

Governance and Human Development in Sub-Saharan Africa

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ABSTRACT

This study examines the interrelationship between governance, democracy, resource dependency, and human development in Africa. Specifically, the Human Development Index (HDI) and six governance indicators from the WGI database are employed to estimate a dynamic panel model on forty-eight sub-Saharan African countries throughout 1996 to 2019 using the *Generalised Method of Moments* (GMM) technique.

The empirical analysis reveals a positive association between all six governance indicators and human development. ‘Voice and accountability’, and ‘control of corruption’, evidence a strong association with growth in human development followed by government effectiveness, rule of law, regulatory quality, and political stability. Interaction terms demonstrate that democratisation is essential to unlocking the benefits of the governance indicators on human development. The effects of the resource dependence on the interaction between governance and human development are less obvious than democratisation, likely due to the volatile nature of commodity prices which may only have short-term impacts.

From the findings, this study recommends that human development will likely be fostered through support of the democratisation process. To drive democratisation, sub-Saharan states should consider diversifying their economies and adopting policies that reduce economic inequality.

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LIST OF ACRONYMS

ADF	Augmented-Dickey-Fuller
ECOWAS	Economic Community of West African States
EU	European Union
FE	Fixed effects
FDI	Foreign direct investment
GDP	Gross domestic product
GLS	Generalised least squares
GMM	Generalized method of moments
HDI	Human development index
LDC	Least developed countries
LLC	Levin Lin Chu
MENA	Middle East North Africa
NIE	New institutional economics
ODA	Official development assistance
OLS	Ordinary least squares
RE	Random effects
SLS	Stage least squares
SSA	Sub-Saharan Africa
UNDP	United Nations Development Program
WGI	World Governance Indicators

CHAPTER 1: INTRODUCTION

1.1. Background

Despite significant natural resources, sub-Saharan Africa (SSA) remains one of the least developed regions in the world (Morse, 2019), with the highest number of least developed countries (LDCs) (World_Population_Review, 2021); low levels of democratisation (Gossel, 2017); high levels of corruption (Gossel, 2018); low resource distribution (Vanhanen, 2004), and significant resource dependence (Jensen & Wantchekon, 2004). SSA is rich in natural resources and thus has the potential to develop as quickly as the rest of the world (Lashitew & Werker, 2020). However, like other regions that have experienced 'Dutch disease', SSA suffers from the negative interactions between resource dependence and weak institutions whereby institutional development is limited to merely supporting the extraction and use of natural resources (Collier, 2010).

As can be seen from Tables 1 and 2 below, there is evidence of an association between institutional quality and the Human Development Index (HDI), whereby the least developed countries score poorly relative to the rest of the world. SSA is home to many of the least developed countries according to the Human Development Index (HDI), coupled with a higher average resource dependence than other regions. Thus, there is a need to understand how the interactions between resource dependence and institutional quality hinder human development in sub-Saharan Africa.

Table 1 shows that SSA compared to other regions, suffers from a higher average level of resource dependence, with ore and metal exports making up approximately 11% of total exports, followed by Latin America and the Caribbean region averaging 8.7%.

Table 1: Average resource dependence per global region¹

Region	Average of 2019 (%)	Average of 2018 (%)
East Asia & Pacific	7.56	7.49
Europe & Central Asia	6.21	6.62
Latin America & Caribbean	8.75	8.69
Middle East & North Africa	3.06	5.13
North America	3.29	3.50
South Asia	3.15	2.07
Sub-Saharan Africa (SSA)	11.96	11.34

¹ This data measures the percentage of the ore and metal exports as a percentage of total merchandise exports

Source: Author's computations sourced from the World Bank databank (The World Bank, 2021).

Table 2 further shows that countries deemed to be poorly developed according to the HDI have poor governance quality percentile rankings, and this association does not appear to be affected by the degree of resource dependence.

Table 2: Bottom-ranked countries per the Human Development Index (HDI)

Country	Region	HDI score	HDI ranking ²	Resource dependence (%) ³	Governance quality global ranking in percentile ⁴
Mozambique	SSA	0.4460	177 th	30.49	25-50 th percentile
Sierra Leone	SSA	0.4380	178 th	9.24	10-25 th percentile
Eritrea	SSA	0.4340	179 th	Data not available	0-10 th percentile
Burkina Faso	SSA	0.4340	180 th	6.06	10-25 th percentile
Mali	SSA	0.4270	181 st	0.36	0-10 th percentile
Burundi	SSA	0.4230	182 nd	5.67	0-10 th percentile
South Sudan	SSA	0.4130	183 rd	Data not available	0-10 th percentile
Chad	SSA	0.4010	184 th	Data not available	0-10 th percentile
Central African Rep	SSA	0.3810	185 th	3.72	0-10 th percentile
Niger	SSA	0.3770	186 th	12.44	0-10 th percentile

Source: Compiled by the researcher from the World Bank databank (The World Bank, 2021).

Table 3 shows that SSA compared to other regions, suffers from the poorest governance quality globally, with a score of approximately negative 0.7, on a scale of negative 2.5 and positive 2.5, followed by the Middle East and North Africa with a score of approximately negative 0.5.

Table 3: Average governance quality per global region

Region	Average of 2019	Average of 2018
Latin America & Caribbean	0.03	0.04
Europe & Central Asia	0.57	0.56
South Asia	- 0.49	- 0.52
Sub-Saharan Africa	- 0.70	- 0.69
Middle East & North Africa	- 0.52	- 0.51
East Asia & Pacific	0.22	0.23
North America	1.27	1.33

Source: WorldBank (2020)

² This ranking of the HDI includes 186 countries and was sourced from (World Population Review, 2021).

³ This data measures the percentage of the ore and metal exports as a percentage of total merchandise exports and was sourced from the World Bank databank and was compiled by the researcher (The World Bank, 2021).

⁴ This value demonstrates an average of the six worldwide governance indicators' percentile range against all worldwide-measured countries and was sourced from the World Bank (2014).

Poor human capital may result in poor governance, whereas high-quality governance is seen as a determinant of economic and human development (Kaufmann et al., 1999). Thus, the effect of governance on human development is likely to be more significant than the effect of human development on governance. The goal for most multilateral development agencies is to foster development. Thus, the focus of this research is to determine the effect of quality governance on human development and to provide recommendations to improve specific elements of governance where relevant.

1.2. Problem statement

The problem areas that this study seeks to address are summarised as follows:

- Human development remains low in SSA relative to the rest of the world
- SSA is resource-rich; however, the effect of resources on development in emerging areas is contested in the literature world (Lashitew & Werker, 2020).
- There is a limitation of studies on this topic, particularly with a robust methodological empirical approach.

1.2.1 A case for determining development in sub-Saharan Africa

Based on the low rate of development in sub-Saharan Africa relative to the rest of the world, there is a need to understand the potential drivers of economic growth and quality of life and what factors might be inhibiting this growth and human flourishing. It is characteristic of this region to have lower governance scores which is argued by the World Bank to be one of the key determinants for development (Kaufmann et al., 1999). As discussed in the background in Chapter 1 above, poor governance scores, and lower levels of human development, seem to be symptomatic of the sub-Saharan region. The literature indicates a positive association in most cases. This study seeks to contribute to the literature using an expanded dataset and robust methodological approach which controls for endogeneity. There are only a few SSA studies where HDI is used as a dependent variable (Akinbode et al., 2020; Davis, 2017; Lashitew & Werker, 2020; Omonga, 2010; Sarkodie & Adams, 2020; Sarpong & Bein, 2021). Of these studies, this study seeks to improve upon Omonga (2010) and Sarpong and Bein (2021) by means of an expanded and updated data set. The study is more comprehensive than Akinbode (2020) as it considers all the six governance indicators rather than just two. This study improves upon Davis (2017) as it takes into consideration the long-run nature of development through

a panel data set rather than reviewing one year only. Finally, this study uses the Generalised Method of Moments (GMM) approach, which controls for long-run endogeneity and contributes to the previous methods used by Sarkodie and Adams (2020) and Lashitew and Werker (2020), which used non-parametric regression and 3SLS, respectively.

1.2.2 More evidence for the resource curse and governance

Scholars and development practitioners have long debated whether there is a ‘resource curse’ present in Africa and the Middle East. This resource curse would indicate that where resources are significant, the related measures of development, such as the strength of economies and quality of life, would suffer. Different studies have identified variables that may contribute towards, or mitigate, this resource curse effect Ross (2001),(Jensen & Wantchekon, 2004), (Collier & Hoeffler, 2005), (Ulfelder, 2007), (Nkurunziza et al. 2017), (Madreimov and Li 2019),(Wright et al. 2013). Some of these studies have differentiated between resource abundance versus resource dependence, concluding that the resource curse is prominent in economies that rely on mineral extraction as opposed to enjoying a diversified economy (Lashitew & Werker, 2020). Some studies in this area have identified quality of institutions or level of governance playing a role in the extent to which resources influence development (Nkurunziza et al. 2017) (Lashitew & Werker, 2020). No study to date, however, has explicitly examined the effect of resource dependence on the associations between governance and human development in SSA.

1.2.3 A limitation of studies

The only known and identified study that investigates the nexus of interactions between governance, human development, resources dependence, and institutional quality, is that of Lashitew and Werker (2020) which uses a 3SLS empirical methodology. This dissertation seeks to further understand these interactions using a more robust empirical approach for panel data that controls endogeneity – that is, using the GMM methodology. GMM methodology has the advantage over 3SLS in that it controls more effectively for endogeneity and is a more efficient estimator, able to iterate until convergence (Baltagi, 2005), (Ahn & Schmidt, 1997).

1.3. Research objectives

The primary objective of this study is to investigate the interrelationship between governance, resource dependency, and human development, in sub-Saharan Africa. The specific objectives include:

- a) examining the effect of governance indicators on human development in sub-Saharan Africa
- b) examining the moderating role of democracy and resource dependence on the relationship between governance indicators on, and human development in, sub-Saharan Africa.

Based on the above, the following primary research question is explored:

Which of the six World Bank Governance measures is most significantly associated with human development in sub-Saharan Africa?

In addition, the following sub-questions will be examined:

1. Are the associations significantly affected by SSA's resource dependence?
2. Does the level of democratisation affect the associations?

1.4. Scope and justification of the study

According to Baland et al. (2010), Wolfowitz, (2006), Acemoglu et al., (2012), good governance is associated with improved economic development. However, measuring economic development by growth in the real gross domestic product may not capture the effects of economic development on society (Rammelt & Gupta, 2021). Thus, studies that explore the relationship between governance and socio-economic development have increasingly used metrics that capture both growth in wealth and social mobility. A widely used metric is the Human Development Index (HDI), developed by the United Nation Development Program (UNDP). Hence, this study thus seeks to explore the relationship between governance and human development in sub-Saharan Africa.

1.5. Organisation of the study

The remainder of this dissertation is laid out as follows. Chapter two explores the literature devoted to resource dependence, democratisation, governance, and human development.

Chapter three describes the methodology and the variables used in the empirical model. Chapter four presents the results and discusses the findings of the empirical analyses. The dissertation then concludes with a summary of the key findings, policy implications, and recommendations for future studies in chapter five.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This literature review is laid out in five sub-sections. Section 2.2 outlines the key concepts applicable to the study. Section 2.3 provides a theoretical framework for the study. Section 2.4 explores the empirical literature relevant to the study, focussing first on the links between democracy, governance, and development, then exploring resource dependence and human development. The following section considers studies that have been carried out in emerging economies while finally narrowing the studies down to the studies of sub-Saharan Africa. Finally, Section 2.5 concludes the literature review with a summary of the key themes that have emerged.

2.2 Definition of concepts

2.2.1 Governance

Asaduzzaman and Virtanen (2016) note that ‘governance’ has historically lacked clarity in academic literature. They further note that the term ‘governance’ will be a continuously evolving term based on the context in which it is applied. The same conclusions have been drawn by Omonga (2010), Baland et al. (2010). However, a few different definitions of governance from various authors are outlined. Campos and Nugent (1999) adopt the World Bank’s characterisation of governance, which encompasses the elements of an accountable executive, a professional bureaucracy, a relevant and appropriate rule of law, a strong civil society, and a transparent policy making process. Hashem (2019) has defined governance more broadly, including all authority exercised by both formal and informal institutions belonging to the government in the management of resources following Shah and Huther (1999).

Kaufmann and Kraay (2008, p8) define governance as: “The traditions and institutions by which authority in a country is exercised.” As prolific authors on this topic, Kaufmann and Kraay also note that there is no single definition on this topic and use the terms ‘governance’, ‘institutions’, and ‘institutional quality’, interchangeably and consider that measurement of governance is highly important and have accordingly developed a standardised widely used set of governance performance indicators. The six indicators developed and used by the World Bank in assessing “good governance” Kaufmann and Kraay (2008) are voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption. Further details are given on these indicators in the

section: 3.3.3 - measurement and definition of variables.. Baland et al. (2010) also acknowledge the influence of political institutions on governance, the quality thereof, which is measured by the level of democratisation.

2.2.2 Human development

Economic measures of development have some value; however, more meaningful indicators have been developed to capture the welfare of citizens that development would seek to serve. Human development is best defined initially by the United Nations Development Programme (UNDP) as: “The basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives” (UNDP, 1990, p19) To this end, the Human Development Index was engineered by the UNDP, with four key indicators making up the development index, namely: Life expectancy at birth; expected years of schooling; average years of schooling; and gross national income (GNI) per capita. These indicators are arguably more valuable than purely economic measures of development as they speak to an individual’s quality of life, knowledge, and the ability to live a long and healthy life – more holistic measures of development (Morse, 2019).

2.3 Theoretical Framework

2.3.1 Theory of institutions and development

The study between governance and development has its roots in the broader literature on the association between institutions and economic development. In their seminal work: North and Thomas (1973) explore Western Europe’s development through efficient property rights, which incentivises innovation and production. The authors expand on how property rights are public goods to be provided by the state.

Hall and Jones (1999) found that primary indicators of development such as productivity, capital accumulation, and therefore per capita output, is driven by differences in government institutions and policies. These authors indicate that an improved social infrastructure, made up of government institutions and policies, creates an environment that is beneficial for trade, innovation, and capital accumulation, thus improving on per capita output and ultimately measures of economic development, namely per capita gross domestic product. These authors found a positive and strong association between government institutions and policies and per worker productivity across one hundred and twenty-seven countries. Mortality rates to estimate

the effect of institutions on economic performance in African countries are used examining data from the 17th to 19th centuries. Acemoglu et al. (2001) hypothesise that where colonial settlers' mortality rates were lower, local institutions were less extractive and more developmental in nature. The study's estimates suggest that differences in institutions, either extractive or developmental in nature, explain up to 75% of the variation in income per capita across former African colonies. Acemoglu et al. (2005) further theorises that variation in economic institutions fundamentally drive differences in economic development. Building on this literature, Gradstein (2004) discusses the endogenous and mutually reinforcing relationship between property rights and economic performance, and Auerbach and Azariadis (2015) found that enforced property rights and effective institutions are conducive to economic development. Work by Kaufmann et al. (1999) studies the developmental effects of governance in one hundred and fifty countries through 1999. Cross-section Ordinary Least Squares (OLS) reveals that improved governance impacts development. The governance indicators pioneered in this study encapsulate the processes and performance of high-quality governance and are now known as the world governance indicators, which are used in this study. Thus, the literature seems to indicate a positive association between the quality of institutions and economic development.

2.3.2 Governance, democratization, and development

As described in the definition above, governance is a broader measure of the quality of institutions and the relationship of these institutions with the societies that are being governed. One important measure of the quality of the relationship between these institutions and society is the level of democratisation. Acemoglu and Robinson (2006) significantly contributed to the theoretical links between democratisation and institutional quality by distinguishing between *de facto* and *de jure* political power. The former power is established through political institutions, and the latter is exerted by civil society. As Baland et al. (2010) note, democratisation is one element bestowing political power on political institutions, and it follows that where democratisation is advanced, *de jure* and *de facto* power are aligned such that political equilibrium is achieved and conflicts about the decisions made over the use of resources for the benefit of civil society are minimised. Thus, it follows that in democratic societies, governance will be enhanced such that the association between governance and human development will be strengthened.

2.3.3 Governance, the resource curse, and development

The next pertinent factor to consider in these associations is the influence of resources. The literature indicates that a resource curse appears to exist in sub-Saharan Africa Ross (2001), (Jensen & Wantchekon, 2004), (Collier & Hoeffler, 2005), (Ulfelder, 2007), (Lashitew & Werker, 2020). All the work by these researchers tends to indicate that there is a negative association between resource dependence and democratisation and that autocracy persists in the presence of weak institutions. The literature also indicates that there is a negative association between resource dependence and human development, actualised via weak institutions. Thus, in the presence of resource dependence, it is expected that there will be a negative association between governance and human development.

2.4 Empirical Studies

2.4.1 Democracy, governance, and development

The section below outlines empirical studies related to the relationship between democracy, governance, and development in a global context.

Stockemer (2009) examines the link between democratization and development in 45 African states and 18 Latin American states from 1996–2004. The pooled time-series analysis finds a more statistically significant association in Africa than in Latin America and thus concludes that as countries develop towards higher levels of democracy, the quality of governance improves accordingly. Ahmad and Saleem (2014) use multiple stepwise regression to analyse the relationship between the six World Bank Governance Indicators and the Human Development Index (HDI) in 168 countries from 1996-2005. They find a significantly positive relationship between four of the governance indicators and the HDI (Political Stability, Regulatory Quality, Government Effectiveness, and Control of Corruption) and thus conclude that governance has a significant influence on economic growth and thereby human welfare and development.

Kotschy and Sunde (2017) study the association between democracy and institutional quality and find that governance deteriorates in the presence of significant inequality in ninety-six countries over the period 1970–2010. Standard dynamic linear panel model analysis reveals that equality is a critical factor in determining whether democratic institutions have a lasting effect on institutional quality. Kotschy and Sunde (2017) thus conclude that, as hypothesized,

inequality hampers governance and democratization. Keser and Gökmen, (2018) investigate the relationship between the World Governance Indicators and the Human Development Index in the thirty-three member and candidate countries of the European Union. Fixed Effects panel regression results show that regulatory quality, government effectiveness, and the rule of law have the most significant associations with human development. Thus, these results show that improvements in the specific aspects of governance result in improvements in human development in EU countries.

Gaur and Kant (2020) examine the effects of government expenditure and governance, measured as rule of law, on human capital and human development in nineteen highly developed countries over the period 1990 to 2016. Least squares regression analysis reveals that both government expenditure on education, health, and military as well as enhanced adherence to the rule of law result in improved human development outcomes. They thus conclude that good governance and government intervention are effective means of developing human capital in highly developed countries. Thus, in conclusion, the studies above find that although there is a positive association between governance and democratization, this association can be negatively impacted by inequality.

2.4.2 Resource dependence and human development

This section reviews the empirical studies related to the relationship between resource dependence and human development in a global context.

Ross (2001) examines the effect of oil dependence on the level of democracy in one hundred and thirteen states for the period, 1971 to 1997. Generalised least squares (GLS) regression finds that both oil and minerals have significant anti-democratic effects on the state, with minerals being slightly more impactful. Ross (2001) thus concludes that oil and mineral dependence detrimentally affects democracy, particularly in poorer states. Wantchekon (2002) studies the impact of natural resources on democracy over the period, 1970 to 1998 in two hundred and thirty-two countries. The results of pooled-time series regression analysis show that authoritarianism and low democratisation persist in the presence of weak institutions and resource wealth.

Collier and Hoeffler (2005) study the linkages between natural resource rents and democracy in one hundred and seven countries for the period, 1970 to 2001. Using country-by-country

empirical analyses, the study reveals that growth is inhibited by the combination of high resource rents and open democratic systems in developing countries. The research concludes that resource-rich states require a distinguished form of democracy, focusing more on checks and balances and less on electoral competition. In contrast, Herb (2005) examines explicitly rentier states in one hundred and forty-four countries between 1972 and 1999 using ordinary least squares regression (OLS) analysis. The results show that rentier states have an ambiguous association with democracy.

Ulfelder (2007) studies the effect of natural resource wealth on the survival of autocracy in three hundred and twenty-three countries for the period, 1973 to 2002. Event history analysis and discrete-time logistic regression models find that autocracy is more likely to survive in resource-dependent states. Wright et al. (2013) examines the relationship between oil dependence and autocratic regime survival using a sample of one hundred and fourteen countries covering the period, 1947 to 2007. Fixed effects regressions (FE) show that oil wealth solidifies autocracies by decreasing states' vulnerability to being overthrown by subsequent dictatorships rather than by inhibiting democracy. A study by Nkurunziza et al. (2017) evaluated the relationship between commodity dependence and human development in two hundred and two countries over the period, 1995 to 2014. Arellano and Bond's (1991) Generalised Method of Moments analysis shows that commodity dependence hinders human development and thus, led Nkurunziza *et al.*(2017) to conclude that export diversification is vital for development. Madreimov and Li (2019) explore the relationship between natural resource endowment and life expectancy using fixed effect panel data regressions of sixty-seven countries from 1990 to 2011. The findings revealed a positive association in the short run, but in the long run, resource dependence hampers life expectancy. Madreimov and Li thus recommend that countries reliant on natural resource exports invest in human capital and social infrastructure to mitigate the effects of resource dependence.

Finally, Lashitew and Werker (2020) use 3SLS to investigate the impact of resources on developmental outcomes through the channel of institutional quality in eighty-three countries over the period, 1976 to 2014. The results show that resource abundance has a positive association with developmental outcomes, while resource dependence has a negative association through the channel of poor institutional quality. Lashitew and Werker (2020) conclude that resource rents are developmental, provided they are not the sole source of income

Based on the above, the literature indicates that there is a negative association between resource dependence and democratisation and that autocracy persists in the presence of weak institutions. The literature also reports that there is a negative association between resource dependence and human development, actualised via weak institutions. These studies could be supplemented by a study on the moderation effect of resource dependence on the association between governance and human development.

2.4.3 Studies of governance, resources, and development in emerging countries

This section discusses the literature that focuses on emerging countries in Latin America, Asia, North Africa, and the Middle East (studies devoted to sub-Saharan Africa are explored in the sub-section below). With regards to Asia, Campos and Nugent (1999) study the institutions of governance in relation to development performance in twenty-eight East Asian and Latin American countries in 1999. OLS regression reveals that all the modelled governance indicators have a positive bearing on development measures and further that some governance indicators have a more significant bearing on development across different regions than others. Thus, the value of specific indicators of quality governance may be contextual. Hilmawan (2019) examines the impact of resource dependence on the development indicators in Indonesia from 2006 to 2015. Fixed effects regressions show a positive relationship between resource dependence and per capita income at a domestic level. Thus, Hilmawan (2019) concludes that spatial spillovers may influence development across neighbouring districts and further notes that migration patterns and the local labour market may influence spatial spillovers. Sinha and Sengupta (2019) study the impact of globalisation on the association between natural resources and human development in thirty Asia-Pacific countries from 1996 to 2016. Boot-strapped quantile regression analysis shows that pooled natural resources positively associate with the human development index, while individual resources are negatively associated with human development. These authors note the importance of strong institutions and good governance for a positive association with the Human Development Index, when natural resources are pooled in the presence of globalisation. The authors further recommend that resource-rich states should focus on capacity building, skills, and employment creation, equally advising that improved regulation is necessary to slow down natural resource consumption.

In the case of Latin America, Cáceres, (2010) investigates the relationship between good governance and human development and economic growth across ten countries over the period, 2000 to 2008. VAR regression finds that there are robust reciprocal relationships

between governance indicators and human development, but low levels of human development led to macroeconomic instability and rising inequality.

In the case of the Middle East and North African region, Hashem (2019) investigates the impact of governance quality on human development and economic growth in twenty Middle East and North African (MENA) countries over the period, 1996 to 2017. Pooled regression, fixed effects, and random effects reveal that although there is no relationship between governance and economic growth in the MENA region, there is nonetheless a robust relationship between governance and human development in the region.

Thus, in conclusion, studies of emerging countries show that resource dependence and inequality shape governance, economic development, and thus human development.

2.4.4 Studies of governance, resources, and development in sub-Saharan Africa

This section of the empirical literature reviews the studies related to the relationship between governance, resource dependence, and human development in a sub-Saharan Africa context. Jensen and Wantchekon (2004) examine the association between the size of the resource sector and democratisation in forty-six SSA countries from 1960 to 1995. Fixed effects regression analysis shows that there is a significantly negative relationship between the size of the resources sector and the level of democracy. Omonga (2010) explores the impact of governance on both economic growth and human development in forty-eight sub-Saharan Africa countries over the period, 1999 to 2008. Pooled OLS, GMM, and Fixed Effects estimations find that neither the individual indicators of governance nor the overall governance indicator have a statistically significant impact on GDP per capita growth in SSA countries, whereas all individual indicators of governance are positively significantly associated with HDI. Diop et al. (2010) investigate whether per capita growth is hindered by weak institutions and poor governance in fourteen West African countries over the period, 1995 to 2004. GMM estimation finds that weak institutions and poor governance negatively impact per capita GDP growth in West Africa, alongside poorly managed macroeconomic variables, which initiates a convergence effect on economic growth in the area. These authors recommend a study into the determinants of weak institutions in this area. Davis (2017) examines the relationship between the World Bank Governance indicators and human development in forty-seven sub-Saharan Africa countries in 2013 only. The results of linear regression analysis find that government

effectiveness and political stability have the highest impact on human development. Workneh (2020) investigates the association between governance and gender inequality related to poverty in thirty-four SSA countries over the period, 2010 to 2017. Maximum likelihood estimation analysis finds that the interaction between gender inequality and poor governance can worsen poverty levels.

More recently, Asongu and Odhiambo, (2020) study the relationship between the six World Bank governance indicators, inequality, and gender economic exclusion in forty two sub-Saharan African countries from 2004 to 2014. GMM analysis finds that governance will only have a meaningful impact on gender-based financial exclusion when inequality levels decrease below a threshold boundary. Akinbode et al. (2020) investigates the effect of corruption and government effectiveness on human development in thirty-seven SSA countries from 2005 to 2018. Generalised Method of Moments analysis finds that government effectiveness, government health spending, and economic growth rate, have a statistically robust and positive association with human development whilst control of corruption do not. This study recommends a host of reforms in institutional governance as well as the diversification of SSA economies. Sarkodie and Adams (2020) investigates the nexus of relationships between human development, governance, income inequality, and access to electricity in forty-three SSA countries over the period, 1990 to 2017. Non-parametric regression revealed that reductions in inequality, improvements in the political systems, and improved human development, all result in improved access to electricity. There are also bi-directional causal effects on income inequality and human development, where a reduction in inequality causes an improvement in human development, and an improvement in human development causes an improvement in inequality levels. Further, good governance reduces inequality and thus improves human development. Sarpong and Bein (2021) empirically investigates the influence of governance, sustainability, macroeconomic variables, and official development assistance (ODA) on human development in twenty-six sub-Saharan countries over the period, 2000 to 2007. Generalised Method of Moments estimation reveals that governance positively influences the quality of life and human development, and ODA negatively impacts human development. Sarpong and Bein thus recommend that strengthening governance and institutions can mitigate the negative impacts of ODA and promote human development.

Thus, in summary, the studies above show that sub-Saharan Africa shares many of the themes that emerge from the global studies whereby resource dependence and inequality negatively

affect democracy and human development. Government effectiveness stands out as a facet of governance that may have the most significant effect on human development. However, no study to date has explicitly examined the moderating influence of resource dependence on the association between governance and human development in SSA.

2.5 Conclusion

The applicable literature finds that resource dependence is associated with lower levels of democracy, the persistence of autocracy, and weak institutions. Studies of emerging countries, including SSA, further show that there is a positive association between governance, democratisation, and human development, but these relationships are hampered by resource endowment and inequality. Government effectiveness, according to studies in SSA, is highlighted as the facet of governance that most significantly impacts human development. There are, however, no studies on the interaction of resource dependence and governance and how this interaction impacts human development.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter details the empirical methodology that is used to answer the research questions. The sections that follow provide a framework of the research approach and design by specifying the assessed data, the relevant period, and the empirical model used for the estimation. The definitions and measurements of variables used in the model are unpacked. Finally, the estimation technique used when conducting the test has been outlined, along with the required auxiliary statistical techniques used to lend statistical viability and robustness to the empirical estimations.

3.2 Research approach

The primary purpose of the quantitative research approach is to determine outcomes rather than to understand phenomena, whereas a qualitative approach seeks to understand phenomena (Sargeant, 2012). The research approach should thus be based on the underlying philosophical orientation of the study (Noordin & Masrek, 2016). In the positivist philosophical orientation, a researcher's focus is on facts, seeking to understand causality and fundamental laws and associations by forming hypotheses and testing them. Contrarily, in the interpretivist orientation, the researcher aims to interpret qualitative and narrative data subjectively and develop ideas through inductive research. Pragmatists combine qualitative and quantitative elements to enhance the strengths of both research designs and mitigate any flaws inherent in the individual research designs (R. B. Johnson & Onwuegbuzie, 2004).

The primary aim of this study is to determine the significance or relationship between governance and human development and, secondarily, to assess the influence of resource dependence and institutional quality. Thus, a quantitative approach is deemed most appropriate. Therefore, this study will follow a quantitative positivist research approach.

3.3 Research design

3.3.1 *Sample size and data period*

The population of this study includes forty-eight sub-Saharan African countries, which are the units of analysis and covers the period, 1996 to 2019. The start date has been limited by the availability of the World Bank's World Governance Indicators (WGI) which were collected from 1996 onwards. These data are biannual for the period 1996 to 2002, and annual thereafter.

3.3.2 Regression model

The study uses panel data, and thus, three standard estimation approaches are appropriate to analyse the data: fixed effects (FE), random effects (RE), and Generalised Method of Moments (GMM). The nature of the data would ordinarily determine the appropriate model to be used however, Ullah et al. (2018) note that the GMM model is more effective than other panel models as it controls for possible endogeneity (Arellano & Bond, 1991). In general, GMM estimations can be specified according to the following model:

$$Y_{i,t} = Y_{i,t-n} + \beta\Omega_{i,t} + \delta A_{i,t} + \varepsilon_{i,t} \quad 1$$

where $Y_{i,t}$ denotes the dependent factor, $Y_{i,t-n}$ is the lagged dependent factor, Ω represents the six governance factors described in the data section, and A denotes the control factors described in the data section. Finally, ε is the error term, i denotes the country, t denotes time. The first differencing GMM approach thus controls for endogeneity by including a lagged dependant factor as an instrument.

Governance and human development

The equation to examine the effect of governance indicators on human development is modelled on the study of (Sarpong & Bein, 2021) and is defined in equation 2 as:

$$\begin{aligned} HDI_{i,t} = & \beta_0 + \beta_1 HDI_{i,t-n} + \beta_2 VA_{i,t} + \beta_3 PS_{i,t} + \beta_4 GE_{i,t} + \beta_5 RQ_{i,t} + \beta_6 RL_{i,t} + \beta_7 CC_{i,t} \\ & + \beta_8 DEMO_{i,t} + \beta_9 RESDEP_{i,t} + \delta_0 GDPG_{i,t} + \delta_1 INF_{i,t} + \delta_2 TRADEOP_{i,t} \\ & + \delta_3 GOVEXP_{i,t} + \varepsilon_{i,t} \end{aligned} \quad 2$$

Where HDI is the Human Development Index; VA represents *voice and accountability*; PS is *political stability* and the absence of violence; GE is *government effectiveness*; RQ is *regulatory quality*; RL is *rule of law*; CC is *control of corruption*; GDPG is *gross domestic product growth*; INF is *inflation*; TRADEOP is *trade openness*; GOVEXP is *government expenditure*; RESDEP is *resource dependence*; DEMO is *democratisation*.

Democratisation interaction model

The moderating role of democracy on the relationship between governance indicators on human development is modelled on the study of (Gossel, 2017; Matima, 2021) is defined in equation 3 as:

$$\begin{aligned} HDI_{i,t} = & \beta_0 + \beta_1 HDI_{i,t-n} + \beta_2 VA_{i,t} + \beta_3 PS_{i,t} + \beta_4 GE_{i,t} + \beta_5 RQ_{i,t} + \beta_6 RL_{i,t} + \\ & \beta_7 CC_{i,t} + \beta_8 DEMO_{i,t} + \beta_9 RESDEP_{i,t} + \beta_{10} VADEMO_{i,t} + \beta_{11} PSDEMO_{i,t} + \\ & \beta_{12} GEDEMO_{i,t} + \beta_{13} RQDEMO_{i,t} + \beta_{14} RLDEMO_{i,t} + \beta_{15} CCDEMO_{i,t} + \delta_0 GDPG_{i,t} + \\ & \delta_1 INF_{i,t} + \delta_2 TRADEOP_{i,t} + \delta_3 GOVEXP_{i,t} + \varepsilon_{i,t} \end{aligned} \quad 3$$

Where *VADEMO*, *PSDEMO*, *GEDEMO*, *RQDEMO*, *RLDEMO* and *CCDEMO* denote interactions between *voice and accountability*, *political stability*, *governance effectiveness*, *regulatory quality* and the *rule of law and control of corruption with democracy*, respectively. All variables are as defined before.

Resource dependence interaction model

The moderating role of resource dependency on the relationship between governance indicators on human development is modelled on the study of (Matima, 2021) is defined in equation 4 as:

$$\begin{aligned} HDI_{i,t} = & \beta_0 + \beta_1 HDI_{i,t-n} + \beta_2 VA_{i,t} + \beta_3 PS_{i,t} + \beta_4 GE_{i,t} + \beta_5 RQ_{i,t} + \beta_6 RL_{i,t} + \\ & \beta_7 CC_{i,t} + \beta_8 DEMO_{i,t} + \beta_9 RESDEP_{i,t} + \beta_{10} VARESDEP_{i,t} + \beta_{11} PSRESDEP_{i,t} + \\ & \beta_{12} GERESDEP_{i,t} + \beta_{13} RQRESDEP_{i,t} + \beta_{14} RLRESDEP_{i,t} + \beta_{15} CCRESDEP_{i,t} + \\ & \delta_0 GDPG_{i,t} + \delta_1 INF_{i,t} + \delta_2 TRADEOP_{i,t} + \delta_3 GOVEXP_{i,t} + \varepsilon_{i,t} \end{aligned} \quad 4$$

Where *VARESDEP*, *PSRESDEP*, *GERESDEP*, *RQRESDEP*, *RLRESDEP* and *CCRESDEP* denote interactions between *voice and accountability*, *political stability*, *governance effectiveness*, *regulatory quality* and the *rule of law and control of corruption with resource dependence* respectively. All variables are as defined before. These variables are further described in the next section.

3.3.3 Measurement and definition of variables

This research makes use of one dependent factor, six factors of interest, and five control factors. All data is secondary data and is publicly available on the internet. The data sources are listed in Appendix B.

3.3.3.1 Dependent factor - Human Development Index

The dependant variable in this study is the Human Development Index (HDI) produced by the United Nations Development Program (UNDP) and comprises four indicators: Life expectancy at birth, expected years of schooling, average years of education, and gross national income (GNI) per capita. The HDI is measured from 0 to 1, where a population with a high HDI will have long life spans, high education levels, and increased wealth accumulation, whereas countries with low HDI scores will be the opposite.

3.3.3.2 Independent factors - governance

This study makes use of the six Kaufmann and Kraay (2008) components of governance produced by the World Bank. All the factors range from negative 2.5 (poor governance) to positive 2.5 (strong governance):

- i. **Voice and Accountability (VA):** Measures the extent to which the governed public is perceived to be engaged in matters of public governance where ‘voice’ relates to the ability of citizens to express their opinions freely while ‘accountability’ captures the enforcement of responsibility of those in public office (Sharma, 2008). According to Khan, (2015) ‘voice and accountability’ also measure perceptions about the extent to which citizens can participate in the election of their public officials. Thus, this metric is closely linked to the level of democratisation present in a country.
- ii. **Political stability and the absence of violence (PS):** Measures the likelihood of a government being overthrown or de-stabilised through violence and measures the robustness of elections, government transparency, and replacement (Kaufmann et al., 2011).
- iii. **Government effectiveness (GE):** Measures the quality of public services, civil services, policy formulation, and implementation, as well as the extent of government independence of political pressure and the extent to which the government is committed to implementing policies (Brewer et al., 2008).

- iv. **Regulatory quality (RQ):** Measures the perceptions of government ability to develop and implement regulations and policies such that the private sector will flourish (Apaza, 2009).
- v. **Rule of law (RL):** Captures the extent to which institutions are valued by both citizens and governments (Kaufmann et al., 2011), and the extent to which agents abide by the laws of the country; the likelihood of crime and violence, quality of law enforcement through the courts and police.
- vi. **Control of corruption (CC):** Captures perceptions about the extent to which public power is exercised for private gain in all forms, including state capture and less significant forms of petty theft in government (Thomas, 2010).

3.3.3.3 Moderating factors

It is expected, based on the literature that all governance indicators will have a positive association with the human development index. In addition to these six independent governance factors, the analysis also uses the World Bank's natural resource rents as a percentage of GDP-data to code a 0/1 binary dummy where countries with oil rents or commodity exports in excess of 25% are deemed resource-dependent (Lashitew & Werker, 2020). In addition, the analysis will also make use of a 0/1 democracy dummy to capture the possible effects of democratisation, where countries with a Polity IV combined polity score above zero are deemed to be more democratic while countries below 0 are more authoritarian, following Thomas (2010). It is expected that democratisation will have a positive association with human development, whilst resource dependence will have a negative association with human development.

3.3.3.4 Control factors

The first control factor is GDP growth, which is included to account for market size and economic growth as larger, fast-growing countries are anticipated to have rapidly improved human development (Ranis et al., 2000). The second control factor is inflation, which is included as a proxy for policy stability, as a stable policy environment will attract the long-term capital needed for human development (Andinuur, 2013). The third control factor is trade openness, which is measured as the sum of exports and imports as a percentage of GDP and is

included to capture the positive influence of globalisation on social outcomes (Carmignani & Avom, 2010; Mbabazi, 2017) . The fourth control factor is government expenditure, which is included to account for the possible benefits associated with the improved social outcomes associated with higher government expenditure (Nkurunziza et al., 2017).

3.4 Estimation Approach

3.4.1 Statistical process and diagnostics

To ensure the validity and reliability of the empirical results, the estimations make use of the following steps:

- i. Production of a correlation matrix to test for multicollinearity among the factors.
- ii. Unit root tests to ensure that none of the factors are second-difference stationary, I(2).
- iii. Run the GMM estimations.
- iv. Validate the results using Sargen-Hansen and AR(2) statistics.

Step 1: Multicollinearity test

The first step of the analysis entails examining a correlation matrix of the factors to determine whether there are significant correlation coefficients between any of the factors. If significant coefficients are identified, then there is the risk of multicollinearity; and consequently, the correlated factors will be modelled in separate estimations.

Step 2: Unit Root tests

The second step is to run unit root tests to determine whether the factors are level stationary I(0), or difference stationary, I(d), and to ensure that none of the factors are second-difference stationary I(2). This proposed research will make use of the panel data techniques of the Levin et al. (2002) LLC common unit root test and the augmented Dickey-Fuller-Fisher individual unit root test (Maddala & Wu, 1999).

The LLC unit root tests use a pooled t -statistic of the estimator to test the hypothesis that each individual time series contains a unit root (represented as $H_0: \rho_i = \rho = 0$). The alternative hypothesis states that each time series is stationary (represented by $H_1: \rho_i = \rho < 0$ for all i). There are a few assumptions that are inherent in the use of this test. Firstly, the LLC is not applicable in the presence of cross-sectional correlation; second, the test applies to a moderate

sample size (such as $10 < N < 250$ and $25 < T < 250$); and third, the autoregressive parameters are assumed identical (Barbieri, 2016).

The LLC test is given as follows:

$$\Delta y_{i,t} = \rho y_{it-1} + \alpha_{0i} + \alpha_{1i}t + u_{it} \quad (1)$$

where i (observations) = $1, 2, \dots, N$, and t (time) = $1, 2, \dots, T$. The time trend is represented by $\alpha_{1i}t$, the individual effects are represented by α_{0i} . Moreover, ρ is the estimator coefficient assessed for testing.

Given the limitations of LLC, an alternative panel unit root test commonly used is the combined Fisher-ADF test (Maddala & Wu, 1999), which tests each cross-sectional time series. The advantage of the Fisher-ADF test is that it includes lagged dependent variables and thus eliminates autocorrelation (Mushtaq, 2011). The Fisher-ADF test is given as follows:

$$\Delta Y_t = \mu + \alpha_t + \gamma Y_{t-1} + \sum_{j=1}^k \beta_j \Delta Y_{t-j} + \varepsilon_t \quad (2)$$

The null and alternate hypotheses are $H_0: \gamma = 0$ and $H_1: \gamma < 0$, respectively.

Step 3: GMM estimations

The third step of the analysis is to run the Generalised Method of Moments (GMM) estimations. The advantage of GMM over other panel data techniques is that GMM controls for endogeneity and heteroskedasticity (Baum et al., 2003). To mitigate possible omitted variable bias, incorrect variables, or simultaneous causality biases, GMM uses a set of instruments that are deemed to be exogenous and uncorrelated with the error term (Stock & Watson, 2015). Given the difficulty of determining robust external instruments, it is common instead to make use of internal instruments of the explanatory factors.

The two common approaches for GMM are the difference between GMM and system GMM. The first-differencing GMM approach (Arellano & Bond, 1991) can be specified as follows:

$$Y_{i,t} = Y_{i,t-n} + \beta\Omega_{i,t} + \delta A_{i,t} + \varepsilon_{i,t} \quad (5)$$

where $Y_{i,t}$ denotes the dependent factor, $Y_{i,t-n}$ is the lagged dependent factor, Ω represents the six governance factors described in the data section, and A denotes the control factors described in the data section. Finally, ε is the error term, i denotes the country, t denotes time. The first differencing GMM approach thus controls for endogeneity by including a lagged dependant factor as an instrument.

Despite the wide application of difference GMM Bond et al. (2001) and Roodman (2009) argue that if the data exhibits a random walk trend or comprises a small sample, then the system GMM (Blundell & Bond, 1998) should be used to overcome sample bias. In addition, system GMM is valid in the presence of weak instruments and improves efficiency by increasing the number of instruments through introducing lagged differences of $Y_{i,t}$ in levels. Thus, a system GMM estimator combines a set of equations in levels, and first differences with suitably lagged level and first-difference instruments (Bond et al., 2001).

Step 4: Identification tests

The final step of the analysis will be the validation of the GMM results. This step will be accomplished using the Hansen Test (Hansen, 1982). The test examines whether the model is correctly identified or whether the number of moment conditions sufficiently exceeds the number of coefficients for the model (Baum et al., 2003). The second specification test to be applied is the AR (2) test to determine whether there is a second-order correlation in the error term.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Introduction

This section presents the findings and discusses the results, of the empirical analyses. The chapter begins with descriptive statistics of the sample data. Diagnostic tests are then explained to ensure the robustness of the model. Finally, the relationships which are the basis for the conclusions and recommendations are interpreted.

4.2 Descriptive statistics

The results of the descriptive statistics are summarised in Table 4 below. The dependent variable, the Human Development Index (HDI), has ranged from a minimum score of 0.244 for Niger in 1996 to the maximum observed of 0.804 for Mauritius in 2019. The average HDI score for the region is 0.483. This is significantly below the world average of 0,682 over this period, and indicative of the low historical development and quality of life in sub-Saharan Africa. All the observations of HDI fall within a narrow standard deviation of 10,7% of the mean, indicative of the persistent and endogenous nature of human development measures within the region.

Of the governance indicators, the lowest values are -3.31 for political stability and the absence of violence, on an approximate scoring range of negative 2.5 to positive 2.5, whilst the maximum is also recorded for PS at 1.28. Political stability and the absence of violence also reflects the most amount of variation among all the governance indicators with a standard deviation of 0.94, indicating significant variation in the political landscape of sub-Saharan Africa. Some countries such as Somalia, Sudan, and the Democratic Republic of Congo in the early nineties, are shown as extremely violent and politically unstable, whilst the data for Seychelles in the early nineties and Botswana over the review period indicate a much higher degree of peacefulness. On average, the quality of governance for sub-Saharan Africa is poor, reflecting a negative mean value across all six indicators: Voice and accountability; political stability and the absence of violence; government effectiveness; regulatory quality; rule of law; control of corruption. The lowest mean score is for 'government effectiveness' at -0.767, whilst the highest mean score for the region over the years is for 'political stability' and the 'absence of violence' at -0.551, clearly, a less meaningful value due to the high variation in this indicator.

Table 4: Descriptive statistics of the estimation variables

	Mean	SD	Min	Max	N
HDI	0.483	0.107	0.244	0.804	1051
VA	-0.595	0.756	-2.23	1.01	1008
PS	-0.551	0.940	-3.31	1.28	1008
GE	-0.767	0.647	-2.48	1.06	1007
RQ	-0.706	0.644	-2.65	1.13	1008
RL	-0.711	0.675	-2.61	1.08	1008
CC	-0.633	0.641	-1.87	1.22	1008
GDPG	4.503	7.263	-46.08	149.97	1098
INF	18.064	168.580	-31.57	4800.53	1098
TRADEOP	71.231	37.179	16.14	311.35	1019
GOVEXP	109.266	19.241	50.24	261.43	984
RDEP	0.109	0.312	0	1	1089
DEMO	0.472	0.500	0	1	721

Note: HDI = Human Development Index; VA = voice and accountability; PS = political stability and the absence of violence; GE = government effectiveness; RQ = regulatory quality; RL = rule of law; CC = control of corruption; GDPG = gross domestic product growth; INF = inflation; TRADEOP = trade openness; GOVEXP = government expenditure; RDEP = resource dependence; DEMO = democratization. Source: Estimates from research data described in appendix B. Note that the composite measures of governance are in units of a standard normal distribution, with mean zero, standard deviation of one, and ranging from -2.5 to 2.5. Thus, it is possible for extreme figures to fall outside of the approximate range of 2.5 standard deviations away from the mean. This accounts for the negative values of below -2.5 on the indicators: PS, RQ and RL.

The extremely high maximum GDP Growth of 149.97 % is due to the growth in Equatorial Guinea in 1997 due to an oil boom in the country between 1997 and 2001 (Frynas, 2004). A minimum of -46.08% was experienced by South Sudan in 2012 due to the stoppage of oil production after a conflict between the then newly independent South Sudan and Sudan (D. H. Johnson, 2012), (de Waal, 2014). GDP Growth shows moderately high volatility with a standard deviation of 7.263 around a mean of 4.503%. The high variation of GDP growth In SSA is indicative of the booms and busts experienced by resource-dependent economies which rely on global prices.

Similar volatility is experienced in inflation in sub-Saharan African economies. The hyperinflationary value of 4800.53% is associated with Angola in 1996, which was likely caused by inflationary financing of the budget deficit as well as irresolute economic policy (Aguilar & Stenman, 1996). The minimum is associated once again with Equatorial Guinea due

to the oil boom between 1997 and 2001. The mean inflation rate of 18.064% is significantly higher than the global average of 6,34% (World Bank, 2020) which is mainly driven by shocks to the exchange rate, monetary variables, and domestic supply shocks (Nguyen et al., 2017). These are the same drivers for inflation volatility indicated by a standard deviation of 168.58.

Trade openness measures a country's receptiveness to external markets and the developmental benefits that can accrue from international trade through export-led economic growth and enhanced factors of production through imports (Mbabazi, 2017). The expected value for trade openness is 71.231% of GDP, with volatility around the mean measured by a standard deviation of 37.179. The minimum of 16.14% can once again be attributed to the newly independent and conflict-ridden South Sudan in 2014. A maximum of 311.35% of GDP can be attributed to Lesotho in 1996, whose primary trade partner is South Africa. Only 10.9% of SSA countries are resource-dependent over the period, based on the expected value of 0.109 for the binary variable RDEP, whilst approximately 47,2% of SSA countries are considered democratic over the period according to the sample collected. These variables need to be viewed with caution as being downward-biased due to the long-run nature of the panel data set and the potential for missing data points. Where any data points are missing from the cross-section in the empirical analysis to follow, the cross-section is excluded from the empirical analysis.

4.3 Multicollinearity test

The results of the multicollinearity test are presented in Table 5. As anticipated, there is a significant correlation among the world governance indicators. Most notably, 'government effectiveness' (*GE*) is correlated with 'regulatory quality' (*RQ*), 'rule of law' (*RL*), and 'control of corruption' (*CC*), while 'regulatory quality' is also highly correlated with 'rule of law', and 'rule of law' is highly correlated with 'control of corruption', 'voice and accountability' (*VA*), and 'political stability' (*PS*). It is of interest that of the six-governance metrics, only 'voice and accountability' is highly correlated with the democracy dummy (*Demo*). A possible reason for this is that 'voice and accountability' includes perceptions of the extent to which citizens can participate in the election of their public officials Khan (2015). Consequently, each governance indicator is modelled separately, and the democracy dummy is excluded from the 'voice and accountability' estimations.

Table 5: Results of multicollinearity pairwise deletion testing

Variable	VA	PS	GE	RQ	RL	CC	GDPG	INF	TRDP	GS	RDEP	DEMO
VA	1.000											
PS	0.643	1.000										
GE	0.749	0.647	1.000									
RQ	0.765	0.643	0.885	1.000								
RL	0.808	0.781	0.878	0.866	1.000							
CC	0.665	0.656	0.829	0.742	0.867	1.000						
GDPG	0.076	0.013	0.048	0.082	0.028	-0.003	1.000					
INF	-0.107	-0.149	-0.123	-0.148	-0.131	-0.113	-0.105	1.000				
TRDP	0.013	0.010	0.013	0.011	0.016	-0.030	0.040	-0.044	1.000			
GS	0.028	-0.079	-0.074	-0.164	-0.010	0.114	-0.035	-0.035	0.045	1.000		
RDEP	-0.286	-0.177	-0.329	-0.277	-0.293	-0.330	0.007	0.052	0.048	-0.373	1.000	
DEMO	0.707	0.343	0.358	0.340	0.416	0.347	0.094	-0.065	0.094	0.121	-0.208	1.000

Note: HDI = Human Development Index; VA = voice and accountability; PS = political stability and the absence of violence; GE = government effectiveness; RQ = regulatory quality; RL= rule of law; CC = control of corruption; GDPG = gross domestic product growth; INF = inflation; TRADEOP = trade openness; GOXEXP = government expenditure; RDEP = resource dependence; DEMO = democratisation. Source: Estimates from research data described in appendix B.

4.4 Unit root tests

The results of the unit root tests are summarised in Table 6 below, and as can be seen, all of the factors are deemed to be level stationary, I(0), with the exception of the Human Development Index (HDI), which is found to be first-difference stationary, I(1), in the ADF-Fisher test.

Table 6: Unit Root Test Results

VARIABLE	LEVIN, LIN & CHU		ADF - FISHER	
	I(0)	I(1)	I(0)	I(1)
HDI	-3.123***	-12.154***	111.493	308.359***
VA	-4.911***	-17.395***	125.865**	373.567***
PS	-7.887***	-25.895***	154.481***	508.606***
GE	-11.210***	-25.467***	199.137***	501.231***
RQ	-6.324***	-23.041***	160.423***	457.551***
RL	-6.865***	-22.235***	146.921***	410.507***
CC	-6.736***	-17.318***	151.186***	343.451***
GDP	-15.073***	-23.525***	368.712***	733.449***
INF	-5.5843***	-17.066***	296.143***	778.680***
TRO	-16.375***	-34.392***	408.099***	731.876***
GS	-5.667***	-25.848***	152.790***	578.606***
RD	-3.430***	-7.238***	44.141***	184.300***
DEM	-4.406***	-9.620***	47.251**	93.570***

***, **, * represent significance at the 1%, 5% and 10% levels respectively

4.5 GMM estimations

The choice between system and difference, GMM, is dictated by the characteristics of the sample. Following (Bond *et al.*, 2001), finite sample biases can be detected by comparing the first-differenced GMM results to alternative estimates of the autoregressive parameter. In such

instances where the first-differenced GMM estimate is close to, or below, the Within-Groups estimate, it is probable that the GMM estimate is biased downwards (Bond *et al.*, 2001), and thus system GMM is more appropriate (Blundell & Bond, 1998).

The results of the Bond *et al.*, (2001) test are presented in Table 7 below and show system GMM is best suited to the five models: Model 1- voice and accountability (VA), Model 3- government effectiveness (GE), Model 4 – regulatory quality (RQ), Model 5 – rule of law (RL), Model 6 – control of corruption (CC)) as the fixed effects coefficient is higher than the difference GMM coefficient estimate. Whereas that difference GMM is only suitable for Model 2 – political stability (PS) as the fixed effects coefficient is lower than the difference GMM coefficient estimate.

Table 7: GMM Specification

	Fixed effects	Difference GMM
Model1_VA	0.994	0.983
Model2_PS	0.859	0.986
Model3_GE	0.992	0.985
Model4_RQ	0.994	0.987
Model5_RL	0.994	0.985
Model6_CC	0.994	0.986

Note VA=voice and accountability; PS = political stability and the absence of violence; GE = government effectiveness; RQ = regulatory quality; RL = rule of law; CC = control of corruption as described in appendix B

Following Mukherjee and Dutta (2018), system GMM is selected for all six models, as system GMM generates more accurate estimates based on the inclusion of additional moment conditions.

The system GMM results are presented in Table 8 below, and as can be seen, the results of the AR (2) test for serial correlation and Hansen test for over-identification show that the results are correctly specified.

The lagged dependent variable HDI (-1) has the most substantial effect on HDI across all six models, which is not unexpected as it reflects the slow and persistent process of human development (Nkurunziza *et al.*, 2017).

All the governance indicators have a positive and statistically significant association with human development, with significance ranging from 1% to 10%. The greatest effect is observed for ‘voice and accountability’ (VA), which suggests that heightened participation has beneficial developmental outcomes by strengthening checks and balances between the state, civil society, and the media (Stockemer, 2009). This factor is followed by ‘control of corruption’ (CC) and thus indicates that corruption acts as “sand in the wheels” of human development (OECD, 2013, pg 8) . According to Reiter and Steensma, (2010), possible reasons for this are reduced FDI flows because of detracted investors, and according to (Akçay, 2006), corruption impedes economic growth and reduces social spending such as that for health and education. ‘Government effectiveness’ (GE – Model 3) has the next greatest bearing on HDI with a coefficient of (0,668), albeit with a weaker association at a 10% level. ‘Government effectiveness’ is followed by ‘rule of law’ (RL – Model 5) which benefits human development by reducing social instability, entrenching the ability to enforce contracts, and fostering respect for institutions, as Gaur and Kant (2020) argue.

It is unsurprising that the ‘regulatory quality’ coefficient (RQ – Model 4) is only weakly significant because SSA suffers from institutional voids and weak institutions (Mohammed, 2021) affecting human development by weakening property rights and dampening investor confidence. ‘Political stability’ (PS - Model 2) is more consistently positively associated with human development with a value of (0,458%), and this suggests that civil violence and *coups d’état* that are typical of SSA may be a key hindrance in achieving development in the area (McGowan, 2003).

Regarding the control factors, GDP growth is the most consistently positive and significantly robust factor, followed by the positive but weaker, inflation. Trade openness shows a consistent but weaker negative relationship insignificant in the ‘voice and accountability’ (VA Model 1). Contrarily, Government expenditure shows a weak negative association that is only significant in the ‘voice accountability’ model. The results of the association between GDP growth and Human Development are likely to reflect the mutually reinforcing relationship between economic growth and human development, particularly in relation to health and education (Ranis et al., 2000). The positive association between inflation and human development is consistent with the findings of Huay et al. (2019) and indicates that macroeconomic stability is conducive to human development. Contrary to expectations, trade openness has a negative association with human development, a result possibly of the short-run nature of trade openness

shocks in many sub-Saharan African countries (Ho & Iyke, 2021). Further, as Emilienne et al. (2021) finds, trade openness associates positively with economic growth, but does not reduce poverty levels due to higher levels of unskilled workers, as is prevalent in the African case. This effect hinders improvement in measures of human development. Finally, the democratisation and resource dependence dummy variables bear no statistically significant relationship with human development. It is also of interest that the government expenditure coefficient is insignificant and negative in all models except for the ‘voice and accountability’ model, where it is negative and weakly significant. Whilst Akinbode et al. (2020) find that government health spending positively influences human development, Akçay (2006) finds that corruption hinders government spending on health and education. Thus, it is possible that government spending is predominantly non-social in this case.

Table 8: GMM Results

	Model1_VA	Model2_PS	Model3_GE	Model4_RQ	Model5_RL	Model6_CC
HDI(-1)	86,477 ***	90,025 ***	92,696 **	92,689 ***	92,059 ***	90,085 ***
	0,041	0,033	0,029	0,025	0,026	0,029
VA	1,092 **					
	0,004					
PS		0,458 **				
		0,002				
GE			0,668 *			
			0,003			
RQ				0,514 *		
				0,003		
RL					0,657 **	
					0,003	
CC						0,878 ***
						0,003
GDP Growth	0,041 ***	0,049 ***	0,053 ***	0,051 ***	0,054 ***	0,054 ***
	0,000	0,000	0,000	0,000	0,000	0,000
lnINF	0,445 **	0,474 **	0,326 **	0,369 **	0,368 **	0,407 **
	0,002	0,002	0,002	0,002	0,002	0,002
lnTradeOp	-0,892	-0,765 *	-0,923 *	-0,969 *	-0,900 *	-0,824 *
	0,009	0,004	0,005	0,005	0,005	0,004
lnGovSpend	-2,308 *	-0,996	-0,313	-0,303	-0,633	-1,046
	0,013	0,009	0,006	0,007	0,007	0,009
DEMO		0,347	0,216	0,266	0,189	0,284
		0,003	0,002	0,002	0,002	0,003
RDEP	-0,726	-0,477	-0,145	-0,288	-0,263	-0,257
	0,006	0,004	0,004	0,004	0,004	0,004
Sargan	0,000	0,000	0,000	0,000	0,000	0,000
Hansen	0,130	0,273	0,251	0,228	0,169	0,240
AR(2) prob	0,229	0,418	0,284	0,299	0,410	0,593
Instruments	44	37	39	39	39	39
Cross-sections	45	39	39	39	39	39
Observations	459	215	215	215	215	215

Note: HDI = Human Development Index; VA=voice and accountability; PS = political stability and the absence of violence; GE = government effectiveness; RQ = regulatory quality;RL= rule of law; CC = control of corruption; GDPG = gross domestic product growth; INF = inflation; TRADEOP = Trade openness; GOXEXP = Government expenditure; RDEP = Resource Dependence; DEMO = democratisation. Source: Estimates from research data. ***, **, * represent significance at the 1%.5% and 10% levels respectively. All coefficients have been multiplied by 100. The values below the coefficients represent the standard deviation.

4.6 GMM Interaction Results

The results of interacting the six governance factors with the Polity IV combined polity score democracy factor (*DEMO*) and resource dependence (*RDEP*) are presented in Table 9 and Table 10, respectively. Since the lagged dependent variable and control factor coefficients are

relatively unchanged compared to Table 8, the discussion below focuses on the interaction coefficients.

The results presented in Table 9 show that the democracy interactions in Table 9 are all positive and significant to varying degrees. The interaction between Government Effectiveness and Democracy (GE*DEMO) is strongly significant. The interaction between ‘political stability’ and ‘democracy’ (PS*DEMO) is moderately significant, while the remaining interactions are weakly significant.

The most robust and strongest of these associations is GE*DEMO indicating that ‘government effectiveness’ (GE) 3,482*** is more likely to consistently cause comparatively stronger positive outcomes on human development in democratic states when compared with other governance indicators. This is likely due to the mutually reinforcing effect studied by Magalhães (2014), whereby effective democracies garner support for democratic processes, which in turn stimulate greater efficacy of policy development and implementation.

The second strongest, although weakly significant, interaction is that between ‘control of corruption’ and ‘democratisation’ CCDEMO 3,102*. This effect is confirmed by the research of Sung (2004) who reports that while corruption may exist in new democracies, in the long run, the process of democratisation brings about deepened institutional reforms, improved checks and balances of state power, and strengthened rule of law, such that established democracies are able to stamp out corruption. These findings also support the next strongest positive interaction variable, RLDEMO, 2,277*. Following ‘rule of law’ is the weakly significant interaction between ‘regulatory quality’ and ‘democratisation’ (1,889*). This interaction effect is studied by Bertelli and Whitford (2009) who find that regulators are more likely independent in democratic states, which bolsters the perceptions of regulatory quality of the market elite, which consequently stimulates investment capital flows to said state.

The interaction between ‘political stability’ and ‘democratisation’ is positive and moderately robust (1,726**), which indicates that ‘democratisation’ strengthens the effect of political stability on human development through securing property rights and enforcement of contracts and by providing a framework to prevent arbitrary state decisions that do not benefit the

citizenry. This ultimately creates an environment that is conducive to economic growth and human flourishing (Tusalem, 2015)

Table 9: GMM Democratization Interaction Results

	Model2_PS		Model3_GE		Model4_RQ		Model5_RL		Model6_CC	
HDI(-1)	89,606	***	83,858	***	86,807	***	87,662	***	83,645	***
	0,033		0,044		0,037		0,037		0,040	
PS	-0,507									
	0,005									
PSDEMO	1,726	**								
	0,008									
GE			-1,287							
			0,011							
GEDEMO			3,482	***						
			0,012							
RQ					-0,301					
					0,006					
RQDEMO					1,889	*				
					0,010					
RL							-0,601			
							0,008			
RLDEMO							2,277	*		
							0,012			
CC									-0,896	
									0,011	
CCDEMO									3,102	*
									0,017	
GDP Growth	0,067	***	0,069	***	0,074	***	0,074	***	0,066	***
	0,000		0,000		0,000		0,000		0,000	
lnINF	0,352		0,277		0,333		0,439		0,529	
	0,003		0,003		0,003		0,003		0,003	
lnTradeOp	-0,182		-0,222		-0,667		-0,490		-0,278	
	0,006		0,005		0,006		0,006		0,007	
lnGovSpend	-0,938		-0,870		-0,396		-0,879		-1,456	
	0,010		0,012		0,010		0,009		0,010	
DEMO	1,340	*	3,148	**	1,688	*	2,082	*	2,582	*
	0,007		0,012		0,009		0,011		0,014	
RDEP	-0,389		-0,584		-0,269		-0,680		-0,890	
	0,007		0,009		0,007		0,007		0,008	
Sargan	0,012		0,069		0,000		0,001		0,066	
Hansen	0,730		0,496		0,195		0,256		0,378	
AR(2) prob	0,920		0,654		0,478		0,898		0,892	
Instruments	39		39		39		39		39	
Cross-sections	39		39		39		39		39	
Observations	215		215		215		215		215	

Note: HDI = Human Development Index; VA=voice and accountability; PS = political stability and the absence of violence; GE = government effectiveness; RQ = regulatory quality;RL= rule of law; CC = control of corruption; GDPG = gross domestic product growth; INF = inflation; TRADEOP = trade openness; GOXEXP = government expenditure; RDEP = resource dependence; DEMO = democratisation. Source: Estimates from research data. ***, **, * represent significance at the 1%.5% and 10% levels respectively. All coefficients have been multiplied by 100. The values below the coefficients represent the standard deviation.

As can be seen from Table 10, there are no statistically significant results in relation to the resource dependence variable or interaction variable with the governance figures. It is interesting to note that both the resource dependence dummy variable and the resource dependence and governance interaction variables are negative in all four models and positive in two of the models: those in relation to regulatory quality and control of corruption. The insignificance of the resource dependence variables contrasts with the studies of Lashitew and Werker, (2020) and suggests that resource dependence may have a mixed influence on human development depending on the quality of institutions.

These results thus suggest that resources may positively benefit human development in the presence of a robust regulatory environment and where corruption is mitigated. However, there is unlikely to have been positive association between resource dependence and human development even in the presence of other governance indicators such as voice and accountability, political stability, and the absence of violence, government effectiveness and the rule of law.

Table 10: GMM Resource Dependence Interaction Results

	Model1_VA		Model2_PS		Model3_GE		Model4_RQ		Model5_RL		Model6_CC	
HDI(-1)	87,517 0,050	***	90,448 0,031	***	93,154 0,000	***	91,927 0,026	***	92,262 0,024	***	89,358 0,032	***
VA	1,073 0,004	*										
VA*RDEP	-4,490 0,052											
PS			0,460 0,002	**								
PS*RDEP			-0,252 0,007									
GE					0,650 0,003	*						
GE*RDEP					-0,701 0,018							
RQ							0,522 0,003	*				
RQ*RDEP							1,692 0,016					
RL									0,655 0,003	**		
RL*RDEP									-0,390 0,023			
CC											0,871 0,003	**
CC*RDEP											2,100 0,023	
GDP Growth	0,036 0,000	***	0,051 0,000	***	0,054 0,000	***	0,048 0,000	***	0,055 0,000	***	0,053 0,000	***
lnINF	0,338 0,002		0,454 0,002	**	0,311 0,002	*	0,450 0,002	**	0,357 0,002	*	0,418 0,002	**
lnTradeOp	-0,833 0,010		-0,671 0,004		-0,973 0,005	*	-0,935 0,005	*	-0,922 0,005	*	-0,716 0,004	*
lnGovSpend	-1,807 0,014		-1,070 0,010		-0,305 0,006		-0,251 0,007		-0,622 0,007		-1,215 0,010	
DEMO			0,303 0,003		0,192 0,002		0,333 0,003		0,179 0,002		0,324 0,003	
RDEP	-5,559 0,057		-0,811 0,011		-1,022 0,025		1,522 0,018		-0,756 0,031		2,125 0,027	
Sargan	0,000		0,000		0,000		0,000		0,000		0,000	
Hansen	0,109		0,358		0,209		0,365		0,182		0,238	
AR(2) prob	0,345		0,467		0,223		0,265		0,411		0,591	
Instruments	44		39		39		39		39		39	
Cross-sections	45		39		39		39		39		39	
Observations	459		215		215		215		215		215	

Note: HDI = Human Development Index; VA=voice and accountability; PS = political stability and the absence of violence; GE = government effectiveness; RQ = regulatory quality;RL= rule of law; CC = control of corruption; GDPG = gross domestic product growth; INF = inflation; TRADEOP = trade openness; GOXEXP = government expenditure; RDEP = resource dependence; DEMO = democratisation. Source: Estimates from research data. ***,**,* represent significance at the 1%.5% and 10% levels respectively. All coefficients have been multiplied by 100. The values below the coefficients represent the standard deviation.

4.7 Conclusions

The results of the multicollinearity tests revealed collinearity amongst the six world governance indicators, hence they were modelled separately. Democratisation was also highly correlated with ‘voice and accountability’ and was thus excluded from the VA estimations. The unit root tests found all independent regressors to be first-level stationary. The estimations are appropriately identified in each case, and autocorrelation is not a problem in the presented estimations. Regarding the system GMM estimations, the lagged dependant variable HDI is the strongest and most significant of all of the variables. The estimations reveal a positive association between all six of the world governance indicators and human development as measured by HDI, the most significant association being that of ‘control of corruption.’ ‘GDP growth’ and ‘inflation’ reveal a robust positive association in models, whilst ‘trade openness’ reveals a negative association in all significant coefficients. ‘Government expenditure’ indicates a negative and weakly significant association in only the VA estimation. The dummy variables did not reveal any significant results. The interaction estimations indicate a strong bolstering effect of democratisation on the efficacy of governance for human development, whilst the resource dependence interactions reveal no significant effect on the association between governance and human development.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The primary aim of this study was to investigate the association between the six World Bank Governance measures and the Human Development Index in 48 Sub-Saharan African countries using the GMM estimation. In particular, the goal was to determine which of the governance indicators most significantly impacts human development. The secondary objectives were to establish which of the six World Bank measures and human development are significantly affected by SSA's resource dependence and quality of governance.

5.2 Conclusions on the research questions

Governance and human development

This study finds that all six of the World Governance indicators associate positively with the Human Development Index. These findings are consistent with (Ahmad & Saleem, 2014; Akinbode et al., 2020; Gaur & Kant, 2020; Keser & Gökmen, 2018; Omonga, 2010; Sarkodie & Adams, 2020; Sarpong & Bein, 2021). Although in some of the above mentioned studies, not all associations were found to have a significant positive association with HDI, this may be attributed to a different scope: Ahmad and Saleem (2014) study the associations globally, (Keser and Gökmen, (2018) study the associations in the EU, and Gaur and Kant (2020) study the associations in highly developed nations. This present study found that the most robust and positive association is between 'control of corruption' and 'human development'. Whilst Davis (2017) found that 'government effectiveness' and 'political stability' have the most significant effect on HDI, this may be attributed to the short-run nature of the study focussing only on the year 2013. Akinbode et al. (2020) did not find a significant association between control of corruption and human development but did find a significant association between government effectiveness and HDI. The difference in findings may result from a difference in the scope of SSA countries included, or the control variables used in this study. A number of studies indicate that controlling corruption reaps positive benefits for human development (Ahmad & Saleem, 2014; Akçay, 2006; Reiter & Steensma, 2010).

On the interaction with resource dependence

The interactions between ‘resource dependence’ and ‘governance’ yielded no conclusive results. This may be due to the dampening effect of the logged control variables on ‘resource dependence’ which may significantly vary based on the changeability of resource commodity prices in the global market affecting the degree to which resource rents contribute to local economies. This is consistent with the patterns that emerged in ‘Descriptive Statistics’ (subsection 4.2), where significant variability in inflation and GDP growth was related to global oil sales. Thus, in the long run, there is no conclusive evidence from this study on whether resource dependence impacts human development.

The influence of quality of governance

The interaction terms between each of the governance indicators and democratisation yielded robust positive results indicating that the positive effect of governance on human development is enhanced through mature democratic processes and policies. Thus, as democratisation increases, the quality of governance improves through the mechanisms of improved accountability, checks and balances between various institutions such as the state, media, and civil society, and improved civil rights (Stockemer, 2009). These conclusions are supported by a number of other studies focussing on the effect democratisation has on the individual governance indicators and how these ultimately contribute toward human development (Bertelli & Whitford, 2009; Magalhães, 2014; Sung, 2004; Tusalem, 2015).

5.3 Policy Implications

‘Democratisation’ has emerged as a factor that may enhance human development. As such, policies that drive democratisation may simultaneously enhance human development. Whilst increasing evidence is debunking the modernisation theory that improving economic growth will drive democratisation (Munck, 2018), reducing inequality may protect democratisation from being undermined (Kotschy & Sunde, 2017; Sarkodie & Adams, 2020). Further, while there is no empirical evidence surfacing from this study that resource dependence impacts human development, there are several studies to suggest that resource dependence may undermine democratisation and have indirect adverse effects on human development. Thus, diversifying economies may be an effective strategy to protect the process of democratisation and supplement

the inflows from resource rents (Lashitew & Werker, 2020; Ross, 2015; Ulfelder, 2007; Wantchekon, 2002; Wright et al., 2013).

5.4 Recommendations for Future Research

While there is no empirical evidence of interaction between resource dependence and the WGI, the literature seems to indicate that a strong negative association exists between resource dependence and democratisation in SSA (Lashitew & Werker, 2020; Ross, 2015; Ulfelder, 2007; Wantchekon, 2002; Wright et al., 2013). Most studies in the area use an older data set and methodological approach. Future research could be refreshed with a robust methodological approach and data that is contextual to the SSA region and could further include the effect of the interaction between resource dependence and democratisation on human development. It is of interest that ‘government expenditure’ as a control variable did not associate with human development. Further studies could be performed to investigate the reasons for this, particularly to determine whether the level of institutional quality impacts the efficacy of government expenditure for human development.

APPENDICES

APPENDIX A – List of sub-Saharan Africa countries used in the study

Angola	Liberia
Benin	Madagascar
Botswana	Malawi
Burkina Faso	Mali
Burundi	Mauritania
Cape Verde	Mauritius
Cameroon	Mozambique
Central African Republic	Namibia
Chad	Niger
Comoros	Nigeria
Congo Dem. Rep.	Rwanda
Congo Rep.	Sao Tome and Principe
Cote d'Ivoire	Senegal
Equatorial Guinea	Seychelles
Eritrea	Sierra Leone
Eswatini	Somalia
Ethiopia	South Africa
Gabon	South Sudan
The Gambia	Sudan
Ghana	Tanzania
Guinea	Togo
Guinea-Bissau	Uganda
Kenya	Zambia
Lesotho	Zimbabwe

APPENDIX B – List of variables used in the study and source obtained from

Variable Name	Metric name and code per Source	Source
Dependent Variable		
HDI	Human Development Index (HDI)	UNESCO Institute for Statistics (2020)
Independent Variable		
VA	Voice and accountability	The Worldwide Governance Indicators. 2020 Update. www.govindicators.org
PS	Political stability no violence	The Worldwide Governance Indicators. 2020 Update. www.govindicators.org
GE	Government effectiveness	The Worldwide Governance Indicators. 2020 Update. www.govindicators.org
RQ	Regulatory quality	The Worldwide Governance Indicators. 2020 Update. www.govindicators.org
RL	Rule of law	The Worldwide Governance Indicators. 2020 Update. www.govindicators.org
CC	Control of corruption	The Worldwide Governance Indicators. 2020 Update. www.govindicators.org
Control Variable		
GDPG	GDP growth (annual %)	World Bank national accounts data and OECD National Accounts data files.
INF	Inflation: consumer prices (annual %)	International Monetary Fund. International Financial Statistics and data files.
Tradeop	Sum: Exports of goods and services (% of GDP); Imports of goods and services (% of GDP)	World Bank national accounts data and OECD National Accounts data files.
GovSpend	General government final consumption expenditure (current US\$)	World Bank national accounts data and OECD National Accounts data files.
RDEP	Ores and metals exports (% of merchandise exports)	World Bank staff estimates through the WITS platform from the Comtrade database maintained by the United Nations Statistics Division.
DEMO	Combined polity score	World Bank Data is sourced originating from the Center for Systemic Peace. www.systemicpeace.org/polity/polity4.htm

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