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Degree of Master's of International Studies
(International Area Studies)

**NATURAL RESOURCE RELIANCE AND
ECONOMIC GROWTH IN GHANA,
THE EFFECT OF PETROLEUM PRODUCTION**

August 2020

Graduate School of International Studies
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**NATURAL RESOURCE RELIANCE AND
ECONOMIC GROWTH IN GHANA,
THE EFFECT OF PETROLEUM PRODUCTION**

A thesis presented

By

MANUELI AKILAGPA SAWYERR

A dissertation submitted in partial fulfillment
of the requirements for the degree of
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**Natural Resource Reliance and Economic
Growth in Ghana,
The Effect of Petroleum Production**

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ABSTRACT

Natural Resource Reliance and Economic Growth in Ghana,

The effect of petroleum production

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Intuitively, one would expect that countries that have abundant natural resources would be wealthy; however, several researchers have found compelling evidence of an adverse effect of abundant natural resources on economic growth. (Sachs & Warner 1995) often called the “resource curse”. Gylfason and Zoega, (2001), identified five channels that impede natural resources from impacting on economic growth: price volatility, Dutch disease, lack of quality institutions, rent seeking, and unproductive investments from resource revenues. This study investigates the relationship between Natural resource reliance (Oil) and economic growth. Employing a panel fixed analysis from 1996-2018. Ghana started commercial exploration of Oil in 2011. As a new Oil exporting country, there are implications and lessons from this study that Ghana can rely on, to better manage Oil revenues. The study finds a positive strong relationship between Oil prices and economic growth, consequently, the study argues that strengthened institutional framework is imperative for social and economic performance of resource rich African countries.

Keywords: Natural Resource Curse, GDP, Fuel price Fuel Export, Interaction term, Oil, Fuel, and Petroleum (used interchangeably)

Student Number: 2018-25453

국문초록

볼 때, 풍부한 천연자원을 가진 나라들은 부유할 것이라고 짐작할 수 있겠으나 몇몇 학자들은 기존 연구와는 다르게 천연 자원이 풍부한 국가일수록 경제성장이 둔해지는 현상, 즉 “자원의 저주” 현상이 발생함을 밝혀냈다 (Sachs & Warner, 1995). Gylfason 과 Zoega (2001)는 연구를 통해 천연자원이 경제성장에 미치는 영향을 방해하는 대표적인 원인으로 네덜란드 병, 자원의 국제가격 변동, 지대추구 행위, 제도적 기반의 부족, 비효율적 투자 이렇게 5 가지의 원인을 꼽았다. 이 연구는 천연자원(석유)과 국가의 경제성장간의 관계를 분석한다. 고정 효과 패널회귀 모형을 통해 1996 년부터 2018 년 가나는 2011 년에 석유 상업 탐사를 시작했다. 새로운 석유수출국으로서, 가나가 석유수입을 더 잘 관리하기 위해 의존할 수 있는 이 연구의 의미와 교훈이 있다.까지의 분석기간 동안 유가와 경제성장에 정적 상관관계가 존재함을 밝혀내는 데, 이는 기존 자원의 저주 연구결과와는 상반되는 결과이다. 결과적으로 제도적 기반을 강화하는 것이 자원이 풍부한 아프리카 국가들의 사회적, 경제적 능력을 배양하는 데 핵심적이라고 이 연구는 진단한다.

키워드: 천연자원 저주, GDP, 연료가격 연료 수출, 상호작용 용어,

오일, 연료 및 석유(교체 가능)

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List of Acronyms

ABFA	Annual Budget Funding Amount
ASRP	Agriculture Sector Rehabilitation Programme
BOG	Bank of Ghana
ERP	Economic Recovery Programme
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNP	Gross National Product
GPRS I	Ghana Poverty Reduction Strategy 1
GPRS II	Ghana Poverty Reduction Strategy II
GSGDA	Ghana Shared Growth and Development Agenda
IMF	International Monetary Fund
IOC	International Oil Company
ISI	Import Substitution Industrialization
MNC	Multi National Company
ODA	Official Development Assistance
PHF	Petroleum Holding Fund
PRMA	Petroleum Revenue Management Act
SAP	Structural Adjustment Policy
TOT	Terms of Trade
OPEC	Oil Producing and Exporting Countries
WDI	World Development Indicator

INTRODUCTION

1.0. Introduction

This chapter is devoted to introducing the Background of the study, the Statement of the Problem, the Motivation of the Research, the Importance of the Topic and the Limitation of the research.

1.1. Background of the study

Natural resources have played an important role in the growth and development of some advanced countries. (Cronin & Pandya 2009). Countries like Qatar, Malaysia, Australia and others have abundant natural resources and have consequently achieved some impressive economic growth and development.

Qatar and Malaysia have their share of natural resource rent to GDP standing at 22% to 79.3% respectively in 1980 (WDI). Malaysia and Qatar's Gross Domestic Product per capita was 63,505 USD and 9,944 USD in 2017.

Conversely, Nigeria, a country also with abundant natural resources, has a natural resource rents share of GDP at 35.6% (WDI) but a GDP per capita of 1,968 USD. The countries compared above is an illustration of how natural resource reliance can have mixed effects on an economy. According to the World Bank, "countries that have more than 20% of their export of natural resources to GDP, and more than 10% of their natural resource exports of total exports are natural resource dependent countries".

Sachs and Warner 1995, in his study, found that countries reliant on natural resources experienced low poor growth performance compared to countries with no natural resources. This led to the coining of the term “Resource Curse” or the paradox of plenty. Countries like South Korea Switzerland, Belgium have very high economic growth rates compared to countries like Sudan Congo, Nigeria and Venezuela that have abundant natural resources

Intuitively, countries with natural resource abundance should be wealthy and have high economic growth compared to countries without natural resources. However, in reality, with the exception of Malaysia, Botswana and Indonesia, all other natural resource rich countries could not achieve GNP per capita of more than 4% a year (Gylfason 2001)

Gylfason further emphasizes that these “exceptional countries” managed to succeed through diversification and industrialization. He further outlined five reasons natural resource rich countries perform poorly in terms of economic growth and Development. Gylfason observes that rent seeking, price volatility, the Dutch disease, windfall resources rents consumed rather than saved or invested, and lack of institutional quality as the key reasons for the poor performance of resource rich countries.

These transmission channels are responsible for the underdevelopment of most resource abundant countries found in Africa and Latin America. The rent seeking channel for example, provides rents to the government and could increase corruption (Mavrotas et al 2011) Bad institutions propagate rent seeking behavior and, in some cases, have led to civil wars and conflicts.

Ghana is incredibly rich in natural resources that can be harnessed to boost growth. Cocoa, gold, diamonds and manganese are some of the resources that are found in Ghana. In 2011, Ghana discovered Oil and became part of the biggest Oil discoveries in recent records, which contained at least three billion barrels of Oil. Before the onset of Oil exploration, exports of minerals and cocoa were the most important commodities in the economy. Ghana was one of the top five gold exporters in the world. In 2018, it became the largest producer of gold in Africa, overtaking South Africa. Ghana also has huge deposits of diamonds and bauxite. As mentioned earlier, despite Oil and minerals, Cocoa in Ghana is an essential component of the country's economy. Ghana and Ivory Coast produce about 65% of the world's total cocoa production. Due to Ghana's dependence on the cocoa and other commodity products it is vulnerable to external commodity price shocks, the country has fluctuating terms of trade, which leads to a decrease in purchasing power, which hinders economic growth.

As sited earlier, Ghana struck Oil in commercial quantities in the year June 2007. Raising expectations and sending excitement among the population. Learning from the experiences of Nigeria and Angola, Ghana set up a Petroleum Management Act (PRMA) to guide the prudent use and investment of Oil revenues, encouraging transparency and using Oil revenues for enhancing the welfare of Ghanaians.

The commencement of Oil production increased the GDP growth rate to about 14% making its one of the highest growth rates in the world (World Bank 2012). Oil prices decline in 2015, sent the economy into a shock, with GDP plunging to a low of 3.5% in

2015. Consequently, the country approached the IMF for a bailout, **exactly 4 years after Oil production**. Furthermore, the share of manufacturing to GDP has seen a decline raising questions about the possibility of the Dutch disease and by extension the resource curse.

The economy of Ghana is still reliant on the export of three main commodities: cocoa, gold and, recently, Oil., accounting for over 75% of merchandise export (BOG 2015). Additionally, there is still very little value addition to these primary products, which exposes them to price volatility and external shocks, affecting in turn budget revenues and Government planning. The economy of Ghana remains largely informal by (more than 80 percent are employed in the informal employment Ciara Osei Boateng and Edward Ampratwum). This has caused a peculiar phenomenon, by which there is a declining share of agriculture to GDP (at 19 percent in 2017, from a high of 65 percent in 1978), giving way to low and import-driven services. In turn, the manufacturing sector has declined, threatening hopes of rapid industrialization and for export-oriented growth.

The panacea would be to embark on structural changes by encouraging more value-end sectors that require high-skilled and technology-savvy personnel, expanding manufacturing and exporting semi-processed or intermediate products and reduce the reliance on the three primary commodities. The low levels of human resources currently make it impossible to utilize technology effectively and to take advantage of knowledge spillover from investments in high-end sectors of the economy. The

required structural changes are a function of the quality of Human capital and labor skills to obtain a population that is savvy in the areas of technology and innovation

1.2. Statement of the Problem

Experiences from countries including Nigeria, Angola and Zambia, provided lessons for Ghana to avoid the Resource curse a phenomenon where countries with abundant natural resources particularly minerals and crude Oil tend to have low economic growth and coupled with challenges in governance compared to countries which do not have these natural resources. Cross-country studies based on aggregate data suggest that resource abundance could have negative effects on economic growth (Sachs and Warner 1995, Sachs and Warner 2001).

To enhance the role of institutions in improving effective utilization of natural resources prompted Ghana to formulate the Petroleum Revenue Management Act (PRMA)¹, a law which sought to stipulate in clear terms how petroleum revenues are to be managed, allocated and spent; and which priority areas² Oil revenues should be invested in.

According to the PRMA, what constitutes petroleum revenues are but not limited to; Royalties, additional Oil entitlements, surface rentals, other receipts from any petroleum operations and from the sale or export of petroleum; Any amount from

¹ (1) expenditure and amortisation of oil and gas infrastructure, (2) agriculture modernisation, (3) roads and other infrastructure, and (4) capacity building (including oil and gas).

² Currently, four priority areas are: a) Agriculture; b) Physical Infrastructure and Service Delivery in Education; c) Physical Infrastructure and Service Delivery in Health; and d) Road, Rail & Other Critical Infrastructure Development.

direct or indirect participation of government in petroleum operations; Corporate income taxes in cash from upstream and midstream petroleum companies.

Consequently, the law directs that 70% of petroleum revenues from sale and exploration of Oil gas proceeds be transferred to a special fund for financing socio-economic interventions, also referred to as the Annual Budget Funding Amount (ABFA). Additionally, 21% of the total Oil revenues be transferred into a fund called the Stabilization Fund purposefully to cushion Oil price in the event of Oil price fluctuations and prevent external shocks. Lastly, 9% of Oil revenues is transferred into the Heritage Fund, which serves to provide an endowment to support the development of future generations when the petroleum reserves have been depleted.

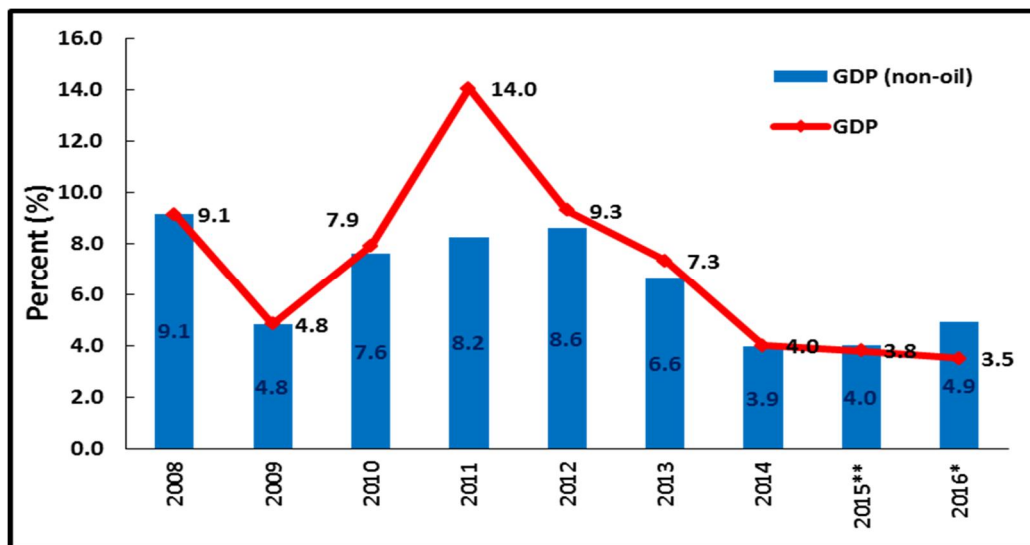
on April 3, 2015, Ghana reached out to the International Monetary Fund for a bail out following exchange rate depreciation and some economic crisis. Ghana was awarded about US\$925.9 million loan to restore debt sustainability and macroeconomic stability and job creation.

Considering all the measures put in place, one would assume that the country was on the trajectory of economic growth and development. However, after seven years of commercial exploration of Oil and gas, a lot of people have questioned the efficient utilization of petroleum revenues and the role of institution in ensuring prudent management of Natural resources.

1.3. Motivation of the Research

Ghana struck Oil in commercial quantities in the year 2007. It has been eight (8) years since commercial exploration and production of Oil and gas began in Ghana.

Figure 1.1: Oil and non-Oil GDP growth 2008-2016



Source: Ghana Statistical Service

There is however, a dearth of scholarly research on the assessment of price shocks and the interaction between the price of Oil and exports on economic growth. Before the advent of the flow of Oil and gas revenues into the economy, the rate of growth of the Gross Domestic Product had reached 9% in 2008. With the introduction of Oil revenues in 2010, the growth rate initially surged to 14% but declined subsequently in the ensuing years reaching a very low growth rate of 4% in 2016.

This phenomenon appears quite strange and as one may assume that investments would be channeled from the Oil sector to the non-tradable sector to spur growth (“natural resources increase wealth and purchasing power over imports, so that resource abundance might be expected to raise an economy's investment and growth rates as well” Sachs, Jeffrey D, and Andrew M Warner. 1995).

These two developments sparked my interest and curiosity and motivated me to seek to examine the interaction of Oil prices and Oil exports and how that influences growth in an Oil producing country like Ghana, by assessing 27 natural resource dependent countries in Sub-Saharan countries. In seeking to satisfy my curiosity, the examples of how countries such as Saudi Arabia, Norway, Qatar, and the United Arab Emirates, have managed to diversify their economy with proceeds from Oil and gas to improve their GDP came to my mind. Their examples may provide critical lessons for Ghana to learn on how to optimize Oil revenues for long term economic growth

1.4. Research Objectives and Questions

This research aims to establish how natural resources especially fuel affects economic growth, using data on 27 African countries identified by the World Bank as resource dependent. The period under study spans from 1998 to 2018., for the panel regression and 1968-2018 for the Ghana analysis. Specifically, this study will assess the interaction between price of natural resources especially fuel, and the effect on economic growth. Furthermore, the interaction of institutions and natural resources and the effect on economic growth.

To this end, the paper seeks to answer the following questions:

1. How does Natural resources affect economic growth?
2. What are the transmission mechanisms of natural resource reliance in Ghana?

1.5. Importance of the Topic

The significance of this research is based on the fact that a number of African countries are highly dependent on Natural Resources for export. Intuitively, we would assume natural resource rich countries would perform better in terms of economic growth compared to resource poor countries, as they have the resources to accumulate more economic infrastructure and Human capital, compared to resource poor countries (Sachs and Warner, 1999, Murphy et al 2000, Iimi and Ojima 2005). However, evidence of an inverse statistical relationship between Natural resource and economic growth based on exports of (agriculture, minerals, and fuels) and growth rates during the period 1970–90 established by Jeffery Sachs and Andrew Warner, –summarized their findings that resource abundant countries have stagnated in growth. Giving rise to the moniker “resource curse “in contrast many other economists (Institutionalists) argue natural resources when managed with the right institutions are a blessing. (Hall and Taylor, 1996, Powell & Dimaggio 1991) This study assesses the impact of natural resources on economic growth in Ghana especially fuel. Furthermore, it examines the interaction of fuel prices and fuel exports effect on growth. This study makes the case for having a strengthened institution, diversification, value addition, increased manufacturing and total factor productivity leading to sustained growth.

1.6. Limitation of the research

Data for this study would have a few limitations that should be indicated. First, the lack of data for some countries that export natural resources in Sub Saharan African countries, data is also unavailable for some variables and some years.

Secondly, natural resource dependence is proxied by the share of fuel, exports to GDP. The choice of controlled variables that affect economic growth (FDI/GDP, Trade/GDP, Secondary school enrollment, Terms of Trade,) may not be the appropriate measure of the effect on GDP per capita. The time period may also be periods with increased price of Oil and low institutional quality this may invariably influence the analysis.

Economic growth is a very complex broad measurement and as such, is influenced by a host of other factors, other than the variables for the study. These limitations will not affect the analysis and study as inferences and information can be gathered.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

2.1. Definition of main Concepts

- Natural Resource Curse, refers to the phenomenon where countries with abundant natural resources tend to have low economic growth
- Fuel price, Fuel Export, Fuel price refers to Brent crude Oil prices on the International Market
- Fuel export is the sale of crude oil in the international market, for the study, it is the ratio of Fuel exports to all merchandise exports

2.2. Early studies on Natural resources and economic growth

Among the first works theorizing the role of natural resources in economic development and effects, positive or negative, of natural resource reliance, are those of Mikesell, 1997 and Kronenberg, 2004. stated that coal was one of the primary drivers of the industrial revolution in Europe. The other study which is widely cited, and the thesis of which remains popular, is that of Sachs and Warner (1995). Their work led to secondary empirical studies, which contributed to popularize the term “resource curse” coined by Richard Auty in 1993. Auty, an economic geographer, studied the influence of natural resources economic development. According to Jeffrey Sachs, resource-abundant countries are high price economies and, therefore, miss out on export-led growth.

- (1) Natural resources do not help development and there is no correlation between natural wealth and other kinds of economic wealth

- (2) There is no sustained rapid economic growth

Table 1: Core findings of Jeffrey Sachs

Warner (1995) and Jeffrey Sachs main findings

- *Economic growth is an elusive universal theory.*
- 1. *The decline in manufacturing has ramifications that drive economic growth down*
- 2. *Determination of export growth to GDP growth → Growth in value-added manufacturing exports x share of manufacturing exports in GDP*
- 3. *Resource-rich countries tended to have small contributions from export growth in manufactures. This may also be due to low or inactive export promotion.*
- 4. *The result is that resource-abundant countries have uncompetitive exports*
- 5. *Education → Natural resources crowd out entrepreneurship and innovation*
- 6. *If wages in the natural resources sector rise higher than the sector itself, it crowds out entrepreneurial activity and innovation.*
- 7. *Natural resources rents accrue to government and lead to rent-seeking and sometimes corruption, rather than growth activities. This ultimately leads to no innovation, poorer governments and lower growth. The political process becomes corrupted in resource-rich countries, affecting the developmental state.*
- 8. *Natural resources are associated with authoritarian regimes*
- 9. *Country with abundant natural resources have high income inequality*
- 10. *Natural resources-abundant countries waste their natural resources on unproductive projects*
- 11. *Resource-abundant countries have stagnated in economic growth*

Source: Sachs and Warner 1995

Up until the early 1990s, almost all economists had agreed that the resource curse was a reality. They developed different approaches to explain the presence of the curse and find its economic channels. The first more popular channel that they agreed upon was the “Dutch disease channel”, an expression coined by McKinnon in 1976 and commonly used since (Corden and Neary, 1982; Van Wijnbergen, 1984; Auty, 1994b; Gylfason et al., 1997). The other popular channel was the price volatility channel, theorized by Cavalcanti et al. (2009, 2011), van der Ploeg and Poelhekke (2010),

Leong and Mohaddes (2010). Their work revealed that there was a negative impact of price volatility on economic development.

According to most economists who pronounced themselves on the work of Sachs and Warner, the major flaw was that the time period they chose for the study (1980-2000). Manzano and Rigobon (2001) argued that the historical 20-year period was one associated with low commodity prices. They further argued that the low commodity prices were responsible from the slump in growth (see Appendix). Furthermore, they argued that the low prices led to lower revenues for these natural resource countries, which in turns went on a borrowing spree to plug the deficit created by low prices. This vicious cycle of debt hampered growth indefinitely. Interestingly, after making adjustments for the factors mentioned above the resource curse could no longer be traced. This raises serious questions about the role of institutions and of the policies put in place to prevent this phenomenon, for example hedging or creating a stabilization fund.

2.3. The Institutionalist Approach:

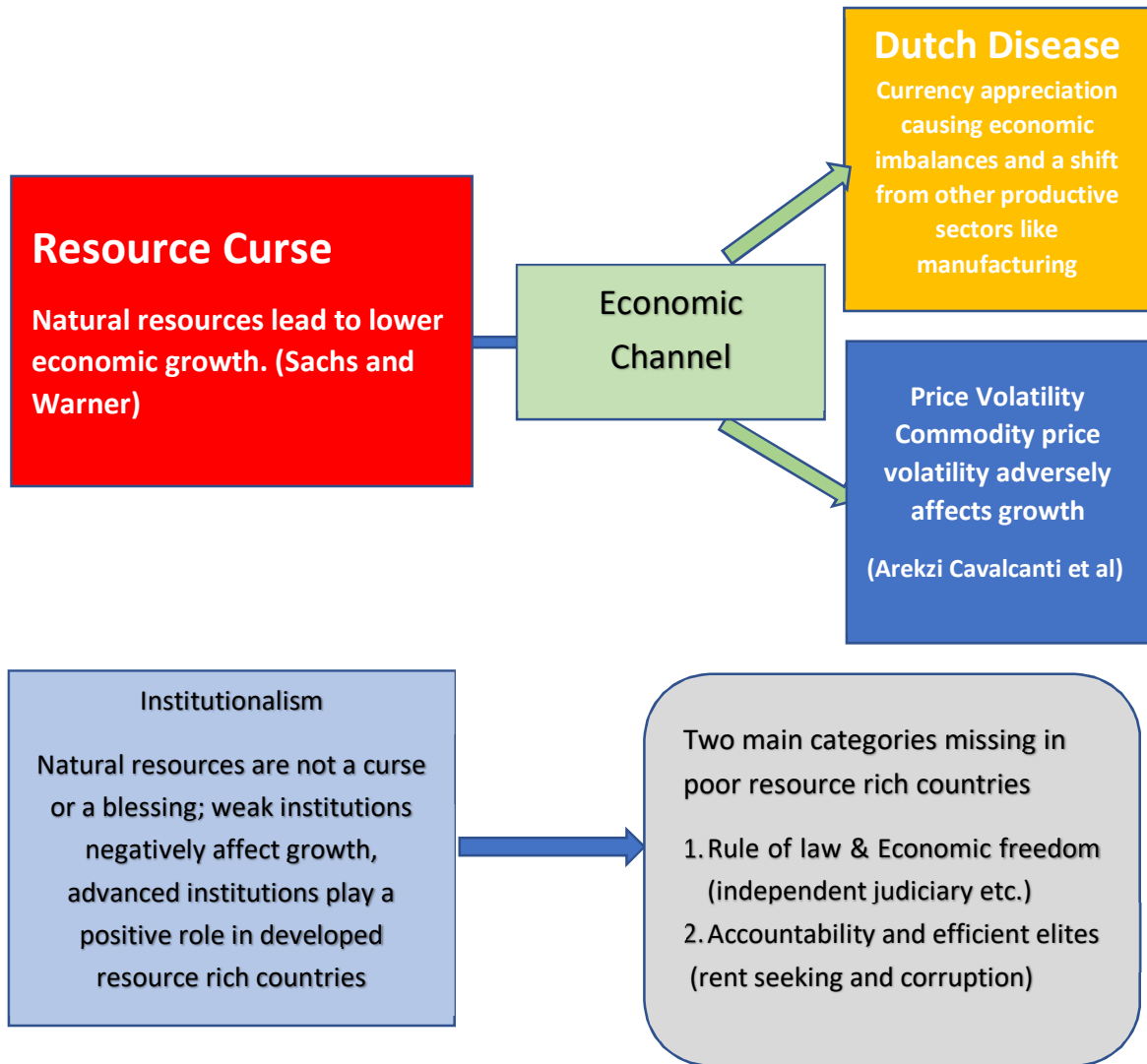
As a lot of economists used more extensive data covering longer periods, many doubts were cast about the effect of natural resources on economic growth, leading to a number of scholars investigating the hidden or main factors through which resource-rich countries experienced retarded growth.

The institutional approach served as an alternative to the resource curse to explain the negative relationship between growth and the presence of natural resources. The new

approach varied from the two economic channels to trace the curse from (dutch disease and price volatility), to emphasize instead the role of institutions in determining whether resource-rich countries had high economic growth or otherwise.

The institutional approach views the role of institutions in the resource blessing or curse in two main ways. Firstly, there is the hypothesis that natural resources are a reason for institutional decay in resource-rich countries. This hypothesis outlines corruption and rent-seeking among elites of the ruling class, which leads to a breakdown of institutions. The other hypothesis points out that weak institutions are the reason for slow economic growth in resource-rich countries. It remains very difficult to assign causality.

Figure 1 2: theoretical approaches of natural resources on growth



Source: Peter Kaznacheev

This study seeks to reexamine whether fuel export and price interactions are sensitive to economic growth. This work also explores the effect of natural resource reliance on

economic growth by decomposing the different possible transmission channels of the resource curse with respect to the Ghanaian case.

2.4. Mainstream economists versus Structuralists

- A set of theories, later called structuralist

Dependency theorists based mostly on their arguments that dependence on natural resources is exacerbated through Terms of Trade. Structuralist main proponent Prebisch Singer (1950) argues that commodity prices, that is, mineral and agricultural products, follow a protracted downward trend in the long run compared to manufactured goods. Resource dependent countries depend solely on natural resources would register a poor economic growth performance unless they embark on an industrialization drive

This is due primarily to the fact that commodity prices on the world market is “income inelastic”. In other words, as the world gets richer, the demand for commodity products would decline., this is consistent with the World Bank commodity forecast projection, and the concept from the Engel law which suggests as household income increases, their demand for basic goods declines.

Poor resource reliant countries that export fuel or mineral products, play an insignificant role in the world open market, and these countries tend to become price takers, at the mercy of world price volatilities.as these prices of primary products are determined by the world market. Industrialized countries on the other hand are price makers.

The Structuralists argue for product diversification, and a drive to industrialization, rather than specializing in the production and export of primary products.

Prebisch Singer advances the argument that countries that export raw materials are short changed and at a disadvantage when trading with advanced countries as a result of decline in commodity prices in the long-run.

The structuralists furthermore do not believe in the concept of comparative advantage as it encourages poor resource rich countries to specialize solely in the export and production of primary products at the expense of manufacturing, which has far reaching linkages to productivity and higher export earnings and less susceptible to price volatility.

- Neoclassicals' view

Neoclassicist or main stream economists argue that the structuralist view of trade not being beneficial to poor resource rich countries and thus should not specialize quite unrealistic. They argue focusing on manufacturing without paying attention to agriculture for example is not practical because, proceeds from agricultural sector will provide foreign exchange for poor resource rich countries, and provide markets.

Furthermore, they argue that trade brings investments opportunities into resource abundant countries where technological progress is passed on, also, emphasizing the role of trade in capital accumulation. (Findlay et al 1999). They further argue that liberalizing trade can provide prospects for ensuring efficient allocation of capital

resources. Without exporting primary commodities, poor resource rich countries would not be able to afford the imports needed initial stage of the developmental process (Auty 2001). The central theme of the Neoclassicalists argument is comparative advantage. International Open trade they posit is imperative for poor resource rich countries to venture into capital intensive based manufacturing, innovation and production of sophisticated goods, gradually climbing the ladder of comparative advantage, all the way to the top. (Findlay et al 1999) The slow growth of poor resource rich countries they Neoclassicalists opine is persistent government interference instead of the market. They cite policies like protecting infant industries in poor resource rich countries distorting what they perceive as the comparative advantage of poor resource rich countries; which is primary commodities. In their view the distortion of the market by government leads to inefficiencies

Neoclassicalists attribute declining growth to poor policies pursued by government and persistent government interference. Thus, attributing sluggish growth to endogenous factors.

Structuralists, on the other hand attribute growth to terms of trade which they argue does not favour poor resource rich countries, thus suggesting poor growth is due to exogenous or external factors.

The consensus between the two sides how trade affects GDP growth however, they differ on what the causal link of natural resource is on economic growth

The notion that as the world gets richer, it will demand less of primary products by the structuralists is a little misleading. Every single commodity product goes into the manufacturing of a finished product or intermediate product. Take coltan as an example, the rise of mobile phones, laptop and other smart electronic devices will only imply more demand for this primary commodity. As the world develops, other new and emerging countries demand primary commodities to feed their industries. Also, people attribute ostentation or luxury to the possession of gold and other precious minerals. Ostentatious goods have no perfect substitutes. Natural resources by their nature are depletable, therefore as poor resource rich countries keep exploiting their natural resources and until they get to depleted levels, the demand may not be matched with the supply creating an increase in the prices of these primary commodities.

If natural resources lead to sluggish growth, how did some industrialized countries base on the export of primary products? In the 1870's and 1914, countries that are now considered advanced countries had a good performance of their economy solely by exporting primary commodities while importing finished manufactured goods from the then industrialized countries. This period was known as the "golden era". Evidence is provided by (Findley et al 1999) on countries who registered impressive growth during that period. Categories of countries and geographical regions where a commodity product is produced were created. The category of resource rich during the time called "regions of recent settlement" they include:(Australia, United States, Canada, Argentina) and countries producing agricultural products found mostly in the tropical zone include:(Gold Coast now Ghana, Siam now Thailand, and Burma now Myanmar)

The mixture of Planation's agriculture and peasants category (Brazil, Costa Rica Malaya and Columbia) where as the production of minerals: category (South Africa Chile and Bolivia)

The striking difference between the new settlement category and the tropical region was that the new settlement category established a linkage between the natural resource products and manufacturing. In Canada for example, the production of wheat led to the creation of railways, new technologies for agricultural inputs, the construction of warehouses, and the expansion of processing centers. This group within a short period moved from the export of raw materials stage to and by the end of the first World War, they had industrialized creating a link between primary exports and other sectors.

The second group, however, had mixed results. Gold Coast for example commenced the export of a cash crop cocoa. The export yielded a high GDP per capita due to favorable prices at the time.

Unfortunately, Cocoa creates very few back and forward linkages. Tropical crops in general do not create stronger and different kind of linkage needed for industrialization. The experience of precious minerals exporting category was no better. Towards the end of the first World War, (South Africa Chile and Bolivia created some sort of industrialization, particularly Chile. Bolivia was not successful and South Africa along the line declined.

The problem with tropical country at the time was commodities had no linkages to manufacturing.

When a country gets stuck or depends on a commodity or staple, it could be harmful as it becomes difficult to adjust to the production of new commodities or staple. This situation is described as the staple trap (Auty 2001). In essence, a staple trap is a country that cannot switch to new products. Their economies are faced with price volatility and declining growth.

Low income and middle-income countries compared to developed countries have experienced very slow pace of industrialization, Globalization and trade are largely responsible for this. After opening for trade, countries that had a comparative advantage in manufacturing became net importers of manufactured products.

Interestingly, these countries underwent the process of Import Substitution. Latin America and most African countries embarked on the same path. In the case of African countries, the period registered some impressive level of manufacturing in the early 1960's and 1970's. These manufacturing industries collapsed, and manufacturing declined subsequently.

Openness and Globalization has further led to deindustrialization of developing countries particularly resource dependent countries (Rodrik 2016). Developing countries economy is driven by the service sector jumping the stage of industrialization. The services sector is driven by tradable imported goods. The decline in manufacturing in developing countries is explained by the high reliance on primary products.

2.5. Transmission channels

At this stage, it is important to understand what constitutes a natural resource. Natural resources refer to point resources such as minerals, water bodies, hydrocarbons, etc. However, for the purpose of this research, natural resources will be defined as Oil, fuel and non-fuel mineral products – be they raw or refined – as well as agricultural products. The precise list of what resources are considered natural here is based on standard international trade classifications (SITC) by the United Nations Conference on Trade and Development (UNCTAD). Natural resources are also disaggregated by Leite and Weidmann (1999), Sala-i-Martin and Subramanian (2003).

Also, a country is said to be commodity dependent when the value of commodity exports to the value of merchandise export exceeds 60 percent. Consequently, natural resource reliance is defined as any country that has its ratio of natural resource exports to overall exports above 25 percent, and ratio of natural resource exports to GDP above 10 percent.

- **Natural resources and the quality of institutions**

A lot of literature has emphasized the role of institutions in resource-rich countries. Notable amongst them are the works of Acemoglu, Hall and Jones (1999), Knack and Keefer (1995), La Porta and Mauro (1995). Institutional quality is evidently qualitative and measured by corruption and rent-seeking (Papyrakis and Gerlagh, 2004).

Abundant natural resources create rents from export. The rents are controlled by government and a handful of elites. This leads to rent-seeking and corruption, which

affects the quality of institutions and provokes a decline in growth. A study by Ross (2001) asserted that there is a negative resource effect of mineral abundance as well as the decline of institutions. A case study on Nigeria by Sala-i-Martin and Subramanian (2003) found that “Oil corrupts, and excess Oil corrupts more than excessively”. They emphasize that the resource curse holds true for mineral- and Oil-rich countries, but not agricultural products nor food as a share of exports.

- Consumption versus investments

Atkinson and Hamilton (2003) contend that “natural resource abundance has negative effects on institutions when institutions are weak, thus allowing profits from natural resources to be spent in consumption by governments rather than invested. This holds true for countries that have low levels of savings.” Stevens 2003 also posits that using the permanent income hypothesis, “revenues from windfall would most likely be saved or invested rather than consumed.” However, in his study, Venables (2016) found no evidence of savings from resource rents in low income resource rich countries He asserts that resource rich low-income countries had low savings, and also found a negative correlation between resource rents and savings in these countries. Gylfason (2001) points out that recent growth is associated with five indicators. First, is savings and investment, for the purpose of infrastructural development.

Another point he alludes to for growth, is: Investment in human capital, through the provision of education, health care and social safety nets.

Again, the trade of goods on the international market, to boost foreign exchange reserves.

The function of institutions in promoting freedom, reduced corruption and social bonding, needed for development.

Furthermore, he asserts that macro-economic stability (low inflation) good economic indices, and finally a thriving manufacturing sector with linkages to the service sector, thereby reducing reliance on primary products with low level of skill and technology and encouraging diversification.

One interesting observation Gylfason made in his study of resource rich low-income countries, is that they spend a little share of their income in education, thereby shifting the focus away from human capital development to other non-growth generating ventures.

- Price volatility channel

The price volatility channel came about as more and more scholars started doubting the presence of the Dutch disease. The price volatility hypothesis argues that the “curse” is not a result of high dependence on natural resources, but the volatile and fluctuating manner that commodity exports or natural resource exports exhibit. Mikesell (1997) discovered that countries that depend on natural resource exports between the period 1972-1992, experienced price volatility a third more than non-resource exporting countries.

Furthermore, Auty (1998) posits “revenue volatility maybe one of the major causes of economic slowdowns in resource economies” Cavalcanti et al (2011) found that 62 natural resource exporting countries, increased prices had a positive effect on GDP.

He further asserts that price volatility and export earnings volatilities negatively affected GDP. “However, volatility in prices had no effect on total factor productivity, investments and GDP growth pattern” Cavalcanti found low income resource rich countries are net consumers of natural. They get affected by the price volatilities especially in the case of petroleum, most African Oil exporting countries are importers of Oil, gold and gas.

The finding of Cavalcanti demonstrates that price volatility hurts countries that have a high dependence on a certain primary product

- Dutch Disease Channel.

Netherlands during the period of 1950’s and 1960’s discovered natural gas. This was followed by an overvaluation of the Dutch currency. The Dutch manufacturing sector suffered a decline and that informed the name of the phenomenon; “Dutch disease”.

The Dutch disease can simply be described as the discovery of a new natural resource, that leads to crowding out of the leading sector in most cases manufacturing. Natural resources by their nature are susceptible to price booms and bursts. This affects the export proceeds which causes volatility in the exchange rate, especially countries that use flexible exchange rate regimes. The volatility in exports creates speculations and uncertainties which hamper exports other trade, and foreign investments

The Dutch disease as noted by Sachs and Warner occurs as prices of export commodities increase, countries may miss out on export led growth. The Dutch disease leads to the contraction of tradable sector, and the expansion of non-tradable sector.

Murshed (2001) asserts that “price boom of natural resource exports does not necessarily lead to crowding out of manufacturing and agricultural sector, it depends on “the nature of the natural resource economy or resource production structure”

Murshed’s solution to this phenomenon is to “tax the non-traded good consumption, to mitigate against the adverse effect of resource boom.

- Rent Seeking channel

Corruption, bribery and nepotism are the outcomes of rent seeking. There are however legal activities considered to be rent seeking in nature. These include ring fencing; obtaining license to mine minerals, and subsidies given to some businesses by the State. In some cases, competition over access to natural resource rents may degenerate in civil wars (Leite and Weidmann 1999, Gylfason and Zoega 2006, Marrotas et al 2011, Sala i Martin and Subramanian 2003, Collier and Hoeffler 2005) A classic example is the Civil war that broke out in the Democratic Republic of Congo in the late 1990s about 15 years ago. The country’s economic growth turned negative averaging negative 5.56 percent, the civil war in Liberia is another example of how resource rents could lead to the outbreak of civil wars.

Countries that have no natural resources. tend to have economic policies that have a transcending effect on social welfare through developmental political states, leading to

industrialization and generally high economic growth. Countries rich in natural resource on the other hand, compete for rents from natural resources. These countries have a bob-developmental political state, and influences how resource rents are distributed, usually through factional, political and ethnic lines. This leads to distortions of the economy (Auty and Gelb 2001). Most resource exporting countries facing this problem are trapped in a situation known as staple trap, where adjusting or switching to a new commodity proves impossible and do not diversify their exports. Auty argues resource rich countries do not have efficient Government institutions, shifting the focus from long term developmental goals, to maximizing resource rents in the short run.

2.6. Natural Resources and Economic growth Continued

Several studies have been conducted on the subject, and there has been no consensus on whether Natural resources have a positive or negative impact on growth. For instance, (Sachs and Warner, 1995, 2001, 2002) (Gylfason and Zoega 2001, 2002) (Atkinson & Hamilton, 2003) (Salmani and Yavari 2004), (Ding and Field 2004) all found compelling evidence on the adverse effect of Natural resources on economic growth.

Consequently, (Sala i Martin & Subramanian 2003) (Lederman and Melony 2003) Adu (2011) all found empirical evidence on the positive effect of Natural resource abundance on economic growth.

Stijn (2000) used data on mineral reserves and energy between the periods 1970-1989, to establish the link between Natural resource abundance and growth.

Fied and Ding (2004) examined whether natural resource abundance leads to slower economic, clearly distinguishing Natural resource dependence from natural resource abundance.

His results were mixed as natural resource dependence had a negative effect on economic growth, validating the resource curse hypothesis, natural resource abundance registered a positive effect on growth

Malik et al (2005) studied natural resource management and economic growth in the case of Pakistan. The sample period for the study on Pakistan was from (1975-2006), and he run this test using econometric time series technique. His results indicate natural resource abundant countries performed significantly lower than countries that have no natural resources. He also found a negative relationship between natural resource exports (natural exports a ratio of GDP) and growth. His conclusions emphasized increasing share of Gross national income to human capital development as a lesson for Pakistan.

Adu (2011) assessed the long run economic growth relationship with natural resource abundance in Ghana. He employed the use of the “Phillips-Hansen fully modified least squares estimator” from 1962to 2008. His results rejected the natural resource curse hypothesis, finding a positive relationship between natural resource abundance and long run economic growth

CHAPTER THREE: METHODOLOGY, ANALYSIS AND INTERPRETATION OF RESULTS

Part I: Methodology of the research

This paper examines the effect of Natural Resource on economic growth.

3.1.1. Source of Data

Using a panel data set with cross section and time series, the used data was mainly obtained from the World Development Indicators (WDI) database. Some data was also generated from the Ghana statistical Ser. vice and the Bank of Ghana. The estimation follows the works of Sachs and Warner, Lederman and Maloney (2002) and Hoeffler 2002. The study analyses 27 countries in Africa that have been classified by the World Bank as natural resource dependent countries for the period 1998-2018.³

3.1.2. Description of the Variables

The dependent variable in this study is growth of per capita GDP, used by Gylfason (2000). The independent variables are the ratio of natural resource exports to GDP (fuel export/ merchandise exports and Oil rents as percentage of GDP and Brent crude fuel, annual real prices). Natural resources refer to point or raw resources. The other set of independent variables are the control variables include Total natural resource rents as a ratio of GDP, economic openness measured by the ratio of trade to GDP, level of

³ See Appendix for detailed list of countries

schooling proxied by secondary school net enrolment rates Foreign Direct Investment as a percentage of GDP, Net Barter Terms of Trade, from 1996 to 2018⁴.

Institutional quality is obtained from the World Governance Indicators. Out of the many indicators of institutional quality, government effectiveness was chosen. The study emphasizes the role of institutions in better managing countries with abundant natural resources. To assess the effects of Oil production and institutions on economic growth, an interaction term (Government effectiveness *Fuel export) was created.

3.1.3. Estimation model

$$Y_{it} = \beta_0 + \beta_1 NATRES_{it} \times NATRES_{px} + \beta_2 X_{it} + M_i + E_{it}$$

Estimation II

$$Y_{it} = \beta_0 + \beta_1 NATRES_{it} + GOVEXP_{it} + \beta_2 X_{it} + M_i + E_{it}$$

Where:

- Y = GDP Per capita growth
- NATRES_{px} = price of fuel
- NATRES = fuel export, Oil rents (measure of Natural resource Reliance)
- NATRESINTR= fuel price and fuel export interaction
- GOVEXP= Government effectiveness and Fuel export Interaction
- X = control variables (Foreign Direct Investment, trade/GDP, Net Barter Terms of Trade, secondary school enrollment GDP Per Capita constant)
- i = country
- t = time
- E_{it}= Error Term

⁴ See Appendix for detailed prices of commodity indexes

Using panel data from 1996-2018 (cross-section time series), this study estimates the effect of natural resources on economic growth. The model uses country fixed effect. Choosing fixed effects and panel data solves the issues associated with heterogeneity that may be found in country observations. The country fixed effect is best suited in this case, because it takes account of unobserved country-specific variables, and by doing so, estimates a separate constant term for every observed country. The issue of time variations is resolved while the effect of the predictors on the outcome variable is assessed.

First and foremost, to assess the impact of natural resource on growth, each disaggregated natural resource is regressed on growth without any control variable. Secondly, the disaggregated natural resource is multiplied by the price to find the interaction, such that export of fuel multiplied by fuel price for the same time period generates the fuel export price interaction. This study regresses each natural resource interaction on GDP growth using fixed effects.

To also assess the effects of Oil and institutions on economic growth, proxied by Government Effectiveness., in estimation II, an interaction term (Government Effectiveness \times Fuel exports) was created.

The effect of Fuel prices as captured in the first estimation is to assess the effects of Oil price fluctuations on economic growth in the African countries chosen in the sample. The fuel/Oil prices were applied to all countries regardless of whether or not they are fuel exporting countries.

Part 2: Empirical Analysis of Effect natural resources on Economic Growth

Natural Resource reliance and economic growth

Table 2

3.2.1. Regression results of GDP Per Capita growth on all regressors

Dependent Variable GDP growth per capita 1996-2018

REGRESSION TRIALS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES								
FUEL EXPORTS	0.0175 (0.0716)	0.017 (0.072)						
TRADE/GDP			0.019 (0.051)					
LOG OF FDI/GDP				37.920*** (5.919)				
OIL RENTS/GDP					0.091 (0.124)			
FUEL PRICE						6.511** * (0.977)		
GOVERNMENT EFFECTIVENESS							-0.217** (0.093)	
SECONDARY SCHOOL NET ENROLMENT								0.352* (0.205)
CONSTANT	295.3*** (10.43)	295.316*** (10.426)	292.026*** (14.974)	95.713*** (32.112)	290.710*** (11.030)	219.042*** (13.394)	360.567*** (24.424)	296.178*** (7.995)
OBSERVATIONS	619	619	621	621	621	621	540	598
R-SQUARED	0.000	0.000	0.000	0.065	0.001	0.070	0.011	0.005
NUMBER OF COUNTRY	27	27	27	27	27	27	27	26
STANDARD ERRORS IN PARENTHESES								
*** P<0.01, ** P<0.05, * P<0.1								

The Main purpose of this basic regression is to establish the effect of each variable on economic growth.

In our regression, Fuel export has a positive coefficient but not significant relationship with economic growth. Our other variable of interest, Oil rents has a positive but not significant relationship with economic growth. Fuel price on the other hand, has a positive and significant relationship with economic growth. Lastly, Government Effectiveness unexpectedly has a negative and significant adverse effect on economic growth. Investment, School enrolment and Trade all have a positive relationship on economic growth, with investment being significant and education proxied by secondary enrolment being significant at the 10% interval.

Table 3

3.2.2. Regression results of GDP Per Capita growth on fuel exports and control variables

Dependent Variable GDP growth per capita 1996-2018

VARIABLES	(1)	(2)	(3)
Fuel export	0.010 (0.051)	0.006 (0.051)	0.018 (0.053)
GDP per capita	0.708*** (0.028)	0.709*** (0.028)	0.705*** (0.030)
Secondary School net enrolment	0.013 (0.139)	0.025 (0.138)	0.089 (0.145)
Trade/GDP		0.072** (0.034)	0.064* (0.036)
log of FDI/GDP	27.377*** (4.257)	28.257*** (4.265)	25.715*** (4.961)
Government effectiveness			-0.035 (0.063)

Constant	-56.815** (23.871)	81.161*** (26.440)	-55.304 (34.936)
Observations	596	596	518
R-squared	0.557	0.560	0.561
Number of Country	26	26	26

Standard errors in parentheses

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

Fuel exports in this regression has a positive coefficient but not significant effect on economic growth. All the other controlled variables have a positive effect on growth in the exception of Government effectiveness. The positive results from Table 1&2 rejects the resource curse literature (albeit fuel export not being significant) that found a negative association between natural resources and growth.

Fuel Prices and Economic growth

3.2.3 Regression results of GDP Per Capita growth on fuel price and control variables

Dependent Variable GDP growth per capita 1996-2018

Table 4

VARIABLES	(1)	(2)	(3)
Fuel Price	4.916*** (1.053)	4.833*** (1.056)	6.331*** (1.238)
Trade/GDP	0.023 (0.049)	0.023 (0.049)	0.003 (0.051)
log of FDI/GDP	29.943*** (6.377)	29.570*** (6.385)	24.998*** (7.280)
Secondary school net enrollment	0.150 (0.197)	0.155 (0.197)	0.150 (0.206)
Net Barter Terms of Trade		0.046 (0.042)	0.074 (0.048)
Government effectiveness			-0.366***

Constant	75.946** (36.218)	66.825* (37.173)	(0.092) 160.748*** (48.318)
Observations	598	598	520
R-squared	0.108	0.109	0.121
Number of Country	26	26	26

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Fuel price has a positive and very significant effect on GDP in all the regression models. Indicating fuel price increase or boom affects African countries positively, whereas a price decline will affect African Oil exporting economies.

3.2.4 Regression results of GDP Per Capita growth on fuel price * fuel export interaction term

Dependent Variable GDP growth per capita 1996-2018

Table 5

VARIABLES	(1) GDPgr	(2) GDPgr	(3) GDPgr
Fuel export*Fuel price	0.007 (0.004)	0.006 (0.004)	0.007 (0.004)
Trade/GDP	0.051 (0.050)	0.051 (0.049)	0.030 (0.052)
log of FDI/GDP	37.863*** (6.182)	37.122*** (6.195)	32.850*** (7.206)
Secondary School net enrollment	0.183 (0.200)	0.191 (0.200)	0.200 (0.210)
Net Barter Terms of Trade		0.064 (0.042)	0.113** (0.048)
Government effectiveness			-0.262*** (0.091)
Constant	74.957** (36.773)	62.325* (37.685)	146.675*** (49.129)

Observations	596	596	518
R-squared	0.077	0.081	0.080
Number of Country	26	26	26

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The Introduction of an interaction term Fuel price and Fuel export shows a positive coefficient but not significant; Such that an increase in Oil prices will positively affect economic growth for Oil exporting countries.

Natural resource and Institutions on Economic growth

3.2.5 Regression results of GDP Per Capita growth on Government effectiveness

*Fuel export interaction term

Dependent Variable GDP growth per capita 1996-2018

Table 6

VARIABLES	(1)	(2)	(3)	(4)
Fuel export*Fuel price	0.002 (0.010)			
Fuel price	6.859*** (1.667)			
Fuel export	-0.145 (0.151)			
log of FDI/GDP	25.251*** (7.300)		35.313*** (7.211)	34.340*** (7.206)
Secondary School net enrollment	0.165 (0.206)	0.273 (0.212)	0.182 (0.213)	0.187 (0.211)
Trade/GDP	0.005 (0.051)	0.025 (0.052)	0.036 (0.052)	0.033 (0.052)
Government effectiveness	-0.381*** (0.092)		-0.244*** (0.092)	-0.250*** (0.092)
Government effectiveness *Fuel export		-0.000 (0.000)		
log of FDI/GDP		0.204***		

		(0.047)		
Net Barter Terms of Trade		0.103**	0.107**	0.104**
		(0.049)	(0.049)	(0.049)
Oil rents			-0.006	
			(0.134)	
Lag of Total natural resource rents/GDP				0.058
				(0.045)
Constant	187.742***	216.237***	140.561***	133.088***
	(48.727)	(25.468)	(49.466)	(49.671)
Observations	518	518	520	520
R-squared	0.122	0.055	0.074	0.077
Number of Country	26	26	26	26

Standard errors in parentheses

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

The fuel price and exports interaction term when regressed with other controlled variables including fuel price and exports remains positive but not significant;

Government effectiveness is negative in all regression models, moreover, the

Government effectiveness and Fuel export interaction term produced negative

coefficients and significant values. This unexpected result imply African fuel exporting

countries have weak and poor institutions, encouraging rent seeking behaviors. Poor

and weakened institutions retard economic growth and social development in the Oil

exporting African countries. This suggests that quality of governance or institutions in

Africa exert a positive influence on the natural resources

The following findings can be deduced from the analysis:

- FDI is positive and significant in all regression models. This is particularly true as massive investments in exploration and drilling of Oil wells by huge

Multinational National Oil Companies flood into resource rich African countries.

- The fuel price positive and very significant value in all regression models suggests that a dollar increase in the price of oil, would result in a 1.667 percent increase in GDP growth.
- Secondary school enrolment (Education) positively impacts GDP, however, the coefficients are not significant when analyzed with other variables.
- Trade and Openness is positive for economic growth, however, it is not significant
- Net Barter Terms of Trade is positive and significant when analyzed with other variables. African Oil exporting countries have registered some marginal increases in their GDP and exports in the period under the study.
- Oil rents when analyzed with other variables assumes negative but not significant values perhaps as a result of Oil price fluctuations. The price fluctuations affect production from Oil drilling companies, and ultimately affects Oil exporting African countries' budgets, since taxes from these MNC's constitute a significant source of income for the countries.
- A one-year lag of Total Natural Resource rents indicates a positive but not significant effect on GDP

In this study, we have argued that there has been a positive association between natural resource (proxied by fuel price and fuel exports) and growth between 1996 and 2018. The finding appears robust such that it remains

Positively significant in cross-country growth regressions after controlling for a large number of additional variables the list of additional variables includes GDP per capita, trade, investment rates (FDI), human capital accumulation (secondary school enrolment), Net barter terms of trade, and the efficiency of government institutions.

We find that the effect of the government effectiveness and fuel export interaction term to measure the effect of institutions on natural resources remains negative even when we introduce alternative measures of natural resource abundance like Oil rents.

3.2.6. Oil prices in resource rich African Countries

Oil prices and the macroeconomy of Oil-producing African countries

This sub-chapter assess the impact of Oil prices on production, exports, and the overall economy of Oil-producing countries in Sub-Saharan Africa.

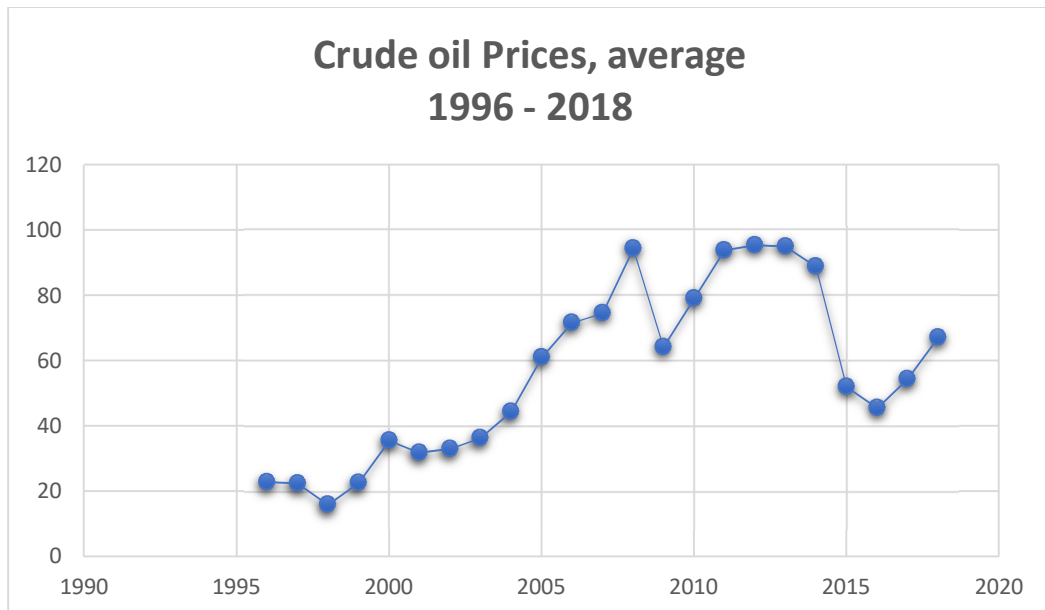
The economy of most Sub-Saharan African Oil-producing countries is inextricably tied to the performance of Oil prices on the international market. Government revenues, the fiscal, and government spending have a high elasticity on the performance of Oil for these countries. A surge in the prices of Oil generally has a remarkable positive effect on the economy, and a slump in prices spells doom for these countries. It is not surprising that some of the African countries have learnt from the experience of Norway and other Oil-producing countries, by saving Oil revenues into a sovereign

fund or a wealth fund. These funds serve as a buffer against the volatility of Oil prices, especially for countries that are completely reliant on Oil.

In the absence of a sovereign wealth fund, African countries that are reliant on the export of Oil, due to the foreign ownership of drilling and exploration, cannot request these huge MNCs to reduce or cut back production in times of lower Oil prices. As expected, these countries' current account, foreign exchange reserves and spending are greatly affected. They often run into fiscal deficits while increasing borrowing and plugging the shortfalls in the revenue generation using other financing mechanisms. A report by the European Commission in 2006 confirms that "low prices impact GDP very strongly, for Oil export depending countries". Blanchard and Gali assert that "Oil prices fluctuations effects on GDP have varied over time (2007).

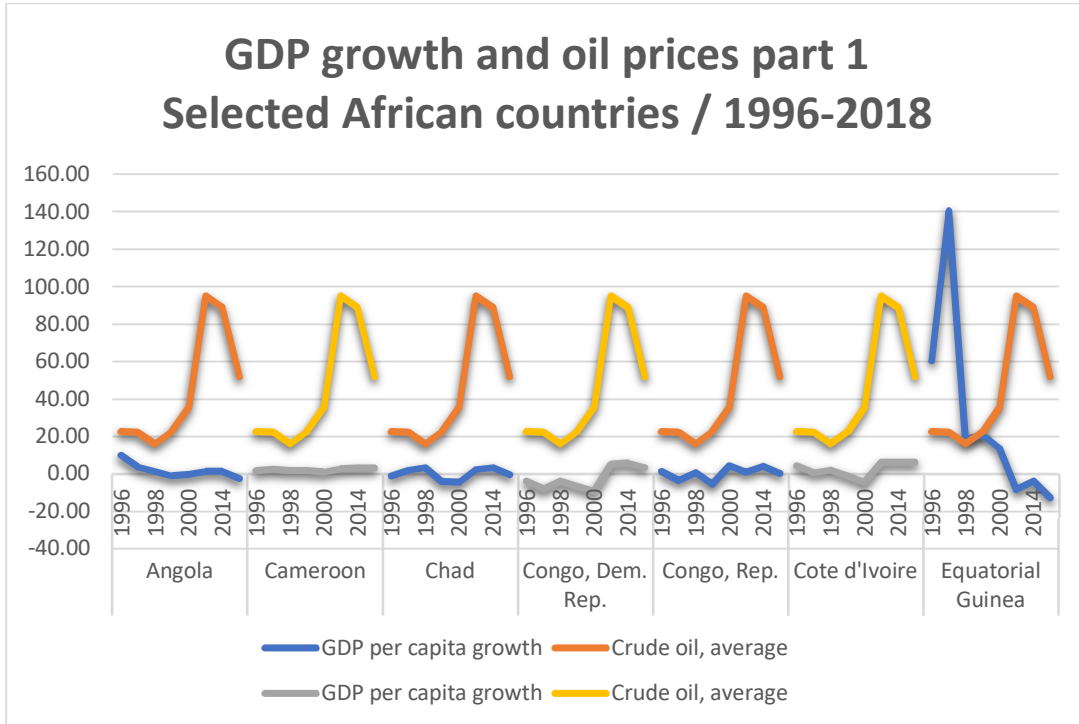
Evolution of Oil prices in selected Sub-Saharan African countries

The period of 1996 and 1997 recorded high Oil prices, leading to an increasing production in Oil-exporting countries - up until a slump in 1998. Within 1996-1997, OPEC, lifted the lid on quotas by member country. In an unanticipated turn of events, major Oil-importing countries in Asia (Korea, Singapore, Japan) suffered a financial crisis, known as the Asian financial crisis, leading to a weakened demand from these countries. The economies of African countries were hard hit, as shown in the figure.



Similarly, after some modest improvement in Oil prices following the overproduction and the Asian financial crisis, the year 2000 registered a very high Oil price. Fairly stable prices were registered up until 2014. In between, some new Oil producing countries had emerged – specifically Ghana in 2011 – and OPEC members registered an increase in production (namely Saudi Arabia). These combined phenomena led to a new decline in Oil prices. In 2015, prices plummeted down to a low of USD32/bbl.

GDP growth of selected Oil producing countries and Oil prices during periods of low oil prices



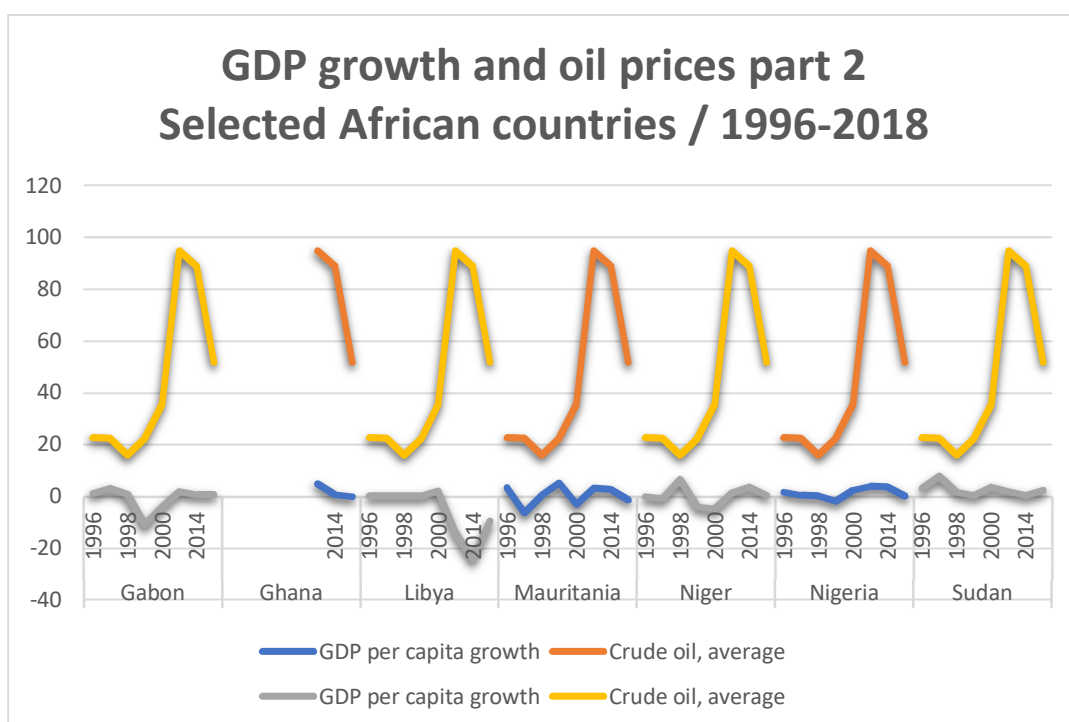
⁵Source: own calculations based on data from WDI & World Bank commodity prices

Policies to mitigate the effects of higher Oil prices on GDP

Oil prices have picked up slowly after the slump in 2015. As one of the measures, Most African Oil exporting countries have a less optimistic price forecast for the price of Oil per barrel in their budget formulation. Lower Oil price forecasts and a cut in government spending is one-way countries are adjusting to Oil price fluctuations.

⁵ Chad begun oil production in 2003

Nigeria, a large Oil exporter, and a member of OPEC in its 2019 budget approved a \$60 per barrel as a benchmark Oil price for its budget. Several African Oil exporting countries defunct Oil refineries, as a result, these countries become net importers, importing refined crude from abroad. The effect of increased Oil prices affects businesses, and inflation ultimately. Most of African Oil exporting countries have as a policy, fuel subsidy program, to cushion consumers from the effect of high fuel prices. Angola in 2015, and Ghana in 2014, deregulated and ended its fuel subsidy program.



⁶Source: own calculations based on data from WDI & World Bank commodity prices

⁶⁶ Production of Oil started in 2011 in Ghana

Table 7

Real GDP growth rates of Oil exporting countries in Sub-Saharan African countries

Country	Real GDP growth Rate 1998-2008 (period averages)	Real GDP growth Rate 2008-2018 (period averages)
Angola	4.603573871	-0.417972362
Cameroun	1.523317994	1.472464969
Chad	5.037308645	0.185158972
Congo Republic	-1.096368306	2.634547583
Democratic republic of Congo	0.312021437	0.556247681
Cote D'Ivoire	-1.578510363	3.245443649
Equatorial Guinea	19.0457833	-4.526511813
Gabon	-2.190071711	-0.283147392
Ghana	2.299262452	4.368815039
Libya	3.769119011	3.788862392
Mauritania	2.651563523	0.414867849
Niger	0.005332438	1.771816157
Nigeria	4.254305346	1.731162538
Sudan	3.818836296	2.664457249

Source: authors construction based on data from WDI tables

African Oil producing countries are very much concentrated in a few areas and requires advanced technology in exploration and extraction. African Oil producing countries are also net importers of Oil exporting raw crude Oil and importing refined crude Oil. Moreover, African Oil exporting countries are vulnerable to external market volatility and intervention from foreign MNC's. This affects industrialization that occurs endogenously. Interestingly, policies made domestically are influenced by external bodies considering the interest of MNC's. Geopolitics plays a major role before actions from the state is taken

CHAPTER FOUR: ASSESSMENT OF RESOURCE CURSE ON THE GHANAIAAN ECONOMY

4.0. Introduction

This chapter is one of the most important of our study. In the second part of the chapter we are conducting an analysis to enlighten, according the core problem of the research, the resource curse in the singular case of Ghana. The chapter in split in two parts.

While, the first part introduces a detailed view of the Ghanaian economy. The second section will provide, employing a qualitative analysis, an assessment about the resource curse occurring in the west African economy.

Part 1: Overview of the Ghanaian economy

4.1.1. Evolution of Ghana GDP Growth

After independence, the structure of the Ghanaian economy did not change much: growth performance had been continuously unstable. After the SAP's economic reform, Ghana's economy experienced relatively high growth performance. Hitting a high of 9.7 percent in 1970, such growth was attributed by many scholars to large inflows of ODA from the United States. Harrigan and Younger (2000: 190-191) note that until the mid-1960s, aid flows to Ghana were negligible or unimportant. The removal of the first President of Ghana Nkrumah in 1966 led to the Ghanaian economy leaning towards Western capital. The then Busia Government, was receptive to ideas of free market and privatization, and the reward for pursuing neo-liberal economic reform was a drastic increase in development aid (Harrigan and Younger, 2000). From 1966 to

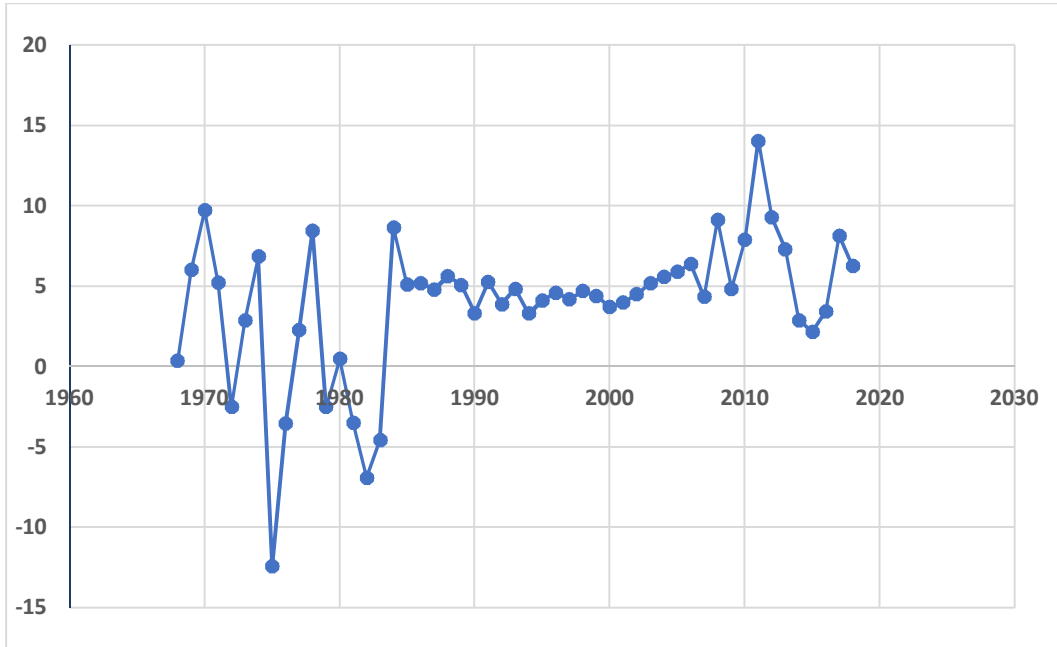
1972, the per capita aid to Ghana was more than the Sub Saharan African average, starting at USD20.88 in 1966 and declining to USD16.74 in 1972

1978 through to 1982 was the worst period for Ghanaian growth performance. A study by Jong-A-Pin (2009) asserts that political instability often leads to slowed economic growth. As mentioned, a drought in 1983 sent prices over the roof, with inflation reaching up to 123%, mainly affecting agricultural production and especially cocoa. This period has been cited by studies in developing countries in Latin America and Africa, which named it the “lost decade”, associated with negative growth rates in most part of both continents, further worsened by the SAP’s of the Economic Recovery Programme.

The SAP, although a necessary evil, led to increased exports, reduced inflation and overall fiscal discipline within the central government. Albeit the loss of employment due to the privatization of some states owned enterprises (SOEs), newfound efficiency led to a growth rate of 8%.

After that, the Ghanaian economy has grown an average of 5% between 1986 and 2008. Following this period, impressive growth performance continued from 2008 to 2012 at an average of 8%. This time was characterized by a fairly stable military government, transitioning into democratic leadership in 1992

Figure 2. 3: Ghana GDP growth rate from 1968-2017



Source: Author construction based on data from WDI

It is imperative to observe a trend. After 1992, every election year (every 4 years) observed a dip in GDP growth. This suggests fiscal imprudence and reckless spending in non-productive sectors. It is also worth noting that prior to the discovery of Oil resources, which is discussed later in detail, the economy of Ghana grew at about 9% in 2008 without Oil revenues. In the year 2000, the country joined the Highly Indebted Poor Countries (HIPC) and was granted debt relief. The delay and ripple effect propelled the economy to achieve a feat: Ghana recorded the highest ever growth rate of 15%, making it one of the fastest growing economies in the world (World Bank,

2011). Many studies have attributed this growth to the commercial production and sale from Oil exploration, as well as high gold prices on the international market.

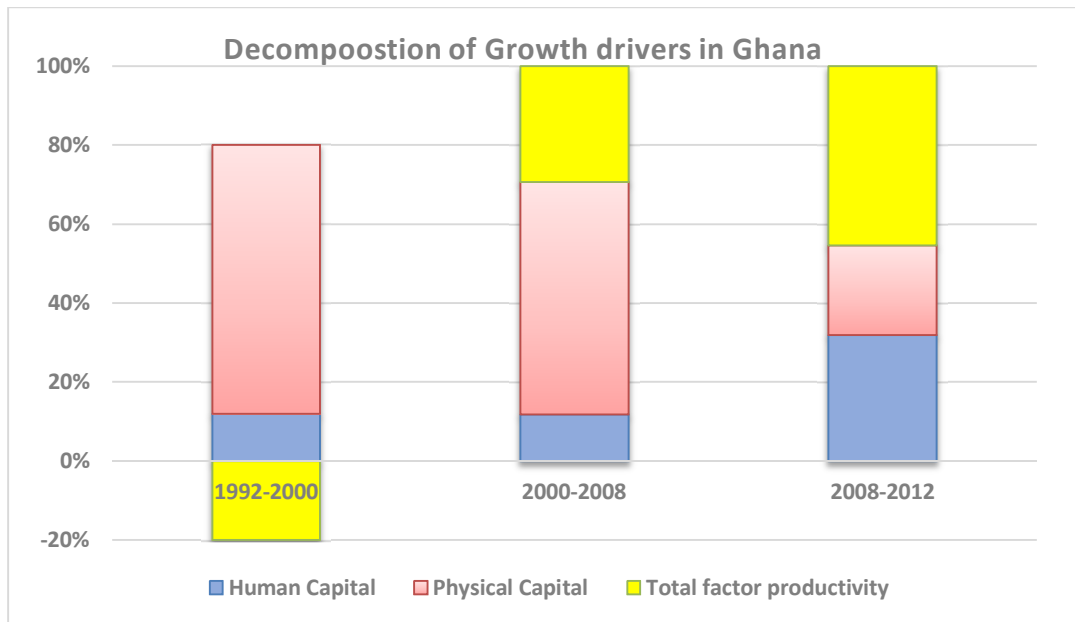
As illustrated by the significant GDP growth in 2011 - when Oil prices amounted to 2.6 billion dollars and gold to 4.5 billion dollars - the economy of Ghana is largely commodity-driven. This creates a swing or volatile situation in the economy, such that it benefits from high exports and declines when prices fall in the world market. The same logic is validated when looking at the decline in GDP growth from 15% in 2011 to 7.6% in 2013.

In summary, the economy of Ghana spanning the 1960-1983 period was extremely volatile, with a growth rate averaging 0.9%, whereas the 1986-2010 post-reform period saw stable growth. The 2011 GDP growth upgraded Ghana to the status of Lower Middle-Income Country (LMIC), as it became the first country in Sub-Saharan Africa to achieve Millennium Development Goal Number 1 by reducing poverty by half (UNDP MDG Ghana report, 2015).

4.1.2. Drivers of Economic Growth in Ghana

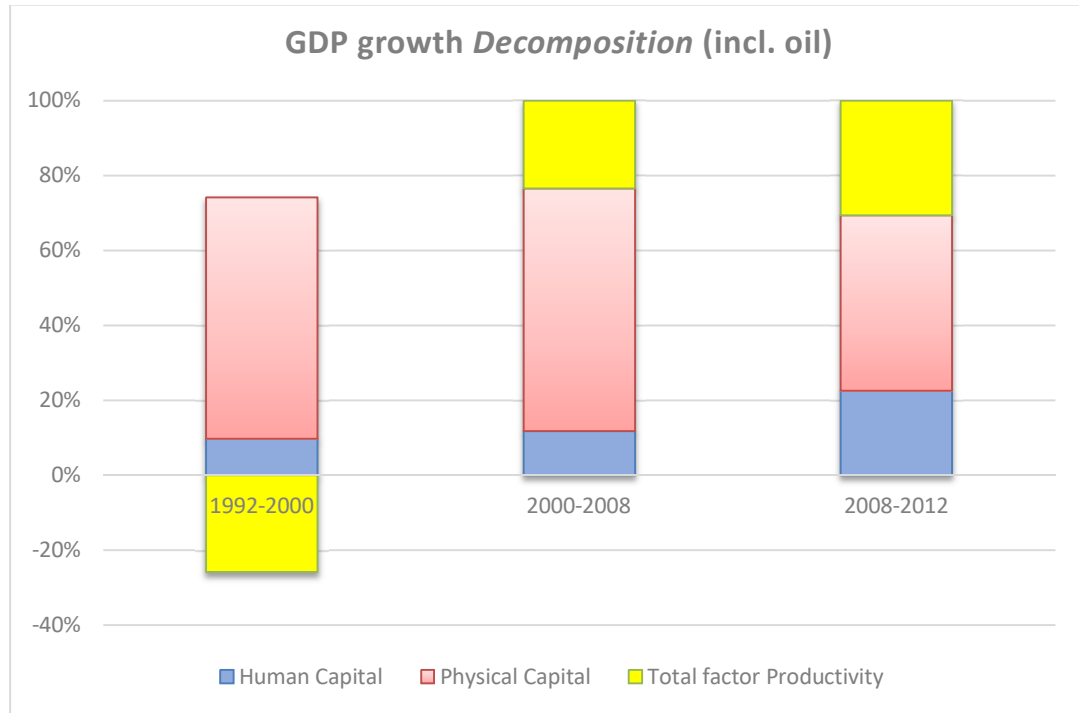
After 1990, increased human capital was the main driver of growth in Ghana, in the place of labour. Total Factor Productivity in Ghana saw an upward trend in the 1970-1990 period, then was strongest between 1991 and 2005. After 2005, however, the main driver was replaced with fixed capital as a result of large investments in the natural resources sector.

Figure 2. 4 : Decomposition of Growth in Ghana



Source: Authors construction based on table from Aryeetey and Kambur

Figure 2. 5: Decomposition of GDP growth (incl. Oil)



Source: Authors construction based on table from Aryeetey and Kambur

If one compares the two tables, figures shows that Ghana’s human capital with Oil has been stable. Human capital increased from 0.3 between 1992 and 2000, to 1.4 between 2008 and 2012. Physical capital decreased from 2.0 from 2000 to 2008, to 1.0 in 2008-2012. However, with Oil, physical capital increased from 2.2 to 2.9 between 2000-2008 and 2008-2012. This may be a result of activities in Oil and gas exploration. In summary, in order for Ghana to maintain a steady growth of 6.0, it will have to maintain the same level of physical capital, possibly increase human capital, and further increase total factor productivity. Total factor productivity has been recognized

by many scholars (Fare, R Grosskopf, S; Norris, M; Zhang, Z 1994) as the source of long-run, sustainable growth. In order for Ghana to grow on a sustainable basis, the labour in employment or labour force must embrace new technologies, and government must invest considerably in training young people in the use of these technologies.

Investment in human capital has a direct link with the use and application of technology. Ghana's economy as it is currently does not depend on human capital for growth. The quality of education is a determining factor of this low contribution. An appropriate investment in human capital will lead to the adoption of technology and to the advantages brought by investments, transfer, tacit knowledge to increase productivity-driven growth.

4.1.3. Performance of Ghana economy from 1960s

In pre-colonial times, the structure of the Ghanaian economy was in many ways similar to that of other African countries. The economy was predominantly traditional, with some subsistence farming and food production with mining and trade sectors. The major export during this period was agriculture representing about 75% of all exports (Szereszewski, 1965).

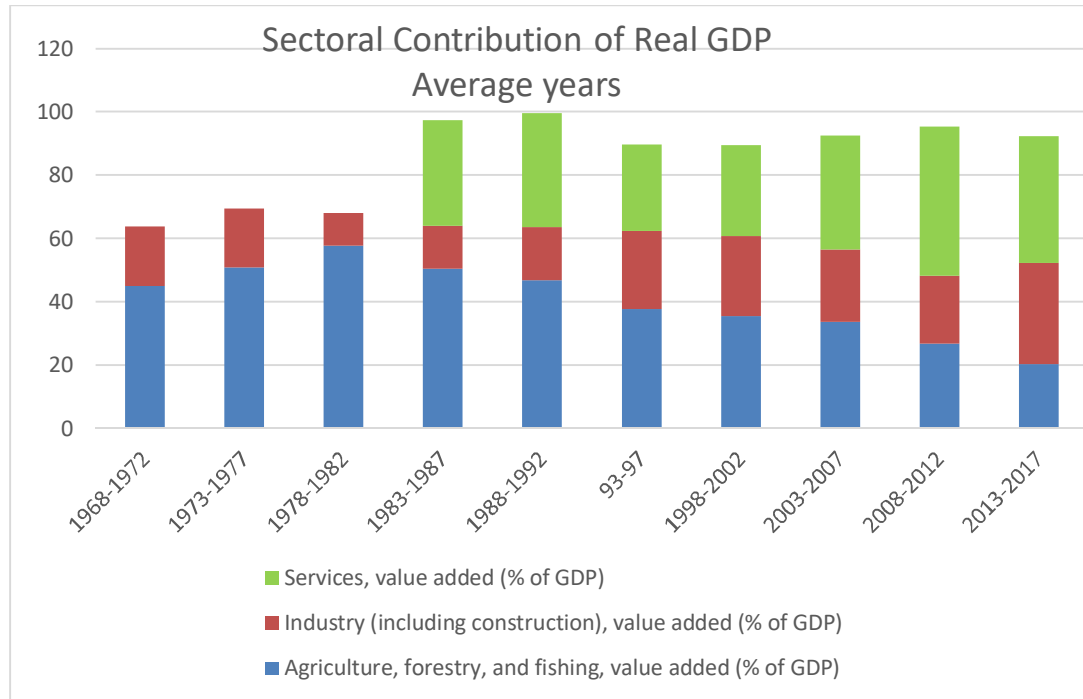
After independence, the economy was still dominated by agricultural production. The sector constituted more than half of domestic food production and employed about 60 percent of the labour force. The introduction of cash crops such as cocoa led to a high market penetration (Baah-Nuakoh, 1997).

The economy of Ghana during 1901 and 1911 underwent a massive transformation. Gold and cocoa dominated exports and accounted for 76% of total exports. There was a manufacturing sector which contributed a paltry 4% of GDP and 9% of employment (Baah-Nuakoh, 1997).

The structure of the Ghanaian economy hasn't undergone a drastic change. The economy is made up of the agricultural sector, industry sector and services sector. The agricultural sector is divided into 4 subsectors, one of them crops, of which cocoa is the dominant cash crop. By virtue of its comparative advantage, cocoa is separated from the other crops. The other subsectors are livestock, forestry and logging, and fishing. The industry sector is made up of the mining and quarrying subsector, of which Oil is separated since 2011 by virtue of its comparative advantage and weight. Next is the manufacturing sector, followed by electricity, water, sewage and construction.

The services sector is made up of about 10 subsectors for the purposes of calculation. The subsectors include (trade, repair of vehicles, household goods), hotels and restaurants, transport and storage, information and communication, financial intermediation, (Business, Real estate), and (Public Administration and Defense, Social Security), Education, Health and social work, and other (Community, Social and Personal services).

Figure 3. 6 : Sectoral contribution of real GDP



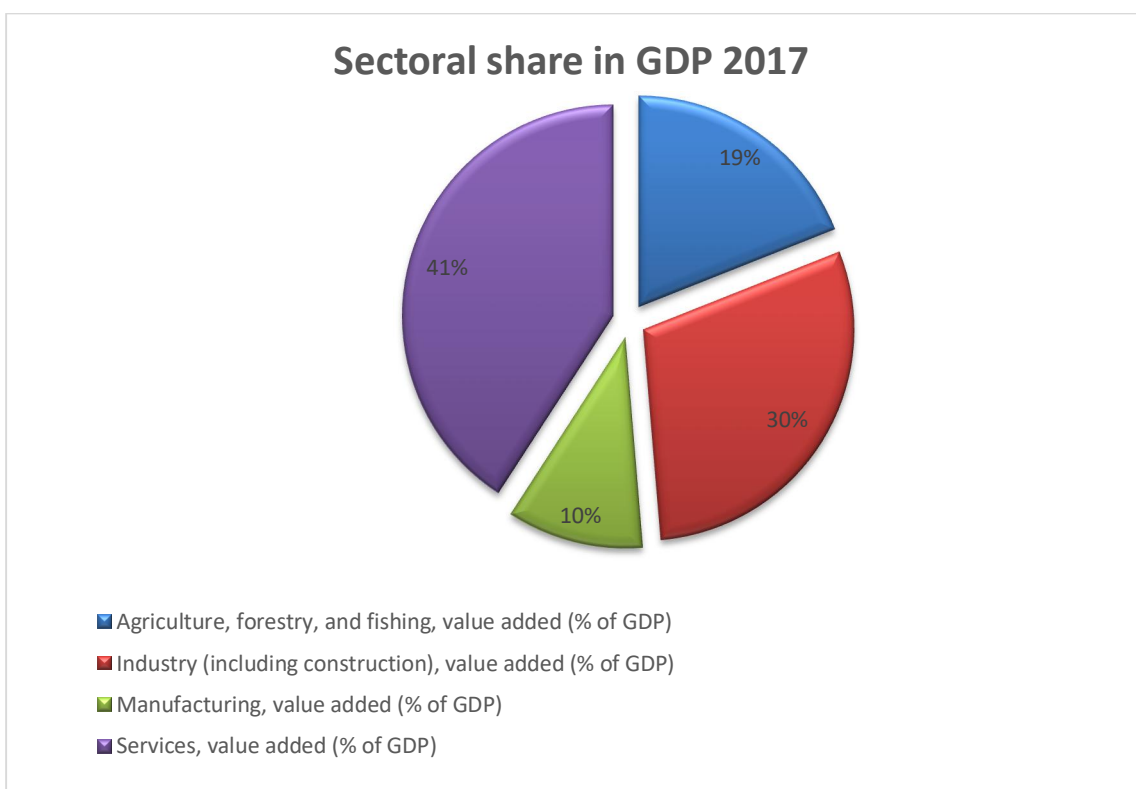
Source: Authors own computation based on data from WDI

The service sector is currently the largest contributor to GDP. It has, however, not always been the case, since agriculture accounted for about half of GDP in the 1960s as explained above. Before the advent of Oil revenues in 2011, cocoa was still the main export and source of foreign exchange, driving the agricultural sector by itself.

According to the World Development Indicators (WDI), cocoa constituted in 2010 more than 50% of total merchandise exports.

A recent trend suggests a declining agriculture share of GDP. In 2016, the agricultural sector contributed 19% to total GDP. In 2015, it was down to 0.04%, giving way to the dominant service sector, contributing to over 54% of GDP.

Figure 3. 7: Sectoral share in GDP 2017



Source: *pie chart created by Author using data from WDI*

Amid this transition, it is noteworthy that the economy of Ghana, during the period from the early 1960s to 1983, had a large share of Industry to GDP. The services sector

was not so vibrant compared to industry. Kwame Nkrumah's industrialization drive may have led to a higher share of industry to GDP.

Table 8

Growth rate and sectorial distribution of real GDP %

SECTOR	Annual average growth rate (%)				Sectoral share of GDP (%)					
	1993 - 1999	2000 - 2006	2007 - 2013	1993 - 2013	1993	2000	2005	2010	2015	2020
Agriculture	3.8	4.6	3.4	3.9	41.4	39.4	40.9	25.3	23.0	22.0
Industry	4.4	5.5	12.9	7.6	27.8	28.4	27.5	25.6	28.6	28.6
Mining and Oil	5.5	4.5	37.7	15.9	6.1	5.6	5.0	8.4	8.8	7.9
Manufacturing	3.6	4.4	4.8	4.2	10.5	10.1	9.5	6.9	6.9	6.3
Construction	7.3	6.6	15.8	9.9	8.3	9.7	10.0	8.9	10.5	12.6
Service	5.5	5.5	8.6	6.5	30.8	32.2	31.6	49.1	48.4	49.4
Trade	7.2	6.2	7.4	6.9	6.5	7.5	7.8	5.9	5.6	5.4
Finance	7.0	5.9	14.3	9.1	4.6	4.8	4.8	4.4	5.0	5.2

Source: Authors calculations based on data from WDI

As mentioned earlier, the share of agriculture to GDP had started to decline after the year 1983, this is particularly a result of the rainfed agriculture, predominantly at the behest of the weather.

The industry sector has been noted as the main engine of growth in many countries (Kalirajan, 2004; Tkalec et al., 2009). The industrial sector before independence was not vibrant as it was purposely aiming at extracting mineral ore. Interestingly, there were several manufactured products from Britain

Table 9:

Sectoral Distribution of Real GDP Period Averages %

SECTOR	1970-75	1976-82	1983-86	1987-90	1991-95	1995-2000
Agriculture	52	51	53	46	42	39.5
Industry	19	17	12	14	14	27.5
Services	29	32	36	40	44	33

After independence, there was a strong drive for industrialization. A study by Steel asserted in 1972 that the first President of Ghana largely invested in infrastructure. According to Steel, “the development of the industries were necessary inputs needed to expand the industrial sector”. Nkrumah’s policies including import substitution, where some foreign products are replaced with domestic production (Killick, 2010), led to the creation of many manufactured products in virtually every part of the country. It is no surprise that the manufacturing share of GDP was very high. It is important to point out that the industry sector after rebounding following the ERP in the mid 80’s.

4.1.4. Ghana sector specific policies & development plans

Development plans for Ghana can be traced back to the colonial period. A number of development policies have been drawn to stimulate development, improve living conditions, achieve high economic growth and for some, create accountable governance. The Guggisberg plan of 1920-1930 aimed at enhancing infrastructure development and was followed by the 1958-1959 Consolidation plan from after independence. A seven-year development plan from 1964 to 1970 was meant to accelerate economic transformations including through mechanized agriculture. A Rural development plan was developed in 1971-1972, betting on decentralization. Attempts to improve macro-economic conditions and relations with global markets include the Economic Recovery Programme and structural adjustment programmes from 1983 to 1999. From 2003 to 2005, attention was turned to poverty reduction and increased economic growth through the Ghana Poverty Reduction Strategy (GPRS) I. GPRS II of this plan was conducted in 2006-2009 to make further progress. In the 2010s, the Ghana Shared Growth and Development Agenda I (GSGDA I, 2010-2013) built on macro-economic performance, and GSGDA II (2014-2017) on economic transformation, along with the “Better Ghana Agenda”. Lastly, and currently still implemented, is the Coordinated Programme of Economic and Social Development Plan.

All these development plans were intended to achieve economic growth and reduce poverty, promote economic wellbeing and prosperity for the people of Ghana. The highlights of these plans is the Ghana Vision 2020, purposely identified to transition

the country into a middle-income economy by 2020. The GPRS I and II worked on the themes “Production and Gainful Employment”, “Human Resources and Basic Services”, “Specialized Programmes for the Poor and Vulnerable in Society” and lastly “Governance”. In 2000-2008, Ghana joined the list of countries that are considered Highly Indebted and Poor and, as part of IMF requirements, the country had to adopt a poverty-reduction strategy, hence the creation of GPRS.

With the discovery of Oil, the country positioned itself to take advantage of the Oil production, to efficiently manage and utilize petroleum revenues for accelerated development. This necessitated the GSGDA I and II. These development policies were designed to transition Ghana from a commodity-dependent country to an industrialized one, to reduce the dependence on rain-fed agriculture, and answer the need to mechanize and to utilize ICT.

4.1.4.1. Agricultural policies

Agricultural policies in Ghana can also be traced back to the colonial era, when the British intended to make the then colony Gold Coast a producer of raw materials for exports, while importing manufactured products. The policy was thus to educate, encourage and advise farmers to produce food crops for exports. The introduction of cocoa to the list of export products was not until the late 1870s by Tetteh Quarshie from “Fernando Po”, present-day Bioko (Equatorial Guinea). Cocoa now constitutes one of the major export crops of Ghana. Palm oil also became a major export crop.

Agricultural production and exports together with minerals led to the expansion and building of railways and roads to facilitate exports.

After Independence, the government mainly focused on modernizing agriculture. An Agricultural Development Cooperation was formed for this purpose and spearheaded by the government at the time, with massive public investment. The state-run agricultural interventions were socialist in ideology and were not sustained by subsequent governments. After the overthrow of the first independent government, the government that assumed power adopted a capitalist approach to the development of agriculture. Among other things, they established a bank primarily meant to provide credit to farmers, to support and promote agriculture. The Agricultural Credit and Cooperative Bank, which later became the Agricultural Development Bank, was established in 1965. Subsequent governments did not maintain these policies together with policies targeted at rural agricultural development in a bid to discourage rural-urban migration. Up until the 1970s, as a result of abandoning these policies, there was a decline in agricultural production until the Structural Adjustment programmes began in 1983.

In that period, several other policies were implemented, the Nkrumah government state farms gradually collapsed, and the popular “Operation Feed Yourself” and “Operation Feed Your Industries” adopted in 1972-1974 by the government to increase agricultural production and use its products to use as raw materials needed by industries collapsed too. During this time, there was a price ceiling for agriculture,

especially cash crops (cocoa, rice and maize). These policies were not very successful as agriculture was largely rain-fed, and also as a result of a tax on agricultural products.

The Structural Adjustment Programme (SAP) under the Economic Recovery Programme (ERP) insisted on liberalizing the agricultural sector. The policy was focused on deregulating the input and output market by government, on removing subsidies for fertilizers and other agrochemicals subsidy on some selected agricultural commodities – a measure which was found to be inefficient considering its untimely occurrence and the unavailability of agricultural inputs. The result of this policy was an increase in the cost of inputs, heavily affecting productivity in the sector. The pre-negotiated or guaranteed prices for maize, rice and a few other crops were discontinued. Cocoa, on the other hand, still enjoyed the guaranteed price because of its role in exports and the Ghanaian economy at large. The results of the deregulation and liberalization are mixed. For example, after deregulation, food products had higher price instability compared to the period before deregulation. A study by Samuel Asuming-Brempong found that the instability index of maize was of 8.31 in the pre-liberalization era and 17.43 for the post-liberalization period.

By virtue of the strategic importance of cocoa to Ghana's development and following low prices of the crop on the world market due to an inefficient state-run buying and marketing company, the ERP emphasized private sector participation in the buying and selling of cocoa. The Ghana Cocoa Board, the state agency in charge of the buying and marketing of cocoa, was riddled with inefficiencies, leading to the low prices which

affected farmers and caused low outputs. The cocoa yields decreased, and the Ghana cedi was devalued. The ERP therefore encouraged competition in the purchase of cocoa beans. Two private buying companies, Universal Crop Protection Ltd. and Cashew and spices, were given permission to purchase cocoa rivaling the state subsidiary company Produce Buying Company (PBC).

The intervention described above led to an increase in prices paid to producers, encouraging farmers to increase output. Greater efficiency and competition led to competition in the internal affairs of the cocoa sector in Ghana? The Ghana Cocoa Board (Cocobod), however, is still the sole marketer of cocoa in Ghana, after aggregating all outputs from different licensed buying companies in Ghana.

Right after the ERP, several other policies were implemented in Ghana. Notably, there was the Agricultural Services Rehabilitation Project (ASRP) from 1987 to 1990, primarily to ensure a strengthened institutional framework by building staff capacity at the Ministry of Food Agriculture, and the privatization of tractor servicing and fertilizer marketing.

The Medium-Term Agricultural Development Programme (MTADP), a policy document funded by the World Bank and utilized by the Ministry of Food Agriculture to improve the agricultural sector, set out an ambitious annual agricultural growth rate goal of 4%. The programme recorded some progress, with food production soaring above the population growth between 1994 and 1997, and the increased income of rural populations and farmers. It also impacted poverty levels. The program boasted an

increase in non-traditional export crops such as pineapple. An over 200% increase was recorded for outputs of cassava and maize, and a 4.3% average increase for cocoa. Livestock and fisheries, however, experienced stagnant levels – perhaps because of concentration in the non-traditional export crops.

Other policy plans include: The Agricultural Diversification Project, the National Agricultural Research Project, the National Agricultural Extension Programme and the Ghana Agricultural Sector Investment Project (GHASIP), among others. These policies have had a direct impact on the agricultural performance in Ghana, which largely affects the performance of the Ghanaian economy. The share of agriculture to the economy has however decreased over the years. A more critical look at this sector and its effects on economic performance must be taken.

4.1.4.2. Industrial sector policies

Ghana, like many other developing countries, wanted to reduce dependence on former colonial powers. Ghana embarked on a wide scale industrialization strategy to spur growth. To achieve this ambition, there was heavy investment in manufacturing industries, largely run by the state, and domestic up and coming industries were protected against imports from foreign companies. Ghana's notable industrialization policies include Import Substitution Industrialization (ISI) for the period from 1965 to 1983, liberalized industrialization heavily influenced by the ERP for the years 1984 to 2000, and a value-added industrial development strategy.

During the colonial period, the industry sector was characterized by a very small domestic manufacturing sector, contributing almost negligibly to growth in proportion. The industrial sector was not a priority of the colonial masters, as they relied on manufactured products from Britain and focused on the extraction of raw materials. After independence, President Kwame Nkrumah embarked on an extensive industrialization programme, emphasizing import substitution. ISI was meant to diversify the economy created to be dependent on commodity exports, and to achieve high economic growth.

As is typical of developing countries embarking on ISI, some selected industries were protected against imports, viewed as salient for industrial development. The ISI was a mix of socialism and macro-economic policy embedded in the national development of the then government. The large-scale state-operated manufacturing industries yielded some results and the gross output increased from 19% to 32% between 1962 and 1966, then to 42% in 1967. According to Steel (1972), output from the state-owned enterprises and joint-venture companies outpaced privately owned companies by 250%. The corresponding economic growth during the 1967-1977 period was of 0.3, 6.3, 9.3 and 5.2%. The ISI period saw the development of the Volta Aluminum Company (VALCO), of saw mills and timber processing companies, cocoa processing companies and breweries among others. The ISI started to lose steam when balance of payment and overvaluation issues began to creep up and import bills needed for manufacturing started piling up, along with a host of administrative and import

licensing controls. This eventually led to excess capacity investment in the wrong sectors and no linkages with other growth propelling sectors (World Bank, 1985.)

The Structural Adjustment Programme at the onset of 1985 was set to address the bottlenecks of the ISI: high cost of industrialization and inefficiency in SOEs among others. The SAP emphasized trade policy reforms and exchange rate control. The then government was pro-liberalization. Ironically, the liberalization of imports led to the devaluation of the cedi and increased imports, ultimately leading to a deterioration in the balance of payment. The cedi experience as devaluation as high as 90%, leading to a series of protests and the overthrow of the government. The 1970s and 1980s were plagued with declining exports and a host of other macro-economic problems. Inflation also soared as the government resorted to borrowing from the domestic market, affecting private-sector credit needed for expansion and growth. This period marked the sectoral shift in favor of services.

The ERP, which started in 1984-1988, sought to put the macro-economic conditions back on the right track. Adopted policies include the liberalization of the exchange rate and for the interest rates to be determined by market forces, as well as the establishment of the Ghana Investment Promotion Centre, meant to coordinate investment activities in the country. Further ERP policies include the privatization of state-owned enterprises among others. The ERP did have a positive effect structurally, as the manufacturing sector responded well and the industry contribution to GDP grew at an average of 11.2% per annum. The trade liberalization spurred this performance.

These achievements did not last for long, as private sector response to the reforms, and the ERP caused bureaucratic and institutional challenges, as there were no proper linkages between the manufacturing sector and other sectors (in particular that of services). These effects and breaks in power and water supply spelt doom for the progress that had been achieved. The ERP policies backfired as a result of competition from abroad and local industries started folding up, with exchange rate depreciation as a result of increased imports, and a general failure to allow restructuring to take some time before actual implementation.

The ERP changed the contribution of manufacturing to industry. For example, between 1984 and 1990, the manufacturing average contribution to industry was of 64.4%. Between 1991 and 1995, it declined to 55% and from 1996 to 2000, to 36.2% (Source: National Accounts). On the other hand, and despite the declining share of manufacturing in the country, the same period saw an increase in Foreign Direct Investments (FDI) targeted at the mining sector. Mining contribution to GDP increased from 8.7% between 1984 and 1990, to 12.4% between 1991 and 1995. Finally, it increased to almost the double from 1996 to 2000, to 22.6%.

ISI could have worked had there been a careful study on what sectors to invest in. Also, policy inconsistencies coupled with tight control on exports led to its failure. The early 2000's marked the beginning of a new strategy to industrialize. The new policy focused on private sector-led growth with an emphasis on poverty reduction, wealth creation and inclusive economic growth. The industrial growth based on agriculture

and industry linkages was the focus of the Ghana Poverty Reduction Strategy I, and of GPRS II. As indicated, the policy set out to promote the processing of agricultural products that will feed into industry, and the enhancing of exports to make domestic industries competitive. This strategy was confronted with mixed results. The industry sector experienced a growth from 2.9% of GDP to 4.7% in 2002. This growth was sustained all the way until 2006, when the share of industry to GDP declined to 20.8% in 2006. During this period, construction was the main contributor to growth, recording higher growth year after year, starting from 4.1% in 2001, to 9.9% in 2005 and 24.7% in 2006. This growth was on the back of infrastructure development projects, including the Accra-Kumasi highway and the Accra-Cape Coast highway. These projects were meant to facilitate and open up access from farm gates to markets for export. Other projects took place, such as the construction of a gas pipeline from Nigeria to Ghana. The industry sector thus recorded an impressive performance, but there were still frequent power outages and instability, continued dependence on imports and the adverse effect of liberalization on domestic industries. The composition of industry changed in 2011, following the discovery of Oil.

4.1.4.3. Petroleum production and policies in Ghana

Ghana's quest to finding hydrocarbons dates back to the 1970s. Oil was discovered around a coastal area called Sattpond. Exploration activities ended because the reserves found were not of commercial quantity. The 1980s government put in place structures to explore Oil potentials in Ghana, and enacted several laws aimed at restructuring the

energy sector. The first state Oil company, Ghana National Petroleum Corporation, started operations in 1985 purposely to coordinate production and exploration activities. The Petroleum (exploration and production) law of 1984 and the Petroleum Income Tax Law of 1987 were passed.

In the year 2007, large commercial quantities of offshore hydrocarbons were found in Ghana. The state Oil company did not have the capability to develop the discovered Oil fields. Assistance from international partners led to Kosmos Energy and Tullow Oil developing the Oil wells. Kosmos Energy is an American-based Oil drilling company and Tullow Oil is a British company. These two companies managed the first Oil field, called the Jubilee field, which coincidentally had gas reserves.

The volume of crude Oil from the first three liftings amounted to 2,980,720 barrels. Currently, the total production amounts to 5,745,014 barrels and 20,545.44 cubic feet of natural gas. In order to ensure that petroleum revenues are used prudently and with the welfare of all Ghanaians in mind, the Petroleum Revenue Management Act (PRMA) was passed (2011). The PRMA (Act 815), in its mission to regulate petroleum revenues, gives power to the Ministry of Finance to manage the funds, to distribute them to selected sectors of the economy, and to prepare reports on such revenues. Most importantly, the law mandates the Ministry of Finance to determine 4 (four) priority areas for Oil and gas revenues to be spent on.

In addition to the Jubilee field, two other fields were discovered in 2009: the Tweneba Emyera Ntomme (TEN) Oil field and the Sankofa Gye Nyame (SGN) Oil field, both

estimated to produce 500 million barrels of Oil. In September 2017, a court case adjudicated by the International Tribunal for the Law of the Sea (ITLOS) involved a maritime dispute between Ghana and its neighbouring country Cote d'Ivoire. The tribunal ruled in favour of the Ghanaian side, opening for increased Oil and gas production in the coming years.

Revenues from petroleum come from the royalties paid by Oil companies to the state. The state receives between 5 and 12% of the total production of Oil. There is also the carried interest deriving from the cost of exploration development by the state Oil company. This interest is of 15% under current arrangements. Lastly, there is an additional interest related to the state increasing its share in the Oil fields with other Oil extracting companies. Currently, the Ghanaian government can take a 25% additional interest.

Surface rentals correspond to money paid to the state from the use of the land or the sea for Oil exploration by international Oil companies (IOCs). Dividends and capital gains are taxes paid by IOCs and the state Oil company after sales of petroleum and profits.

Table 10

Revenue source	Revenue accrued
Royalty	5% royalty on total Oil production
Carried Interest	The state Oil company GNPL is allowed a 10% carried interest
Additional Interest	The state Oil company GNPC has acquired a 3.64% of interest
Additional Oil entitlement	Interest between 10 and 25% of revenues from petroleum, less royalties and carried interest
Tax	A 35% tax on profits is applied

Source: Public Interest and Accountability Committee report

Revenues from these listed sources are kept in a fund called the Petroleum Revenue Holding Fund. The Fund receives all revenues before allocations and disbursements are made. The funds are deposited at the BOG

From the Petroleum Holding Fund, revenues are then distributed to the National Oil Company, and then to the Annual Budget Fund amount, which is essentially the national budget. In the absence of a long-term plan, the government spends this money on four prioritized areas – and these priority areas are subject to change every four years. 70% of the revenues from the Petroleum Holding Fund are sent to the ABFA

The five priority areas selected by the government are agriculture, physical infrastructure, education service delivery, health service delivery, and road and rail infrastructure development.

4.1.4.4. The two petroleum funds

(a) Stabilization Fund

The stabilization fund, as the name implies, is meant to absorb and cushion the economy in times of low Oil prices and other external shocks the economy may face, or other deficits in Oil revenues that have been anticipated. This fund receives nothing more than 70% of the funds dedicated to the two petroleum funds. There is also a cap on how much the fund can receive, while the excess money is used for debt repayment or sinking fund. The cap is reviewed upward or downward depending on the performance of Oil prices on the world market.

(b) Ghana Heritage Fund

This fund is monies saved for future generations after Ghana's petroleum reserves become depleted. The money is kept safe and invested outside of the country in risk-free instruments, bonds, etc. The heritage fund receives 30% of the Funds set aside for the two petroleum funds.

After the depletion of Oil reserves after 50 years, the two petroleum funds would be consolidated to become the Ghana Petroleum Wealth Fund. The PRMA is governed by a mix of governmental and an independent body. Beside the Ministry of Finance, the Ministry of Energy, Parliamentary service and the Ghana Revenue Authority, an independent body, the PIAC or Public Interest and Accountability Committee, is purposely meant to monitor and evaluate the utilization of petroleum revenues and

investments through an independent lens. The Committee is composed of an independent think-tank, representation from civil society organizations, a representative from the Trade Union Congress, members of the media, church body, some Christian members and a Muslim body. The chairperson is chosen through elections to represent the group.

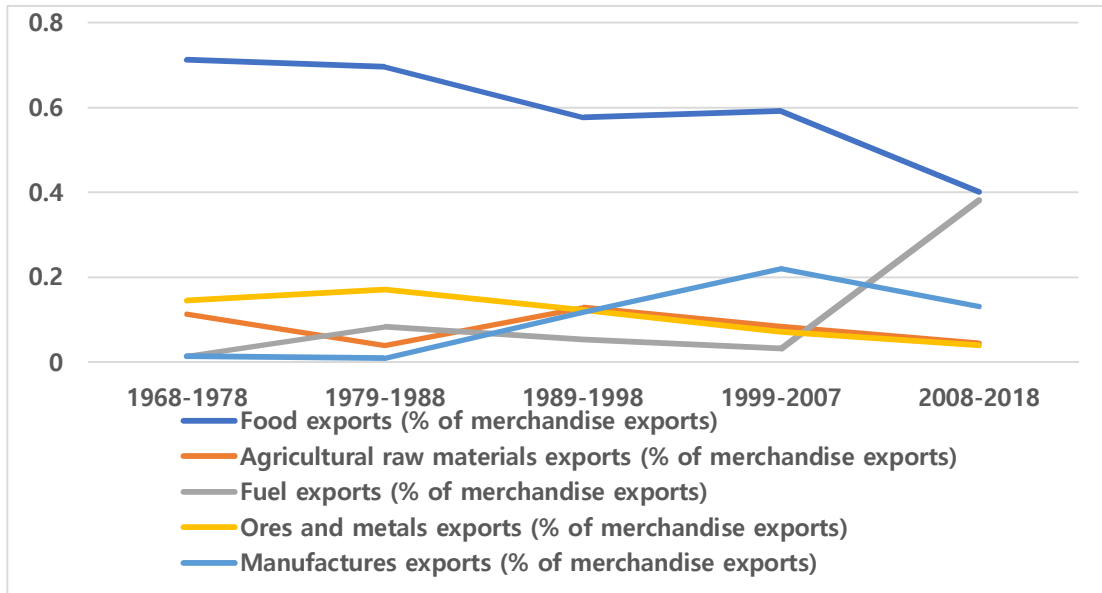
Part II: Investigating the resource curse channel, the case of Ghana

Natural resource abundance should intuitively lead to an increase in economic growth. However, there are five channels that impede natural resources from impacting on growth (Gylfason and Zoega, 2001). In this part, we are exploring the effect of two of these channels on the economy of Ghana.

4.2.1. Dutch disease channel

When the Netherlands discovered natural gas in the 1950s and 1960s, it was associated with an overvalued currency and a host of other problems. Natural resource reliant countries are susceptible to price fluctuations and booms and busts, such that an increase in the price of commodities leads to high economic growth and vice versa.

Figure 4. 8 : Ghana Composition of exports period average



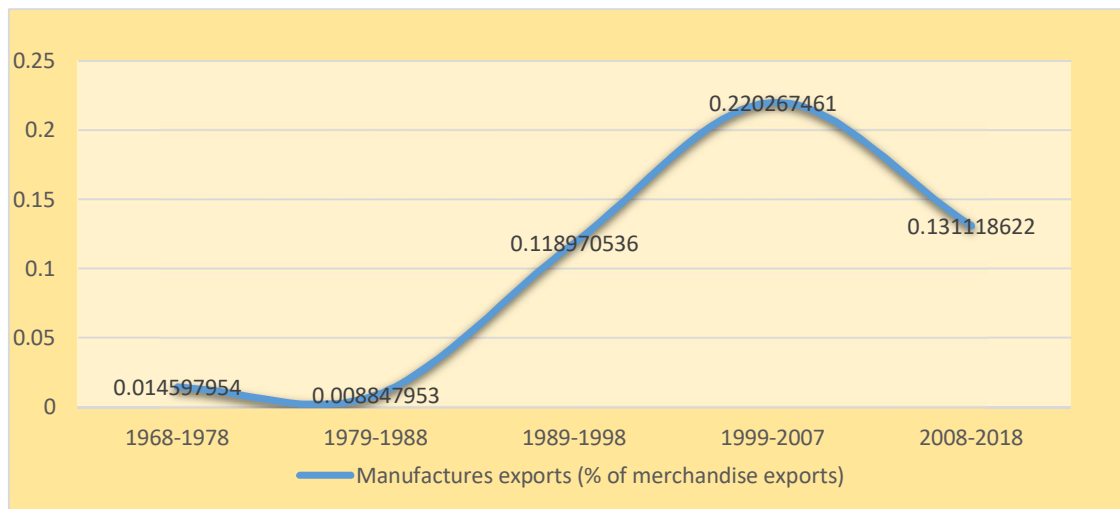
Source: Authors calculation based on WDI

When a country practices a fixed exchange rate regime, like Ghana, the price volatility affects the earnings the country makes from exports. This then impacts the exchange rate, making it volatile. Exporters and investors become worried and uncertain, discouraging exports and potential new foreign investors. This extends to other trades, and the uncertainty can lead to hoarding of the foreign exchange, stoking black market activities.

This phenomenon is described as the Dutch disease, as indicated in the literature review. Dutch disease is detrimental to total exports, and the composition of exports of a country is greatly affected as growth-inducing exports like manufacturing and services are reduced. In that regard, a country

that experiences this problem will crowd out foreign capital.

Figure 4. 9 : Manufacturing exports as percentage of total exports



Source: Author's construction based on data from WDI

Exports of goods and services of Ghana shows an upward trend in the total merchandise exports to GDP since the 1998-2007 period.

FDI/GDP has increased over the years, peaking in 2010-2011 at the discovery of Oil in Ghana.

Manufacturing exports as a percentage of total exports has been increasing from a quasi-negligible proportion to a high of 2% during the 1999-2007 period, marginally declining during 2008-2018.

4.2.2. Rent seeking & Institutional Quality channel

Rent seeking manifests itself often in most resource-rich countries, especially on the African continent. The presence of Oil revenues can create corruption – in their study, Ades and Di Tella (1999) as well as Angrist and Kugler (2008) found that “Oil discovery in Sao Tome and Principe led to perceived increases in corruption.”

Usually, rent seeking in Africa takes the form of governments offering contracts to cronies, family members and friends alike. This creates a situation where people do not add value to the economy through political favours, yet still get paid. Bardhan and Mauro (1997, 1995) argue that “cronyism and corruption tend to impede economic efficiency and growth”.

In Ghanaian context, according to World Bank World Governance Indicators, the country has made significant improvements on most of these indicators, placing Ghana in the 50-70 percentile range of governance, higher than most African countries

Furthermore, according to the United Nations, the Human Development Index (HDI) places Ghana as a medium human development country, once again above most African countries.

Ghana is also at rank 117 as an electoral democratic country according to the

Freedom House, Freedom in the World and the Economist Intelligence unit. The Democracy Index ranked Ghana 78th in the world for flawed democracy. The overall score of 6.02 in the index, on a scale where the maximum is 9.80, places Ghana way ahead of other natural resource dependent countries, especially in Africa.

Ghana's score on the Rule of Law index is also of significant interest. According to this index, Ghana scores high for Freedom of assembly and association pointing to a very socially diverse and tolerant society. Again, Ghana scores impressively on the Freedom of the Press Index 2011, with a free press that keeps the government in check and serves as its fourth arm. Ghana scored 26 out of 30 in this index with 0-30 as free and (61-100) as not free.

As mentioned earlier, Ghana has an independent body, PIAC, that tracks government spending of the petroleum revenues.

CHAPTER FIVE: POLICY RECOMMENDATION AND CONCLUSION

5.0. Introduction

This Chapter has experiences from other resource rich developed economies that can provide lessons for Oil exporting countries in Africa, some policy recommendations, and concluding remarks.

5.1. Comparative Analysis of Key policies in selected Advanced resource exporting countries

In a 2013 study, Peter Kaznacheev analyzes the experience of five countries with a high share of income deriving from natural resources: Australia, Canada, Chile, Malaysia and Norway. What brings these countries together is that each of them achieved high levels of economic and social development, hence disproving the resource curse hypothesis.

Despite the glaring differences that come to mind about these countries, each case study emphasized the importance of the natural resource *sector structure* in their economic model. These structures do differ from country to country however, to fit their local context. For the Australian and Canadian case, the diversity of industries and players in the extractive sector, which is fully private, renders it extremely competitive. Companies from both countries also conduct exploration activity worldwide, which makes their extractive sector truly international. Chile's extractive sector is more mixed, as the biggest copper mining company is majority state-owned, whereas private mining companies grow faster than their public counterpart. The ratio is about 3:1 in favour of the private sector in the copper mining industry. This mismatched pace is not found within the Malaysian case, in which Kaznacheev sees a

true “symbiosis between state and private companies”. The government has the upper hand, owning 100% of Petronas (the most efficient national Oil company according to experts) and 60% of Oil and gas production. The remaining 40% is shared by international and national companies alike, all of which have passed agreements with Petronas before starting operations. The 60% public / 40% private ratio is found in Norway as well.

These diverse sector structures bring about observations about the traditional divide between economic liberalization and government intervention, which Kaznacheev underlines. Australia, Canada and Chile are among the world’s leaders in terms of *economic freedom*. Besides common components including a flexible labour market and low taxes in the case of Australia, liberalization reaches the extractive sector with easy access to mineral licensing and permits, boosting investment. This is coupled, just as in Canada, with a “highly developed framework of economic, social and political institutions” which allows the country to have a diversified economy, protecting it from price volatility and general vulnerability to global crises. Strong institutions and a “favourable investment climate” also protect Chile’s economy, which is the only South American member of the OECD. However, Chile is no Canada nor Australia in terms of economic power and sector diversification – which is why it has *government stabilisation policies* in place to avoid the feared resource curse: a stabilisation fund prevents “the non-mining tradable sector” from disappearing, a safeguard against Dutch disease. This type of policies is even more prevalent in the Malaysian and Norwegian cases. The Malaysian government heads several sovereign funds, creating a

safety net against “high inflation and currency appreciation” and hedging the government’s social obligations against commodity price volatility. Among the five cases, Norway shines by its high-GDP economy with one of the best institutional systems in the world. Although the country has a high level of economic freedom, this is coupled with strong government intervention with Oil and gas revenues, a large portion of which are sent to the Government Pension Fund of Norway, “the second largest sovereign fund in the world”.

When it comes to *property and licensing*, Kaznacheev notes that exploration and production licences are easy to obtain in Australia and Canada, especially as the latter’s mineral tax regime is relatively lower than other jurisdictions. This goes hand in hand with the economic freedom analysis. In the same vein, Chile’s 1981 Constitutional Mining Law is praised by global industry leaders as it protects concession-holders against expropriation and favours their strategic development. The Malaysian case is of course marked by Petronas’ authority. Private operators are put at ease as the security of their tenure and production sharing contracts is very high. However, Petronas reserves its sovereign right to a carried interest (between 15 and 25%) in exploration and joint development. The Norwegian model is marked by high security of tenure and a very stable and unchanging tax regime.

As for the role of *geography*, the case study countries either take advantage of their strategic location or engage in international expansion. 75% of Australia’s exports are sent to Asia, with strong and ancient business and policy relations on the continent.

The Canadian advantage is being neighbours with its biggest trade partner, the United States. Malaysia, on the other hand, bets on international expansion in over 30 countries, which allows Petronas to gradually lower its domestic production levels. As for Norway, the state Oil company is active in 15 countries, and on the Arctic shelf, which can be seen as a location advantage.

Lastly, *innovation* appears to be a key factor for Australia and Canada, whose high-GDP and diversified economies, plus institutional strength, allow for encouraging Research & Development as well as developing and attracting international and entrepreneurial talent.

Table 11

Key components of five countries' economic model according to P. Kaznacheev (2013)

<i>Element type</i>	Australia	Canada	Chile	Malaysia	Norway
<i>Sector structure</i>	100% private	100% private	Mixed (private advantage)	Mixed ("symbiosis" with public advantage)	Mixed (public advantage)
<i>Government stabilisation policies</i>			Yes	Yes	Yes
<i>Economic freedom leader</i>	Yes	Yes	Yes	Medium-high + business leader	High + business leader
<i>Property, tenure and licencing</i>	Property rights and mineral	Property rights, mineral	Property rights and concessions	Production sharing contracts	Security of tenure and tax regime

<i>Element type</i>	Australia	Canada	Chile	Malaysia	Norway
	licencing	licencing and taxation		and security of tenure	
<i>Geography</i>	Location	Location		International expansion	Operations worldwide
<i>Other element(s)</i>	Innovation	Innovation			

Source: Authors own construction based on Kaznacheev, Peter 2013

In the light of these five case studies, it appears that the Malaysian case is the most encouraging for a parallel to be drawn with Ghana. Malaysia remains a developing country and it does not have the long-standing advantages of Australia or Canada, nor does it have the strongest institutional framework. It is a young country, having achieved independence in 1957. Yet, it has not fallen prey to the resource curse and is aiming for OECD membership. As Kaznacheev explains, Malaysia has managed to keep a strong government-direct industrialisation dynamic together with gradual, strategic liberal policies. What is most inspiring about Malaysia is that it has truly adapted to being a natural resources economy – which it has “always been”, from tin, palm Oil and rubber to Oil and natural gas. Malaysia undertook several timely diversification strategies, avoiding the collapse of certain commodities “just in time” by going from tin to Oil, from Oil to natural gas, and from sole domestic production to operations abroad – which means exporting not simply resources, but also project management expertise and a unique Asian and Muslim experience.

5.2.1. Policy recommendations

The dependence on natural resources leads to a vicious poverty trap, as a result of low Oil prices vulnerability, exchange rate instability and a resultant increase in borrowing

In the study, we found that Fuel prices indeed promotes growth, fuel exports follows in a similar fashion albeit not significant. Oil exporting African countries have achieved some substantial economic growth in recent times largely on account of increased prices of commodities. Governments in Oil exporting countries must set up a sovereign fund or a wealth fund to save and invest funds from Oil rents during the times of high Oil prices to cushion them against periods of declining Oil prices in future.

There should be structural reforms in Oil exporting countries. Proceeds from Oil revenues should be channelled into the non-tradable sectors of the economy particularly manufacturing Governments must also use proceeds from the Oil revenues to diversify their economies; adding value to primary products and embarking on an industrialization drive. In furtherance, recipient Governments of ODA in Oil exporting African countries should advocate for the financing for economic diversification.

Oil revenues should be invested in human capital with hindsight natural resources are depletable. Educational training principally vocational training should be given prominence

Governments must endeavour to provide checks and balances and adhere to the rule of law, to ensure strong institutions.

Governments in Oil exporting African countries should formulate long term plans and policies on local content to take advantage of the supply chain provided in the exploration and drilling of Petroleum

5.2.2. Conclusion

Cavalcanti et al argue that “price volatility can harm growth only at a sufficiently high level of economic dependency on income from a certain export product”.

The study sought to find the nexus between natural resource reliance and economic growth, wading into the resource curse hypothesis. The study covered 27 resource dependent African countries. (14 of which are Oil exporting countries). Using a Panel data fixed effect analysis, the research found a very significant positive relationship between Oil prices and economic growth.

In addition, the present work found a positive but not significant relationship between fuel exports, and the fuel price-export interactive term. Conversely, the piece of research found a negative association between Government effectiveness and growth, indicating very weak institutions within the countries under the study.

Furthermore, the results found a positive significant relationship between FDI and economic growth.

The analysis shows the importance of institutional frameworks in improving economic and social performance of resource rich African countries. The study advocates for diversification, value addition and an establishment of a sovereign wealth fund to mitigate the effects of declining Oil prices. The research argues that natural resources

are not a curse but hinges on the role of institutions in transforming them into blessings.

APPENDIX

1.1 Resource dependent countries and Government effectiveness ⁷ in Africa sample data

<i>Country</i>	Type of Natural resource	Government Effectiveness
<i>Angola</i>	Oil	-1.14155
<i>Botswana</i>	Diamonds	0.515178
<i>Cameroon</i>	Oil	-0.83879
<i>Central African Republic</i>	Diamonds/Gold	-1.52618
<i>Chad</i>	Oil	-1.28405
<i>Congo Dem Rep</i>	Minerals and Oils	-1.64082
<i>Congo, Rep.</i>	Oils	-0.92309
<i>Cote d'Ivoire</i>	Oil and Gas	-1.14155
<i>Equatorial Guinea</i>	Oil	-1.47517
<i>Gabon</i>	Oil	-0.70093
<i>Ghana</i>	Gold/Oil	-0.09006
<i>Guinea</i>	Mineral/ Mining products	-1.05571
<i>Liberia</i>	Gold/Diamond/ Iron ore	-1.39965
<i>Libya</i>	Oil	-1.27293
<i>Madagascar</i>	Oil and Gas	-0.8092
<i>Mali</i>	Oil	-0.84391
<i>Mauritania</i>	Iron ore	-0.63605
<i>Mozambique</i>	Bauxite/Gas	-0.58257
<i>Niger</i>	Uranium	-0.7611
<i>Nigeria</i>	Oil	-1.02712
<i>Sao Tome and Principe</i>	Oil	-0.66074
<i>Sierra Leone</i>	Diamonds	-1.23467
<i>Sudan</i>	Oil	-1.31338
<i>Tanzania</i>	Gold/precious stones	-0.54722
<i>Togo</i>	Phosphate	-1.27084
<i>Uganda</i>	Oil	-0.51868
<i>Zambia</i>	Copper	-0.73971

⁷ Estimate Period average (1996-2018)

1.2 World Bank Commodity Price Data (The pink sheet) Annual Real Prices Crude Oil average (\$/bbl)

YEAR	KCRUDE_PETRO
1996	22.65
1997	22.31
1998	15.90
1999	22.42
2000	35.48
2001	31.80
2002	32.94
2003	36.30
2004	44.38
2005	60.88
2006	71.49
2007	74.52
2008	94.32
2009	64.02
2010	79.04
2011	93.67
2012	95.27
2013	94.83
2014	88.90
2015	51.86
2016	45.53
2017	54.28
2018	67.10

REFERENCES

- Ackah, Charles, Charles Adjasi, and Festus Turkson. 2016. *Industrial Policy in Ghana: Its Evolution and Impact*. Oxford University Press.
<https://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780198776987.001.0001/acprof-9780198776987-chapter-3>.
- Akanni, Olomola Philip. 2007. "Oil Wealth and Economic Growth in Oil Exporting African Countries," September, 40.
- Aryeetey, Ernest, and Ravi Kanbur. 2006. "GHANA'S ECONOMY AT HALF CENTURY: An Overview of Stability, Growth and Poverty." In .
- Asiedu, Cynthia Agyiriwaa. n.d. "Natural Resource Dependence and Economic Growth in Ghana: The Effect of Oil Production," 63.
- Bacon, Robert. 2005. "The Impact of Higher Oil Prices on Low Income Countries and the Poor.Pdf." *ESMAP*, Knowledge Exchange, 1 (August).
https://www.esmap.org/sites/default/files/esmap-files/KES01_The%20Impact%20of%20Higher%20Oil%20Prices%20on%20Low%20Income%20Countries%20and%20the%20Poor.pdf.
- BBC News*. 2016. "Falling Oil Prices: How Are Countries Being Affected," January 18, 2016. <https://www.bbc.com/news/world-35345874>.
- Benghida, Sonia. n.d. "FACTORS AND CHALLENGES IN DEVELOPING COUNTRIES UNDER THE RESOURCE CURSE," 11.
- Daniele, Vittorio. 2011. "Natural Resources and Economic Growth: A Curse or a Blessing?" SSRN Scholarly Paper ID 2012298. Rochester, NY: Social Science Research Network.
<https://papers.ssrn.com/abstract=2012298>.
- Darko, Christian Kwasi. 2015. "Determinants of Economic Growth in Ghana," 22.
- Federal Reserve Bank of San Francisco. 2007. "What Are the Possible Causes and Consequences of Higher Oil Prices on the Overall Economy." November 2007.
<https://www.frbsf.org/education/publications/doctor-econ/2007/november/oil-prices-impact-economy/>.
- "Ghana's Growth History: New Growth Momentum since the 1990s Helped Put Ghana at the Front of Poverty Reduction in Africa." n.d. World Bank Blogs. Accessed October 17, 2019. <https://blogs.worldbank.org/african/ghanas-growth-history-new-growth-momentum-since-the-1990s-helped-put-ghana-at-the-front-of-poverty>.

- Gylfason, Thorvaldur. 2001. "Natural Resources and Economic Growth: What Is the Connection?" SSRN Scholarly Paper ID 279679. Rochester, NY: Social Science Research Network. <https://papers.ssrn.com/abstract=279679>.
- Havranek, Tomas, Roman Horvath, and Ayaz Zeynalov. 2016. "Natural Resources and Economic Growth: A Meta-Analysis." *World Development* 88 (December): 134–51. <https://doi.org/10.1016/j.worlddev.2016.07.016>.
- Hayat, Arshad, and Muhammad Tahir. 2019. "Natural Resources Volatility and Economic Growth: Evidence from the Resource-Rich Region." MPRA Paper. 2019. <https://mpra.ub.uni-muenchen.de/92293/>.
- Herrera, Santiago, and Dilek Aykut. 2014. "Long-Run Growth in Ghana: Determinants and Prospects," November. <https://papers.ssrn.com/abstract=2526572>.
- Jalloh, Mohamed. 2011. "NATURAL RESOURCES ENDOWMENT AND ECONOMIC GROWTH: THE WEST AFRICAN EXPERIENCE." *Journal of Natural Resources and Development*, August. <https://doi.org/10.5027/jnrd.v3i0.06>.
- Luk, Michelle. 2016. "How Oil-Exporting Countries Navigate Low Price Environments," 26.
- Moawad Ahmed, Sayed. 2016. "The Impact of Oil Prices on the Economic Growth and Development in the MENA Countries." MPRA Paper. March 23, 2016. <https://mpra.ub.uni-muenchen.de/89073/>.
- Organisation for Economic Co-operation and Development, and OECD-DAC Network on Development Co-operation and Environment, eds. 2008. *Natural Resources and Pro-Poor Growth: The Economics and Politics*. DAC Guidelines and Reference Series. Paris: OECD Publishing.
- Park, Bokyeong, and Kangkook Lee. 2006. "Natural Resources, Governance, and Economic Growth in Africa." *Journal of East Asian Economic Integration* 10 (December): 167–200. <https://doi.org/10.11644/KIEP.JEAI.2006.10.2.161>.
- Rentschler, Jun E. 2013. "Oil Price Volatility and Economic Growth." *World Bank Research Digest*. http://siteresources.worldbank.org/DEC/Resources/84797-1154354760266/2807421-1382041458393/9369443-1382041470701/Oil_Price_Volatility.pdf.
- "Sachs and Warner - NATURAL RESOURCE ABUNDANCE AND ECONOMIC GROWTH.Pdf." n.d. Accessed November 26, 2019. <https://pdfs.semanticscholar.org/7b14/045909f42117197b82a910782ab68330a3e7.pdf>.

Sachs, Jeffrey D, and Andrew M Warner. n.d. "NATURAL RESOURCE ABUNDANCE AND ECONOMIC GROWTH," 50.

"THE STATE OF COMMODITY DEPENDENCE 2014." 2014, 202.