker, K. D., and Shaikh, R. (2017). Accountability studies on air pollution and health: the HEI experience. *Current Environmental Health Reports, 4*(4), 514–522.

Borhan, H., Ahmed, E. M., and Hitam, M. (2012). The impact of CO2 on economic growth in ASEAN 8. *Procedia-Social and Behavioral Sciences, 35*, 389–397.

Chibba, M. (2009). Financial inclusion, poverty reduction and the millennium development goals. *The European Journal of Development Research, 21*(2), 213–230.

Costanza, R., Kubiszewski, I., Giovannini, E., Lovins, H., McGlade, J., and Pickett KE, (2014). Development: time to leave GDP behind. *Nature, 505*, 283–5.

Diener, E., Suh, E., and Oishi, S. (1997). Recent findings on subjective well-being. *Indian journal of clinical psychology, 24*, 25–41.

GANI, A. (2012). The relationship between good governance and carbon dioxide emissions: evidence from developing economies. *Journal of economic development, 37*(1), 77–93.

Gyamfi, N.-M., Bokpin, G. A., Aboagye, A. Q., and Ackah, C. G. (2022). Financial development, institutional quality and inclusive growth in Africa. *Global Business Review, 23*(3), 584–607.

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2010). Response to: What Do the Worldwide Governance Indicators Measure. *European Journal of Development Research*.

Mavragani, A., Nikolaou, I. E., and Tsagarakis, K. P. (2016). 2016. *Sustainability, 7*, 601.

Mirza, F. M., Ansar, S., Ullah, K., and Maqsood, F. (2019). The impact of information and communication technologies, CO2 emissions, and energy consumption on inclusive development in developing countries. *Environmental Science and Pollution Research*.

Mohmmed, A., Li, Z., Arowolo, A. O., Su, H., Deng, X., Najmuddin, O., and Zhang, Y. (2019). Driving factors of CO2 emissions and nexus with economic growth, development and human health in the Top Ten emitting

countries. *Resources, Conservation and Recycling, 148*, 157–169.

Mumford, K. J. (2016). Prosperity, sustainability and the measurement of wealth. *Asia and the Pacific Policy Studies, 3*(2), 226–234.

Nketia, E. B., Kong, Y., Korankye, B., and Ampon-Wireko, S. (2020). The influence of inequality, institutional quality, and foreign aid on inclusive growth in Africa. *African Review of Economics and Finance*.

Olanrewaju, G. O., Aremo, A. G., and Binuyo, B. O. (2020). Inclusive growth effects of institutional quality in Nigeria. *European Scientific Journal, ESJ, 16*(1), 85–105.

Olanrewaju, G. O., Tella, S. A., and Adesoye, B. A. (2019). Institutional Quality, Financial Inclusion and Inclusive Growth: Causality Evidence from Nigeria. *CBN Economic and Financial Review*, 39–60.

Peltzman, S. (1976). Toward a more general theory of regulation. *The Journal of Law and Economics, 19*(2), 211–240.

Qizilbash, M. (2009). The concept of well-being. *Econ Philos*, *14*, 51.

Rich, D. Q. (2017). Accountability studies of air pollution and health effects: lessons learned and recommendations for future natural experiment opportunities. *Environment International, 100*, 62–78.

Shah, S. (2016). Determinants of human development index: A cross-country empirical analysis. *Munich Personal Repec Archive*, pp. 1–5.

Stigler, G. J. (1971). The theory of economic regulation. *The Bell Journal of Economics and Management Science*, 3–21.

Sugiawan, Y., Kurniawan, R., and Managi, S. (2019). Are carbon dioxide emission reductions compatible with sustainable wellbeing? *Applied Energy, 242*, 1–11.

United Nations. (2016). Leaving no one behind: The imperative of inclusive development. Report on the World Social Situation 2016. New York: United Nations Department of Economic and Social Affairs.

Western, M., and Tomaszewski, W. (2016). Subjective wellbeing, objective wellbeing and inequality in Australia. *PloS One, 11*(10).

Woldegiorgis, M. M. (2020). Modeling Institutional Reengineering for Inclusive Development (IRID) in Africa. *PanAfrican Journal of Governance and Development*.

Yinusa, O. G., Aworinde, O. B., and Odusanya, I. A. (2020). Institutional Quality, Financial Development and Inclusive Growth: Asymmetric Cointegration Approach. *International Journal of Management, Economics and Social Sciences*, 182–205.