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The Natural Resource Curse in Sub-Saharan Africa: Transparency and International Initiatives

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The University of Southern Mississippi

THE NATURAL RESOURCE CURSE IN SUB-SAHARAN AFRICA:
TRANSPARENCY AND INTERNATIONAL INITIATIVES

by

Meaza Zerihun Demissie

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2014

ABSTRACT

THE NATURAL RESOURCE CURSE IN SUB-SAHARAN AFRICA: TRANSPARENCY AND INTERNATIONAL INITIATIVES

by Meaza Zerihun Demissie

December 2014

The Sub-Saharan Africa (SSA) region has become a classic case of the resource-curse phenomenon characterized by the abundance of natural resources, low economic development, and misuse of natural resources. Economic-development experts debate ways to overcome or avoid the resource curse to advance SSA countries into developed countries. Only one natural resource-rich country in the region, Botswana, has succeeded in becoming an upper middle-income country using its natural resources, making the possibility of replication of this achievement difficult. The literature aligns in the belief that the economic and political well-being of resource-rich nations depends highly on the actors involved. National and international policies and regulations must overcome the resource curse. However, the literature falls short of clarifying the types of governance traits and international interventions required to overcome this phenomenon. The Extractive Industries Transparency Initiative (EITI)—a global initiative established in 2002 that seeks to improve the management of natural-resource wealth in implementing countries through increased transparency—is one of the international initiatives currently being implemented in many Sub-Saharan resource-rich countries. This study examines EITI to explore its influence on achieving resource transparency and economic growth. The study finds that EITI, although often acknowledged as one of the best solutions for resource-rich countries around the world, falls short of increasing the economic growth of

participating countries. The study also finds that transparency without other government reforms appears to be weak in promoting economic growth in resource-rich SSA countries.

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by

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A Dissertation
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of The University of Southern Mississippi
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for the Degree of Doctor of Philosophy

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DEDICATION

This work is dedicated to my father, Zerihun Demissie, even in his absence his strong belief in my potential remains to be a source of my strength. Memories of our conversations on the value of education continue to give me energy and pushed me to work hard throughout this PhD endeavor and in life.

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LIST OF ABBREVIATIONS

CPI	Corruption Perceptions Index
EITI	Extractive Industries Transparency Initiative
GDP	Gross Domestic Product
OLS	Ordinary Least Square
PPP	Purchasing-Power Parity
SSA	Sub-Saharan Africa
TI	Transparency International
VIF	Variance inflation factor

CHAPTER I

INTRODUCTION

Background

The natural resource curse is a phenomenon where natural resource endowed countries experience worse economic and political outcomes than countries with no natural resource endowment (Siegle 2008). This study only addresses hydrocarbons, metals, minerals, and oil.¹ Dutch Disease is an economic phenomenon that occurred in The Netherlands in the 1960s. Following a sizable natural-gas discovery in The Netherlands, the value of Dutch currency increased, rendering exports from other sectors uncompetitive. As a result, the real exchange rate appreciated as resource revenues entered the economy. Exchange rates' consistent relationship with oil and gas revenues make it difficult for countries discovering such resources to accumulate the foreign currency required for trade (Korhonen and Juurikkala 2007). The case of the Netherlands is not unique, as many countries with large endowments, on average, perform worse than those that are less significantly endowed (Auty 2001). Some countries, however, have performed much better than others and have even succeeded in attaining economic growth and development. In contrast to countries performing poorly, like Nigeria and the Democratic Republic of Congo, counter examples exist, like Botswana, Norway, and Malaysia. Ideally, resources should be a source of wealth and development, and resource revenues can be a significant source for escaping the development trap and attaining the major thrust needed for economic growth and development (Collier 2007). Resource-rich

¹ Hereafter, the term *natural resources* is used to reference this specific subset of resources.

countries like Malaysia, Botswana, Indonesia, and Thailand have proven that natural resource-rich countries can sustain economic growth and attain economic development, and that their abundance of natural resources does not necessarily preclude development. The success of these countries shows that reversing or preventing the resource curse is possible.

Rodrik (1999) and Pritchett (2000) state that institutional quality is important for long-term economic growth. Therefore, it is not surprising that the majority of people who live in resource-rich countries possess poor institutional quality. Instead, the governments of these countries are often riddled with corruption, thereby creating acute inequality for their citizens. Moreover, successful resource-rich countries share common traits related to institutions for economic growth and development. Sala-i-Martin and Subramanian (2003) argue that it is not the existence of natural resources per se that is causing resource-abundant countries to fail; instead, it is the quality of the institutions and public policies that result in low economic development. Controlling for institutions, these authors find that natural resources are not significantly related to economic growth. Institutions are key to reversing the resource curse and may be part of the solution for the ills of resource-rich African countries. The literature on the resource curse is vast, suggesting many ways to overcome it. Yet, overall, few studies analyze countries that overcame the resource curse.

The resource curse is a complicated phenomenon that results from a variety of reasons, including the Dutch disease, rent seeking, crowding out of human capital, and crowding out of social capital (Auty 2001). Here I highlight three reasons for poor performance of resource-rich countries, interlaced with the aforementioned poor

institutional quality. First, resource revenue tends to corrupt government officials, as it may be easier for the owners of capital to bribe officials than to invest in industries and projects affecting long-term development (Barbier 2005). This is particularly true for oil-rich countries including Angola, Nigeria, Sudan, and Venezuela, and diamond-rich countries like Sierra Leone, Liberia, and Congo (Mehlum, Moene, and Torvik 2005). In these countries, the rent-seeking behaviors of officials, backed by foreign extractive firms, have lowered the benefits of resource revenues.

Second, the prices of natural resources are volatile, making repayment of loans difficult. As prices of natural resources (not only oil, but also minerals, grain, and coffee) are volatile, countries that specialize in extractive industries and commodities will have a disadvantage in their terms of trade. According to Poelhekke and van der Ploeg (2009) “volatility in natural resource revenues, induced by volatility in primary commodity prices, curbs growth in economies with badly functioning financial systems” (3).

Third, abundant natural resources crowd out other economic sectors, including human and social capital. Crowding out refers to a transfer of talent and innovation away from other export-based sectors of the economy. Of the main types of capital (economic, social, and natural), a negative link exists between natural-resource capital and human-capital investment (Birdsall, Pinckney, and Sabot 2000). Natural resources crowd out human resources by affecting the allocation of education resources. In doing this, resource-rich countries tend to invest insufficiently in education. All of these cause a resource curse, suggesting a strong case for greater domestic policy change and creation of strong institutions; a recommendation backed by successful historically resource-based economies.

While the resource curse seems to impact many countries, they are accompanied by proposed solutions to reverse this phenomenon. For example, Barbier (2005) recommends diversifying economies and avoiding currency appreciation to reverse or slow the resource curse. The second solution, avoiding currency appreciation, allows countries to export natural resources to the global market at a low price. First, resource-rich countries should not initially set the export value of their natural resources at a higher cost value because a rapid influx of foreign currency causes a devaluing of local currency. Moreover, when the currency of a given country rises significantly, the rise impacts the country's international economic activity. The influx of foreign currency causes appreciation in the value of the domestic currency. Yet, setting the export value at lower levels should be monitored closely because the set lower price value is not a viable long-term solution.

Additionally, one common recommendation for resource-rich countries to achieve economic growth is to adopt transparency-related policies. An international initiative with a central focus to reinforce transparency is the Extractive Industries Transparency Initiative (EITI). In 2003, EITI was created to fill the gap in international law to enforce transparency in extractive industries of resource-abundant countries. This initiative requires participating countries to publish all data on revenues from mining and oil operations. EITI is an international voluntary regulatory initiative supported by international organizations including the World Bank, the International Monetary Fund, the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the European Investment Bank. As of August 2014, twenty-one African countries have signaled their intent to implement the EITI to

increase transparency. The plans for this initiative include reversing the current misuse of natural-resource revenues (World Bank and Global Witness 2008). However, the effectiveness of the EITI has not yet been tested.

Purpose of the Study

This study investigates ways to overcome the resource curse, particularly the role of transparency in the economic growth of Sub-Saharan Africa (SSA) countries. The literature on economic growth frequently does not consider the impact of government transparency and international transparency enforcement. This study examines the relationship between economic growth and transparency for resource-rich SSA countries. In the study, I will emphasize the effect the EITI initiative may have on the growth path of these countries. Thus, the study seeks to answer the following questions:

1. Does transparency affect the economic success of resource-rich SSA countries?
2. Is there a difference between the economic performance of resource-rich SSA countries that participate in EITI and those not participating in EITI?

To investigate these research questions, I put forward the following hypotheses:

Hypothesis 1

H₀: There is no relationship between transparency and economic growth in resource-rich SSA countries.

H₁: There is a direct relationship between transparency and economic growth in resource-rich SSA countries.

Hypothesis 2

H₀: There is no difference in economic growth between EITI countries and non-EITI participants.

H₁: There is a direct relationship between economic growth and EITI participation.

Relevance of the Study

Malawi's President Bingu Wa Mutharika is known for his statement that "Africa is not a poor continent; but the people of Africa are poor" (Mutharika 2010, 3), summing the core relevance of this study. Africans who live in resource-rich countries often wonder why their lives do not improve while their countries export thousands of barrels of oil and tons of minerals per day, generating large resource revenues. Natural resources are owned by the people and should benefit the people. The United Nations' Declaration affirms this: "The right of peoples and nations to permanent sovereignty over their natural wealth and resources must be exercised in the interest of their national development and of the well-being of the people of the State concerned" (General Assembly Resolution 1962, 2).

This study is significant for many reasons. First, compared to other regions, Africa has a smaller population benefiting from these resources (Gelb and Grasmann 2008). Further, Ross (2001) highlights that resource-rich countries, particularly those dependent on exporting mineral resources, have a lower Human Development Index when compared to countries with more limited resources. The stakes of reversing the resource curse are much higher in SSA than in other regions, as the region is blessed with extensive untapped natural resources, but ravaged by abject poverty, requiring a close

study of the relationship between natural resources, economic growth, and development. Extractive companies are competing to meet the growing demand for natural resources. Unless action is taken to reverse the current low economic growth and development in the region, the notion of a natural-resource curse is going to dominate the development debate in SSA.

Moreover, lack of transparency and sound governance has fueled misuse of funds in many countries. For example, Werner (2009) shows that “at least one in every eight barrels of oil currently entering the United States has been stolen from its country of origin” (1). Similarly, the governments of two of the largest oil-producing countries in Africa—Angola and Nigeria—are corrupt. The Transparency International (TI)’s Corruption Perceptions Index (CPI) ranks Nigeria and Angola 144 and 153 of 177 countries in 2013 (TI 2013). In the case of Angola, McMillan (2005) estimates that as much as \$1 billion of oil revenue was lost every year in the early 2000s. In most cases, a dominant elite group benefits from the country’s natural resources at the expense of the public.

This study makes two major contributions. The first is its exploratory theoretical and empirical review of transparency to identify its role in the resource-curse thesis and economic growth. The second is a measure of EITI and its impact on economic growth. This study is structured as follows: Chapter II provides the theoretical framework for the study. Chapter III provides an overview of the relevant literature. Chapter IV sets forth the research questions, hypotheses, methodological approach, and statistical analyses used in this study. Chapter V details the results of the statistical analyses. Chapter VI offers a discussion of the results and concludes the study.

CHAPTER II

THEORETICAL FRAMEWORK

Institutional Theory

Institutions have proven to be vital for economic growth; indeed, North (2005) notes how a particular country's political, legal, economic, and social institutions impact its economic growth rate. Rodrik (1999) and Pritchett (2000) also note how institutional quality provides for long-term economic growth of countries. For natural resources and economic growth, institutional theorists argue that weak governments and corruption are major factors for what is known as the natural resource curse phenomenon (Neumayer and Dietz 2005). In part, this study posits that low economic growth in resource-rich SSA countries can be explained in the framework of institutional theory.

Institutions “are made up of formal constraints (such as rules, laws, routines and constitutions), and informal constraints (such as norms of behavior, conventions, self-imposed codes of conduct), and their enforcement characteristics” (North 1994, 360). Institutional theory points out that countries adopt and execute formal and informal constraints over time. This study uses the tenets of institutional theory to identify how a well-established government, as well as the rules and regulations used by governments, can provide formal constraints. Countries increasingly need informal constraints, such as good social behavior, to build good institutions. In a recent analysis, North further argues, “institutional change can result from change in the formal rules, informal, norms or the enforcement of either of these” (North 2005, 6). Thus, the combination of the formal and informal cultural, political, and economic set up of a given country affects how policies are designed and implemented.

Institutional theory falls under the rubric of new institutional economics, a field that incorporates the theory of institutions into economics. Institutional economics is an extension of neoclassical theory, which results from cooperation between economists and political scientists studying the role of institutions in economic growth. Neoclassical theory encompasses topics related to “property rights analysis, the economic analysis of the law, public choice theory, constitutional economics, the theory of collective action, transaction cost economics, the principal-agent approach, the theory of relational contracts, and comparative economic systems” (Richter 2005, 22) that can typically be categorized as either politics or economics. As this study touches on both economic and political aspects, I use institutional theory.

Scott (1995) notes that institutions typically have three forms: cognitive, normative, and regulative. In all three forms, “institutions are transported by various carriers—cultures, structures, and routines—and they operate at multiple levels of jurisdictions” (Scott 1995, 33). Scott further describes the three pillars of institutional theory as shown in Table 1.

Table 1

Three Pillars of Institutions

Theory Element	Regulative	Normative	Cognitive
Basis of compliance	Experience	Social Obligation	Taken for granted
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules, laws, sanctions	Certification, accreditation	Prevalence, isomorphism
Basis of legitimacy	Legally sanctioned	Morally governed	Culturally supported, conceptually correct

Source: Scott (2001, 53). Copyright 2001 by Sage Publications, Inc.

According to Scott (2001), regulative elements focus on setting rules and sanctions, whereas normative elements fulfill an obligatory role. Cognitive elements are developed through shared consumption and culturally supported ideas. In alignment with the focus of economists such as North (1990), this study will investigate how regulative elements are an important trait of institutions. Regulative elements are relevant to this study, as some institutional theorists have suggested that the development of institutions in a given country is often an outgrowth of that country's colonial experience (Acemoglu et. al. 2002). Additionally, the main reason for failure to generate growth is lack of quality in government institutions (Acemoglu et. al. 2002).

In contrast to institutional theory, modernization theory argues that developing nations are in the best position for speedy economic and social development because they can import technology from first-world nations to stimulate their economic growth (Hall 1992). According to the ideas contained in modernization theory, countries rich in natural resources can develop faster by exploiting those natural resources. Proponents of this theory conclude that when the transfer of knowledge is coupled with resource abundance, resource-rich developing countries can quickly advance to the status of industrialized

nations. These supporters further argue that countries should transfer their resource revenues from existing activities to modern industrial activities. This transfer involves a shift of labor to new industrial sectors, with specific focus on a more advanced technological system. However, some countries have failed to achieve development even when following this recommendation; a result that has provoked criticism of modernization theory as insufficient to properly predict what will generate economic growth in emerging nations.

Dependency theory originated as a critique of modernization theories.

Dependency theory predicts that resources will flow from economically poor but resource-rich countries to wealthy states, thereby benefiting wealthy states at the expense of resource-rich but economically poor and underdeveloped countries (Tausch 2003). In other words, rich countries developed because others were underdeveloped. This theory assumes that poor states will remain poor as they try to integrate into the world system, and that poor nations will remain poor so that they can be suppliers of resources, cheap labor, the recipients of out-of-date technology, and serve as a market for rich countries. Dependency theory notes that this happens as a result of an unfair integration of poor countries into the world system. Although interesting, dependency theory fails to provide a path for development of emerging and developing countries.

As dependency theory lost support, the *big-push* theory emerged, claiming resource-rich countries will benefit significantly as a result of resource booms (Rosenstein-Rodan 1961). For example, Lewis (1955) asserts that resource abundance increases capital because of increased exports; increased exports, in turn, aid economic growth. The big-push theory is entirely based on the positive impact of resource wealth in

a given country. Any factors that simulate aggregate demand, whether the discovery of minerals or price increases in natural resources, are significant catalysts for growth and development. The big-push theory claims that publicly coordinated investments can break the cycle of poverty by helping developing economies overcome deficiencies in private incentives that prevent firms from adopting modern production techniques and achieving economic growth (Rosenstein-Rodan 1961).

In direct opposition to the claims of the big-push theory are the ideas contained in resource-curse theory. Resource-curse theory suggests that as dependence on natural-resource exports increases, economic growth (commonly measured in terms of GDP) declines (Sachs and Warner 1995). The theory argues that rather than fueling growth and development, natural-resource wealth can become the cause of economic stagnation. This is mainly because countries invest heavily in the resource sector, ignoring other vital sectors that are crucial to improve a given economy. This theory has many critics, as only few resource-rich countries managed to translate their natural-resource wealth to economic growth and development. The resource curse hypothesis and its relations with institutions are described in Figure 1.

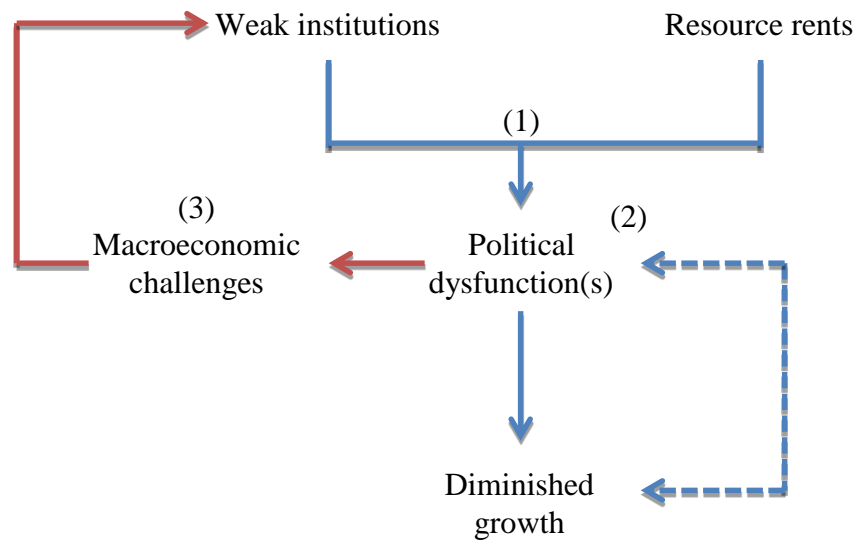


Figure 1. Institutions and the Natural Resource Curse Theory.

Weak institutions and resource rents create political dysfunction(s) (2) that will have (1) direct and indirect impacts on low economic growth. Political dysfunctions in turn create macroeconomic challenges (3), which feed into weak institutions. Similarly, political dysfunction will also contribute to low economic growth. Source: (Jones 2008, 13).

This study contends that a *natural resource curse* exists because a number of developing countries have failed to expand their economies. Therefore, this theory will be under analysis for this study, making it impossible to use the resource-curse theory as an explanatory factor in this study.

Modernization, dependency, the big-push theory, and natural-resource-curse theory helped instill a new way of thinking about the economic development of poor countries. One example of this new way of thinking is the link between the natural-resource dependence to civil war and conflict (Humphreys, Sachs, and Stieglitz 2007). This change gives rise to the role of institutions in overcoming the natural-resource curse, thereby resulting in a growing consensus on the basic relationship between resource dependence, economic growth, and institutions.

After reviewing the theories discussed above, institutional theory best explains transparency and the main explanatory variables used in this study. Additionally, the EITI is rooted in the idea that transparency should be institutionalized. Increasing the quality of institutions in implementing EITI has become popular and has grown in the past few years, emphasizing the relevance of institutional theory to understand the impact of EITI.

CHAPTER III

REVIEW OF RELATED LITERATURE

One of the most influential ideas in recent development dialogue is the resource curse. Resource-curse theory claims that countries abundant in natural resources will have negative economic-development outcomes because of low economic growth and development, corruption, and resource-led conflicts. The natural-resource curse claims an inverse relationship between high revenue from abundant-resource countries and economic growth. Sachs and Warner (1995; 2001) first examined the correlation between natural resources and economic growth, and since then a vast amount of literature analyzed the existence of and possible mechanisms through which an abundance of natural resources can negatively impact economic growth.

Sustainable development is defined as “meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 1987, 16). Resource-rich countries face the major challenge of managing the surge of resource revenues for sustainable development. Attaining sustainable development requires cautious investment of resource revenues, something needed in most SSA countries. In addition to weak institutional involvement in revenues, corruption in resource revenue heavily hinders growth. Corruption, although an internal problem, is linked to international factors, especially when addressing extractive international companies. These international players in resource-abundant countries get favorable advantage by partnering with local politicians who are equally guilty with international extractive companies and the elite community (Kabemba et al. 2008).

For underdeveloped, resource-rich economies, the challenge to attain growth and development can be divided into three categories: economic, political, and international. Economic growth occurs when there is an increase in goods and services over time, while development refers to a country's ability to improve the quality of life of its population by providing them better health and education, and promoting economic policies that improve market conditions domestically and internationally. In contrast, political growth is the development of institutions, attitudes, and values that form the system of a given country. The following sections discuss economic, political, and international challenges in relation to the natural-resource curse.

Dutch-Disease Hypothesis

Dutch disease refers to a reduction in a country's ability to export from non-resource sectors as a result of an appreciation in the exchange rate due to substantial earnings from the export of natural resources. In other words, the Dutch disease is the phenomenon where the non-resource sector weakens and the country experiences inflation as a result of the resource flux to the thriving natural-resource sector. The first article introducing the phrase Dutch disease was published in *The Economist* in 1977 where the etymology of the phrase is explained. The phenomenon is named after The Netherlands' discovery of natural gas, which resulted in the decline of its manufacturing sector in 1959. This discovery led to a shift in prices in non-gas sectors and in the exchange rate, making previously competitive exporters lose market share and decrease their export ("The Dutch Disease" 1977). The rising gas exports caused The Netherlands' exchange rate to appreciate against other currencies, which, in turn, resulted in wages increases of the natural-gas sector faster than productivity in non-gas sectors.

Evidence exists of similar results in countries as their real exchange rates appreciate; this somewhat widespread appreciation has forced the secondary sector of the economy to decline (Barbier 2003). The driving factor behind these exceptional situations is an increased emphasis on the primary resource sector of production; this emphasis neglects other manufacturing sectors, having a negative impact on the country's economic growth (Gylfason 2001). The Dutch-disease economic model assumes the following: "The economy has two sectors: 1) a tradable sector, and 2) a non-tradable sector. Since the economy is assumed to be small in the world market, the economy faces fixed relative international prices for tradable goods" (Corden and Neary 1982, 2).

Another consequence of the Dutch disease is the crowding out of human and social capital. Crowding out is a situation in which resource-led projects direct human and social capital to the resource sector at the expense of other sectors in the economy. The literature provides evidence of human and social capital crowding as one of the economic explanations of a resource curse. Crowding out can result from resource abundance, leading to a diversion of public funds from public-good provisions, such as financial support for education; in this case, public-good provision and education spending are crowded out. For example, natural-resource abundance may reduce public and private incentives to build human capital, as resource-rich nations often undervalue the long-term benefits of education. In SSA countries, where significant amounts of resources are being discovered, many workers are lured to the booming resource sector, neglecting their current work and sector.

Studies by many economists, including Auty (1993), Gylfason (2001), and Barbier (2003), demonstrate the existence of Dutch disease in underdeveloped and

resource-rich countries, including many SSA countries. Similarly, Gelb (1988) focused on six oil-exporting countries: Algeria, Ecuador, Indonesia, Nigeria, Trinidad and Tobago, and Venezuela; his research shows that the non-resource tradable sectors in these countries (agriculture and manufacturing) were neglected during the resource boom period. He also notes that some countries borrowed more money using their natural resource as collateral, and when oil prices fell, they faced unfavorable adjustments.

In consequent decades, international institutions, such as the World Bank, the International Monetary Fund, and the United Nations Development Program, have stressed the importance of avoiding Dutch disease by investing in non-resource sectors to achieve economic growth and development in resource-abundant countries.

Corruption and Rent Seeking

Two major economic challenges associated with the resource curse are rent-seeking and corruption (Auty 2001). Rent-seeking occurs when “individuals or firms compete for economic rents that arise when government restrictions are imposed” (Collier and Hoeffler 2005, 628). Corruption is defined as the abuse of public or private office, position, or power for private gain in contravention of established rules or norms (Kaufmann and Vicente 2011). Corruption diverts resources from productive activities and increases costs of investing, resulting in reduced economic growth; corruption has fueled many resource-led wars and conflicts in SSA countries. In countries where authoritarian governments control power, evidence substantiates that resource revenues are not reported, ultimately existing as a theft from the population. For example, a 2007 study shows that “at least one in every eight barrels of oil currently entering the United

States has been stolen from its country of origin” and sold by local corrupt officials to international extractive industries (Wenar 2008, 1).

Corruption has been established as a major obstacle for resource-rich countries in economic growth and development. Patronage and rent-seeking are ways corruption in resource-rich countries spreads (North 2005). Rent-seeking is defined as “efforts, both legal and illegal, to acquire access to or control over opportunities for earning rents” (Karl 2007, 661). Resource rents coupled with corruption affect valuable decision-making abilities of those in power and result in low quality services with less benefit to the general public. At the same time, resource revenue encourages patronage as government officials finance their supporters to cling to their power. Auty (2001) suggests that the struggle for large resource rents will increase the concentration of economic and political power in few elites. In a potential extreme case, resource revenue can allow governments to favor one extractive company or individual over another in accessing natural resources. This can take the form of low tariffs or simply favoring one producer over others at the expense of public-resource revenue. The stronger the institutions, the less tolerance on resource rents (Ross 1999). Moreover, resource wealth often cripples governments with more revenue than they can effectively manage (Neumayer and Dietz 2005).

Government and Transparency

Even though economic factors have dominated the natural-resource-curse literature, in recent years, scholars identified political factors to be equally important in studying the economic progress of resource-rich countries. Governments play a key role in devising favorable policies for economic development. One of the interesting

components regarding the resource-curse outcome is the variation of governments in different resource-rich countries. When governments depend on mineral revenues instead of taxes, for example, they lack incentives to strengthen institutions required to establish the mechanism to provide efficient public goods and avoid conflict.

Natural resources in SSA countries have fueled political instabilities (Karl 2007). Expanding on Sachs and Warner's (1995) initial study that supported the natural-resource-curse theory, Collier and Hoeffler (2005) found a strong negative correlation between resource abundance and political stability.

Good governance is the foundation of transparency. Countries with good governance have a better chance of practicing transparency and experiencing low corruption. A study by Méon and Sekkat (2005) on the relationship of the quality of institutions and corruption finds that "corruption is most harmful to growth where governance is weak" (5). An Open Society Institute of Southern Africa (2009) study on resource-rich SSA countries such as the Democratic Republic of Congo, Malawi, Tanzania, and Zambia found that mineral-rich countries in Africa are not benefiting enough from mining firms, due to poor governance. This case study further reveals that mining firms in many African countries gain extra advantage from excessive and generous tax concessions due to poor legislation motivated by corruption in the countries they operate. As a result of the already low concession and corruption, the government reports much lower resource revenue than they should have received. This revenue is reduced even more as corrupt politicians skew the reported funds. Additionally, good governance in resource-rich countries is essential to avoid the resource curse (Mehlum et al. 2005).

Moreover, in 2009, international organizations including the World Bank, recognized that enhancing transparency in extractive industries is critical for economic growth and sustainable development in Africa (World Bank and Global Witness 2008).

Furthermore, the African Good Governance Index demonstrates a possible direct relationship between government type and economic development in the region. For instance, the 2012 index, which rates the performance of forty-eight African nations against a number of criteria including security, human rights, economic stability, just laws, free elections, corruption, infrastructure, poverty, and health, shows that the top-ranked countries are the most economically advanced nations in the region. The current study aims to contribute to the literature related to transparency and good governance by looking at efforts to increase transparency, including the adoption of an international transparency initiative, ultimately to overcome the natural-resource curse and achieve economic growth in SSA.

It should be noted that the top-ranked countries vary in their government type, suggesting no single form of government reduces or increases the potential to avoid the natural-resource curse and attain economic development. Government types in Africa range from democratic governments, like in Mauritius to autocratic governments, like in Zimbabwe. One party, multiparty, and military governments dominate resource-rich SSA countries. In SSA, democratic governance and equitable economic development are challenging, making crucial the need to develop a clear understanding of how to translate natural-resource abundance into economic development. The literature on natural resources and democracy is divided, however, with one group suggesting that some

degree of transparency and democracy is sufficient, whereas authors such as Ross (2001) even argue that oil abundance hampers democracy.

One possible way some resource-rich countries are able to overcome the natural-resource curse is by creating a resource revenue fund and distribution; Norway is a good example of such a system. The resource-fund system directly transfers resource revenue to citizens through various mechanisms. Many countries have different forms of fund-transfer programs that distribute resource funds: in Indonesia, distribution is community-based; in the Gulf countries, it is employment-based; in Alaska and Kuwait, resources are directly distributed without conditions. In other countries, distribution is direct, with conditions like pensions, child allowances, and negative income taxes (Gelb and Grasmann 2009). The applicability of this mechanism for African countries is still being investigated. Countries like Chad and Botswana may seem to be a good fit for this mechanism (United Nations 2009), but further analysis is needed to identify what kind of policies should be put in place to ensure successful replication. Botswana, as the least corrupt country in Africa, is identified as the best candidate for the potential establishment of revenue funds in the region. Gelb and Grasmann (2009) argue that resource funds can be useful but do not cure the entire resource curse. Such funds have the potential to inspire transparency and accountability mechanisms, as seen in Alaska where they built constituency, but he argues that they are not a substitute for transparency.

The literature on the political challenges related to the natural-resource curse identifies strong institutions as key attributes for resource-led economic growth. Institutions, as defined by North (1990), are “the basic rules of the road in an economy,

including formal systems, such as constitutions, laws, taxation, insurance, and market regulations, as well as informal norms of behavior, such as habits, customs, and ideologies” (1). Economists stress the importance of existing institutions as determining factors for what is known as take off. Functional and effective guidelines, such as in a judiciary structure, are required to ensure that natural resources are managed with accountability. The literature stresses the importance of civil society and independent bodies to strengthen government institutions in extractive economies. The international political and economic system also plays an important role in the success of these economies. The following sections discuss the role of international actors in natural-resource-rich countries.

International Challenges

International actors involved in extractive industries should share the blame for the low economic growth and development in resource-rich countries. It is not a coincidence that resource-rich countries that enjoy economic growth have a transparent payments mechanism, which leads to effective management of their resource revenues.

Developed Countries and International Extractive Companies

Although resource-rich countries take the primary responsibility of ensuring proper use of their natural resources to benefit their own citizens, developed countries and extractive industries play a key role in making the governments’ efforts a success. For instance, developed countries can help enforce the transparency of extractive industries. They can also advocate closing secret bank accounts housed in developed countries and owned by government officials of resource-rich countries.

Promoting good governance is another role developed countries can play to reduce conflict and war in resource-rich countries. In most SSA countries, revenue from natural resources is used to purchase arms sold by developed countries. Although difficult to implement, even a small effort to eliminate this cycle can effectively increase potential growth and development in these countries. Stiglitz (2005) argues that if developed countries, resource-rich countries, and extractive companies implement any of these changes, there is a chance that natural resources will become a blessing instead of a curse.

China in Sub-Saharan Africa

Avoiding the resource curse has become crucial as the prices of commodities continue to rise. Commodity experts expect this trend to continue in the coming years, fueled by demand for natural resources from emerging economies like China and India, as they continue to sustain their economic growth and development efforts. Resource-rich SSA countries face new pressure to implement a transparent system as they continue to discover new resources in the region without adequate institutions in place. More countries in Africa have joined leading mineral and oil exporters in recent years; however, demand for resources has also increased, and prices continue to rise. In the past few years, Ghana, Uganda, Niger, Mauritania, Tanzania, New Guinea, South Sudan, Mozambique, Liberia, and Kenya have discovered new sources or have completed an extensive exploration in order to start production.

In SSA, a transparent system and institution has become more crucial as China and international extractive industries continue to expand their investment. Lack of transparency has allowed many actors to exploit resources in SSA countries. Emerging

economies, including China, have strengthened ties with SSA countries. As one of the world's largest consumers, China has turned to SSA for natural resources. Given China's need to sustain its economic growth, that country will need more resources in the future (Brautigam 2010). While the continent tends to be wary of foreign international deals due to colonialism, China is gaining traction in Africa by presenting itself as a partner and by providing soft loans. It has increasingly positioned itself to be the primary importer of resources without addressing the issue of transparency (Michel and Beuret 2008). The most visible form of support from China to Africa is infrastructural support. In return, China has secured drilling rights in Angola, Nigeria, Sudan, and Angola. In other SSA countries—Chad, Gabon, Mauritania, Kenya, the Democratic Republic of Congo, Equatorial Guinea, and Ethiopia—China has signed exploration and extraction agreements. Additionally, China has invested in mineral extractive industries in Zambia, Congo, Cameroon, Equatorial Guinea, Gabon, Liberia, and Mozambique. Overall, China's trade with Africa has increased from \$10.6 billion in 2000 to \$75.5 billion in 2008 (Brautigam 2010). China has a longstanding record of not being transparent in its contractual agreements in many of the countries in which they invest. This secrecy is convenient for allowing politicians to misuse resource revenues for personal gain (Brautigam 2011). Secrecy also allows China to benefit disproportionately, as transparency is not its priority, and it may even support corruption.

China's foreign policy is characterized by noninterference in internal affairs, which creates a safe haven for politicians to misuse resource revenues. As long as African governments are corrupted governments, the real impact of China's involvement will not be known. International organizations like the World Bank see China's

increasing involvement in Africa as a positive development, whereas other countries, including the United States, view this development as having the potential for a lasting negative impact on the economic growth of resource-rich SSA countries.

Existing Solutions to the Natural-Resource Curse in Sub-Saharan Africa

International laws and regulations play an important role, especially when good governance is absent. This issue is quite evident in the case of resource-rich African countries because they suffer from corruption and lack of transparency. While some countries in other parts of the world also suffer from such problems, it is more severe in SSA. The assumption is if these countries eliminate corruption and rent-seeking behavior, their economy will grow and ultimately they will experience economic growth and development.

International organizations, governments, and civil society groups share consensus that serious measures should be taken to address the resource curse (Humphreys et al. 2007). At the domestic level, many countries still struggle to overcome corruption. At the international level, little has been done, even though close to 90% of the extractive companies involved in corruption are international, and are based in developed countries. The failure of existing legal institutions to monitor resource revenues for the benefit of the public has angered many Africans and others throughout the world. As a result, various initiatives have emerged to attempt to make these extractive companies and governments more accountable. The most prominent international and regional attempts include the EITI, Publish What You Pay, the Kimberley Process, the Global Sullivan Principles, and the Organization for Economic Co-operation and Development guidelines on Multinational Enterprises. The literature on

transparency related initiatives to overcome the natural-resource curse identifies EITI as the most comprehensive and leading international instrument designed to reinforce transparency. EITI is currently being implemented in forty-six resource-rich countries in the world.

Extractive Industries Transparency Initiative (EITI)

In 2003, the EITI was created to fill the gap in international law and to enforce transparency in extractive industries operating in resource-abundant countries. The initiative requires participating countries to publish all data on revenues from mining and oil operations. EITI is an international voluntary regulatory initiative supported by international organizations including the World Bank, the International Monetary Fund, the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the European Investment Bank. The EITI strives to improve governance through the verification and full publication of company payments and government revenues from oil, gas, and mining. Plans for this initiative include reversing the current misuse of natural-resource revenues (World Bank and Global Witness 2008). However, the effectiveness of the EITI has not yet been tested. Figure 2 shows EITI countries selected for this study.

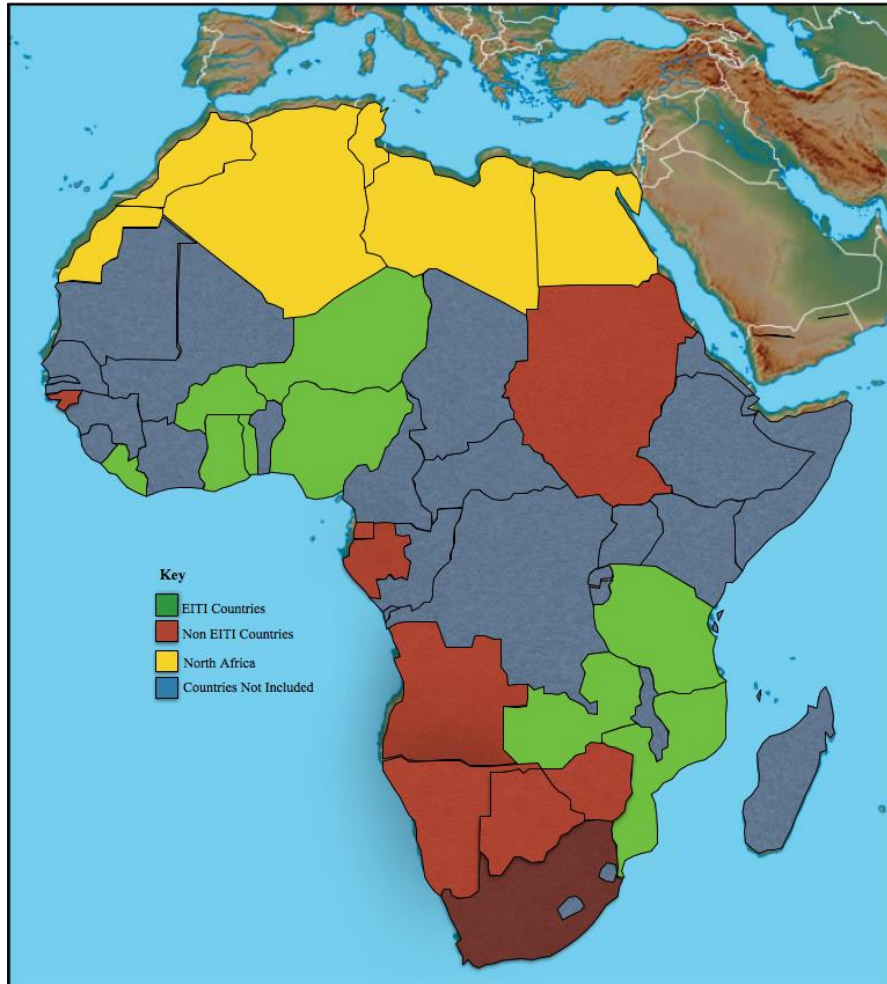


Figure 2. Map of selected EITI and non-EITI Sub-Saharan African countries. Map showing countries of the study. Countries in green color are EITI countries, countries in red are non-EITI countries, countries colored gray are other Sub-Saharan countries that are not part of this study, and those in yellow represent North African countries. Source: www.EITI.org/countries.

The initiative is set to monitor two kinds of transparency channels: the first between producing companies and the government, and the second, a government's accountability to its citizens (EITI 2005). EITI is guided by the following principles:

1. We share a belief that the prudent use of natural resource wealth should be an important engine for sustainable economic growth that contributes to sustainable development and poverty reduction, but if not managed properly, can create negative economic and social impacts.

2. We affirm that management of natural resource wealth for the benefit of a country's citizens is in the domain of sovereign governments to be exercised in the interests of their national development.
3. We recognize that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognize that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
5. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
6. We recognize that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognize the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
8. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
9. We are committed to encouraging high standards of transparency and accountability in public life, government operations and in business,
10. We believe that a broadly consistent and workable approach to the disclosure of payments and revenues is required, which is simple to undertake and to use.
11. We believe that payments' disclosure in a given country should involve all extractive industry companies operating in that country (EITI 2003).

The benefit for countries implementing the initiative is the potential improvement in investor confidence and the development of strong accountability, good governance, and political stability (EITI 2005). Countries initially used EITI to limit resource-curse problems, with the ultimate goal of improving governance and transparency (Kolstad and Wiig 2007). Fourteen countries are EITI compliant: Azerbaijan, Central African Republic, Ghana, Kyrgyz Republic, Liberia, Mauritania, Mali, Mongolia, Peru, Nigeria, Niger, Norway, Timor-Leste, and Yemen. An additional twenty-one have achieved EITI Candidate status: Afghanistan, Albania, Burkina Faso, Cameroon, Chad, Democratic Republic of Congo, Republic of Congo, Côte d'Ivoire, Gabon, Guatemala, Guinea, Indonesia, Iraq, Kazakhstan, Madagascar, Mozambique, Sierra Leone, Tanzania, Togo, Trinidad and Tobago, and Zambia (EITI 2012). As of August 2014, twenty SSA countries have joined this initiative and are in various stage of the EITI compliance process.

Promoting initiatives like EITI costs very little compared to the potential benefits. Revenue audits encourage transparency and prevent government officials from misusing funds. In most SSA countries, citizens do not know how much natural-resource revenue is being generated, or where the money is spent. In most cases, secret bank accounts in foreign countries fuel corruption that undermines development. Additionally, prices of resources fluctuate, but it is impossible to account for resource revenues stolen by government officials. Auditing funds and allowing transparency may avoid this problem, increasing the possibility of channeling money to economic development.

The following chapter will test this claim to understand whether EITI has impacted the economic growth of a resource-rich SSA country.

In summary, several known economic and political attributes of the natural resource curse include the following:

- “Resource-rich countries tend to have strong currencies, which impedes other exports;
- Because resource extraction often entails little job creation, unemployment arises;
- Volatile resource prices cause growth to be unstable, aided by international banks that rush in when commodity prices are high and rush out in the downturns; and
- Political dysfunction exacerbates the problem, as conflict over access to resource rents gives rise to corrupt and undemocratic governments” (Stiglitz 2012, 1).

The political strength and institutional quality of a given resource-rich country influences the quality of resource wealth investment, as undemocratic governments are often corrupt. According to institutional theory, which “considers the processes by which structures, including schemes, rules, norms, and routines, become established as authoritative guidelines for social behavior” (Scott 2001, 48), resource-rich countries must strive to develop norms of transparency and implement policies and laws that ensure benefits are brought to their citizens.

In the last decade, natural resources estimated to be worth around \$ 200 billion were discovered off the West Coast of Africa, increasing advocacy for revenue transparency (Gray and Terry 2003). As a result of these discoveries, many question if the windfalls from these resources will bring prosperity or an economic curse. The

answer to this question lies in the many attempts in the large body of literature in economics and political science to explain the natural-resource curse. In sum, it depends on the success of the various proposed solutions outlined above, including the EITI. To date, twenty SSA countries, shown in Table 2, have signed up to participate in the EITI initiative.

Table 2

Sub-Saharan African EITI Candidate and Compliant Countries by Year

Country	Year	Country	Year
Gabon	2005	Côte d'Ivoire	2010
Cameroon	2007	Dem. Rep. Congo	2010
Madagascar	2008	Rep. Congo	2010
Sierra Leone	2008	<i>Togo</i>	<i>2010</i>
<i>Burkina Faso</i>	<i>2009</i>	Guinea	2011
<i>Mozambique</i>	<i>2009</i>	<i>Liberia</i>	<i>2007, 2009</i>
<i>Tanzania</i>	<i>2009</i>	<i>Ghana</i>	<i>2007, 2010</i>
<i>Zambia</i>	<i>2009</i>	<i>Niger</i>	<i>2007, 2011</i>
Chad	2010	<i>Nigeria</i>	<i>2007, 2011</i>
Côte d'Ivoire	2010	Central African Republic	2009, 2011
Dem. Rep. Congo	2010	<i>Mali</i>	<i>2009, 2011</i>

Source: www.EITI.org; countries in italics are included in this study.

Transparency-related policies are seen as the most promising in overcoming the resource curse, as they allow citizens see the money coming in and going out, and keep all parties involved in the extraction of natural resources accountable. Using institutional theory to explain the importance of strong institutions to achieve economic growth and development, this study will test whether EITI brings the desired outcome in resource-rich SSA countries.

CHAPTER IV

METHODOLOGY

Overview

This study investigates potential options to overcome the resource curse, particularly, the role of transparency in the economic growth of SSA countries. Literature on the relationship between economic growth and natural resources is weak when linked with the impact of government transparency and international transparency enforcements in resource-rich countries. This study examines the relationship between economic growth and transparency in resource-rich SSA countries. For this purpose, it will measure the impact of the international EITI on the economies of selected countries.

Research Design

The study used an ordinary least square (OLS) regression analysis and log-log regression analysis. These analyses provide an answer to the research questions of this study.

The study seeks to answer the following questions:

1. Does transparency affect the economic success of resource-rich SSA countries?
2. Is there a difference between the economic performance of resource-rich SSA countries that participate in EITI and those not participating in EITI?

Barro (1997) focuses on institutional factors that have mainly contributed to and are most detrimental for growth and development since 1960. He first identifies determinants of long-run growth using the estimation of panels of cross-country data. He applied regression to panel data covering about a hundred countries over the period 1965

to 1990 to determine factors that are required for long-term economic growth. His analysis focuses on institutional influences and average rates of economic growth in various countries. Using this method, he forecasts that poorer countries in which the government protects property rates, maintains free markets, and spends little on nonproductive consumption will catch up with richer countries. Specifically, he finds that more schooling, better health, lower fertility rates, less government consumption relative to GDP, greater adherence to uncorrupted Rule of Law, improvements in the terms of trade, and lower inflation are key factors to increase economic growth.

Modifying the general framework developed by Barro (1997) on panel data for 100 countries, this study uses a similar methodology with a focus on twenty SSA resource-rich countries. The study mainly adds transparency variables and a different time-period to Barro's model to address the first research question of the study and proposes it will have a positive impact on the GDP of SSA extractive economies.

Adding transparency variables and an EITI dummy, the growth model appears as follows:

Economic Growth = f(Barro's growth variables + transparency variables + other control variables + EITI dummy).

Variables of the Study

Dependent Variable

Economic growth is the dependent variable in this study. The average annual real GDP per capita growth using GDP per capita purchasing-power parity (PPP) measures economic growth. GDP is the most commonly used measure of the economic output of a country. As an alternative dependent variable, this study will use GDP per capita PPP in logarithmic form (logs). Henceforth, GDP is simply used to refer to GDP per capita PPP.

Independent and Control Variables

To account for likely endogeneity of the explanatory variables, lagged values are used as instruments. Barro (2003) explains that lagged variables may provide satisfactory instruments as the error term in the equation, as the per capita growth rate shows a slight serial correlation. Barro's growth variables—inflation, fertility rate, government consumption, Rule of Law, Terms of Trade, and Political Rights—are combined with transparency-independent variables for this study.

Transparency is defined as “a principle that allows those affected by administrative decisions, business transactions, or charitable work to know not only the basic facts and figures but also the mechanisms and processes” (TI 2013, 1). In this study, transparency refers to open procedures, communication and accountability in governments or extractive industries.

Indicators of transparency, which are defined shortly, are voice and accountability, corruption, quality of budget, and fiscal management. Each of these is used as a variable of transparency in this study. *Voice and accountability* indicates the extent to which citizens can choose their government, political rights, civil liberties, and an independent press, measured by a rank created by World Governance Indicators.

Corruption, defined by TI, is the abuse of entrusted power for private gain and is measured by the CPI published every year by TI for all countries. Supporters of the natural-resource curse stress that the contribution of corruption in the public sector has a significant impact on economic growth (Torvik 2002; Robinson, Torvik, and Verdier 2006). The CPI, although not perfect, is the widely used and more established corruption measurement. Other corruption measurements are World Bank's Worldwide Governance

Indicators, TI's Global Corruption Barometer, and Global Integrity's Global Integrity Index.

Quality of budget and fiscal management refers to a comprehensive and credible budget. This is linked to policy priorities that are effective financial-management systems designed to ensure the budget is implemented as intended in a controlled and predictable way. Moreover, quality budget and fiscal management relates to timely and accurate accounting. This variable also measures fiscal reporting, including timely reporting, audit of public accounts, and effective arrangements for follow up. World Bank's Resource Allocation Index was used to measure the quality of budget and fiscal management in resource-rich SSA countries.

The period 2003–2012 is used for all variables. To determine if there is a relationship between economic growth and EITI, the study adds an EITI dummy variable to the model, with values of zero when no EITI is present and the value of one when a country is participating in EITI. The selection of this period of analysis is intended primarily to compare economic progress before and after the adoption of EITI. A regression includes countries that are EITI compliant (see Table 1) and others that have not implemented the initiative to determine if adopting EITI has a significant effect.

I added control variables for exchange rate, foreign direct investment, external debt, war and conflict, and foreign aid to the model. *Exchange rate* is one of the proven variables identified by most economists as having a direct impact on economic growth. Overvaluation is often cited as a major problem, resulting from poor exchange-rate management. Exchange rates have greater impact on commodity rich countries, as a commodity price boom can result in exchange-rate depreciation. External factors,

including foreign direct investment, foreign aid, and external debt also factor into possible impact on overall economic growth of a given country. *Foreign direct investment* is direct investment in a given country by an outside company or individual and has a greater direct impact on economic growth than domestic investment. The economic literature identifies *foreign aid* as one of the variables that has a statistically significant and negative impact on the economic growth of developing countries. This impact is more pronounced in countries with poor governance and institutions (Qayyum, Din, and Haider 2014). Similarly, *external debt* creates challenges for developing countries, as repayment of external debt requires countries to pay more than the actual debt, creating additional burden on the country's ability to grow. Evidence also exists that debt servicing forces governments to invest less in social sectors (Fosu 2010). I also included dummy variables for *war and conflict* periods as the literature identifies that many wars and conflicts are caused by the presence of natural resources in SSA countries.

Data and Sources

Except for transparency variables and information for dummy variables, data for the majority of the variables are obtained from World Bank's World Development Indicator's database. This database has time-series data collected annually from 1960–2012 for countries under study.

The explanatory variables for transparency follow: voice and accountability comes from the World Government Indicators, while corruption data is retrieved from TI. Corruption data is available starting 1995 for all countries, however for countries included in this study, these data are available starting in 2000. In these data, corruption

is measured in a similar way across all countries; it is useful to compare countries over time. For the other transparency variables, quality of budget and fiscal management, the World Bank's Resource Allocation index was used, available starting 2005 for most countries included in this study. The data for political rights is composed from Freedom House.

As mentioned above, from the World Development Indicators, I collected the following variables: exchange rate, trade balance, foreign direct investment, external debt, and foreign aid. To measure conflict and war, I used the Uppsala Conflict Data program. The data for conflict is available from 1975 to 2012. This variable was collected as a dummy variable; those participating in conflict and war in a given year are coded as one, while those that were peaceful in a given year are coded as zero.

Data used to create an EITI dummy is found in the EITI (2014). Of the forty-six countries currently participating in the EITI initiative (see Table 3), twenty are in SSA. Of the twenty SSA countries, four (Central African Republic, Democratic Republic of the Congo, Madagascar, and Sierra Leone) are suspended from implementing EITI because they failed to meet the requirements and another four are at the EITI candidate stage.

Of the twenty countries in the study, ten are SSA countries that are implementing EITI and another ten SSA countries that do not participate in the EITI scheme (see Table 4). EITI countries included in this study are all at the compliant stage of the EITI process. A candidate country is one "that has publicly committed to implement EITI and has met the first five EITI sign-up requirements"; a compliant country is one "that has fully met all the EITI requirements and has undergone a successful external validation" (Ravat and Sridhar 2012, 11).

Table 3

All EITI Countries at Various Stages of Implementation

Intent to Implement	Candidate	Compliant
Australia	Afghanistan	Albania
Brazil	Cameroon	Azerbaijan
Colombia	Chad	<i>Burkina Faso</i>
France	Democratic Rep. of Congo	Central African Republic
Myanmar	Guatemala	Cote d'Ivoire
Ukraine	Guinea	<i>Ghana</i>
United Kingdom	Honduras	Iraq
United States	Indonesia	Kyrgyz Republic
	Kazakhstan	<i>Liberia</i>
	Madagascar	<i>Mali</i>
	Sao Tome & Principe	Mauritania
	Sierra Leone	Mongolia
	Solomon Islands	<i>Mozambique</i>
	Tajikistan	<i>Niger</i>
	Philippines	<i>Nigeria</i>
	Trinidad and Tobago	Norway
		Peru
		Republic of Congo
		<i>Tanzania</i>
		Timor-Leste
		<i>Togo</i>
		Yemen
		<i>Zambia</i>

Source: www.EITI.org; countries in italics are included in this study.

Table 4

List of Selected Resource-Rich Sub-Saharan Africa Countries (EITI and Non-EITI)

EITI Countries	Non-EITI Countries
Burkina Faso	Angola
Ghana	Botswana
Liberia	Equatorial Guinea
Mali	Gabon
Mozambique	Guinea Bissau
Niger	Namibia
Nigeria	Sao Tome and Principe
Tanzania	South Africa
Togo	Sudan
Zambia	Zimbabwe

Source: Extractive Industries Transparency Initiative (EITI 2014)

Because of the lack of availability of data for all variables and all years, the study only covers the years 2003 to 2012. Only SSA countries are included in this study. The study uses data from twenty SSA countries of the forty-eight countries located south of the Sahara.

Data-Analysis Procedures

In this study, twenty African countries are included with an annual data span from 2003 to 2012. I adopted a Barro-type (1991) growth model to analyze the impact of transparency on economic growth. First, I changed all data of the independent variables to a standardized form because most data variables were not collected in the same unit. Second, I used a correlation test to assess the relationship between each independent variable and to check for high correlation. If there was no multicollinearity, the variables were used in the regression model. If there was multicollinearity, a parsimonious model was identified to develop the plausible model. Third, I conducted regression to show how

the difference in growth of real GDP per capita relates to the independent variables (see Table 5).

Model

$$GDP = \beta_{0t} + \beta_{1t}P + \beta_{2t}FR + \beta_{3t}GC + \beta_{4t}RL + \beta_{5t}TT + \beta_{6t}PR + \beta_{7t}C + \beta_{8t}QB + \beta_{9t}VA + \beta_{10t}EITI + \beta_{11t}WC + \beta_{12t}ER + \beta_{13t}FDI + \beta_{14t}ED + \beta_{15t}FA + \varepsilon_t$$

Table 5

Description of Model and Data Source

Variable	Description	Source
<i>GDP</i>	Gross domestic product measured in per capita income	WDI
<i>P</i>	Inflation	WDI; Index Mundi
<i>FR</i>	Fertility rate	WDI
<i>GC</i>	Government consumption	WDI; Index Mundi; African Development Bank
<i>RL</i>	Rule of law	WDI
<i>TT</i>	Terms of trade	WDI
<i>PR</i>	Political rights	Freedom House
<i>C</i>	Corruption	Transparency International
<i>QB</i>	Quality of budget and fiscal management	World Bank Resource Allocation Index
<i>VA</i>	Voice and accountability	World Government Indicators
<i>EITI</i>	Extractive industries transparency initiative	EITI
<i>WC</i>	War and conflict	Uppsala Conflict Data
<i>ER</i>	Exchange rate	WDI
<i>FDI</i>	Foreign direct investment	WDI
<i>ED</i>	External debt	WDI; Index Mundi
<i>FA</i>	Foreign aid (official development assistance)	WDI

WDI = World Development Indicators; ADBG = African Development Bank Group.

An EITI dummy variable is a binary variable that is coded to either 1 or 0 to gauge if EITI participation causes any change in the dependent variable. A comparison between EITI-sampled countries and untreated countries that have relatively similar characteristics can show the difference between countries implementing EITI and those that do not.

The analysis used an unbalanced panel because of the missing data for some years for the countries included in this study. This study claimed to find that highly corrupt countries grow at a slower pace than more transparent countries. Barro (1996) suggests that 20% corruption is good for economic growth. Most SSA countries used in this study are ranked at the bottom but at varying levels in the CPI 2013.

Limitations

One major limitation of this study is the frequency of available data. Most variables used in the study are available only on an annual basis, which limits observations by country. Another constraint is the year when data starts for most countries. For example, the corruption data for countries included in this study is available starting in 2000. I used some variables as proxies to capture the effect of the variable of interest. Nevertheless, given this limitation, the study is useful in addressing one of the missing links, understanding the role of transparency in resource-rich countries.

As outlined in Chapter II, good institutions lay the foundation necessary for strengthening proven growth variables. The following section, finding and analysis, in addition to answering the research questions, will examine which government and institutional transparency-related variables play a key role in the economic growth of resource-rich SSA countries.

CHAPTER V

FINDINGS AND ANALYSIS

Data Adjustment and Descriptive Statistics

Prior to the onset of all data calculations, I took several steps to ensure the integrity of the data under analysis. These steps included the following:

Missing Data

Four variables in the dataset had missing values. These variables are GC: General government final consumption expenditure measured in constant 2005 \$ (4 missing values, or 2% of the overall dataset); TT: Terms of trade (1 missing value, or 0.5% of the overall dataset); C: Corruption (twelve missing values, or 6% of the overall dataset); QB: Quality of budget and financial management (thirty-two missing values, or 16% of the dataset).

Instead of doing an overall substitution of mean values for missing data on a given variable, each of the twenty countries in the dataset was used as the frame through which to substitute means for missing data on a given variable. In other words, the data were restricted to a given country, and then the mean values for a given variable were substituted for missing data for the variable in question. For example, the variable Terms of Trade had a missing data point for the country of Sudan for the year 2012. To substitute the mean for missing data in this instance, the dataset was first restricted to the ten data points for the country of Sudan, and then the mean of the variable Terms of Trade for the country of Sudan was substituted for the missing value. This method of mean substitution has the benefit of more accurately interpolating the correct mean to substitute on a variable for a given country's missing values.

Variables Adjusted

Two variables in the dataset (Rule of Law and External Debt) had significant negative values associated with their measurement metric. The presence of negative values, as explained in the next paragraph, is problematic for logarithmic transformation; then, similar variables, which had no negative values, are used in place of the two problematic variables.

The variable Rule of Law, which was originally measured on a metric of -2.5 to $+2.5$, was switched with a similar measure obtained from the World Government Indicators website. The similar measure is the Rule of Law: Percentile Rank, which is a variable that indicates a given country's rank among all countries covered by the aggregate indicator, with zero corresponding to lowest rank, and 100 to highest rank. By definition, this variable has no negative values, which remediated the original problem.

The variable External Debt—which I originally measured using net flows of external debt that were both public and publicly guaranteed—was replaced by a similar measure obtained from the Index Mundi database. The similar measure is External Debt: total dollars in billions of dollars, which is a variable that estimates total public and private debt owed to nonresidents, repayable in foreign currency, goods, or services. By definition, this variable can have no negative values, which remediated the original problem.

Variables Formatted

The variables Government Consumption and Foreign Aid were measured in billions of dollars. However, these two variables were captured in exact dollar amounts, and not in a decimal format. To align these two coefficients with the decimal format of

most other currency-based variables in the dataset (i.e., the decimal representing billions of dollars), I divided these variables by 100,000,000. This operation readjusted the decimal of the coefficient variables without fundamentally altering the nature of the variable.

Variables Translated and Transformed

The variables, Inflation and Exchange Rate, had data with negative and zero values, which are problematic to conduct logarithmic transformations. The variable Inflation had ten negative values and five zero values. The variable Exchange Rate had five zero values. Neither negative numbers nor zero values can be logarithmically transformed. Rather than deleting the troublesome data, I decided a constant would be added to each variable (i.e., the variable would be *translated*) and then *transformed* via the natural logarithm function. This procedure is commonly used for economic data with zero or negative values (Wicklin 2013). For the variable Inflation, I added a constant of 4.0 to overcome the lowest negative value of inflation in the variable (-3.5). For the variable Exchange Rate, I added a constant of 1.0 to the data to overcome the lowest value of inflation (0.0 for Zimbabwe). Zero values were listed for inflation in Zimbabwe because in 2009 Zimbabwe suspended its distribution of a national currency.

Variable Eliminated

The variable Foreign Direct Investment was eliminated from analysis. The rationale for this decision was two-fold. First, a significant number of negative values were associated with this variable. The negative values (in one case, -6.8 billion) cannot be transformed into logs. Second, because Foreign Direct Investment is included solely as

a statistical-control variable, its deletion does not significantly impact any theoretical arguments made in the study.

This study sought to answer the following research questions:

1. Does transparency affect the economic success of resource-rich countries in SSA?
2. Is there a difference between the economic performance of resource-rich SSA countries that participate in EITI and those not participating in EITI?

To investigate these research questions, I put forward the following hypotheses:

Hypothesis 1

H₀: There is no relationship between transparency and economic growth in resource-rich SSA countries.

H₁: There is a direct relationship between transparency and economic growth in resource-rich SSA countries.

Hypothesis 2

H₁: There is no difference on economic growth between EITI and non-EITI participants.

H₁: There is a direct relationship between economic growth and EITI participation.

To investigate these hypotheses, I constructed the following regression equation:

$$Y = \beta_0 + \beta_1 P + \beta_2 FR + \beta_3 GC + \beta_4 RL + \beta_5 TT + \beta_6 PR + \beta_7 C + \beta_8 QB + \beta_9 VA + \beta_{10} EITI + \beta_{11} WC + \beta_{12} ER + \beta_{13} ED + \beta_{14} FA + \varepsilon,$$

where

Y = GDP measured in per capita income in current international dollars;

P = Inflation, consumer prices in annual percent;

FR = Fertility rate;

GC = General government final consumption expenditures in constant 2005 US dollars;

RL = Rule of law, percentile rank, where agents have confidence in and abide by the rules of society;

TT = Terms of trade, or the net barter terms of trade index;

PR = Political rights, estimated by electoral processes, political pluralism, and functioning of government;

C = Corruption, which is the perceived level of public-sector corruption;

QB = Quality of budget and financial management, or the extent to which a comprehensive and credible budget links to policy priorities, effective financial-management systems, and timely and accurate accounting;

VA = Voice and accountability, which is the extent a country's citizens are able to participate in selecting their government, as well as enjoy freedom of expression, freedom of association, and a free media;

EITI = A dummy variable indicating EITI participation (1 = yes);

WC = A dummy variable indicating if war and conflict are present in a country (1 = yes).

ER = Official exchange rate in local currency units relative to the U.S. dollar;

FDI = Foreign direct investment in US dollars;

ED = External debt, or the total public and private debt owed to nonresidents, repayable in foreign currency, goods, or services;

FA = Net official development assistance and official aid received in current US dollars;

Because of the possibility of violation of several assumptions of linear regression, I also calculated a second regression equation. The second equation is identical to the first in every respect except one: I transformed all continuous independent variables and the dependent variable via the natural logarithmic function. I did not logarithmically transform the two dummy variables (EITI and WC).

Table 6 provides the means, standard deviations, and minimum and maximum scores for all variables used in the investigation. Errors were checked by analyzing the mean, standard deviation, and minimum and maximum scores for all 200 data points on all variables. Several variables in Table 6 have been scaled to represent billions of dollars. For example, GDP per capita has been scaled to represent PPP in billions of US dollars. The average score of 4,442.60 suggests that among all twenty countries in the sample, the average GDP per capita was \$4,444.26. Government final consumption expenditures are, on average, \$0.053 billion for all twenty countries in the sample. External total debt in US dollars among all twenty countries is \$7.11 billion, and the average of the net official development assistance and official aid received by all twenty countries is \$8.42 billion.

Table 6

Descriptive Statistics for All Variables Used in the Analyses: All Twenty Study Countries

Variable	Mean	Std. Dev	Minimum	Maximum
GDP per capita, PPP (current international \$)	4442.6	6425.67	305.8	29742.48
Inflation, consumer prices (annual %)	18.76	87.41	-3.5	1096.68
Fertility rate, total (births per woman)	5.06	1.27	2.41	7.66
General government final consumption expenditure (constant 2005 US\$)	53.06	122.77	0.16	657.59
Rule of law, percentile rank	30.48	20.12	0.94	71.29
Terms of trade	130.23	47.53	21.28	57.62
Political rights	20.47	10.94	1	37
Corruption	2.93	1.01	1.4	6.1
Quality of budget and financial management	3.28	3.25	1.5	5
Voice and accountability	35.44	20.1	2.35	73.08
EITI participation (1=Yes)	0.5	0.5	0	1
War and conflict (1=Yes)	0.21	0.41	0	1
Official exchange rate (LCU per US\$, period average)	967.08	3152.78	0	19068.42
Net official development assistance and official aid received (current US\$)	7.11	10.88	0.16	71.81
External Debt: Total Dollars US (current US\$), billions of dollars	8.42	11.1	0.11	114.28

Note: N=200

I measured two variables in the dataset on a percentile metric. The average score of 30.48% for Rule of Law suggests that among the twenty countries in the sample, Rule of Law is relatively low and around 20% below the midpoint of the scale. Average annual inflation rate for all twenty countries is 18.76%.

Fertility rate represents “the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates” (World Bank 2014a, 1). The average score of 5.06 means that women in the twenty countries in the sample give birth to approximately five children over the course of their childbearing years.

Terms of trade is measured as the percentage ratio of the export unit value indexes to the import unit value indexes, measured relative to the base year 2000 (World Bank 2014b). Increasing values on this variable suggests more favorable terms for the country

in question. Values for this variable ranged from a low of 21.28 to a high of 257.62. The mean value of 130.23 suggests that, on average, most countries fell into the middle of the distribution for this variable.

As noted previously, the political-rights estimates fairness in electoral processes, political pluralism, and the overall functioning of government. Scores for this variable can range from a low of 1 to a high of 40; higher scores mean greater political rights in a given country. The mean score of 20.47 suggests that, on average, the twenty countries in the sample are in the middle with respect to Political Rights.

I geared the variable that measures corruption to tap transparency, accountability, and corruption in the public sector. A score of zero for a country suggest it has no corruption, and a score of 6 means a high level of corruption. The average score of 2.93 suggests that the twenty countries in the sample experience a moderate level of corruption.

As previously noted, the variable quality of budget and financial management estimates the extent to which a comprehensive and credible budget links to policy priorities, effective financial management systems, and timely and accurate accounting. A six-point scale represents this variable, where higher values indicate higher quality of budget. The average score of 3.28 suggests that the twenty countries in the sample are slightly above the midpoint of the scale.

I designed voice and accountability to measure the extent a country's citizens are able to participate in selecting their government, as well as enjoy freedom of expression, freedom of association, and a free media. This variable was measured on a 100-point scale, with values ranging from a low of zero to a high of 100. Higher scores indicate

greater levels of freedom in a country. The average score of 35.44 for this variable suggests that citizens in the twenty countries in the sample have limited freedoms.

Finally, two variables in the sample were dichotomized as a way to interpret their respective means as a function of the category of interest. The variable EITI participation was coded 1 for “yes” so that its mean could reflect the percentage of countries that are EITI participants. The mean of 0.50 suggests that 50% of the countries in the current sample are EITI participants. The second variable I dichotomized was war and conflict.

It can be seen in Table 6 that 21% of the countries in the sample are experiencing some form of war and conflict. This is unsurprising given the prevalent conflict in many SSA countries. As I substituted missing values with adjacent years or mean values, and adjusted, deleted, formatted, translated, and transformed the data, they were fully screened and cleaned to carry out multivariate analysis.

Table 7 provides the means and standard deviations for all variables used in the investigation for the ten EITI study countries. Government final consumption expenditures are, on average, \$0.293 billion for all ten EITI countries in the sample. External total debt in US dollars among all ten EITI countries is \$5.50 billion, and the average of the net official development assistance and official aid received by all ten countries is \$127.28 billion.

Table 7

Descriptive Statistics for All Variables Used in the Analyses: Ten EITI Study Countries

Variable	Mean	Std. Dev.
GDP per capita, PPP (current international \$)	1119.52	484.30
Inflation, consumer prices (annual %)	7.68	5.84
Fertility rate, total (births per woman)	5.78	.92
Rule of law, percentile rank	32.56	14.15
General government final consumption expenditure (constant prices)	293.34	529.35
Terms of trade	124.54	45.48
Political rights	22.97	7.32
Corruption	2.80	.50
Quality of budget and financial management	3.40	.65
Voice and accountability	38.72	12.95
Official exchange rate (LCU per US\$, period average)	353.19	386.14
Net official development assistance and official aid received (current US\$)	127.28	133.70
External Debt: Total Dollars US (current US\$), billions of dollars	5.50	7.33

Note: N=100

Two variables in the dataset were measured on a percentile metric. For the Rule of Law, the average score of 32.56% suggests that among the ten countries in the sample, Rule of Law is relatively low and around 18% below the midpoint of the scale. The average annual inflation rate for all EITI-participating countries in the study was 7.68%.

Countries participating in EITI have a slightly higher average Quality of budget and financial management than countries that do not participate in EITI. However, the average corruption of 2.8 was lower in EITI-participating countries, compared to 3.05 in non-EITI-participating countries (see Table 8). A score of zero for a country suggests it has no corruption, and a score of 6 means a high level of corruption. The average scores of 2.8 and 3.05 suggests that, on average, a moderate level of corruption exists in both EITI and non-EITI sample countries. Political rights, on average, are less prevalent in non-EITI countries (17.96); while EITI countries record a slightly better figure, 22.97.

Table 8

*Descriptive Statistics for All Variables Used in the Analyses: Ten Non-EITI Study**Countries*

Variable	Mean	Std. Dev.
GDP per capita, PPP (current international \$)	7765.69	7775.10
Inflation, consumer prices (annual %)	29.85	122.78
Fertility rate, total (births per woman)	4.33	1.15
Rule of law, percentile rank	28.39	24.58
General government final consumption expenditure (constant 2005 US\$)	767.90	1623.54
Terms of trade	135.92	49.06
Political rights	17.96	13.21
Corruption	3.05	1.33
Quality of budget and financial management	3.17	1.10
Voice and accountability	32.15	24.95
Official exchange rate (LCU per US\$, period average)	1580.98	4366.92
Net official development assistance and official aid received (current US\$)	41.21	56.07
External Debt: Total Dollars US (current US\$), billions of dollars	8.71	13.38

Note: N=100

Evaluation of OLS Regression Assumptions

Four assumptions emerged for a valid OLS regression: *linearity*, *homoscedasticity*, *independence of errors*, and *normality of errors* (Allison 1999). The first assumption states that all relationships between each of the independent variables and the dependent variable must be linear in nature.

The method through which this assumption is met is to visually examine the Normal P-P Plot, which is also known as the plot of the regression standardized residuals (Allison 1999). If a general linear trend can be seen in this plot, then the assumption of *linearity* is satisfied. As can be seen in Figure 3, a general linear trend exists in the Normal P-P Plot. One can therefore conclude that the first assumption of *linearity* is

satisfied. However, if a general linear trend is not seen in the Normal P-P Plot, then the assumption is violated and corrective action is necessary. The most common corrective action for the violation of this assumption is to logarithmically transform the independent variables and the dependent variable (Anderson 2003).

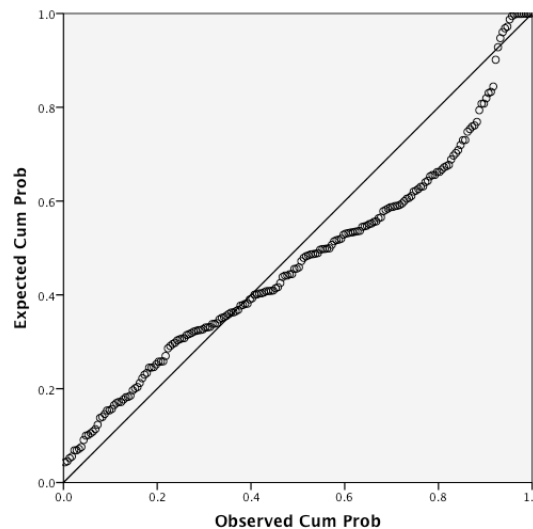


Figure 3. Normal P-P plot for the OLS regression results contained in Table 6. Dependent variable: GDP per capita, PPP (current international \$). The average gross per capita for all countries and all explanatory variables shows a linear trend in the normal P-P plot.

The second assumption of OLS regression pertains to *homoscedasticity* of data. *Homoscedasticity* occurs when the variance of the dependent variable is the same at all values of the independent variable and when there is a constant variance-of-error term (Hair et al. 2005). The Breusch–Pagan Test (Breusch and Pagan 1979), which is a chi-square test of this assumption, is one of the common ways to check for the existence of heteroscedasticity. A statistically significant chi-square value signifies heteroscedastic data. In this analysis, the Breusch–Pagan test was statistically significant ($\chi^2 = 172.40$, $df = 14$, $p < .001$), which suggests that the data are heteroscedastic. Breusch and Pagan (1979) and Allison (1999) recommend that a logarithmic transformation of the

independent variables and the dependent variable be used as a means to adjust for heteroscedastic data. After the data are transformed into log form and the Breusch–Pagan test run, this assumption of *homoscedasticity* is not violated.

The third assumption checks for the *independence of errors* in the data (Allison 1999), also known as serial correlation. To check this assumption, the Durbin–Watson statistic, which is the standard test to detect autocorrelation, is calculated (Anderson, Sweeney and Williams 2002). The Durbin–Watson statistic is specifically designed to detect if the disturbance terms in an OLS regression equation are correlated or unrelated to each other. A Durbin–Watson statistic greater than a value of 3 or less than a value of 1 will indicate that disturbance terms are positively correlated; values closer to 2 suggest no correlation of errors (Allison 1999). In the current study, the Durbin–Watson statistic was 0.39, which suggests correlation among disturbance terms. Thus, a logarithmic transformation of the independent variables and dependent variable was necessary as a corrective (Hair et al. 2005).

The final of the four assumptions concerns the *normality of errors*. This assumption checks to see if the error terms in a regression model are normally distributed. The best check of this assumption is the Shapiro–Wilk test of the standardized residuals (Shapiro and Wilk 1965). A statistically significant Shapiro–Wilk test value suggests that the error terms in an OLS regression equation are not normally distributed (Shapiro and Wilk 1965; Allison 1999). In the current investigation, the Shapiro–Wilk test is highly significant (SW = .64, $df = 200$, $p < .001$), which suggests that the error terms are not normally distributed. The typical corrective action for this

assumption violation is a logarithmic transformation of both the independent and dependent variables in the regression equation (Hair et al. 2005).

Three of the four assumptions of OLS regression were violated (*homoscedasticity, independence of errors, and normality of errors*). To correct for these issues, all of the continuous independent variables and the dependent variable were transformed via a natural logarithmic function. OLS regression results and log-log regression results are presented and discussed below.

Analysis and Findings

The results from the analysis show that the set of independent variables significantly predicts economic growth of resource-rich SSA countries included in this study. The overall regression model was statistically significant ($F = 172.40, p < .001$). The coefficient of determination, or R^2 value, is 0.59, which means that 59% of the variation in the dependent variable is predicted by the independent variables. This R^2 value suggests a reasonable model fit (D. R. Anderson, Sweeney, and Williams 2002).

Although not an assumption of OLS regression per se, it is generally a good idea to check multicollinearity. As Allison (1999) notes, multicollinearity is not a violation of the assumptions of regression; however, multicollinearity does make it difficult to find statistically significant coefficients in a regression model. Multicollinearity can make assessments of the strength of the independent variables and their effect unreliable. This is partly because a higher level of multicollinearity will cause higher standard errors. The high standard error in turn causes confidence intervals for coefficients to become very wide and makes t -statistics very small. Obviously this would affect the overall significance of the study, as coefficients have to be higher for a given variable to become

statistically significant, making it hard to reject the null hypothesis when multicollinearity is present.

Multicollinearity is typically checked by calculating variance inflation factors, or *VIFs*. A *VIF* of 10 or greater typically indicates potential multicollinearity (Anderson et al. 2002). In the OLS regression, all but three *VIFs* are less than 7. The three *VIFs* that were higher were for the variables Rule of Law (*VIF* = 11.46), Political Rights (*VIF* = 11.32), and Voice and Accountability (*VIF* = 20.14). The *VIFs* associated with the variables Rule of Law and Political Rights only just exceeded the suggested threshold of 10. The variable Voice and Accountability had a *VIF* that is twice the recommended tolerance value. Under normal circumstances, variables with high *VIFs* are removed from the equation (D. R. Anderson, Sweeney, and Williams 2002). However, due to the importance of all three variables as key predictors in the OLS equation, all three variables are retained in the OLS regression despite the existing multicollinearity issues.

Multicollinearity increases the standard errors of the coefficients. Increased standard errors, in turn, mean that some independent variables may be found to be not significant, whereas without multicollinearity and with lower standard errors, those same variables might have been found to be significant.

The first set of hypotheses examines the relationship between economic growth and transparency, which is measured in corruption, quality of budget and financial management, and voice and accountability. I designed this hypothesis to address the first research question. To that end, I developed the following hypothesis:

H₀₁: There is no relationship between the economic growth of selected countries in this study and the prevalence of government corruption.

H₁₁: There is a direct relationship between the economic growth of selected countries in this study and the prevalence of government corruption.

H₀₂: There is no relationship between quality of budget and financial management and economic growth in resource-rich SSA countries.

H₁₂: There is a direct relationship between quality of budget and financial management and economic growth in resource-rich SSA countries.

H₀₃: There is no relationship between voice and accountability and economic growth in resource-rich SSA countries.

H₁₃: There is a direct relationship between voice and accountability and economic growth in resource-rich SSA countries.

The second set of hypotheses, below, examines the relationship between economic growth and EITI participation, addressing the second research question of this study.

H₀: There is no difference in economic growth between EITI and non-EITI participants.

H₁: There is a direct relationship between economic growth and EITI participation.

The last hypothesis tries to capture the expectation that countries participating in EITI experience higher economic growth than those that do not participate in EITI.

Table 9 presents the results of the OLS regression of GDP on the independent variables. Decomposition of effects shows that as general government consumption, rule of law, and terms of trade increase, GDP also tends to increase.

Table 9

Unstandardized Coefficients from the OLS regression of Gross Domestic Product per Capita on All Independent Variables for All EITI and All Non-EITI Countries

Variable	Coefficient	SE	p
Inflation, consumer prices (annual %)	-9.221	3.62	*
Fertility rate, total (births per woman)	-225.15	507.4	
General government final consumption expenditure (constant 2005 US\$)	14.92	4.573	***
Rule of law, percentile rank	176.712	50.987	***
Terms of trade	43.169	7.53	***
Political rights	-246.689	93.158	**
Corruption	1542.004	912.32	
Quality of budget and financial management	-1477.95	879.05	
Voice and accountability	-77.604	67.656	
EITI participation (1=Yes)	-4005.05	1039.4	***
WC: War and conflict (1=Yes)	-987.325	965.42	
Official exchange rate (LCU per US\$, period average)	-0.076	0.124	
External debt: Total dollars US (current US\$, billions of dollars)	-182.96	56.063	***
Net official development assistance and official aid received (current US\$, billions of dollars)	-17.311	35.325	
N		200	
F		18.911	***
R ²		0.589	
Breusch-Pagan Test			
C^2		172.4	***
df		14	
Durbin-Watson statistic			
DW		0.39	
Shapiro-Wild statistic			
SW		0.64	***
df		200	

NOTE: * < p .05; ** < p .01; *** < p .001, two-tailed tests.

When examining the first set of hypotheses to assess the relationship between economic growth and transparency, I found that all transparency variables were not statistically related to GDP. These transparency variables that are not significant, as seen in Table 9, are Quality of Budget and Financial Management, Corruption, and Voice and

Accountability. For corruption, I failed to reject the null hypothesis, which indicates that economic growth is not affected by the prevalence of corruption. Voice and accountability was also not significant. Therefore, I failed to reject the null hypothesis that there is no relationship between voice and accountability and GDP in resource-rich SSA countries. Similarly, I failed to reject the null hypothesis for the quality of budget and financial management variable, as the results showed no direct relationship between this variable and GDP.

Finally, EITI participation appears to be negatively related to GDP. The EITI hypothesis stated there would be no relationship between economic growth and EITI participation. As can be seen in Table 8, the exact opposite is the case: EITI participation results in lower GDP. However, it is possible that these statistical results are an artifact of the violations of three of the four assumptions of regression noted earlier. To see if the effects remain the same once the violated assumptions are remediated, I calculated a log-log regression. The results of the log-log regression are discussed below.

Table 10 presents the results of the log-log regression of the dependent variable on the various independent predictor variables. As can be seen in Table 10, three of the variables that were previously statistically insignificant (fertility rate, official exchange rate, and net official development assistance) are now statistically significant. Two of the variables that were statistically significant in Table 9 (inflation and EITI participation) are now statistically insignificant. The EITI result was evident for countries like Mali, as shown in Figure 4, where a sharp decline in GDP per capita was observed just after joining EITI; however, Mali has been ravaged by conflict in the past few years that would

make assessing the country's economic performance and its participation in EITI difficult.

Table 10

Unstandardized Coefficients from the Natural log of Gross Domestic Product Per Capita on the Natural Log of All Independent Variables for All EITI and All Non-EITI Countries

Variable	Coefficient	SE	p
Inflation, consumer prices (annual %)	-0.054	0.04	
Fertility rate, total (births per woman)	-1.328	0.271	***
General government final consumption expenditure (constant 2005 US\$)	0.38	0.035	***
Rule of law, percentile rank	0.5	0.068	***
Terms of trade	0.595	0.087	***
Political rights	-0.261	0.118	*
Corruption	-0.121	0.282	
Quality of budget and financial management	-0.345	0.276	
Voice and accountability	-0.196	0.164	
EITI participation (1=Yes)	-0.237	0.134	
WC: War and conflict (1=Yes)	0.042	0.092	
Official exchange rate (LCU per US\$, period average)	0.066	0.019	***
External debt: Total dollars US (current US\$, billions of dollars)	-0.168	0.047	***
Net official development assistance and official aid received (current US\$, billions of dollars)	-0.377	0.046	***

Note: * < p .05; ** < p .01; *** < p .001, two-tailed tests.

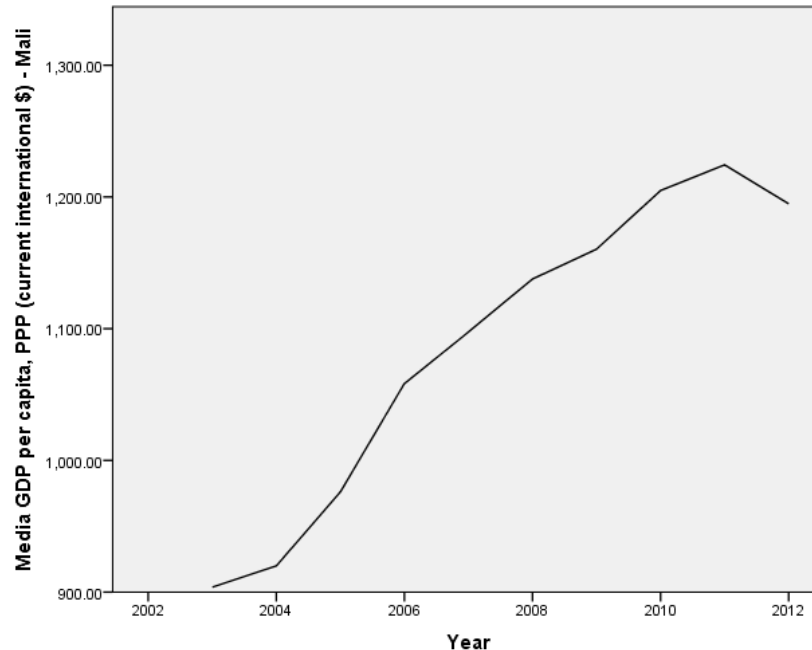


Figure 4. Mali growth overview from 2003–2012. Mali’s growth measured by GDP per capita over a ten-year period. Mali joined EITI in 2009 and became an EITI complaint country in 2011.

Among the control variables, political rights is negatively related to GDP. In other words, as political rights increase, GDP tends to decrease among the twenty countries in the study. External debt was also negatively related to GDP, such that when external debt rises, GDP decreases. The remaining control variables, war and conflict, official exchange rate, and net official development assistance and official aid are not significant.

One of the benefits of log-log transformed variables is that they help compensate for the violation of the assumptions of OLS regression. A secondary benefit is that in a regression environment, natural logarithm transformed variables allow coefficients to be interpreted in terms of their elasticities. That is to say, logarithmically transformed variables enable a person to see how a 1% change in a predictor variable will lead to a specified percentage change in an outcome variable (Anderson 2003). The exact amount of change is represented by the coefficient for the predictor variable (Hair et al. 2005).

The result can be explained in terms of elasticities, where the log-transformed model shows a percent change in one of these independent variables, a commensurate one percent change will exist in a country's GDP. Decomposition of effects in Table 10 shows that a one-unit change in fertility rate will lead to a 1.33% decrease in GDP per capita. Along these same lines, a one-unit change in political rights leads to a 0.26% decrease in GDP per capita. Lower amounts of external debt and lower amounts of net official development assistance will also lead to a 0.17% and 0.38% reduction in GDP per capita, respectively.

General government financial consumption, rule of law, and terms of trade are all positively related to GDP per capita, shown in Table 10. The result for these variables reflect that a one-unit increase in general government consumption will lead to a 0.38% increase in GDP per capita, that rule of law increases GDP by 0.50%, and that terms of trade increases GDP by 0.60%. Likewise, a one-unit increase in the official exchange rate will increase GDP per capita by 0.07%. As noted in Chapter IV, the variables rule of law, terms of trade, and exchange rate are all significant variables in Barro's study, showing a direct impact on GDP per capita. Therefore, I expected a similar finding for these variables' coefficients in this study.

As was the case in the original result, the results of the log-log regression show no support for the first research question of this study, set forth to investigate the relationship between transparency and economic growth in resource-rich SSA countries. Transparency in this study was modeled on the variables voice and accountability, corruption, quality of budget, and fiscal management. Similar to the result shown in

Table 7, none of these transparency variables were statistically related to GDP per capita in the log-log regression models.

However, the log-log regression did change the result for Hypothesis 2, which stated there would be a positive relationship between economic growth and EITI participation. As can be seen in Table 8, EITI participation is statistically unrelated to GDP.

CHAPTER VI

CONCLUSION

Discussion

The twofold goals of the study were to analyze transparency, which is one of the common prescriptions to overcome the natural resource curse, and to study if an international voluntary initiative impacts the economic growth of resource-rich SSA countries. Although transparency is an important trait of a good institution, it is not the sole factor that transforms the economies of resource-rich countries and ignites economic development. In this study I found that transparency has no statistically discernable impact on the economic growth of the twenty resource-abundant SSA countries under study. A second research question was concerned with the potential benefit of participating in international initiatives, particularly the EITI, to increase economic growth. In other words, the study was intended partly to discern whether countries participating in EITI can reverse the resource curse. The findings from this analysis indicated that EITI does not result in increasing economic growth in resource-rich countries. This finding was not expected, given that the literature supports that higher economic growth is often associated with less corruption and transparency of governments and companies. In fact, researchers consistently show that government and companies with involvement from the general public and increased participation in civil society record a higher growth. Yet, the result of this study does not confirm this outcome.

In the parameters of the specific period under study, 2003 to 2012, government corruption shows no significant relationship with economic growth. Again, this finding

differs from the commonly held belief that low corruption leads to economic growth. The outcome on corruption is in line with Barro's (2003) study on the determinants of economic growth.

The claim of the importance of transparency on economic growth is unsupported in economic literature. Such claims are more prevalent in noneconomic studies and none, to the best of my knowledge, have been able to substantiate the claim empirically. Although transparency could have merits, including potential increases in foreign direct investment through improved economic atmosphere, the simple claim that transparency is a cure to reverse the natural-resource curse in resource-rich countries is unsupported by the results of this study.

As expected, explanatory variables fertility rate, official exchange rate, and official development assistance are all significant, though the direction of the impact is somewhat surprising for official development assistance, given the negative relationships found with economic growth. This result supports those who argue that foreign aid might do harm rather than good. However, general government financial consumption, rule of law, and terms of trade are all positively related to economic growth. A one-unit increase in general government consumption will lead to a 0.38% increase in GDP per capita, rule of law increases GDP by 0.50%, and terms of trade increases GDP by 0.60%. The result of the analysis on the rule of law and trade that increases GDP by a relatively higher percentage is supported by the literature. Similarly, this result was also expected, as a well-established rule of law is one of the bases for good institutions, and stable countries with good institutions have been proven to experience higher economic growth.

In this research, I considered institutional theory to understand the relationship between changes in governmental behavior, particularly adopting transparency-related policies and initiatives and their influence on economic outcomes. The governmental traits required to institutionalize transparency in selected countries of this study do not seem to bring the expected change that would impact economic growth and development.

If any of the EITI countries included in this study, for example, would like to overcome the natural-resource curse by creating a resource-revenue fund and distribution program, it would be difficult to institutionalize the mechanism because of a lack of required transparency traits. EITI's principle seven insists that participating countries experience an enhanced environment for domestic and foreign direct investment, in turn creating an indirect positive effect on their economies. As shown in the analysis result, this study does not support the improvement of economies in EITI-participating countries. Enhancing the institutional capacity and building the foundations of good institutions is a very difficult and complex task. Transparency is one of the important and newest traits of good institutions. Similar to any of the other characteristics of good institutions that involve existing practices, it will take a long period before transparency becomes ingrained and possibly exerts the presumed effect.

More natural resources continue to be discovered in SSA countries, building pressure to advocate for the best mechanism to benefit from resource revenues. In recent years, Ghana, Uganda, Niger, Mauritania, Tanzania, New Guinea, South Sudan, Mozambique, Liberia, and Kenya have discovered new resources or have completed an extensive exploration for minerals in order to start or boost production. In parallel, China's large investment in resource-rich African countries has created greater pressure

for these countries to establish a mechanism that benefits the public and improves their economy. China is gaining traction in Africa by presenting itself as a partner and by providing soft loans. It has increasingly positioned itself to be the primary importer of resources without tackling the issue of transparency (Michel and Beuret 2008). This study supports those who believe that the increasing Chinese presence in both EITI and non-EITI countries continues regardless of a prevalent transparency. This is mainly due to China's foreign policy based on noninterference in local politics and with no interest in making transparency a priority. This is demonstrated in the significant increase of China's trade with African countries (Brautigam 2010).

Limitations

Limitation of data for most variables forced me to narrow the number of countries included in this study. Selection of countries was limited due to the availability of data for EITI and non-EITI-participating countries. Additionally, I eliminated a control variable, Foreign Direct Investment, from analysis because there are a significant number of negative values associated with this variable, since negative values cannot be transformed into logs.

A variable used to measure corruption is dependent on the existing measurement mechanism. Perception can be biased. The only internationally accepted corruption measurement, the CPI, draws from thirteen data sources that gather information on the perception of businesspeople and country experts. This reliance on the opinions of a small group renders econometric modeling ineffective. The prediction power of the model would increase if non-normative indexes were developed. Critics (De Maria 2008; Miller 2006; Philip 2006) of this measurement suggest that the developer of this index,

TI, should discontinue producing this annual index due to its reliance on perception and thus its nonscientific nature. However, the CPI continues to be the only comprehensive measure widely cited with annual corruption measurement data and TI argues that perceptions used to develop the index are one of the most reliable ways to measure corruption.

Multicollinearity among one of the key variables, voice and accountability, used to measure transparency, had the potential to skew the overall significance of the results, as this variable was retained in the model even though it has a *VIF* that is twice the recommended tolerance value. However, an analysis run with a model not including the voice and accountability variable did not change the overall significance of the results, and the direction of the relationships of all explanatory variables stayed the same. Multicollinearity increases the standard errors of the coefficients. Increased standard errors, in turn, make independent variables less significant, whereas without multicollinearity and with lower standard errors, those same variables might have been found to be significant.

Another potential limitation of the study is that countries in this study joined EITI in different years, which also affects the EITI status they currently hold. Thus, each country has a unique experience. An additional reason for this unique experience is the lack of trace in government use of funds. Nevertheless, misuse of funds does not only happen in transactions between the extractive companies and the public sector. Governments of these countries often misuse revenues from natural resources through investments that do not benefit the general public or economic growth. Similarly, EITI corruption can be evident during budget allocation to various public agencies. In all these

cases, projects favor a specific group of people, regardless of whether the country is participating in EITI. As more and more countries join EITI, it might be helpful to expand this study for a longer period, to replicate the result.

Conclusions

International initiatives have been strongly advocated as strategies to help in managing natural resources. These initiatives often bring various stakeholders, including the private sector, government, and civil society to address a common problem such as the natural-resource curse. However, as seen in this study, the EITI did not show any relationship with GDP per capita. EITI did not improve the economic situations of countries in this study. One reason for this might be the voluntary nature of EITI, which makes it harder to enforce and gauge its effectiveness. Therefore, it is difficult to differentiate resource-rich countries implementing EITI and non-implementing countries by the strength of their economy.

The result related to the comparison between EITI-participating and nonparticipating countries highlights the lack of evidence that an external influence can impose a strong mechanism that will change the role of government and civil society for economic growth. However, this analysis of other potential solutions to the natural-resource curse is beyond the scope of this study. EITI, although it is useful in directing attention to transparency, falls short of significantly impacting economies and reversing the natural-resource curse. One potential explanation for this might be lack of strong local support and proper enforcement of the initiative. Caution should be taken for EITI not to become another mechanism to promote corruption under the guise of promoting transparency. This result opens the door for testing whether, in contrast, homegrown

solutions, when supported by the international community, could be a better option than a pure international initiative. Although having a better institutional quality is proven to be vital, any international initiative should be dependent on the local political culture. The lack of EITI impact substantiates the difficulty of understanding how institutions work, what specific reforms are needed, and which procedures should be followed to achieve them.

Similarly, empirical results showed no support for the role of transparency to improve per capita GDP, thereby surmising that transparency does not positively influence economic growth in a country. Further, none of the transparency variables positively related to per capita GDP. This result is in line with Stiglitz's (2012) view on transparency, which highlights that transparency has become a very powerful political discussion; yet more critical work could further substantiate the results of this study.

Implications for Further Research

This research identified a gap for future investigators on the topic, which is the identification of the most influential institutional quality for resource-rich SSA countries, considering their existing social structures. Even if the transparency variables used in this study did not prove to impact economic growth, future studies should consider evaluating other institutional qualities that may shed light on the most important institutional traits required to achieve economic growth in resource-rich countries. Moreover, as it is not clear if EITI-implementation status has a direct impact on economic performance, it will be interesting to determine if EITI-implementation stages have any relationship to economic performance. Additionally, assessing the impact of EITI status (announcing

interest, achieving candidacy, or achieving compliance) on non-extractive economic growth can be an interesting study.

One other potential useful area for future research is the study of the relationship between EITI participation and poverty reduction. As many resource-rich countries in SSA are low-income countries with significant percentages of their populations living below the poverty line, it will be worthwhile to assess EITI's relationship to reducing poverty. Future studies should also consider including all EITI countries in all regions to potentially expand the results from this study. A time-series analysis of all EITI-participating countries for a longer period will also make the results more conclusive.

REFERENCES

- Acemoglu, Daron, Simon Johnson, and James Alan Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *Quarterly Journal of Economics* 107 (4): 1231–94.
- Allison, Paul D. 1999. *Multiple Regression: A Primer*. Newbury Park, CA: Pine Forge Press.
- Anderson, David Ray, Dennis J. Sweeney, and Thomas Arthur Williams. 2002. *Statistics for Business and Economics*. New Delhi, India: Thomson Learning.
- Anderson, Theodore Wilbur. 2003. *An Introduction to Multivariate Statistical Analysis*. Hoboken, NJ: Wiley-Interscience.
- Auty, Richard. 1993. *Sustaining Development in Mineral Economies: The Resource Curse Thesis*. London: Routledge.
- Auty, Richard M., ed. 2001. *Resource Abundance and Economic Development*. Oxford: Oxford University Press.
- Barbier, Edward B. 2003. "The Role of Natural Resources in Economic Development" *Australian Economic Papers* 42.2 (2003): 253-272.
- Barbier, Edward B. 2005. *Natural Resources and Economic Development*. Cambridge: Cambridge University Press.
- Barro, Robert J. 1991. "Economic Growth in a Cross Section of Countries." *Quarterly Journal of Economics* 106 (2): 407–43.
- . 1997. *Determinants of Economic Growth: A Cross-Country Empirical Study*. Cambridge, MA: National Bureau of Economic Research.

- . 2003. "Determinants of Economic Growth in a Panel of Countries," *Annals of Economics and Finance*, Society for AEF, vol. 4(2):231-274.
- Birdsall, Nancy, Thomas Pinckney, and Richard Sabot. 2000. "Natural Resources, Human Capital, and Growth," working paper, Carnegie Endowment for International Peace: Washington, DC.
- Brautigam, Deborah. 2010. "The Dragon's Gift: The Real Story of China in Africa." Oxford UK: Oxford University Press.
- . 2011. Aid 'With Chinese Characteristics': Chinese Foreign Aid and Development Finance Meet the OECD-DAC Regime, *Journal of International Development* 23, 5: 752-764.
- Breusch, T. S., and A. R. Pagan. 1979. "Simple Test for Heteroscedasticity and Random Coefficient Variation." *Econometrica* 47 (5): 1287-94.
- Collier, Paul. 2006. "Is Aid Oil? An Analysis of Whether Africa Can Absorb More Aid." *World Development* 34 (9): 1482-97.
- . 2007. *The Bottom Billion. Why the Poorest Countries are Failing and What Can Be Done About It*. Oxford: Oxford University Press.
- Collier, Paul, and Anke Hoeffler. 2005. "Resource Rents, Governance and Conflict." *Journal of Conflict Resolution* 49: 625-33.
- Corden, Max W., and Peter J. Neary. 1982. "Booming Sector and De-Industrialization in a Small Open Economy." *The Economic Journal* 92 (368): 825-48.
- De Maria, William. 2008. "Measurements and Markets: Deconstructing the Corruption Perception Index." *International Journal of Public Sector Management* 21 (7): 777-97.

- The Economist. "The Dutch Disease." 1977. (November): 82–83.
- Extractive Industries Transparency Initiative. 2003. *The EITI Principles*. London: EITI Secretariat. Accessed October 13, 2014. <https://eiti.org/eiti/principles>.
- . 2005. *Extractive Industries Transparency Initiative Source Book*. London: EITI Secretariat.
- . 2012. "EITI Countries." Accessed August 16, 2014. <http://eiti.org/countries>.
- . 2013. "Home Page." Accessed November 25, 2013. <http://www.eiti.org>.
- . 2014. "EITI Countries." Accessed September 2, 2014. <https://eiti.org/countries>.
- Fosu, Augustin Kwasi. 2010. "The External Debt-Servicing Constraint and Public-Expenditure: Composition in Sub-Saharan Africa." *African Development Review* 22 (3): 378–93.
- General Assembly Resolution. 1962. "General Assembly resolution 1803 (XVII) of 14 December 1962 Permanent sovereignty over natural resources." New York: United Nations.
- Gelb, Alan H. 1988. *Oil Windfalls: Blessing or Curse?* New York: Oxford University Press.
- Gelb, Alan, and Sina Grasmann. 2008. "Confronting the Oil Curse." Paper presented to AFD/EUDN Conference, Paris, November.
- Gray, Ian, and Karl Lynn Terry. 2003. *Bottom of the Barrel: Africa's Oil Boom and the Poor*. Baltimore: Catholic Relief Services.
- Gylfason. 2001. "Natural Resources, Education and Economic Development". *European Economic Review*. 45, (4–6): 847–859.

- Hair, Joseph H., William C. Black, Barry J. Babin, Rolph E. Anderson, and Tatham L. Roland. 2005. *Multivariate Data Analysis*. Punta Gorda, FL: Crashing Rocks Books.
- Hall, Stuart. 1992. The West and the Rest: Discourse and Power. In: Hall, Stuart and Bram Gieben (Ed.) *Formations of Modernity*. Cambridge: Polity Press, in association with the Open University, 275-231.
- Humphreys, Macartan, Jeffrey D. Sachs, and Joseph E Stiglitz, eds. 2007. *Escaping the Resource Curse*. New York: Columbia University Press.
- Jones, Sam. 2008. "Sub-Saharan African and the Natural Resource Curse". Working Paper no 2008/14, Danish Institute for International Studies, Copenhagen, Denmark.
- Kabemba, Claude, Mutasah Tawanda, Alice Kwaramba, and Stuart Marr. 2008. "The Search for Responses for Resource Curse." *Resource Insight* 6: 3–20.
- Karl, Terry L. 2007. "Oil-Led Development: Social, Political, and Economic Consequences." Working paper no. 80. Center on Democracy, Development, and the Rule of Law. Stanford, CA.
- Kaufmann, Daniel. And Pedro Vicente. 2011. "Legal Corruption". *Economics and Politics*. 23: 195–219.
- Kolstad, I., and A. Wiig. 2007. "Transparency in Oil Rich Economies." U4 issue 2:2007, Bergen: Chr. Michelsen Institute.

- Korhonen, Iikka, and Tuuli Juurikkala. 2007. "Equilibrium Exchange Rates in Oil-Dependent Countries." BOFIT Discussion Paper No. 8/2007, Bank of Finland, Institute for Economies in Transition, Helsinki, Finland, April. Lewis, William. 1955. *The Theory of Economic Growth*. Homewood, Ill., R. D: Irwin.
- John McMillan. 2005. "The Main Institution in the Country Is Corruption: Creating Transparency in Angola", Working Paper no 36. Center on Democracy, Development, and the Rule of Law. Stanford, CA.
- Méon, Pierre-Guillaume, and Khalid Sekkat, 2005. "Does Corruption Grease or Sand the Wheels of Growth?" *Public Choice* 122 (1): 69–97.
- Mehlum, Halvor, Karl Moene, and Ragnar Torvik. 2005. "Cursed by Resources or Institutions?" Working Paper Series, Department of Economics, Norwegian University of Science and Technology, Trondheim, Norway.
- Michel, Serge, and Michel Beuret. 2008. *China Safari: On the Trail of China's Expansion in Africa*. New York: Nation Books.
- Miller, William L. 2006. "Perceptions, Experience and Lies: What Measures Corruption and What Do Corruption Measures Measure?" In *Measuring Corruption*, edited by Charles Sampford, Arthur Shacklock, Carmel Connors, and Fredrik Galtung, 163–85. Burlington, VT: Ashgate.
- Mutharika, Bingu W. 2010. African Union Chairperson Acceptance Speech, Addis Ababa, Ethiopia, January 31.

- Neumayer, Eric, and Simon Dietz. 2005. "What Is the Appropriate Role for Economics in Sustainable Governance?" Paper presented at the Governance of Sustainability, An International Research Conference, University of East Anglia, Norwich, UK, June 23–24.
- North, Douglas Cecil. 1990. *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press.
- . 1994. 'Economic Performance Through Time', *American Economic Review*, 84, 359-68.
- . 2005. *Understanding the Process of Economic Change*. Princeton, NJ: Princeton University Press.
- Open Society Institute of Southern Africa. 2009. *Breaking the Curse: How Transparent Taxation and Fair Taxes Can Turn Africa's Mineral Wealth into Development*. Johannesburg, South Africa: DS Print Media.
- Philip, Mark. 2006. "Corruption Definition and Measurement." In *Measuring Corruption*, edited by Charles Sampford, Arthur Shacklock, Carmel Connors, and Fredrik Galtung, 45–56. Burlington, VT: Ashgate.
- Poelhekke, Steven, and Frederick van der Ploeg. 2010. "Do Natural Resources Attract FDI? Evidence from Non-Stationary Sector-Level Data." CEPR Discussion Paper no. 8079, Centre for Economic Policy Research, London, UK.
- Pritchett, Lant (2000). "Understanding Patterns of Economic Growth: Searching for Hills among Plateaus, Mountains, and Plains." *The World Bank Economic Review*, Vol. 14, No. 2 (May): 221-50.

- Qayyum, Unbreen, Musleh-ud Din, and Adnan Haider. 2014. "Foreign Aid, External Debt and Governance." *Economic Modelling* 37 (February): 41–52.
- Richter, Rudolf. 2005. "The New Institutional Economics: Its Start, Its Meaning, Its Prospects." Paper presented at the Ninth Annual Conference of the International Society for the New Institutional Economics, Barcelona, Spain, September 22–24.
- Robinson, James A., Ragnar Torvik, and Thierry Verdier. 2006. "Political Foundations of the Resource Curse." *Journal of Development Economics* 79: 447–68.
- Rosenstein-Rodan, Paul. 1961. "Notes on the Theory of the Big Push", in H.S. Ellis and H.C. Wallich, editors, *Economic Development in Latin America*. New York: Macmillan.
- Rodrik, Dani. 1999. "Where Did All the Growth Go? External Shocks, Social Conflicts, and Growth Collapses." *Journal of Economic Growth* 4 (4): 385–412.
- Ravat Anwar and Kannan Sridar P. 2012. "Implementing EITI for Impact A Handbook for Policy Makers and Stakeholders". Washington, DC. World Bank.
- Ross, Michael L. 1999. "The Political Economy of the Resource Curse." *World Politics* 51 (2): 297–322.
- . 2001. "Extractive Sectors and the Poor: An Oxfam America Report." Oxfam America, Boston, MA. Accessed October 12, 2014. <http://www.oxfamamerica.org/explore/research-publications/extractive-sectors-and-the-poor/>.

- Sachs, Jeffrey D., and Andrew M. Warner. 1995. "Natural Resource Abundance and Economic Growth." Development Discussion Paper no. 517a, Harvard Institute for International Development, Cambridge, MA.
- . 2001. "Natural Resources and Economic Development: The Curse of Natural Resources." *European Economic Review* 45: 827–38.
- Sala-i-Martin, Xavier, and Arvind Subramanian. 2003. "Addressing the Natural Resource Curse: An Illustration from Nigeria." NBER Working Paper no. 9804, The National Bureau of Economic Research, Cambridge, MA.
- Scott, W. Richard. 1995. *Institutions and Organizations*. Thousand Oaks, CA: Sage.
- . 2001. *Institutions and Organizations*. Thousand Oaks, CA: Sage.
- . 2004. "Institutional theory." In *Encyclopedia of Social Theory*, edited by George Ritzer, 408–14. Thousand Oaks, CA: Sage.
- Shapiro, S. S., and M. B. Wilk. 1965. "An Analysis of Variance Test for Normality (Complete Samples)." *Biometrika* 52 (3–4): 591–611.
- Siegle, Joseph. 2008. "Governance Strategies to Remedy the Natural Resource Curse." *International Social Science Journal* 57: 45–55.
- Stiglitz, Joseph. 2005. "Making Natural Resources into a Blessing rather than a Curse," in *Covering Oil A reporter's Guide to Energy and Development*, Revenue Watch, Open Society
- . 2012. "From Resource Curse to Blessing". Accessed July 25, 2014.
<http://www.project-syndicate.org/commentary/from-resource-curse-to-blessing-by-joseph-e--stiglitz>.

- Torvik, Ragnar. 2002. "Natural Resources, Rent Seeking and Welfare." *The Journal of Development Economics* 67: 455–70.
- Transparency International. 2013. "Corruption Perceptions Index 2013." Accessed August 30, 2014. <http://www.transparency.org/>.
- . 2014. "Table." Accessed August 20, 2014. http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2014_table.
- United Nations. 2009. "United Nations website." Accessed December 1, 2009. <http://www.un.org>.
- Wenar, Leif. 2008. "Property Rights and the Resource Curse." *Philosophy and Public Affairs* 36 (1): 2–32.
- Werner, Lief. 2009. "Clean Trade." Accessed September 22, 2014. http://fsi.stanford.edu/sites/default/files/evnts/media//CT_Academic_9-09.pdf.
- Wicklin, Rick. 2013. *Simulating Data with SAS*. Cary, NC: SAS Institute.
- World Bank. 2009. "World Development Indicators." Accessed November 29, 2009. <http://www.worldbank.org/data/>.
- . 2013. "Net barter terms of trade index." Accessed August 14, 2014. <http://data.worldbank.org/indicator/TT.PRI.MRCH.XD.WD>.
- . 2014a. "Fertility Rate, Total (Births per Woman)." Accessed August 14, 2014. <http://data.worldbank.org/indicator/SP.DYN.TFRT.IN>.
- . 2014b. "Resource Allocation Index." Accessed August 14, 2014. <http://data.worldbank.org/indicator/IQ.CPA.IRAI.XQ>.

World Bank and Global Witness. 2008. *Assessment of International Monetary Fund and World Bank Group Extractive Industries Transparency Implementation*. Report, Washington, DC: World Bank Information Center.

World Commission on Environment and Development. 1987. *Our Common Future*. New York: Oxford University Press.