

NATURAL RESOURCES AND ECONOMIC GROWTH IN GHANA:

LESSONS FROM RESOURCE-RICH COUNTRIES

By

Kwabena Biritwum

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements

for the degree of

MASTER OF PUBLIC POLICY

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ABSTRACT

NATURAL RESOURCES AND ECONOMIC GROWTH IN GHANA: LESSONS FROM RESOURCE-RICH COUNTRIES

By

Kwabena Biritwum

Ghana is blessed with several natural resources. The recently discovered crude oil in commercial quantities has yet to boost unsustained growth in Ghana. This study considers how Natural Resource can speed up economic growth in Ghana. It looks at examples from Botswana, Malaysia, Sweden, and Netherlands as well as other resource-rich nations and attempts to understand what they did differently. It also considers Ghana's comparative advantage and explores opportunities beyond it. It finally comes up with deliberate policy recommendations based on empirical data available which, if implemented, will transform not just Ghana but any Resource Rich Country, especially in the West African Sub-Region.

DEDICATION

To my ever loving wife Liana Biritwum and son Kwabena Berko Biritwum, for their love and support during my study each and every day.

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My profound gratitude goes to God Almighty for his grace, knowledge and understanding He gave me in the course of my study in KDI. My deep appreciation goes to my parents; Mr. Douglas Biritwum and Gloria Mpare as well as my siblings (Nana, Kofi, Cizzle and Abena Biritwum) for their constant support in my professional and academic life.

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ABBREVIATIONS

AFR - Sub-Saharan Africa

CCM - Ghana Chamber of Mines

CPI – Corruption Perception Index

ECA - Eastern Europe and Central Asia

FDI – Foreign Direct Investment

GDP- Gross Domestic Product

GFMS - Gold Fields Mineral Survey

IMF – International Monetary Fund

LAC - Latin America and the Caribbean

PDSF - Public Debt Service Fund

R&D – Research and Development

RSF - Revenue Stabilization Fund

TFP - Total Factor Productivity

VOC- "Vereenigde Oost-Indische Compagnie" (United East India Company)

WIC - West Indies Company (West-Indische Compagnie)

1. Introduction

Problem Statement

There is a notion that countries that are very rich in gold, diamond, oil, timber, arable land for cocoa or coffee might end up worse off because of these natural resources. The term used to describe the phenomenon is “Resource Curse” (Auty, 1990). It may sound like a paradox as, given the gift by nature, it would at least be expected that countries will use the additional revenue for goods and services that will benefit the populace. So why would we doubt that natural resource is a blessing for us? One reason is that we keep encountering examples of countries where natural resources have led to less desirable outcomes.

According to Nobel Prize winner in economics, Joseph Stiglitz, on average, resource-rich countries have done even more poorly than countries without resources, especially regarding volumes in trade with the rest of the world. (Appendix 3) He interprets that these countries have grown more slowly, and with greater inequality – just the opposite of what one would expect. It can be deduced that countries whose major source of revenue is natural resources can use them to finance health care, R&D, infrastructure, education, development, and redistribution to the needy and deprived (Stiglitz, 2005).

Ghana after having attained Low-Middle Income status in 2011 is faced with many challenges especially in the commercial trading of commodities, like cocoa, gold, and the recent discovery of oil in commercial quantities. It is, indeed, still in its budding stage on the coalesce management of most of its precious natural resource and therefore good and experienced knowledge is needed. There exist a huge potential in using Ghana’s natural resources as a stepping stone to grow the economy, industrialize, and cross the middle-income status into high-income country (Terkper, 2015). However, economic indicators and empirical evidence show differently. The country is battling with corruption, unreliable

utility and generally unsustain growth and so lessons from advanced natural resource-rich countries will be beneficial. This makes it paramount to identify lessons from advance natural resource-rich countries and employ it in the case of Ghana. In depth research is needed to determine how countries that have benefited immensely from their resource turned it into a blessing and leaped over the “middle-income-trap”.

Several Resource-Rich countries are bedeviled with corruption. Instances around the world confirm this phenomenon. For example the case in Brazil where Petrobras is said to have allegedly paid large amounts to Brazilian political parties to secure allegiance for future benefits. While in Nigeria, in 2014, the Central Bank Governor accused the political elite of stealing millions of dollars. There are also instances of autocracy where for example, Russia keeps drifting to authoritarianism motivated by its oil wealth. There is a similar case in the Middle East where some places have been tagged Petrol State because of its heavy dependence on oil and the running of governments in these particular states. There are also occasions where there have been civil wars as a result of natural resources, such as Sierra Leone. Like the former civil war in Sudan, which was fuelled by natural resources that lead to the splitting of Sudan into Sudan and South Sudan, a recent in-fighting within South Sudan is believed to be as a result of Natural resources. Finally the 1980 Iraq’s invasion of Kuwait which exemplifies international wars believed to be emanating from oil. Given the circumstances, social scientists lay claim that incidents such as these are more likely to be on account of the presence of natural resources (Wenar, L, 2015).

Some philosophers and other social scientist object those assertions and instead argue that it might be a coincidence. They question causality of the relationship with respect to the presence or existence of natural resources. They argue that, maybe Brazil, is just a very corrupt country and stealing among public officials is inherent in their operational culture, or

maybe Russia based on its imperial history was bound to be autocratic or what if the fighting within Sudan was based on religion or something other than natural resources.

The question, however, still holds - how can a country rich with natural resources that generates large revenues from natural resources for several decades be so poor, to the extent that it blurs the hope of discovering additional natural resource?

To try and answer this pertinent question, the author considers cross-country analysis, i.e. to compare countries that are abundant in natural resources to countries that are poor in natural resources and find important lessons that can be emulated by Ghana and those to avoid. Thereafter to focus on countries that have utilized their natural resources to accelerate economic growth in an attempt to find ideas for Ghana's natural resource gains.

According to Francesco Caselli of *London School of Economics and Political Science* (Department of Economics and Centre For Macroeconomics) and Paul Collier of *Oxford University and co-director of the International Growth Centre*, the proper harnessing of profits from natural resources in under-developed and developing countries will completely dwarf AID among developing nations which are natural resource rich (Collier Paul, 2009) (Caselli Francesco, 2015).

2. Literature Review

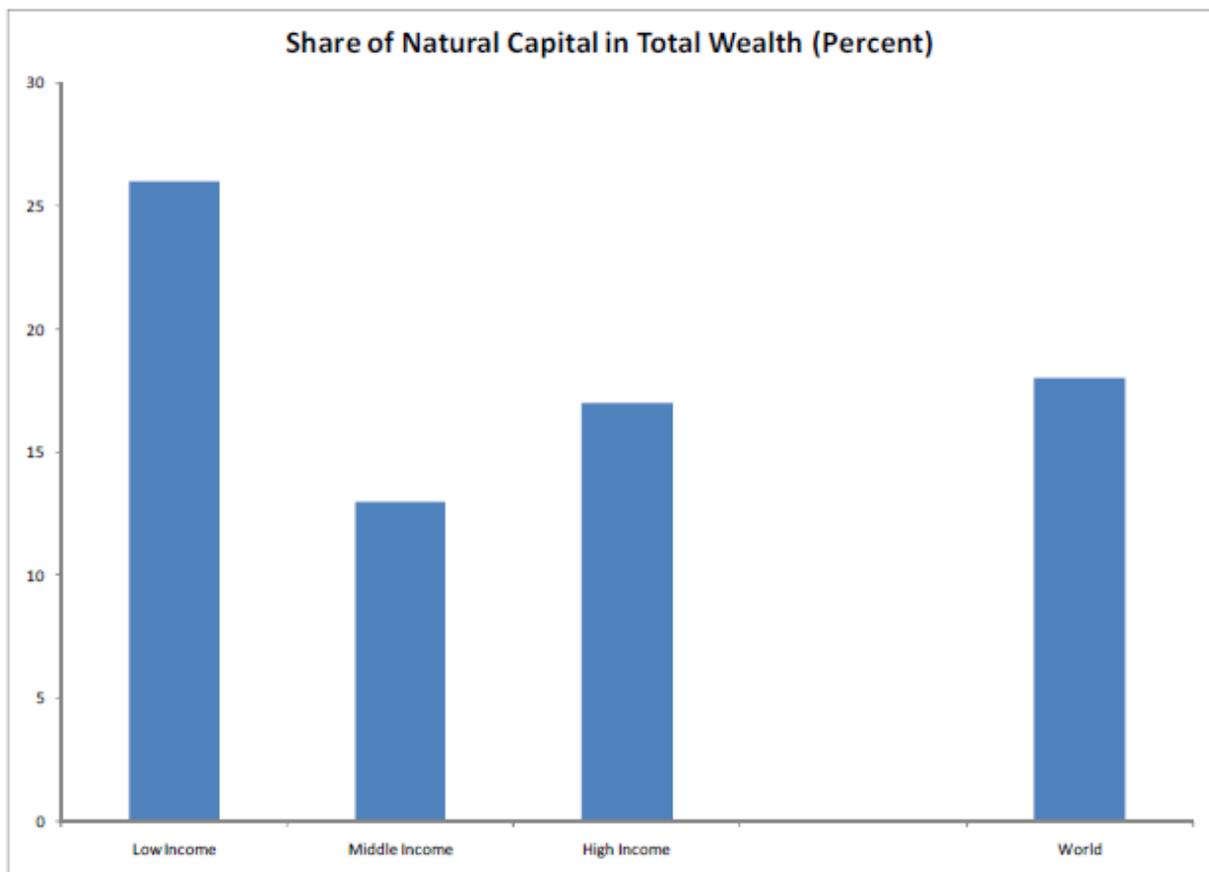
- **Natural Resources and Economic Growth**

It is a truth that national wealth can be generated from the rich natural resources a country is blessed with; it is however, neither a necessary or sufficient condition for a nation to be prosperous. Over the years several countries rich with natural resources have experienced extraordinary economic growth through the prudent utilization of their natural resources, while others who fail to use the dividends properly continue to be saddled in poverty, deprivation, war and scarcity.

- **Empirical Evidence**

For resource-rich countries, wealth from natural resource signifies tremendous opportunities to accelerate growth and improving living standards especially for developing countries. This, however, has not always been the case. A more popular trend has seen countries with natural resources belonging to the lower income group (Figure A). Evidence points to the fact that, the share of natural capital in total wealth is actually highest in low-income countries. This is especially true in Africa where there is a high dependence of many countries for commodity exports and fiscal revenues. Although this dependence is declining, it is still by far the highest in the world according to the World Bank. Recent literature explaining the causality and correlation between abundance natural resources and economic development downplays countries' ability to capture rents, to manage macroeconomic impact and control forex volatility situations emerging from the sale of natural resources.

Figure A: The share of natural capital in total wealth is highest in low-income countries



Source: world Bank (2006)

- **Debate on Natural resource and economic Growth**

The phenomenon of ‘Dutch Disease’ was born in the 1970s. It was used to explain the economic hardship of the Netherlands after the discovery of natural gas in North Sea. It refers to a phenomenon which occurs when exchange rate appreciates and there is de-industrialization following the discovery of abundance natural resources.

Surprisingly, empirical results show a negative relationship between the presence of abundance natural resources and economic growth while controlling all other relevant variables. The findings were corroborated by several cross-sectional scholarly work initiated by Sachs and Warner (1995, 1999, 2001) taking various country cases over an extended period of time to establish this ‘oddity’.

In a pioneer paper Sachs and Warner found that abundant resource economies grew slower than countries without resources from 1970 to 1990. This was attributed to the Dutch Disease. The argument here is; labour from manufacturing sectors is deviated towards natural resource and non-tradable sectors, diminishing long-run labour productivity and growth (Sachs and Warner, 1997). It is important to note that the crucial undemonstrated assumption in this argument is related to higher productivity growth and externalities towards manufacturing rather than other economic activities.

Lederman and Maloney on the contrary argue that growth is positively affected by natural resource abundance when export concentration is controlled. This also raises the question that if natural resource abundance leads to higher export concentration then what institutions and policies can avoid such an effect (Lederman & Maloney, 2007)?

Furthermore, Gylfason argues that countries with plentiful natural resources tend to have less Foreign Direct Investments (FDIs), trade lower levels of human capital and lower domestic investment than those who do not, and are also more corrupt (Gylfason, 2001a). He also argues that the total focus on natural resource crowd out all other capital (human capital, social capital, foreign capital and physical capital) of the nation. He states that since 1960, natural resources have inhibited growth for many countries, which should have promoted economic liberation. He goes ahead to emphasize that the main causalities of stunted economic growth away from the wealth that comes from natural resources are (1) rent seeking; (2) overconfidence; (3) the Dutch disease; and (4) the neglect of education (Gylfason, 2001b).

Counteracting the argument of Gylfason on education and human capital, Stijns contends that Gylfason's results are not as robust as expected to conclude natural resource negatively impact human capital accumulation (Stijns, 2006). To Stijns, choosing natural capital as a

share of natural wealth as an indicator for resource abundance generates bias in the results especially because it incorporates elements that have little relationship with natural resources in its strict sense. He uses several measure of abundance of natural resources to show there is not a curse of natural resource for human capital. Stijns goes on to prove that resource rents per capita and subsoil wealth are better measures of human capital accumulation.

The World Bank computes “natural capital” by the formula below:

$$\frac{\text{Natural Capital}}{\text{National Wealth}} = \frac{\text{Natural Capital}}{\text{Natural Capital} + \text{Produced Assests} + \text{Intangible Capital}}$$

The World Bank (1997) defines “natural capital” as the sum of “subsoil wealth” (oil, mining products) and “green capital” that is to say timber, non-timber benefits of forests, cropland, pastureland and the opportunity cost of protected areas. To Stijns, the use of this indicator of natural resource abundance has the possibility of generating biasness in the outcome particularly because it includes elements belonging to “green capital” that have little to do with natural resources strictly speaking.

From their seminal work, Sachs and Warner in examining through econometric analysis of natural resource effect on export claim that the export sector is rendered uncompetitive and inefficient in most natural resource abundant nations due to the small impact from export growth in manufactures (Je D Sachs & Warner, 2001). In a follow-up study, Sachs and Vial find that concentration of export revenues hinders growth by impeding productivity and not natural resource per se (Sachs & Vial, 2001).

Several authors and economist have argued that the resource curse is primarily a result of institutional flaws. Subramain and Sala-I-Martin corroborate a statistically significant and negative effect of country’s natural resource on economic growth and identifies that the relationship vanishes when they control the quality of instiutions (Xu, Chen, & Shao, 2010).

In the same vein, Moene, Mehlum and Torvik suggest that if institutions are “good” (favouring productive activities) resources tend to be a blessing (Torvik, 2009).

Joseph Stiglitz, investigation identifies the causes of the resource curse from a closer dimension to be; (1) strong currencies, which impede other exports that could promote growth (2) increasing unemployment rate, since resource extraction often entails little job creation (3) volatile resource prices, which cause growth to be unstable aided by international banks that rush in when commodity prices are high and rush out in the downturns.

In his case study, Auty, dismisses the theory noting that there are complexities and different cases of natural resource abundant countries. He considers Norway which has been immune to the phenomenon and used its oil abundance to become a wealthy economy (Auty, 2001).

Gylfason gives evidence of two resource-rich countries, Norway and the Netherlands, and compares it with Ukraine by showing how the Netherlands recovered from the Dutch disease. This was attained through an upward movement in their total merchandise export relative to GDP since the mid-1960s whereas, Norway’s oil exports crowded out its non-oil exports. (Appendix 1). In the end, the Netherlands managed to grow its exports manufacturing from 50% in 1980 to 70% by 1998. He concludes that existence of natural resources in a nation can be both a blessing and a curse to economic growth.

- **Selected literature in-depth**

To have a vivid picture of the relationship between natural resource and economic growth we will consider selected literature more in depth. The following are studies done by; Claudio Bravo-Ortega & José de Gregorio, William F. Maloney, Adams Smith and Gavin Wright & Jesse Czelusta who give additional reasons and arguments to the tentative connection between natural resource abundance and economic growth. The inquiry projects a positive relationship.

Claudio Bravo-Ortega & José de Gregorio (2007):

“Our evidence suggests that natural resources may lead to a decline in the rate of growth in countries with very low levels of human capital, but in countries with human capital over a low threshold, natural resources propel economic growth. Furthermore, natural resources also lead to an increase in income, which raises welfare”.

“...During the 19th century and the first half of the 20th, several countries with abundant natural resources grew remarkably fast. The most notable cases include Australia, Scandinavia, and the United States (see Wright 1990, Blomström and Meller 1990, among others). However, in the second half of the 20th century many countries with abundant natural resources experienced slow growth.”

“...There are two main reasons why the presence of natural resources might exert negative effects on growth and development. The first is that weak institutions generate conditions that give rise to “voracity effects,” through which interest groups devote their energies to trying to capture the economic rents from natural resources (Lane and Tornell 1996). The allocation of talent in such an economy is distorted, and resources are diverted to unproductive activities.

The second reason, which focuses on the productive structure of the economy, is related to the allocation of resources among different activities with different spill over effects on aggregate growth. For example, if a given stock of capital could be allocated either to the exploitation of natural resources or to the production of goods subject to endogenous growth, the presence of abundant natural resources might

cause capital to be diverted to their extraction, which would thus diminish the resources available for growth-enhancing activities. In our analysis we pursue this second idea, but because we live in a world with capital mobility, where the constraint on a country's physical capital stock may be relaxed, we focus on the less-mobile human capital (Barro, Mankiw, and Sala-i-Martin 1995)."

William F. Maloney (2007)

"Wright (1999, 308) argues that the United States' success in mining "was fundamentally a collective learning phenomenon" incarnated in intellectual networks linking world-class mining universities, and both government and private research, features also undergirding Australia's current success and absent in the underachievers. ... Blomström and Kokko argue that knowledge networks, or clusters of universities and private and public think tanks, are the key to further growth in productivity and the development of new products and are "perhaps the main strategic and competitive asset of the Swedish forest industry." Such knowledge clusters, by virtue of preparing firms to identify and to exploit unforeseeable technological opportunities, also make possible apparently discontinuous jumps such as the one Nokia made from excellence in forestry (Nokia was the site of Finland's earliest pulp mill) to leadership in telecommunications.

The second consists of the myriad barriers to technological adoption usually associated with artificially created monopoly power. Hirschman (1958, 57) argued early on that in an uncompetitive situation, such as the one posed by the guild system, "an innovation in producing a given commodity could only be introduced by someone who was already engaged in its production by the old process. . . . [T]his fact would, in itself, militate against many innovations that might render painfully acquired skills useless and valuable equipment obsolete. . . ." Parente and Prescott's (2000) simulations suggest that costs in a dynamic context of such barriers to new entry far exceed the few percentage point differences in GDP accounted for by the Harberger triangles of traditional static models. Anticompetitive forces that discourage innovation or inhibit entry can take the form of guilds, labor unions, concentrated credit markets that only lend to insiders, explicit trade barriers that impede knowledge spillovers from trade interactions (Barro and Sala-i-Martin 1997; Grossman and Helpman 1991), or barriers to foreign direct investment (FDI). All of

these were exacerbated by the prolonged turning inward of the import substitution industrialization (ISI) period”.

Adams Smith (1776):

“Projects of mining, instead of replacing the capital employed in them, together with the ordinary profits of stock, commonly absorb both capital and stock. They are the projects, therefore, to which of all others a prudent law-giver, who desired to increase the capital of his nation, would least chuse [sic] to give any extraordinary encouragement . . . (1776, 562).”

...

Gavin Wright and Jesse Czelusta (2004):

“How unexpected it is, therefore, to find that in 1913 the United States was the world’s dominant producer of virtually every one of the major industrial minerals of that era. Here and there a country rivaled the United States in one or another mineral—France in bauxite, for example—but no other nation was remotely close to the United States in the depth and range of its overall mineral abundance. Furthermore, there is reason to believe that the condition of abundant resources was a significant factor in shaping, if not propelling, the U.S. path to world leadership in manufacturing.

The coefficient of relative mineral intensity in U.S. manufacturing exports actually increased sharply between 1879 and 1914, the very period in which the country became the manufacturing leader (Wright 1990, 464–68). Cain and Paterson (1986) find a significant materials-using bias in technological change in 9 of 20 U.S. manufacturing industries between 1850 and 1919, including many of the largest and most successful cases.

A study of the world steel industry in 1907–09 put the United States on a par with Germany in total factor productivity (15 percent ahead of Britain), but the ratio of horsepower to worker was twice as large in America as in either of the other two contenders (Allen 1979, 919). Resource abundance was evidently a distinguishing

feature of the American economy, yet economists do not seem inclined to downgrade U.S. performance on this account.

There are good reasons not to. The American economy may have been resource abundant, but Americans were not renters living passively off of their mineral royalties. Clearly the American economy made something of its abundant resources. Nearly all major U.S. manufactured goods were closely linked to the resource economy in one way or another: petroleum products, primary copper, meat and poultry packing, steel works and rolling mills, coal mining, vegetable oils, grain mill products, sawmill products, and so on. The only items not conspicuously resource-oriented were various categories of machinery. Even here, however, some types of machinery (such as farm equipment) serviced the resource economy, while virtually all were beneficiaries in that they were made of American metal. These observations by no means diminish the country's industrial achievement, but they confirm that American industrialization was built upon natural resources”.

- **Additional Contributions**

To realize the most gains in economic growth, recent research goes ahead to suggest that authority over resources should be devolved to local authorities or user groups so as to benefit communities where these resources are located (Forson, Buracom, Baah-enumh, Chen, & Carsamer, 2015). In the same vein, the political economy of how government interventions really worked in the developing world led a great number of the world's economist to conclude that market outcomes were preferable to those generated by government intervention. Markets may be second-best solutions, but government policies led to third-best outcomes (Stern, Joseph J., Kim, Ji-hong, Perkins, Dwight H., Yoo, 1995).

Even though a number of hypotheses give a negative relationship between natural resources and economic growth, this is purely spurious according to Warner (Warner, 2013). He argues that the phenomenon is social in nature because the riches easily gained leads to sloth. Warner further supports this with the French Political Philosopher Jean Bodin's (1576)

quotation: “*Men of a fat and fertile soil, are most commonly effeminate and cowards; whereas contrariwise a barren country makes men temperate by necessity and by consequence careful, vigilant, and industrious*”. Booms and busts always go with abundance natural resources with unstable raw material prices and also for supplies. Our main result tends to affirm that the presence of natural resources expediting economic growth is not a general rule.

Based on literature available, natural resources can be a curse or a blessing to a country. This outcome is highly dependent on the policies and guidelines that country employs. The study therefore focuses on finding ways to make natural resource wealth beneficial to Ghana by embracing at the positive and avoiding the negative practices.

3. Research Questions

Generally, the study seeks to ascertain the definitive elements that Ghana should harness in its economic policy through the prudent use of its natural resources for economic growth. Specifically, the Study answers the under listed research questions:

1. How can Ghana accelerate Economic Growth through the profit of its Natural resources?
2. Why can't Resource Rich Economies benefit from their vast resources through trade?
3. How can Resource Rich Economies, for example Ghana, Nigeria, Sudan and other African countries, accelerate economic growth by learning lessons from other advanced countries?

- **Justification of Study**

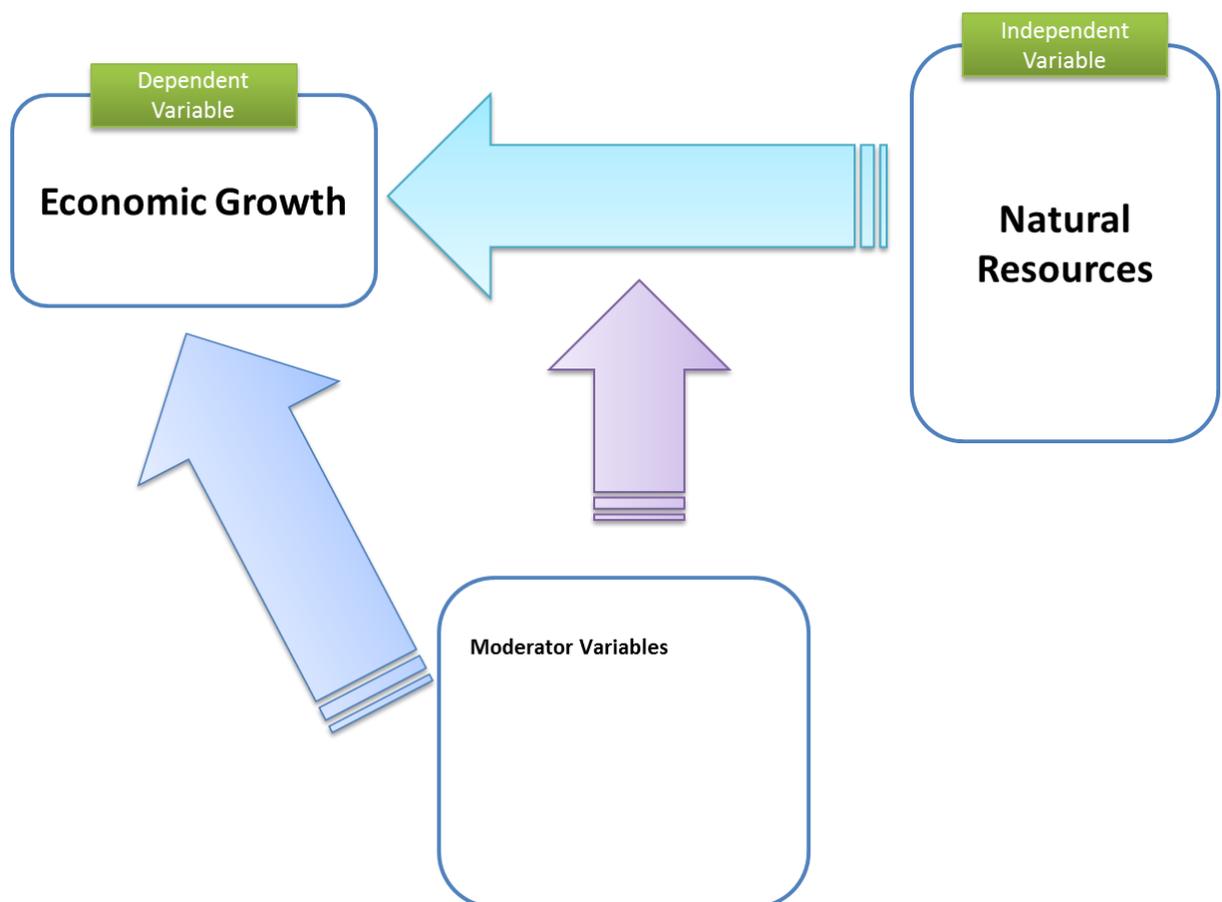
Ghana is a country rich in gold, cocoa, diamond, bauxite and has recently discovered oil in commercial quantity. It is still yet to turn all these natural resource wealth into economic gains and prosperity. There is therefore the need to interrogate the reasons behind this anomaly and inquire if there is a possibility to turn these woes around for a more positive outcome.

A good response to these questions will tell why some nations are poor and why others are wealthy and still growing. For the past years, the first developers like England took centuries to develop and these were followed by the second developers like Netherlands, Canada and others who took relatively shorter time to develop. Recent developers especially in Asia like Singapore, Taiwan, Hong Kong and South Korea took just a few decades. Following from the above new developers are expected to use even short period to develop as nations and for resource-rich countries like Ghana, the gains of the resource are expected to help accelerate this economic growth. The questions above are not just an attempt to identify

means to increase economic growth but to accelerate it in a faster, more deliberate and strategic manner.

4. Methodology

A qualitative methodology will be employed to review sources such as government reports and statistics, articles and research papers as well as reports from international organizations, like the World Bank, the IMF, and OECD. The paper will consider countries like Botswana, Netherlands, Malaysia and Sweden and identify the critical decisions taken to revolutionize their economies. It will attempt to generate an output through a meta-analysis process of synthesizing several articles and materials and produce a logical framework based on the different resources collected and develop a conclusion. This will be done by examining and identifying the variables that contribute to Economic Growth through natural resources as shown below.



For the country examples, Netherlands was chosen because of its role as a pioneer developed country in Europe which industrialized through the use of its rich natural resources. With a, relatively, different approach from earlier developers, Sweden though, much smaller, has made significant impact on developed nations in Europe and the rest of the world. Malaysia's worth in this study stems from it being an Asian Giant in development and taking a shorter time to develop as compared to earlier developers. Malaysia offers an example of getting stuck in what is called the "middle-income trap" and not attaining high-income status until now. Malaysia gained independence in the same year as Ghana (1957) and its land size is slightly larger than Ghana. Finally, Botswana presents a typical example for Ghana being an African country with similar dynamics like history, politics, climate, corruption and so on. Botswana, like Ghana had more than one natural resource but lacked the initial capacity to manage.

The analysis could be used to improve Ghana's economic landscape. A fusion of the outcomes through the meta-analysis and the cross-country analysis will be used to generate broad common strategies that could be adopted by Ghana moving forward.

This paper will investigate her comparative advantage and consider options beyond these advantages for growth. Based on my analysis I will identify specific Policy recommendations which will be relevant and highly useable for developing economies, particularly for the West African sub-region to speed up economic growth.

5. Data Analysis

5.1 Ghana's Economic Growth

The World Economic Outlook update of 2016 January reports Global growth, presently estimated at 3.1 percent for 2015, is expected at 3.4 percent for 2016 and 3.6 percent in 2017. This pickup in activities globally is estimated to be relatively gradual than in the October 2015 for World Economic Outlook (WEO), and it is especially true in emerging market and developing economies (IMF, 2016).

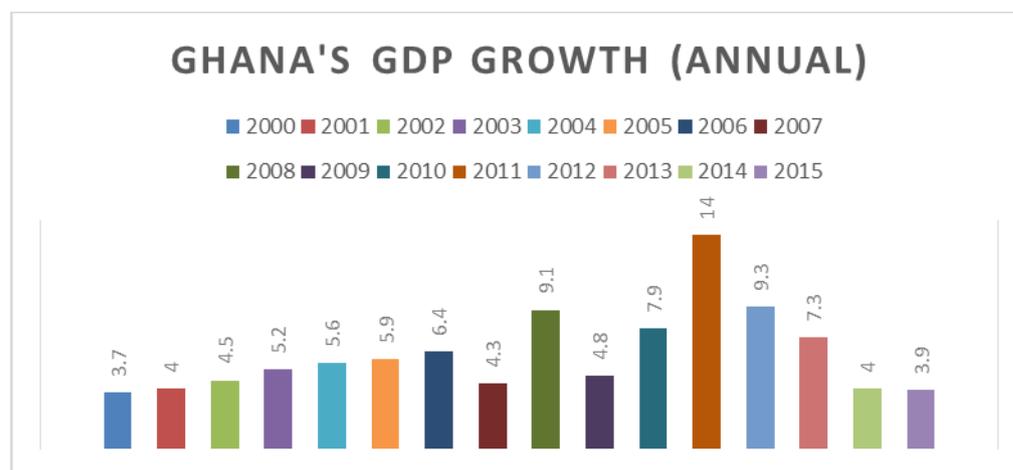
On the back of contrasting growth outturns in the advanced and developing regions, global economic growth slowed down from 2.6 percent in 2014 to 2.4 percent in 2015. This represents a dip in economic activity. In 2015, developing countries recorded an average growth rate of 4.3 percent relative to 4.9 percent in 2014, which is the lowest since 2008, while economic activity in the former declined marginally to 1.6 percent as compared to 1.7 percent over the corresponding period.

The economy of Ghana has grown at an average growth rate of 4 percent between 1995 and 2015. Recent studies have touted Ghana as an emerging success story in Africa (Breisinger & Thurlow, 2008) evolving from recent growth (2003-2011) (Figure 2) and to become the first African country to achieve its MDGs of halving its national poverty rate in a couple of years (Raggl, 2014). With a population of 27.4 million for 2015 and 2014 life expectancy of 61.3 according to the World Bank data there is still a lot of opportunities that can be gained from its already available capacities. However, Ghana's inability to accelerate and sustain momentum on growth is subject of concern.

According to Aryeetey and Fosu Ghana's economic growth was turbulent during much of the period after mid-1960s and only began to stabilize after 1984. In 1966, 1972, 1975-1976,

1979 and 1983, the growth rate of real GDP was negative (Arteetey & Fosu, 2005). It is interesting to note that these years in which there was negative growth actually coincided with changes in government and in some cases policy reversal

Figure 2



Data source: World Development Indicators, World Bank

A World Bank group 2006/07 survey on Total Factor Productivity across Developing World report published that Ghana's aggregate Total Factor Productivity (TFP) is 0.05 (5th) away from mean of -0.02 for 25 sub-Saharan African (AFR) countries and 5,582 firms. The industries involved included Food (20.9 percent), Textiles (8.8 percent), Garments (15.2 percent), Chemicals (8.4percent), Non-Metallic and Basic Metals (7.2 percent), Fabricated Metal and Machinery (12.3 percent) and other Manufacturing (27.2 percent). Even though it seem high in the region it is well behind Eastern Europe and Central Asia (ECA) mean = 0.18 and not too far from Latin America and The Caribbean (LAC) mean = 0.01. (Appendix 2)

The 2012–2013 Global Competitiveness Report ranked Ghana 103 most productive and competitive economy in the world, moving forward 11 places from the previous year's position and this is said to be because of improvement in the basic requirement in macroeconomic stability and health and education outcome (Figure 3). This improvement is

also because of its strong public institutions and governance indicators. But it still lags behind in education levels in international standard, labour market and ICT (Schwab, 2013).

Figure 3



In a Policy Research Working Paper for the World Bank titled ‘Economic Growth in Ghana’, Anna K. Raggl purports that the per capita growth rate of Ghana’s GDP in the past two decades increased steadily around 5 percent to 7 percent for 2007 to 2010. It further goes on to indicate the main drivers of the growth using Panel Growth Regression to be its Natural Resources (Cocoa, timber, minerals and Gold) (Raggl, 2014a).

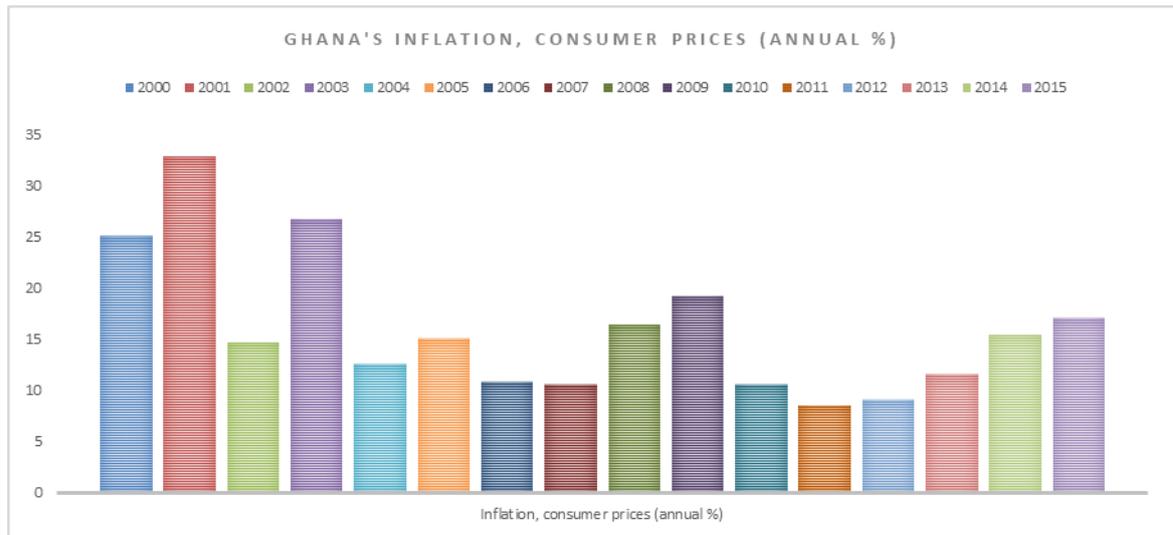
The past 15 years (2000 -2015), Ghana show a gradual rise in GDP and GDP per capita until it peaks at 14 percent (2011) and then declines. The same year also recorded a low inflation of 8.7 percent compared to preceding years and lowest since 2000 (Figure 4). The 2011 record high growth of 14 percent GDP growth rate (IMF, 2015) was not maintained in the following years; recording a record fall in half a decade of 4.2 percent in 2014 below the Sub-Sahara African (SSA) average of 5.0 percent. (ISSER, 2015) This is because in 2011 Ghana’s oil revenues started contributing thus expanding the economy by greater proportions. The subsequent decline is due to the tumbling oil prices distorting Ghana’s revenue projections and eventually the actual revenues. These declines are also as a result of global

falls in some essential commodity prices example cocoa which is one of Ghana's biggest contributors to the GDP (Agriculture sector grew at 0.04 percent) (Terkper, 2016). The Service sector continues to be the highest contributor to Ghana's GDP with a share of 54.1 percent in 2015 compared with 51.9 percent in 2014.

In 2015, the Ghanaian economy grew at an estimated 3.7 percent, down from 4 percent in 2014. The 2015 slowdown resulted from a number of economic challenges, most of which were in play in 2014. These include a 3-year power crisis, rising fiscal deficit and public debt levels, a significant external sector deficit and unpredictably low world market prices for the country's oil and gold exports. The services sector was the main driver of growth. The industrial sector also posted a positive growth rate of 9.1 percent. Ghana in 2015 maintained a tight monetary and fiscal policy

Following from this growth rate the industrial sector expanded marginally from 26.6 in 2014 to 26.9 percent in 2015 relative to GDP. This also tells of Ghana's high dependence on its recent oil find as it was not able to achieve its 2010 rate of 7.9 percent which was without oil. These recent events of volatility should serve as a wake-up call for Ghana to pay closer attention and develop other sectors of the economy and reduce its over dependence on its natural resources.

Figure 4



Data source: World Development Indicators, World Bank

Ghana's measure on Ease of Doing Business (Figure 5) trailed after 2014. This was due to macroeconomic instability, depreciation of the currency, high-interest rate and growing inflation (Figure 5), increased property rates, perceived corruption in government coupled with low levels of legal system to enforce the laws especially related to protection, all decreasing public perception on economic prospects.

Figure 5



The World Bank again projects that since Ghana's Oil production is likely to end in 2035, average estimate per capita growth rates will be roughly 5.5 percent during 2015–34.

Ghana needs to consider both long-term and short-term requirements in the management of natural resources for accelerating economic growth and to do this much can be learned from the experiences of richer countries.

Over the medium term the country should see a recovery with a projected GDP growth of 5.8 percent in 2016 and 8.7 percent in 2017. The forecasted recovery in economic growth in 2016/17 depends on fiscal consolidation measures remaining on track, quick resolution of the power crisis, immediate new oil wells coming on-stream, and improved cocoa harvest and gold production. By 2010 over half of Ghana population lived in urban areas (settlements with population of 5000 or more), as compared to 30 percent at independence in 1957. This urbanization rate is projected to increase to 72 percent by 2035. While rural-urban disparities are still significant, there are signs that cities in Ghana are facing considerable challenges with land use, infrastructure and services provision (particularly with regard to housing, sanitation and transportation), and the absence of gainful and productive employment opportunities, especially for the youth.

These have raised question of the sustainability of growth at levels above 5.0 percent. The same critics have questioned if African countries like Ghana, Uganda, Tanzania, and Mozambique who have made new additional natural resource discoveries will bring prosperity and wealth.

- **Ghana's Natural Resources**

Ghana is endowed with a broad range of natural resources, including but not limited to gold, cocoa, diamond, bauxite, manganese, timber, limestone copper and recently oil.

- **Ghana in the global mining arena and Gold**

Ghana's geological space teems with diverse kinds of precious minerals. A current airborne geological survey confirmed the occurrence of over twenty-eight (28) minerals, including, uranium, tantalite, platinum as well as rare earth. Nonetheless, the country's mining industry is synonymous to the gold industry on account of the preeminent weight of gold in the basket of commercially exploited minerals. Gold accounts for 97.4 per cent of gross mineral revenue while the remaining share distributed between manganese and diamond are 2.3 percent and 0.3 percent respectively.

The main methods of mining in Ghana are the deep shaft and surface mining. There is also, alluvial mining which is popular in the Artisanal and Small-scale mining sector. Figures released by the Ghana Chamber of Mines estimates that, revenue from gold in 2010 was \$2.611 billion; from bauxite was \$13.9 million and from diamond was \$9.2 million (Appendix 6).

Mining investment inflows, Figure 7 shows a peak in Foreign Direct Investment for 2012, which was a venture from United Steel Company's investment in a new steel manufacturing plant. The plant has an annual capacity of 350,000 tons to produce high tensile rebar to be 10% cheaper than currently imported steel products that will also benefit the construction and real estate industries in Ghana.

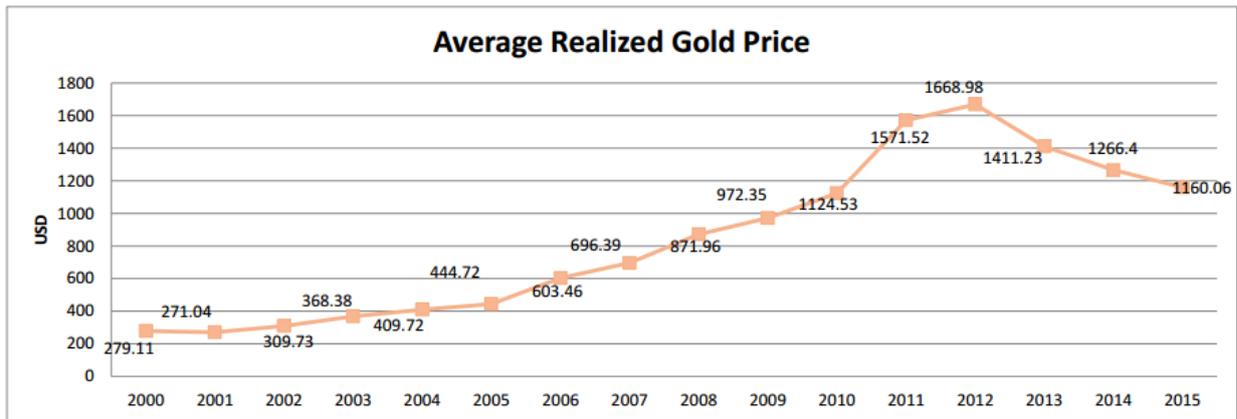
Table 1: Top 20 Gold producing countries production (tons)

COUNTRY	2006	RANK	2007	RANK	2008	RANK	2009	RANK	2010	RANK	2011	RANK	2012	RANK	*2013	RANK	2014	RANK	2015	RANK
South Africa	295.7	1	269.9	2	234	2	219.8	4	203.3	5	197.9	5	202.9	6	177	6	159.3	6	150.7	7
United States	251.8	2	239.5	4	234	3	221.4	3	233.9	3	232.8	3	231.3	3	229.5	4	208.7	4	216.0	4
Australia	247.1	4	246.3	3	215	4	223.5	2	260.9	2	258.3	2	250.1	2	268.1	2	274.0	2	275.9	2
China	247.2	3	280.5	1	292	1	324.0	1	350.9	1	371.0	1	413	1	438.2	1	478.2	1	458.1	1
Russia	172.8	6	169.2	6	189	5	205.2	5	203.4	4	211.4	4	230.4	4	248.8	3	247.5	3	252.4	3
Indonesia	116.3	7	146.7	7	95	8	160.4	7	136.6	7	120.1	7	89	10	109.6	9	116.4	9	134.2	8
Peru	202.0	5	169.6	5	180	6	182.4	6	162.0	6	187.6	6	185	5	187.7	5	173.0	5	175.9	5
Canada	103.5	8	101.2	8	95	7	96.0	8	92.2	9	107.7	8	108.2	7	133.3	7	152.1	7	158.7	6
Uzbekistan	75.1	9	75.3	9	73	10	70.5	11	71.0	10	71.4	11	73.3	11	77.4	12	81.4	11	83.2	11
Ghana	69.9	10	75.1	10	80	9	90.3	9	92.4	8	91.0	9	95.8	8	107.4	10	107.4	10	95.1	10
Papua New Guinea	60.5	11	61.4	11	70	11	70.6	10	70.5	11	63.5	13	56.5	13	60.5	13	56.3	14	57.2	14
Mali	56.9	12	52.3	13	47	14	48.9	14	44.6	15	43.5	17	43.5	15	48.2	16	47.4	16	49.1	15
Brazil	49.3	13	56.5	12	59	12	64.6	12	68.3	13	67.3	12	67.3	12	80.1	11	81.2	12	80.8	12
Tanzania	44.8	14	40.1	17	36	17	40.9	16	44.6	15	49.6	15	49.1	16	46.6	17	45.8	17	46.8	19
Chile	40.4	16	40.9	16	39	16	40.8	17	38.4	18	44.5	16	48.6	17	48.6	15	44.2	18	n/a	n/a
Philippines	36.1	18	38.8	18	36	18	37.0	18	40.8	17	37.1	19	41	18	40.5	20	42.8	20	46.8	18
Argentina	44.1	15	42.2	15	40	17	48.8	15	63.5	14	59.3	14	54.6	14	50.1	14	59.7	13	64.1	13
Mexico	39.0	17	43.0	14	51	13	62.4	13	69.9	12	88.6	10	95.3	9	119.8	8	117.8	8	124.6	9
Colombia	24.0	20	24.0	20	26	19	27.0	19	33.0	19	37.5	18	39.1	20	41.2	19	43.1	19	47.6	16
Zimbabwe	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	21	n/a	n/a	n/a	n/a
Kyrgyzstan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	n/a	n/a	n/a	n/a
Venezuela	26.5	19	24.4	19	24	20	25	20	n/a	n/a	n/a	n/a	n/a	n/a	0	0	n/a	n/a	n/a	n/a
Kazakhstan	n/a	n/a	n/a	n/a	n/a	n/a	20.6	22	26.9	20	36.7	20	40	19	42.6	18	48.9	15	47.5	17
Rest of the	283.1	-	278.9		296	-	334.4	-	381.7	-	452.9	-	465	-	506.4	-	550.6	-	547.2	-
World																				
World Total	2,486.2		2,475.9		2,409		2,572	-	2,740.4	-	2,838.1	-	2,860.6	-	3,061.5	-	3,131.5	-	3,157.7	-

Source: Gold Fields Mineral Survey (GFMS)

Ghana maintained its position as the tenth leading producer of gold in 2015. At the same time GFMS survey (2016) reports that the total 2015 gold output in Ghana shrank by nearly 12 percent to 95 tons relative to 107 tons in the previous year, 2014 (). This was due largely to mining operation suspension by AngloGold Ashanti Obuasi, the persistent cut in supply of electricity and generally the increase cost of doing business. There were also external contributing factors like decline in world gold price as shown below.

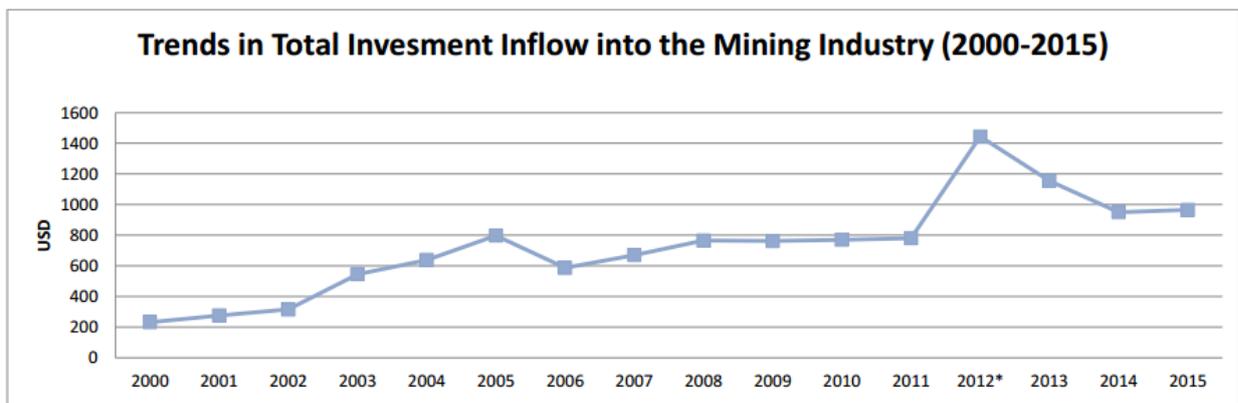
Figure 6: Average Realized Gold Price



Source: www.kitco.com and The Ghana Chamber of Mines

In the year 2015, producing member companies of the Ghana Chamber of Mines, (the umbrella body that oversee mining companies in Ghana) returned 85 percent of their realized mineral revenue, USD 3.1 billion, into Ghana. USD 2.1 billion out of the repatriated revenue of USD 2.6 billion was returned through the commercial banks and the remnant via the Central Bank.

Figure 7



Source: Ghana Minerals Commission

- **Timber**

A report of the Timber Industry Development Division (TIDD) states that the export of wood products for August 2010 alone was 12,506,030 Euros. Notwithstanding, the major natural resources particularly timber towns in Ghana such as Tarkwa, Obuasi,

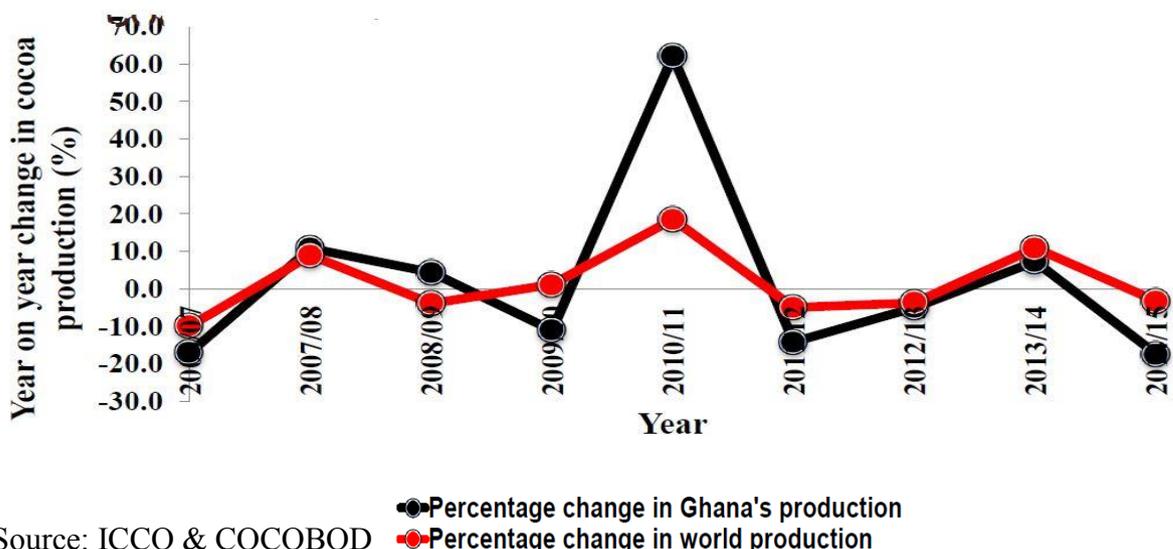
Prestea/Bogosso, Bibiani still strongly lack basic infrastructure and are rather famous for unemployment and poverty

- **Cocoa**

Ghana cocoa sector, offers livelihoods for over 700,000 farmers in the southern tropical belt of the country. The cocoa sector employs about two million people in the cocoa value chain. As main exports, cocoa has been central to the country's debates on development, reforms, and poverty alleviation strategies since independence in 1957.

After emerging as one of the world's leading producers of cocoa, Ghana experienced a major decline in production in the 1960s and 1970s, and the sector nearly collapsed in the early 1980s. Following, there was a steadily production recovering in the mid-1980s after the introduction of economy-wide reforms, and the 1990s marked the beginning of a revival, with production nearly doubling between 2001 and 2003. Cocoa remains Ghana's heritage crop and a great source of foreign exchange contributing about one-fifth of the nation's total merchandise export earnings (ISSER, 2014). Ghana's cocoa is not only noted for its premium quality but also plays a major role in the world cocoa economy (Figure 8).

Figure 8: Cocoa supply changes in Ghana versus world



To ensure that Ghana continues to play an important role in the global cocoa economy as well as keep its cocoa sector competitive as cocoa-producing household chain, the following policies are being implemented;

- Youth in cocoa farming initiative
- Cocoa rehabilitation program
- Complementing farmers' pest and disease control through the Cocoa diseases and pests control program (CODAPEC) with supply of fungicides and insecticides
- Soil fertility improvement through supply of chemical and organic fertilizers
- Public-Private Partnership for effective extension delivery
- Farmer education
- Advocacy
- Government legislation to protect cocoa lands
- Community development through:
 - Improving road network
 - Provision of schools and other amenities

A survey conducted in 1980s indicated that Ghana was the lowest-cost producer in the world (Bloomfield and Lass, 1992). It also noted that Ghana's yields are low compared to those of its leading competitors, Cote d'Ivoire and Indonesia.

- **Ghana's New Oil Discovery**

Ghana discovered oil in commercial quantities in June 2007, 93 miles west of Sekondi-Takoradi in the Western Region, and became Africa's newest oil producer with the pouring of first oil in December. Recently the government of Ghana has indicated that besides the two main blocks put together to form the Jubilee Oil Field, additional 25 other discoveries of oil and gas condensates confirms the rich potential of Ghana in the hydrocarbon industry, hinting that further works are being done towards increasing commercial production in the next couple of years.

While the country remains assured that it will be able to avoid some of the problems related to the sudden onset of oil wealth, such as increased corruption, increased debt, "Dutch

Disease” effects, and competition and conflict over natural resource revenue, skeptics remain concerned that Ghana’s enviable track record of economic, social and democratic development over the last 25 years may be eroded by the challenges posed by the oil discovery. For instance, oil production started in December without a national policy on oil and gas development or a petroleum revenue management law in place. In 2011 when the Petroleum Revenue Act came into force, it corroborated that payments by all oil companies be made public and also details of the usage of government share of royalties. The Act allows for 30 percent of receipt to be set aside for savings (9 percent into Heritage Fund - after oil depletion and 21 percent into Stabilisation Fund - support the country in difficult times) and disposal of 70 percent to the Ministry of Finance which has been charged with choosing four priority sectors for development every three years. A civil society body known as the Public Interest and Accountability Committee (PIAC) has been put together to monitor and report if the monies are being spent on development of the country and seek the view of local communities.

The country’s representative in the Jubilee Partnership, Ghana National Petroleum Corporation (GNPC) holds a 13 percent stake in the oil. The other Jubilee partners hold the following in Ghana’s oil: Tullow Oil 34.70 percent; Kosmos Energy 23.49 percent; Anadarko 23.49 percent, Sabre Oil & Gas Holding 2.81 percent; E.O Group 1.75 percent (Adjaye, 2010).

The production expectation initially was that Ghana was going to churn out 225,000 barrels per day but this has proven impossible and government is hoping the coming on stream of 10 additional fields by middle of 2017 could see this happen. There are also technical challenges such as dealing with surplus gas at the Jubilee field making it incapable to produce not more than 100,000 barrels per day. Projected estimates suggested that the

country could be bagging \$5bn by 2015 (\$1bn per year) but PIAC's audited reports put the estimated revenue from 2010 to 2012 around \$858m.

Ghana's oil fields also contain substantial amount of gas deposits and the country is expected to have a higher stake in the Gas from the subsequent production fields compared to the current 13 percent in the Jubilee Fields. Consequently, there are many expectations on the gas to play important roles in the country's development.

It is instructive in policy thinking to consider countries that have performed well in the utilization of their natural resources and gather lessons for implementation in the case of Ghana.

5.2 Natural Resources in the Netherlands, Sweden, Malaysia and Botswana

Empirical evidence seems to indicate that present-day richest countries, like the United States of America, Germany, Australia, the Netherlands, Denmark, Sweden, and Canada, all became rich and technologically advanced primarily because they made judicious use of their natural resources gains. Netherlands in the seventeenth century outperformed Spain, even though Spain at that time had a lot of gold and silver in the New World (Warner, 2013). It is reported that Sweden, the Netherlands and Malaysia had very high support of their government for technological capacity in the development of their natural resources (“Using Natural Resources To Promote Not Prevent Growth: Lessons From Scandinavia In The 19th Century And East Asia In The 20th Century - Economic History Society,” n.d.). Lars Bruno of the Norwegian School of Economics and Business Administration also claims the governments of these countries promoted specialized skills and supported research in the natural resource sectors. Technological development is the reason he believes that the countries have been able to achieve high economic growth.

5.2.1 Netherlands

A densely populated Western European country surrounded by Germany, Belgium and the North Sea, Netherlands has for several centuries played a very important role in the European economy. The Dutch economy is a highly developed one, with major sectors of the economy being agriculture, shipping, trading, fishing and banking. According to the IMF's World Economic Outlook Database, April 2016, The Netherlands holds the 17th largest Economy in the world and is ranked 10th on nominal GDP per capita. It also houses the world's oldest stock exchange, part of the Euronext, The Amsterdam Stock Exchange (AEX).

Through the economic History of The Netherlands, they have tried to retain their dominance by exhibiting;

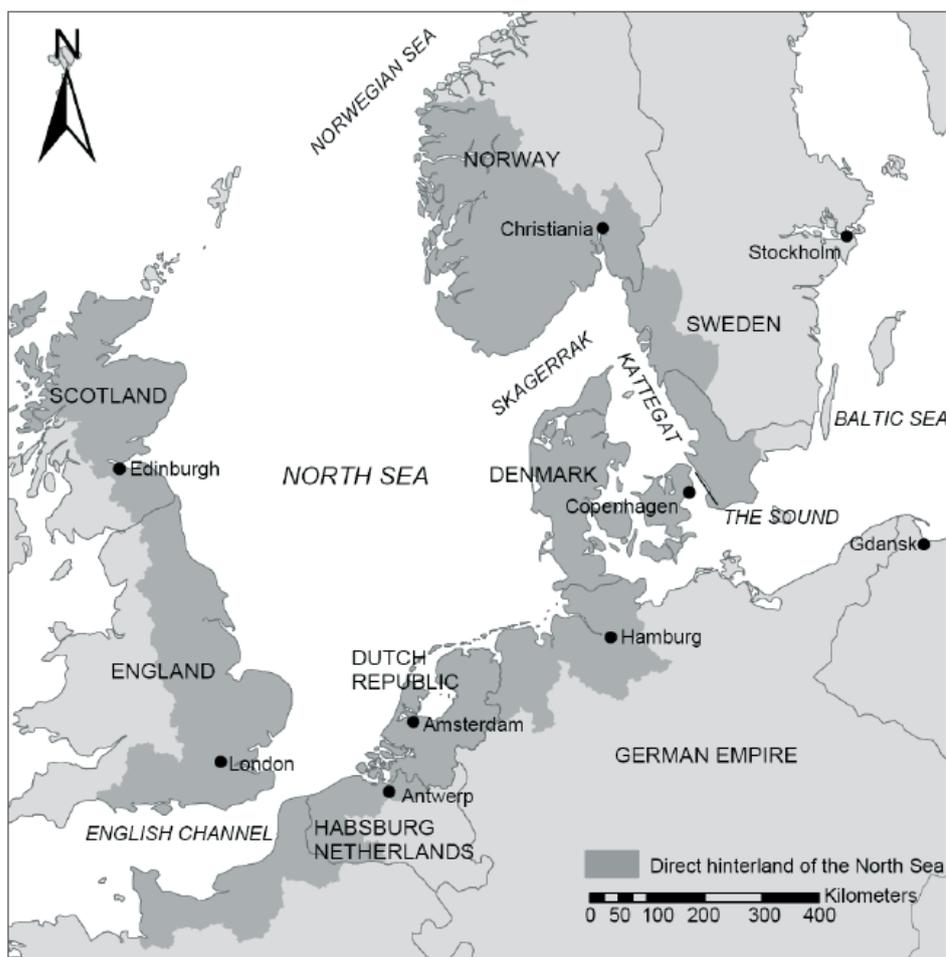
- Reasonable free markets for factors of production and commodities
- Sufficient agricultural productivity to sustain labour
- Political structure that enforces contracts, freedom of movement and ensures property rights
- High level of institution and technology able to stand economic development and keep up with market-oriented behaviour of the consumer

In the mid-seventeenth century, the technological revolution arising in shipbuilding gave birth to a competitive advantage in the shipping industry for the Netherlands as a trade powerhouse. The economy has three sectors: a tradable Natural resource sector, a tradable (non-resource) sector and finally a non-traded sector.

Netherlands' discovery of natural gas deposits in the North Sea within its jurisdiction in the late-1950s and early-1960s marked a major threshold of significance into the Natural Resource-rich economies in the world.

Information on Amsterdam's seventeenth-century occupational structure shows the degree to which foreigners performed skilled labour. The Dutch historian Ad Knotter and Jan Luiten van Zanden, differentiated between proletarian, craft and specialist occupation. They report that, of the registered foreign workers, 49% performed proletarian work, 33% performed a craft while 18% held specialist occupation. Even though unskilled work was the most important work, foreigners also participated in crafts and specialist occupations. This ensured economies of scale's existence during the seventeenth and eighteenth century.

Figure 9: The North Sea region around the 1650



Source: Christiaan Jan van Bochove

Generally, timber was a vital commodity within the economic growth of the North Sea economies. Timber trading countries included Norway, Netherlands and the rising English

economy in the seventeenth century. Even though 'harvesting' of timber was in selected regions, processing occurred everywhere. England and Holland were the greatest early modern shipping nations. Their fleets ruled the seas during the seventeenth and eighteenth centuries. The maintenance and construction of their fleet required large amounts of timber. Economic trends determined the amount of timber that was necessary for making things like ships, barrels warehouses, factories and farms. Netherlands played an important role in the timber line of work.

Trade played an important role in northern Europe during the early modern period. Goods were shipped all across the North and Baltic Seas. There was the integration of different markets at the seventeenth and eighteenth centuries. Two aspects of market integration took place. These were the convergence of price levels and the synchronisation of price movement. Shipping reached its productivity ceiling during the seventeenth and the eighteenth centuries because of the introduction of steamships and the opening of the Suez Canal as well as the coming of the railways.

The improvement in information infrastructure of the seventeenth and eighteenth centuries played a major role in bringing markets closer together. This implied that better information became available through journals and price currents and also information dispatch became quicker to other towns because postal services were established as the number of shipping movements in northern Europe. This also infrastructural increase made merchants react more quickly when chances for profits presented itself. The decline in volatility in international price during the eighteenth century was due to this fact. Amsterdam occupied a central position in the information network of northern Europe.

Value Addition, Human Resource and Diversification: The development of the Netherlands economy during the seventh century led to the rise of international labour market.

Labour migration to the Netherlands also implied that foreign wage levels converged to levels comparable to other nations affirming the economic importance of the rise of an international labour market and migration.

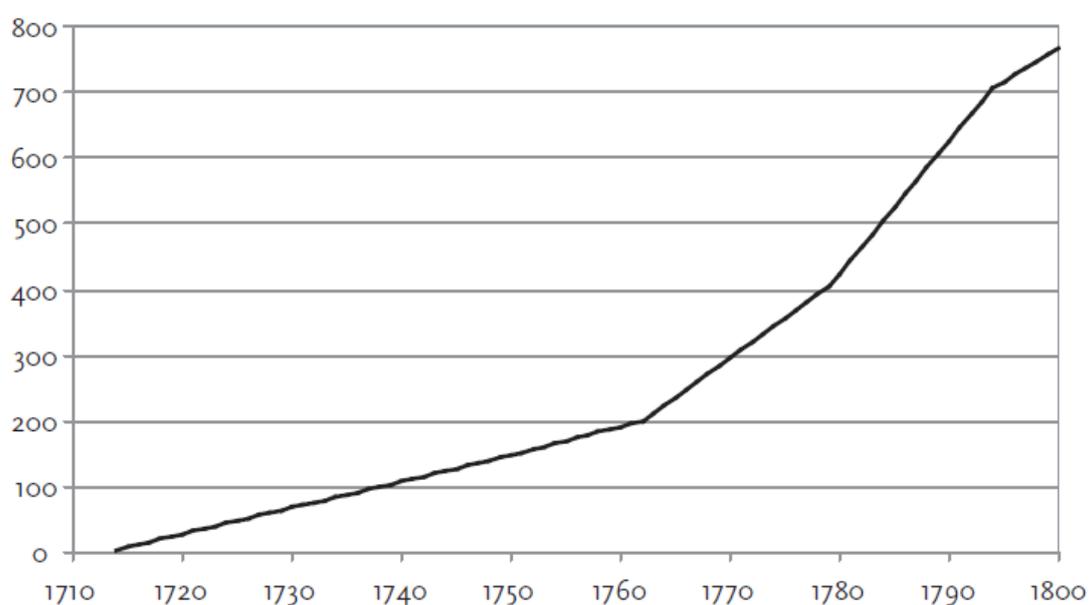
The Dutch run a highly mechanised Agricultural sector with emphasis on international export, ranking second in value worldwide of agricultural export. In 2014 its agricultural export earnings was €80.7 billion. On transportation, it is reported that one of the densest road networks worldwide is the Netherlands road network. Rotterdam which is home to Europe's largest port is also recorded to be a major logistic and economic centre in Netherlands as well as the eighth (8th) biggest container port handling worldwide.

Investment : During the seventeenth century Netherlands development, there was investment of capital in international companies that were less competitive with Dutch trading companies. An example is heavy investment from Gabriel and Celio Marselis brothers from 1640 onwards in a Norwegian mining company. This turned out to be lucrative as its proceeds included all kinds of privileges from the Danish king. Again, Dutch capital was involved in the Danish Royal Salt Company established in Copenhagen in 1665. The Dutch also invested in semi-private companies to share ownership in the Asiatic companies through plantation loans. These were based on promises of future deliveries of goods, a good network and a good reputation for getting credit from merchant houses in Amsterdam. De Vries and Van der Woude confirm that the Netherlands foreign investment point to a phase in which investment in Denmark-Norway was at its peak with the Dutch capital having made impact much earlier.

In the sixteenth and seventeenth centuries, a lot of capital had accumulated in Dutch hands due to their success in trade, but they also invested in things such as real estate, fine art, jewellery, company shares (WIC, VOC and foreign companies), domestic and foreign

bonds and private debts. Some money was also held in cash and in bank accounts (Amsterdam's Wisselbankk). Securities became the desired destination for surplus capital. This saw a major rise in the Dutch foreign investment in the seventeenth and eighteenth centuries (Figure 10).

Figure 10: Dutch foreign investment, 1710-1800 (in millions of Dutch guilders)



Source: De vries and Van der Woude, *The first modern economy*, 120-121

In the mid-1960s Netherlands experienced a persistent rising movement in the exports of their total merchandise relative to GDP mainly being the reason for the fast recovery from the Dutch disease; a phenomenon identified by national focus on a particular natural resource at the expense of other sectors of the economy (Jeffrey D Sachs & Warner, 1999). It leads to concentration in resource export, which have fewer possibilities for productivity growth and detrimental to export led growth and development.

The growth phase that the Netherlands economy went through during the early modern period was unprecedented in pre-industrial Europe. The outcome was a large demand for

labour, a leap in international trade, and pursuit for foreign investment prospects. The economy of Netherlands became dominant in Europe and was greatly respected, as well as emulated, in certain parts of England (De Vries, 1997). The crucial characteristic of the Dutch “Modern Economy” was its economic diversification and its organised high-level division of labour. Its development indeed was unlike the economy of most resource-dependent economy’s development. Obtaining a great share of her export revenue through natural resource based activities; Netherlands has a goal to reduce its dependency on these non-renewable sources

A 2015 report on the current state and future prospect of Netherlands oil and gas industry has outlined that the country is moving forward considering areas in investment, cooperation, windows of opportunity and transparency as central focus for the years to come (Scheffers, 2015).

5.2.2 Sweden

Located in the north of Europe, and now in terms of their GDP per capita and the standard of living by the citizenry Sweden stands as seventh-richest country in the world. Sweden has a mixed economy, which is highly export oriented. They export iron ore, timber and hydropower. The structure of their economy is highly knowledge-intensive with a manufacturing sector that is ever increasing and export oriented. According to the World Economic Forum's Global Competitiveness Report of 2012–2013 it is the fourth most productive and competitive economy in the world (Schwab, 2013). Again according to the OECD the country has recorded one of the lowest average inflation among European countries since the mid-1990s. The country's commitment to decrease its dependency on imported fossil fuels was further strengthened with the 1973 oil crisis.

In the middle of the 19th century, Sweden was among Europe's poorest countries until its transformation in 1850 when the economic boom started. The development was fuelled by industrial expansion which was based on its own domestic raw material like timber and iron ore.

According to Blomstrom and Kokko, in 100 years (1870-1970) Sweden transformed economically from one of Europeans' poorest to one of Europeans' richest nations as well as one of the most advanced countries worldwide.

At the birth of the Swedish transformation the agriculture sector experience some of the most important reforms that translated into later gains for the economy. This became necessary because the Swedish at that time were using archaic production methods and techniques yielding insufficient harvest even for themselves.

Land Reforms: The first of these reforms had to do with the change in the structure of land ownership. Swedish land possession structure was moved from ownership of strips of family

land that were scattered around leading to inefficiency and low diffusion of innovation as well as technology which required coordination among village members. These Lands were redistributed so that each farm had large plots instead of strips that were scattered around.

Mechanization: Secondly, there was the adoption of new production techniques including better ploughs, harvesters and sowers with increased use of fertilizers which improved productivity greatly.

Comparative Advantage: Thirdly, potatoes came to be the new staple crop for the Swedish. This was because the Swedish lands were suitable for the cultivation of potatoes which yielded larger harvest than other crops including their traditional turnips and beets. All of this led to large improvement in food supplies which hitherto was not the case.

Human Resource, R&D: On education, Blomström and Kokko reports that there was a shift of emphasis from the earlier law and theology to natural sciences in the universities with a closer look at technical education and technological research and innovation. There was also labour migration especially of engineers from Germany and Great Britain who made important contribution to the technical skills development and competencies in Sweden. Firms and industries developed innovative strategies based on new knowledge on materials, processes and products. The research divisions of big companies spearheaded these researches whilst the smaller researches were done by the specialized research institutions and universities (Blomström & Kokko, 2002). In total, the Swedish experience of development is based on an amalgamation of a systematic deliberate knowledge creation through government coordination as well as random research oriented technological innovation.

Mature Institutions: The manufacturing sector also had a fair share of development with primitive manufacturing processes being upgraded; these were not part of any explicit policy

but a trend that had developed from centuries past. These range from handicraft in leather goods, shoes, textiles as well as simple tools to procurement of equipment and supplies.

The export sector in Sweden industrialisation was driven by the high demand for Swedish products around the world in the 1980s. Cereal export also played a major role in the industrialization process especially through 1850 to 1880 as a result of agriculture expansion during the period as well as providing jobs for the increased Swedish population. Then again in the middle of the 19th century because of the English urbanization there was high demand for forest products.

Table 2: The Structure of Swedish Exports 1881-85 and 1911-13

	1881 -85 (Percent)	1911-13 (Percent)
Swan wood	40	26
Iron and steel	16	9
Cereals	12	1
Butter	6	6
Pulp and Paper	5	18
Engineering Products	3	11
Iron ore	-	8
Other	18	21
Total	100	100

Source: Larsson and Olsson 1992

Diversification and Value addition: Sweden later diversified into engineering products, machinery, equipment, transportation and several other services. In Sweden today, natural resource raw materials are processed into tertiary products (phones, furniture etc.) creating sustainable employment and FX earnings and ensuring diversification. Till date the Swedish manufacturing sector's industries are fuelled by its own domestic raw materials. Supplying about a quarter of their exports, both the forest and metal industries employ about one-fifth of the industrial labour force. Ghana on the other hand exports most of their natural resources to other countries where they are processed, generating limited and unsustainable employment

and effectively selling off the land. It is also worth noting the rapid change in industrial structure that has taken place in the economy of Sweden over the decades past. Notable among these is the Swedish firm Ericson which is a worldwide brand in telecom industry (Blomström & Kokko, 2002).

There was also a huge value addition in the wood processing industries. The Swedish has till date developed a value-added strategy that seeks to fade out the sale of pulp to a more refined product with value addition. Again their strategy on specialization sort to de-emphasize grain to areas of high prices with high-profit margins.

The Swedish Government in 2005 set up a commission to draw a vivid program for the reduction of Sweden's dependence on natural gas, petroleum and some other fossil raw materials by the year 2020. In a report issued in June 2006 titled Making Sweden an Oil-Free Society. The report outline four (4) reasons to reduce oil dependency (Persson, 2006) as;

- Impact of oil prices on Swedish economic growth and employment
- Link between oil, peace and security throughout the world
- Great potential to use Sweden's own clean renewable energy resources in place of oil
- Threat of climate change resulting from the extensive burning of fossil fuels

Today the economy of Sweden is developed and export oriented with the contributor being its iron ore, timber, and hydropower. But it has also diversified into other sectors of industry like motor vehicles, pharmaceuticals, telecommunications, home goods and appliances.

5.2.3 Malaysia

Malaysia is considered as a relatively new industrialized market economy with an impressive economic record in Asia. It ranks 6th in Asia and 20th in the world according to the World Economic Forum's Global Competitiveness Report of 2012–2013 (Schwab, 2013). It is the 28th largest economy in the world. The British-based multinational banking and financial services company, HSBC Holdings purport that Malaysia could be the 21st largest economy in the world by 2050.

The rapid structural changes from 1960 up to 1970 spearheaded the manufacturing sector's growth especially exports and products as well as on employment and ownership. These were on its wood products, rubber and food which it initially started processing and packaging until the next shift in the structure of this same product (H. Osman-Rani, 1986). In all Malaysia pursued an export-led economic growth through an accelerated industrialization drive attracting huge FDI.

Diversification: Malaysian economy, which was predominantly agricultural and mining based in the 1970s, ventured into a more diversified economy. Diversification was on both the products of exports as well as on the markets. The economy is driven by its petroleum, production of liquefied natural gas and electronic equipment. A more recent update indicates that the country has seen high level of investment in the industrial sector since 1980 and this has catapulted the country to its present growth (Osman-Rani, 1986).

The economy is also noted for the export of its agricultural resource as well as its natural resources with Petroleum playing a significant role in its trade activities. According to a TED Case study by American University on Tin Mining in Malaysia, the country was at some point the largest tin producer in the world. It is also involved in palm oil and rubber exports to other parts of the world known to be one of the largest producers of worldwide palm oil as reported by the Telegraph November 28th 2010 publication.

Governance and Value addition: From the 1970s the government of Malaysia embarked on a development strategy journey to increase export through promotion of manufactured goods, instead of exporting its timber, tin, rubber, and other raw materials from its abundant natural resource base (Abdelal & Alfaro, 2003). The government ensured favourable business environment through healthy monetary and fiscal management. This was done through the long-arm approach in a productive partnership. There were policies to ensure value addition of raw materials through increased productivity, reducing waste and making sure the land continue to be productive and fertile yielding the needs of the nation.

Human Resource: Human capital development was considered the ultimate resource during Malaysian development and so training for new industries received significant investment to advance skills, creativity, and talents. They also invested in the total manpower to meet the expanding industrialisation and skilled manpower to meet new market for interpreting and adhering to the different laws, regulations and rules for export into other countries.

Investment: The Malaysian government planned and attracted Foreign Direct Investments (FDIs) to build their high-technology industry with various diversified tax incentives. There were firms from the Western countries including Intel, 3M, and National Semiconductor with huge national investment. (Abdelal & Alfaro, 2003). Prime Minister Mahathir Bin Mohamad in February 1991 declared this, and still today Vision 2020 is considered the most ambitious development agenda. The primary goal of this 30-year development programme was to ensure Malaysia is a “fully developed country” within this time space. The details of Vision 2020 set the blueprint for Malaysia’s political and economic development (Mahathir Bin, n.d.).

Again, according to Abdelal and Alfaro, the Malaysian economy boomed in the mid-1990s. During this period there was huge capital injection into electronics and other sectors

that were export-oriented. The real estate industry also received a major boost with landmark examples like the Kuala Lumpur's Petronas Twin Towers, the tallest building in the world then. Another milestone in the late 1980s through the early 1990s was the Malaysian government budget deficit running into surplus coupled with low unemployment rate, low inflation, and high standard of living for the people of Malaysia.

Middle-Income Trap: Despite the numerous achievements made, Malaysia is ensnared in a phenomenon known as the “middle-income trap”, unable to develop beyond middle-income economy to the high-income economy according to the World Bank based on cross-country experience and comparisons (Hasanov, 2015). The World Bank reports the possibility of Malaysia reaching high-income status is very low. Heavy reliance on multinational firms and FDI for its export upgrading and transfer of technology plus multinationals are not keen on transferring technology to locals, these according to the World Bank are the cause of Malaysia's Middle income trap. The World Bank prescription recommends Malaysia to emulate Korea and Taiwan Province of China who embraced local firm technology for technology upgrading and innovation. They advise that diffusing technology in local companies is important for generation of innovation, improving productivity and upgrading technology. It also recommends increase spending in R&D, education quality improvement as well as growing the share of science and technology graduates.

Before its independence in 1957 the industrial development of Malaysia was budding and focused on primary commodity processing. It has come to the fore that the wind of privatization found itself in the Malaysian economic fabric and so there is a national assertion that its state-run oil company is now able to get a relatively bigger portion of the country's oil gains according to Stiglitz (Stiglitz, J. 2007). It is also worth noting that the Malaysian government has developed a state-owned enterprise for oil extraction and the institutions around it for development, learning the requisite skills from several oil companies.

Stiglitz goes on to pinpoint some ideas based on the peculiar Malaysian privatization as

- Transparency: transparent and open agreement
- Ownership: ultimate ownership of the resource should remain with the developing country
- Fairness: Rents of the Natural Resource should belong to the country with fair return to oil companies

To further progress to the High-income economy, Malaysia needs to move from its heavy dependent on multinational technology transfer to the model of Korea and Taiwan Province of China where local firms are empowered to grow large and be the frontier in technology that drives the export sector. Policies in this direction most likely may need government support just like in the case of Korea

5.2.4 Botswana

Even though it has two major problems with drought and desertification the one time considered one of the poorest countries in the world, has transformed itself into a case comparable to Asia's largest economies and one of the remarkable success stories particularly in Africa. It is touted as one of the most successful economies in the world over the past 60 years. The landlocked country Botswana, in two decades (1987-2007) grew at an average growth rate of 7% making it one of the fastest growing economies in the world for that time.

Wright and Czelusta reports, Bechuanaland (now Botswana) in 1963 saw several large companies busy with exploration but for years the country was limited to the production of manganese ore, chrysotile, asbestos, limited silver and gold (Wright & Czelusta, 2002).

At independence, beef the country's main export which was also the largest sector contributed 39 percent of its GDP. After its 1966 independence, Botswana had an austere looking future with a lot of uncertainty in expectation beyond independence. It had just experienced a period of persistent drought which immensely affected the economy (Alfaro, Spar, & Allibhoy, 2005). There is an oral traditional tale that reports that diamonds in Botswana were discovered when termites searching for water brought to the surface grains of diamond.

Governance and Investment: Tepperman enlightens that Batswana leaders protected their country through painstaking work of good government: maintaining and building a transparent open system of politics that checks corruption, puts limits on the power of individuals, institutions that are competent, wise as well as withstand seductions of resource windfall and economic shocks. Botswana situated in a neighbourhood that is rough and prone to war has never experienced war, civil or foreign. Tepperman again indicates the country until 1977 didn't even have a military (Tepperman, 2016). Government invested heavily in infrastructure and public goods in order to move from total concentration on the

natural resource sector. Government also sort to boost productivity through limitation on parastatals and avoiding import substitution policies.

It is worth noting that well before the very first gemstone was unearthed the country sort to get its politics on a right course by consolidating rule of law, accountability and democracy. Even though there was a political and constitutional reform, a government white paper in 1961 on self-governance - a marriage between the traditional political system and the west - is said to be the bedrock of the new Botswana. These included two funds, Revenue Stabilization Fund (RSF) and the Public Debt Service Fund (PDSF) which were to ensure mineral revenues were directed to long-term loans for local government and authorities. These funds were also to compensate for the Botswana small domestic market as well as it's not very robust financial system. Diamond revenues through these funds were also used to finance construction projects by Botswana Housing Corporation, electricity by Botswana Power Corporation and water by the Water Utilities Corporation (Iimi, 2006). Pula Fund (meaning rain in Setswana) was also setup to assist generations to come. The government of Botswana used the diamond profits to build the Pula fund and as at mid-2015 the Pula fund has accrued to \$10 billion. The saving funds also helped the government to avoid real exchange rate volatility and procyclical behaviour.

Botswana still holds the title of the least corrupt country in Africa according to Transparency International, this and its other economic laurels are founded on its natural resources especially its diamond mining activities. It is the world's biggest and largest Gem Diamond mine.

In terms of output per capital, Botswana has been through a fastest growth period in the world, which transformed it from one of the poorest countries in the world into middle-income status. Botswana's average real GDP growth rate during this post-independence

transformation period was 13% per annum while per capita grew eight times from 1966 to 1989. This transformation sent ripples of improvement into other sectors of the economy including, life expectancy, maternal health, education, to make it among the best in Africa. Available literature points to the pivotal role played by the diamonds. This is because its contribution to GDP was around 40% and more than 80% of national export earnings were from diamonds.

The political stability, low taxation, mineral investment climate and its large and favourable geological environment Coakley argues keeps making Botswana the destination for Foreign Direct Investment (FDI) (Coakley, 2004).

Diversification: To diversify the economy from diamond, there was also the establishment of Botswana Enterprise Development Unit, the National Development Bank and the Botswana Development Corporation which spearheaded the development of other sectors of the economy. Revenue and rent streams coming from the main natural resources of Botswana have been managed so well, according to Warner that it led to impressive economic growth. Following from this, it became the world's highest recorded rate of growth of Gross National Product (GNP) per capita from 1965 to 1998, even though it slowed down after 1990. (Warner, 2013)

Education and Human Resource: The country has made significant inroads in terms of investment in education. It ranked second in the world in education spending as a percentage of its Gross Domestic Product for 2009. The dividend from this has resulted in a well-educated human resource and between 1964 and 2012 Botswanas who completed primary education rose from 1.5 to 98 percent. This has also seen the manufacturing sector growing by an average 12.5 percent from 1965 to 1980 (Tepperman, 2016).

Over the past couple of decades, the country has been transformed into an outstanding example for Africa and the rest of the world, especially for countries with rich natural resources.

According to CIA World Factbook, the country has been recording budget deficit continuously due to its high military expenditure believed to be used to protect its natural resources. The internet achieves website, *Wayback Machine*, reports that Botswana in the early 2000s discovered methane around the carbon mine of Morupule, close to Francistowniii. The country also has a relatively smaller coal, salt, soda ash, copper mine and nickel that provide employment and adds to the list of available natural resources.

Particularly for Botswana's case some development experts have recently started arguing that when poor states suddenly strike gold (or oil or diamond just as a lot of African countries in recent years have); they should handle the resource in a radically different way. Two Stanford scholars, Larry Diamond and Jack Mosbacher, have proposed that such countries funnel most of their resource earnings straight to their citizens as taxable income. Another group has advocated that the state follows the example of Chad where in the year 2000 signed a deal with the World Bank creating an internationally monitored account to handle its mineral wealth. This was emulated in Ghana where a similar arrangement was made in 2011. The Ghana Petroleum Fund and the Ghana Stabilisation funds were established and legislated as part of the Petroleum Revenue Bill.

5.3 Meta-Analysis

5.3.1 Introduction

Meta-analysis is used to identify common effects and characteristics over scientific procedures through combining data from multiple studies. It engages systematic reviews of qualitative and or quantitative studies of several separate but similar experiment. It seeks to prove that there is a common truth behind similar studies. Meta-analysis also contrast results from different studies to identify patterns from varied sources which invariably strengthen the findings.

Another benefit meta-analysis offers to this research is that, findings can be generalized and related to similar problems in other resource-rich countries and particularly in Africa.

In this paper a matrix of Dependent variable and independent variable is considered to arrive at a conclusion related to Natural resource and economic growth. For the second table a matrix of Dependent and Moderator Variables are created to arrive at a conclusion. This is done to identify the relationship and effect these variables have on each other as well as bring out the different influencers that accelerate economic growth through the prudent use of natural resources.

For expediency, the papers considered are as follows:

Articles

- Trade Structure and Growth
 - Daniel Lederman and William F. Maloney
- The Relative Richness of the Poor? Natural Resources, Human Capital, and Economic Growth
 - Claudio Bravo-Ortega and Joese De Gregorio
- Outgrowing Resource Dependence: Theory and Developments
 - Will Martin
- Prebisch-Singer Redux
 - John T. Cuddington, Rodney Ludema, Shamila A. Jayasuriya
- Natural Resources and Economic Growth: the role of investment
 - Thorvaldur Gylfason and Gylfi Zoega

- Resource-Based Growth Past and Present
 - Gavin Wright and Jesse Czelusta
- Natural resource, education and economic development
 - Thorvaldur Gylfason
- Natural Resources and economic growth, what is the connection
 - Thorvaldur Gylfason
- Natural Resources and Economic growth
 - Jeffery D. Sachs and Andrew M. Warner

5.3.2 Variable Matrix

Table 3: Variable Matrix of Dependent variables vs Independent variables

	DEPENDENT VARIABLES	INDEPENDENT VARIABLES	CONCLUSION FROM IMPACT OF IV ON DV
Article 1 - Trade Structure and Growth	Economic Growth	Natural Resources	-Natural Resource export over GDP appear to be positively related with economic growth - Natural Resource produce higher level of development in the long run
	Economic Growth	Macroeconomic	- <i>Dutch disease</i> may result in high levels of export concentration leading to export price volatility and macro volatility
Article 2- The Relative Richness of the Poor? Natural Resources, Human Capital, and Economic Growth	Economic Growth	Institutions	-Weak institutions generate conditions that give rise to “voracity effects” through which interest groups devote their energies to trying to capture economic rents from Natural Resource
	Economic Growth	Education/ Human Resource	-Natural Resource leads to a decline in growth rates in countries with low levels of Human Capital -Countries with Human capital over a low threshold, Natural Resource propel economic growth - Natural Resource increase income and raises welfare
Article -3 Outgrowing Resource	Economic Growth	Price changes of commodities	-Developing countries do not only export primary commodities nor do

	DEPENDENT VARIABLES	INDEPENDENT VARIABLES	CONCLUSION FROM IMPACT OF IV ON DV
Dependence: Theory and Developments			industrialized nations only export manufactured products, thus price changes in trade do not affect Economic growth in Natural Resource countries
	Economic Growth	Innovation	- Natural Resource countries are poor platforms for growth as they appear difficult to change export structure
Article – 4 Prebisch-Singer Redux	Economic Growth	Manufacturing & Industrialisation	-Specialization in primary commodities causes developing countries to lag behind in industrialization
	Economic Growth	Technology	Technology expands a country's resource base, creating new natural resources from an economic standpoint. Country-specific technology is best.
Article - 5 Natural Resources and Economic Growth: the role of investment	Economic Growth	Investment	Natural Resource requires extensive investments before they are valuable especially today

Table 4: Variable Matrix of Dependent variables vs moderator variables

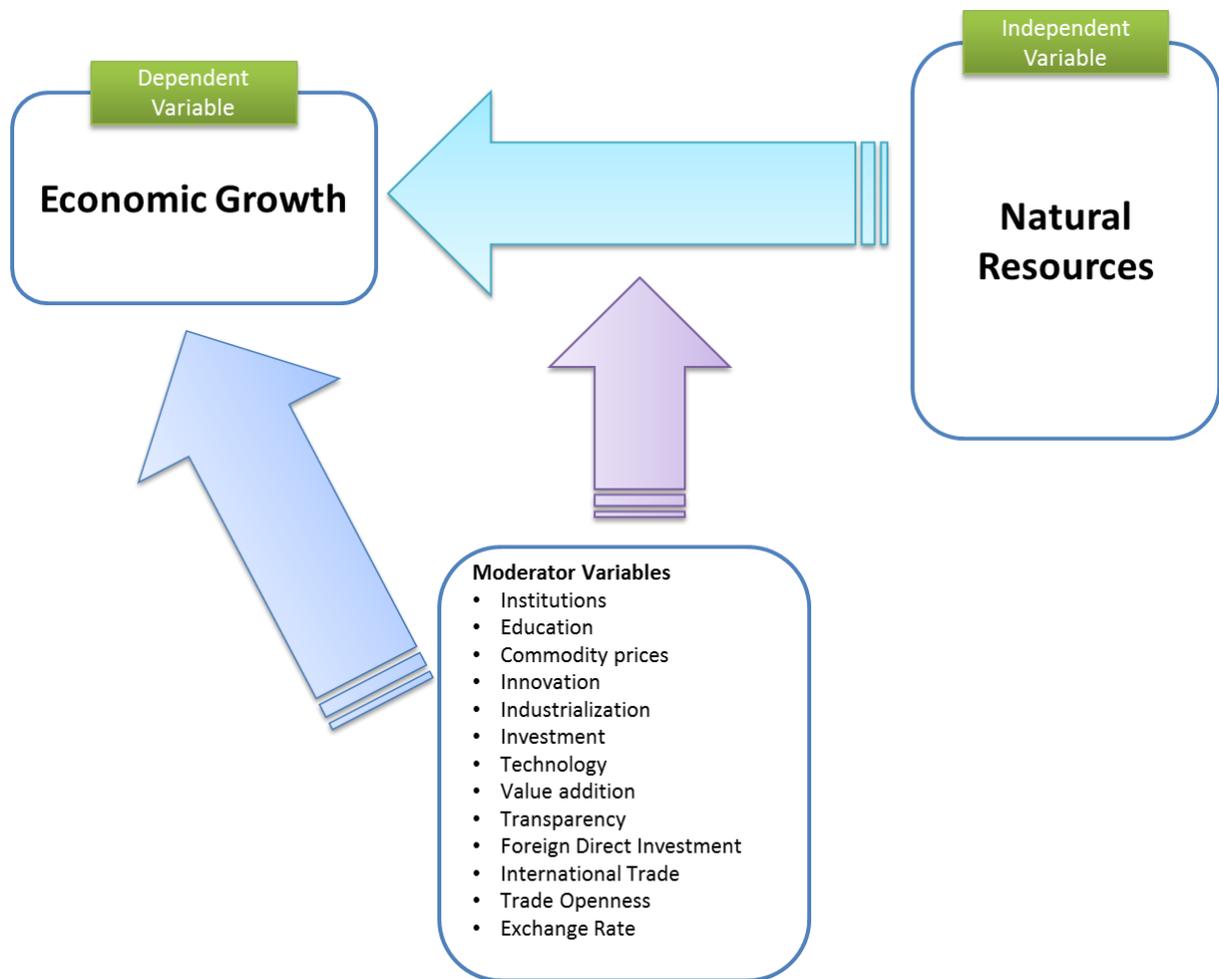
	INDEPENDENT VARIABLES	MODERATOR VARIABLES	CONCLUSION FROM IMPACT OF DV ON IV
Article – 6 Resource- Based Growth: Past and Present	Natural Resource	Sustained growth	Casual observation shows extremely resource rich countries have not experienced sustained growth
	Natural Resource	High Levels of GDP	Casual observation indicates there is no relation between set of resource-rich countries and countries with high levels of GDP
Article 7- Natural resource, education and economic development	Natural Resource	Human resources	Some countries think Natural Resource are their most valuable asset and perhaps even deliberately neglect the development of their human resources, by devoting inadequate attention and expenditure to education
	Natural Resource	National currency	Natural Resource Abundance often results in an overvaluation of the national currency
Article 8- Natural Resources and economic growth, what is the connection	Natural Resource	Rent seeking	Abundant Natural Resources tend to imbue countries with wrong sense of security thus losing focus on good economic management
	Natural Resource	Rent seeking	Governments sometimes grant tariff protections or grant favours to people which may lead to unfair competition also leading to economic losses at the government expense

	INDEPENDENT VARIABLES	MODERATOR VARIABLES	CONCLUSION FROM IMPACT OF DV ON IV
	Natural Resource	Trade openness	Trade openness stimulates investments as well as importation of goods and services, technological know-how and much-needed capital promoting economic growth
Article 9 - Natural Resources and Economic growth	Natural Resource	Institutions	Quality of Government institutions backed by rule of law tends to be collinear with the Economic growth. Poor government institutions weaken economic growth.
Article 9 - Natural Resources and Economic growth	Natural Resource	Legal and Government Institutions	There is a positive association between economic growth and the quality of legal and government institutions of a country
Article 9 - Natural Resources and Economic growth	Natural Resource	Trade	The greater endowment of natural resource means, higher demand for non-tradable goods, this implicate, a lower share of labour and capital
	Natural Resource	Trade	Resource boom of most economies causes manufacturing sector to shrink while non-traded goods sector expand.
	Natural Resource	Trade Openness	Trade openness of Natural Resources positively affect Economic Growth thus promoting high

	INDEPENDENT VARIABLES	MODERATOR VARIABLES	CONCLUSION FROM IMPACT OF DV ON IV
			economic growth
Article 5 - Natural Resources and Economic growth: Role of Investment	Natural Resource	Mature Institution	Mature institutions contribute to the judicious use of gains from Natural Resources that poorly developed institutions do not

Figure 11

5.3.3 Logical Framework



5.3.4 Discussion and Conclusion

The figure above is a logical framework deduced out of articles and papers tabulated in Table 4 and Table 5 relating to the different factors affecting economic growth in relation to natural resources. It identifies the major determinants of economic growth in resource rich countries. These determinants are the moderator variables, and in these cases studied, they positively influence economic growth through the use of natural resources in the resident countries.

This has been considered with the country cases. The outcome points to features and influencers of economic growth in resource rich countries in its details and policy orientation by countries. These have been grouped in six broad categories and form the basis for the lessons and policy recommendations for Ghana in chapter six. Out of it direct policy recommendations for this paper are made for the case of Ghana moving to accelerate economic growth with its natural resource.

6. Lessons for Ghana Moving Forward and Policy Recommendations

The use of Natural Resources for economic growth can break or make a nation into a prosperous one with foundations for even greater wealth. A great number of natural resources are non-renewable and so gains from them should be made to linger or at least have a long-term impact. The agenda for Ghana is how to ensure implemented policies are like Botswana's and not Bolivia, create a Norway rather than a Nigeria, and definitely Chile and not Congo through the prudential use of the resources.

6.1 Governance and Institutions

Government involvement as the key driver of economic growth accelerated by natural resource gains is invaluable and especially pivotal in sustaining the growth agenda over the long haul. This can be seen especially in the case of Netherlands where the government established the relevant institutions strong, to drive the industrial agenda. *Ghana should develop clear principles that establish and guide institutions and also organisational structures to govern the management of natural resources.* These institutions over time mature to become the backbone of economic development. In some jurisdiction there has been the establishment of some special funds by government to manage the revenue accrued from natural resources for proper utilization for years to come and for this, Ghana has started the process.

Large financial assets present an opportunity for theft from politicians making corruption a major risk for holding large amounts of natural resources. This makes transparency and accountability on the management of Natural resources essential. It is imperative that corruption be reduced to the minimum level in resource-rich countries. Examples from country cases indicates that Sweden, Botswana and Netherlands have very high score on corruption perception index, 89, 79 and 87

respectively for the year 2015 and similar for previous years indicating their commitment to transparency and control of corruption. *Ghana should consider policies that tighten the laws on corruption with criminal sanctions and at the same time strengthen transparency and accountability on the use of revenues from natural resources especially.*

6.2 Education / Human Resource/Innovation

Most resource-rich countries suffer in their investment in education. This is because when the country begins to depend heavily on its wealth from natural resources they tend to forget to invest in skilled and diversified workforce to support the other sectors of the economy. High-level human capital is a vital ingredient for growth because an educated workforce learns faster. Again, education imbues democracy, reduces inequality, builds improved conditions for governance and even improves health. This involves setting up the right institutions and systems like universities and technical schools that churn out the requisite human resource for high productivity. Coupled with this should be centres of research and development that will explore and result in world-class innovation as well as utilize available potential. This mix when harnessed will produce the needed capacity that will drive the momentum for development. *Natural resources demands extensive investment to reap what is available. Ghana should take deliberate steps especially in research and development and Human Resource development to provide high adequate budget to exploit all potential from available natural resources.*

6.3 Investment

Revenue from natural resources should be seen as capital because they are non-renewable therefore its consumption should be appreciated as consuming capital and

not income. The consumption of this capital (revenue from natural resources) instead of income by a country leads to capital loss of the country forever. It is advised that revenue from natural resources should be converted into financial assets and to reduce risk, these assets should be in a diversified portfolio and the interest accrued from these assets could be treated as income for consumption. It may also be effective to convert gold, diamond and oil below the ground into assets above the ground like apartment, factories and dollars. Precautionary measures should be taken when considering the quality of investment to avoid unproductive investments and investment with low returns. Investments into foreign countries should also be encouraged to build conglomerates as with worldwide presence considering the huge returns on natural resource. Politicians should avoid pitfalls of being pressured to spend resources gains sooner than at a later time. With the uncertainty of politics, there is almost an incentive to spend now to stay longer in power. *Ghana should also avoid taking loans against some future resource and thus spend impending revenue.*

6.4 Land Reform

Natural resource comes with reform of the Land as most of the natural resources engage changing the environment, nature and sometimes use of the land on which the natural resources are extracted or cultivated. Ghana has taken the first step of embarking on a land reform strategy that seeks to change the laws, regulations and customs governing land ownership and has already passed the Bill for Land use. The Bill seeks to protect the landowners for the land intended use without traditional and governmental limitations. *Ghana needs to move further and implement to the later the land reform strategy to guide the total use of land as well as free the total natural resource exploration and exploitation.*

6.5 Value addition

Industrial structure of the economies pursuing High-Income status through prudent natural resource utilization will need a rapid change from being highly raw material based to high-end value addition product centered. Value added product stand to open avenues in employment, exports and high-quality products with high prices and generate revenue. This can be seen in Total Factor Productivity of Ghana which is still relatively low compared with most developed economies. Again, accelerating economic growth of a nation's demand specialising in some particular sectors that are most relevant and important to that economy. This normally is related to the available resources and how to develop skilled labour around that resource. *Ghana should develop a domestic policy that will seek to prioritize and move away from exporting raw materials to that of high-end value added products especially for export. This policy should emphasise developing products that will in the end carry high prices and presents increased customization allowing for high-profit margins.*

6.6 Diversification/Reducing Resource dependency

The trend on commodity volatility demands that countries take a second look at the major drivers of their economy and not only structure their economy on any particular commodity or item. Typical is in the case of oil where in recent years the price of oil peaked at US\$144 (July, 2008) a barrel and sinking below US\$40 (February, 2009) a barrel, a drop of over 70% in the space of seven months. Appendix 4. This definitely distorted economic projections and planning. *It is an invaluable advice for Ghana to build a highly diversified economy not dependent only its natural resources and*

certainly not its new oil find. To this the country should develop a policy that seeks to devolve itself from any kind of overdependence on its natural resources.

Comparative advantage:

Ghana has huge comparative advantages in agro-processing. It has great prospects in meat and fish preparation, beverages and milling industry. The author recommends policies that will utilize and harness these opportunities

With the dos comes the don'ts and for this, the author makes reference to the very recent Venezuela case where the country has been plunged into its worst economic crises in its history with great starvation with the government declaring a state of emergency according to The Guardianiv. The IMF reports Venezuela has worst inflation of 482% with a rate of unemployment 17% and negative growth rate (-8%). This surge of economic breakdown has been due to corruption, debt, and other factors, besides the high dependence on oil which has been very volatile in the past couple decades.

Ghana and other governments should also explore alternative sources of energy, for example, the Netherlands in considering exploration of natural gas production from small fields because of land and environmental degradation. (Scheffers, 2015) The Dutch in their Energy Agreement plans agreed that by 2023, 16% of the country's energy should be from renewable energies.

7. Conclusion and Future Research

Introduction

The study analysed countries with abundant natural resources to identify and categorize the common elements that makes them prosper using the wealth that is accrued from their natural resources. It looked at research recommendations from publications of economist on natural resource-wealth-drivers to see the importance of these drivers in the development of a country.

7.1 Summary of Major findings

The study revealed that economic growth in Ghana has experienced pitfalls and stagnation even though the country is blessed with cocoa, timber, bauxite, and oil. It has experience some leaps but these were short lived due to unanticipated events such as falls in international commodity prices. Volatility in commodity prices is not new in trade but some countries have policies that absorb shocks of such, ensuring sustained economic growth.

The study identified proper governance, systems and institutions as the foundations on which economic development thrives. Skilled and specialised human resources are needed to drive development agenda with understanding of natural resource dynamics and changing trends. Also total dependence on natural resource wreck countries prospects at future prosperity and so diversification into other productive sectors is vital as well as processing raw resources into high-end, high profit products especially for international trade which will open potential for both employment and foreign exchange. Finally, development of the natural resource sector is capital intensive with high return and countries that have made leaps made substantial investment through external or internal debt and in most cases foreign investment. These qualities hold true in the analysis even though in some country cases one quality is more evident than another.

7.2 Recommendation

Stiglitz advises that resource-rich countries must reinvest their wealth from natural resources under the ground into productive investment above the ground. Gylfason, on the other hand, argues for human capital development. In their paper, Subramain and Sala-I-Martin prove that quality institutions are the drivers for economic growth using natural resource wealth. It goes to say that accelerated economic growth from natural resource wealth rest on prudent deliberate activities and effective policy directed towards, human capacity development, efficient institutions, diversification into productive sectors, and value addition in for higher return.

The findings recommend a fused implementation of these policies in order produce the desired outcome of high economic growth. However, these major policies especially considering the exclusive characteristics of Ghana should tie to its comparative advantage such as opportunities in mechanise agriculture and food value chain.

Furthermore, this paper contributes to the nexus on the commonalities in policy orientation and strategies implemented for transition in economic growth through natural resource development for resource-rich countries other than Ghana.

7.3 Conclusion

The tentative conclusion from this paper suggests that an accelerated economic growth from the prudent utilization of available natural resources is a product of a blend in the methodical creation of knowledge as well as random technological innovation situated within the proper institutional framework.

From seeing the examples of other country experiences, if Ghana is unable or reluctant to take bold measures to prevent and in some cases solve problems related to natural resources then she might as well leave the gold, bauxite, and oil in the ground.

Lessons from this paper points to the fact that there are principles and policies to accelerate economic growth through the use of Natural Resource wealth and Ghana is not alien to them. Ghana can do it; Ghana can do it well, and other resource-rich countries in Africa and around the world can do it too.

7.4 Future Research

This paper does not provide all the solutions and lessons to Ghana on the nexus between natural resource and economic growth. A lot more needs to be done to understand the different roles of governance and institutions, education and innovation, investment, land reform, value addition and diversification play in the development agenda of Ghana in the light of its rich natural resources. Further studies will also be needed to understand sustainable development to ensure continuity of these policies across the different political divide.

Finally, due to the new oil discoveries in Ghana and its excitement with the additional oil find, Ghana needs to utilize this commodity in an efficient way otherwise, it will be a drawback to the economy. This author predicts oil prices will not reach the US\$100 per barrel again. This year (2016) it reached its lowest price in 16 years which was below US\$30 per barrel and later picked up and, so forecast the final months of 2016 and early months of 2017 it will reach its highest price of between US\$60-US\$80 per barrel and it will fall to below US\$20 per barrel around 2018 looking at the trend with the current hovering price of US\$40 per barrel (Appendix 5). The author humbly submits that the Government of Ghana capitalize on the opportunity between 2016 and 2017 to enjoy the high prices.

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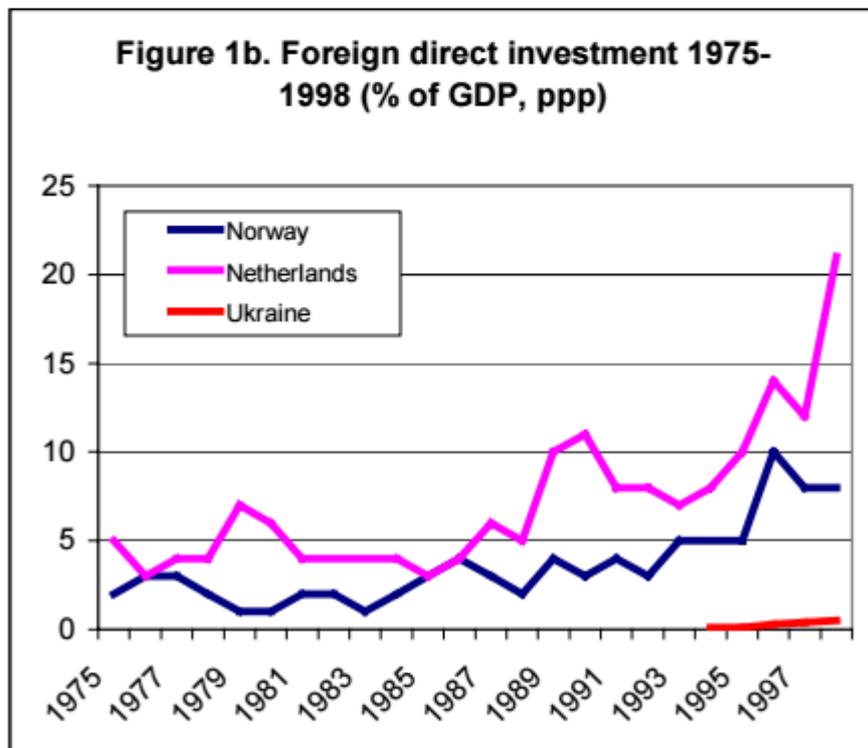
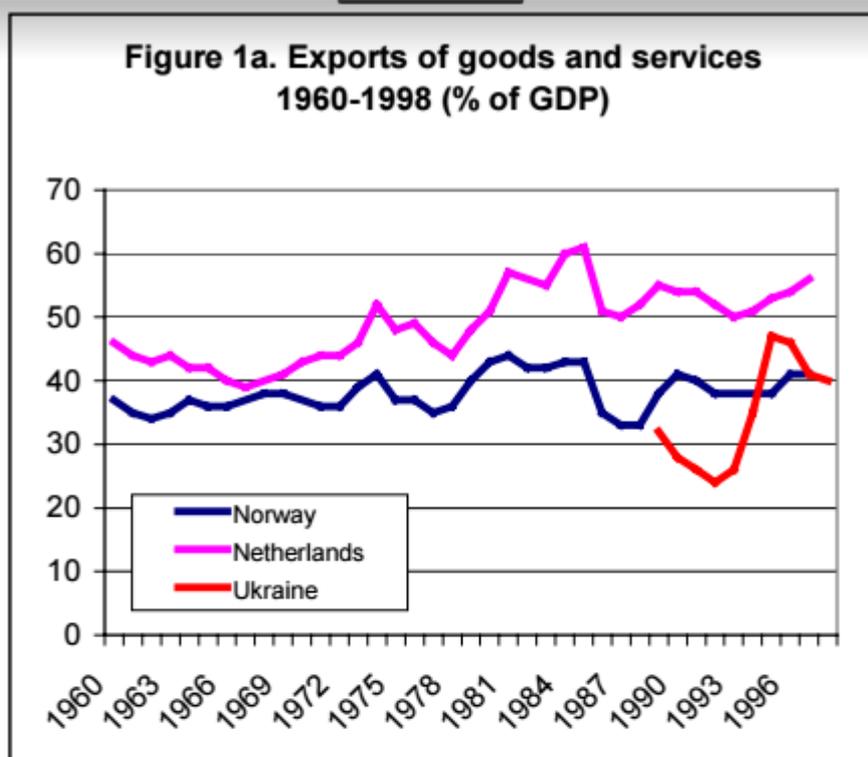
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9. Appendices

Appendix 1



Appendix 2

Table 1 Number of countries in each region		
Region	# of Countries	# of Firms
Sub-Saharan Africa (AFR)	25	5,582
South Asia and East Asia and Pacific (Asia)	9	5,439
Eastern Europe and Central Asia (ECA)	25	2,872
Latin America and the Caribbean (LAC)	15	5,514
Middle East and North Africa (MENA)	6	2,005
Total	80	21,412

Source: Enterprise Surveys.

Table 2 Industries included in the analysis		
ISIC Code	Two-digit Industry	Percentage
15	Food	20.9
17	Textiles	8.8
18	Garments	15.2
24	Chemicals	8.4
26, 27	Non-Metallic & Basic Metals	7.2
28, 29	Fabricated Metal & Machinery	12.3
-	Other Manufacturing	27.2

Source: Enterprise Surveys.

Table 3 Countries with high and low productivity levels											
ECA 2008/09		LAC 2006		AFR 2006/07		ECA 2008/09		LAC 2006		AFR 2006/07	
Mean	0.18	Mean	0.01	Mean	-0.02	Mean	0.03	Mean	0.03	Mean	0.02
High values of aggregate TFP						High values of average TFP					
Hungary	1.50	Peru	0.32	Ethiopia	0.24	Moldova	0.07	Nicaragua	0.05	Ethiopia	0.04
Romania	1.16	Mexico	0.28	Botswana	0.23	Kyrgyz Rep.	0.06	Honduras	0.05	Zambia	0.04
Uzbekistan	0.64	Chile	0.11	Mali	0.12	Serbia	0.06	Panama	0.04	Namibia	0.04
Kyrgyz Rep.	0.50	Panama	0.11	Rwanda	0.11	Kazakhstan	0.06	Guatemala	0.04	Swaziland	0.03
Georgia	0.31	El Salvador	0.10	Ghana	0.05	Macedonia, FYR	0.05	Paraguay	0.03	Burundi	0.03
Low values of aggregate TFP						Low values of average TFP					
Bulgaria	-0.09	Ecuador	-0.13	Tanzania	-0.12	Latvia	0.02	Bolivia	0.02	Rwanda	0.01
Belarus	-0.10	Colombia	-0.15	South Africa	-0.14	Azerbaijan	0.02	Colombia	0.02	Angola	0.01
Latvia	-0.11	Uruguay	-0.19	Senegal	-0.16	Croatia	0.02	Chile	0.02	Mali	0.01
Slovak Rep.	-0.19	Guatemala	-0.19	Swaziland	-0.19	Romania	0.01	Argentina	0.01	Mauritania	0.01
Serbia	-0.27	Honduras	-0.34	Zambia	-0.24	Hungary	0.01	Peru	0.01	Ghana	0.01

Source: Enterprise Surveys.

Appendix 4

Chart 1

Up again

Ghana's public debt—particularly the segment that is domestically financed—has risen rapidly, pushing up interest rates and raising the cost of credit to the private sector.

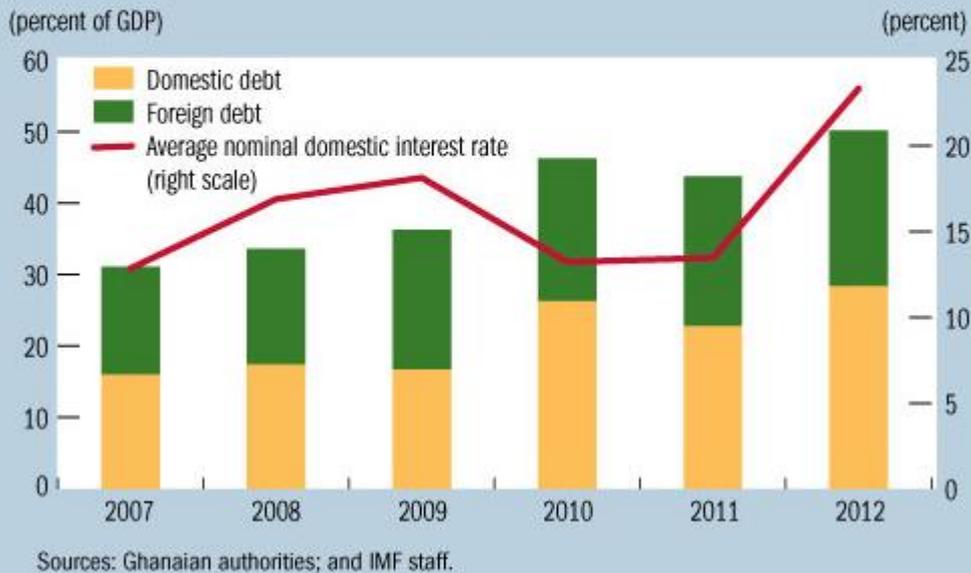
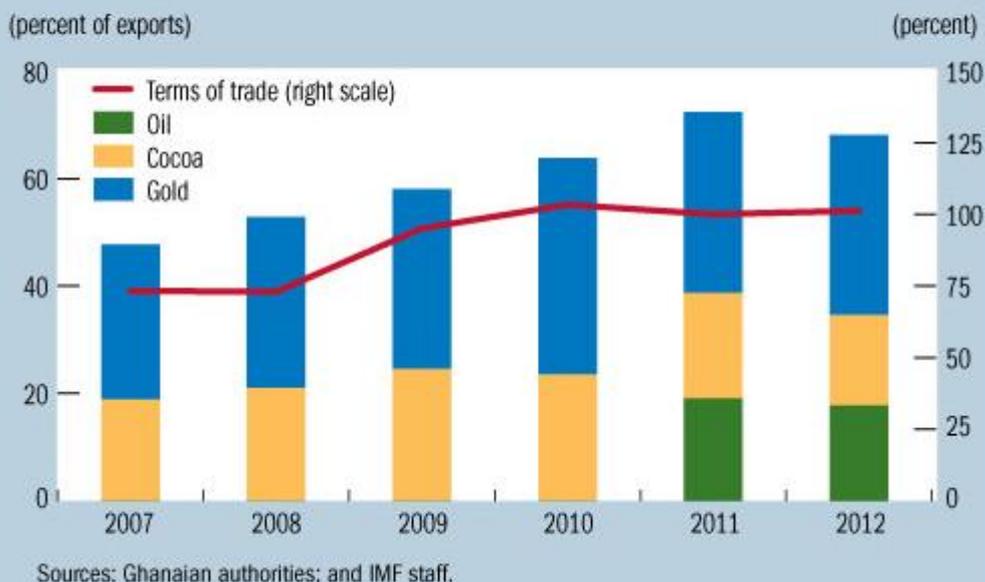


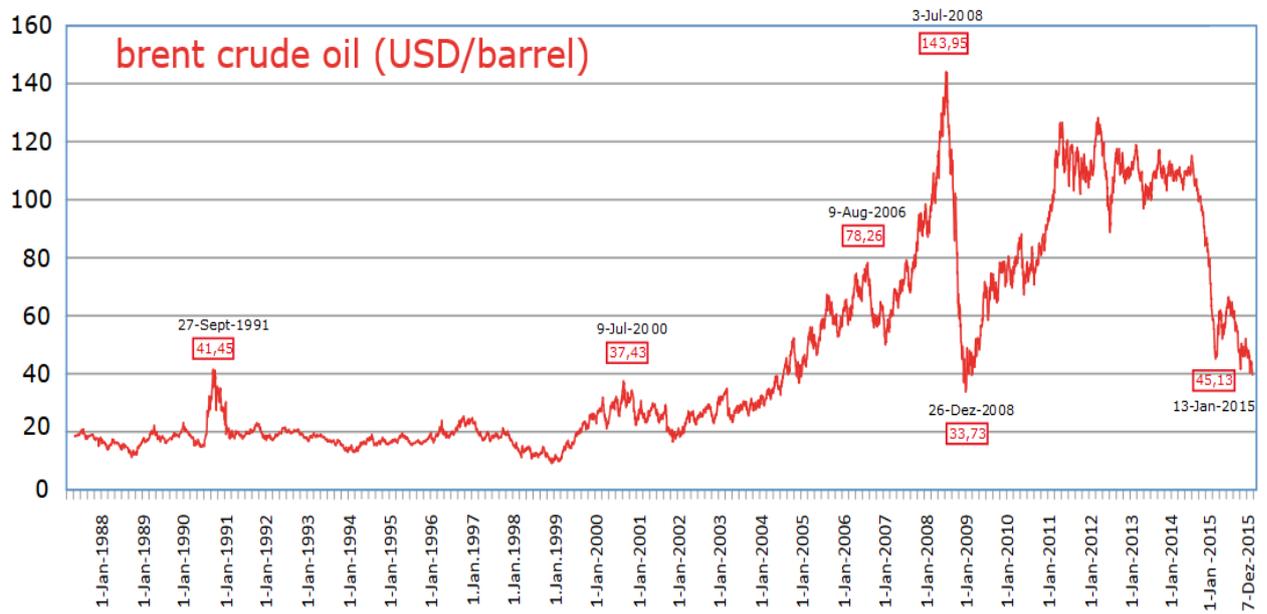
Chart 2

Overdependence

Concentration of Ghana's exports in three commodities—gold, cocoa, and oil—makes the economy vulnerable to terms of trade shocks.



Appendix 5



Source: Europe Brent Crude Oil Spot Price FOB

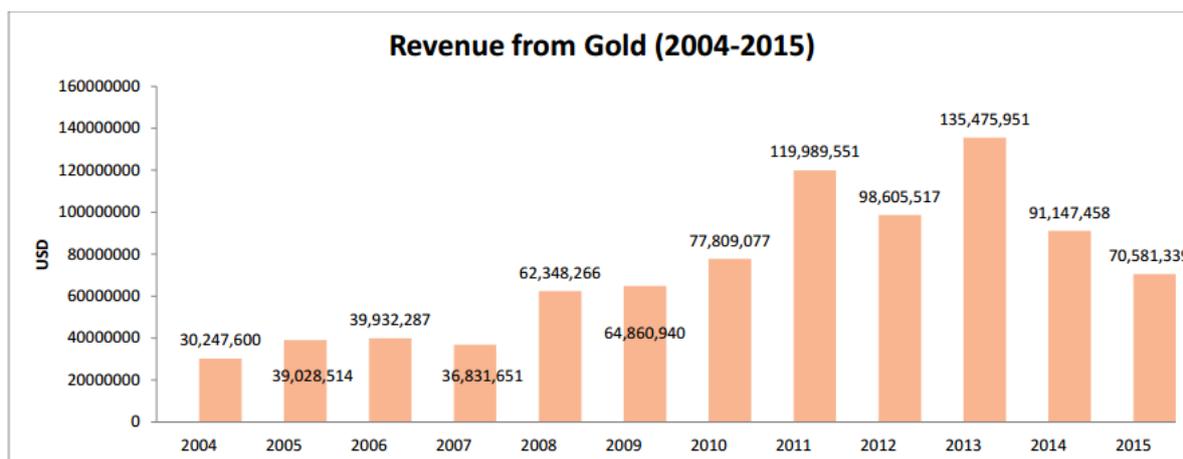
Appendix 6:

Table 3: *Investment inflow into the Mining Sector (2000-2015)*

Total Investments inflow (2000 – 2015)	
YEAR	TOTAL US\$m
2000	231.78
2001	275.53
2002	315.59
2003	545.62
2004	638.33
2005	797.52
2006	586.74
2007	670.22
2008	765.3
2009	762.26
2010	770
2011	780.1
2012*	1,444
2013	1,154.10
2014	950

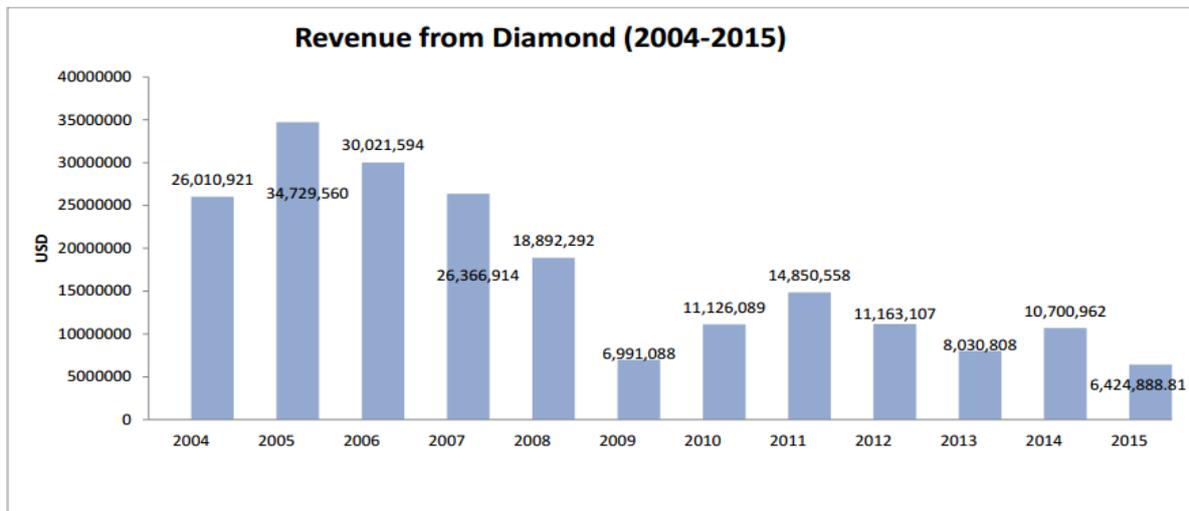
Major mineral revenue in Ghana

a. Revenue from Gold



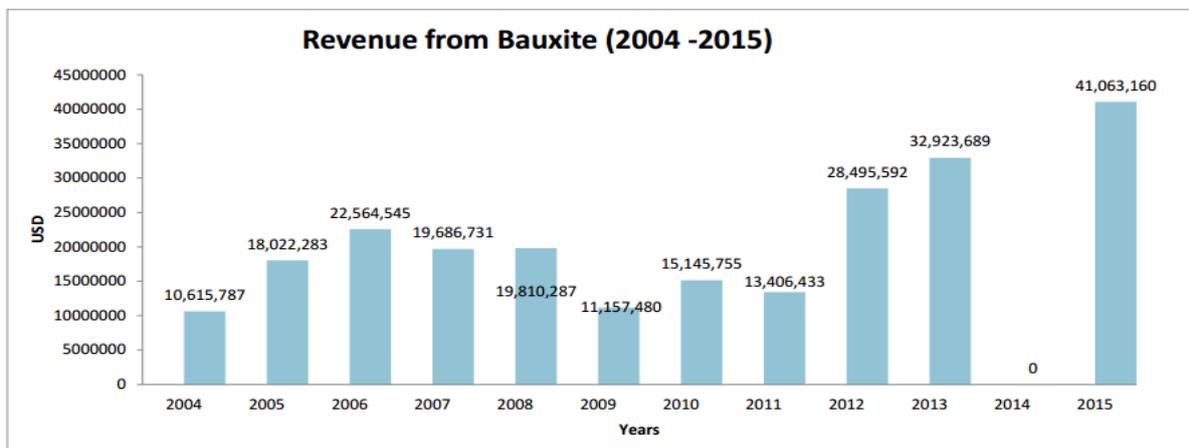
Source: Ghana Chamber of Mines Report

b. Revenue from Diamond



Source: Ghana Chamber of Mines Report

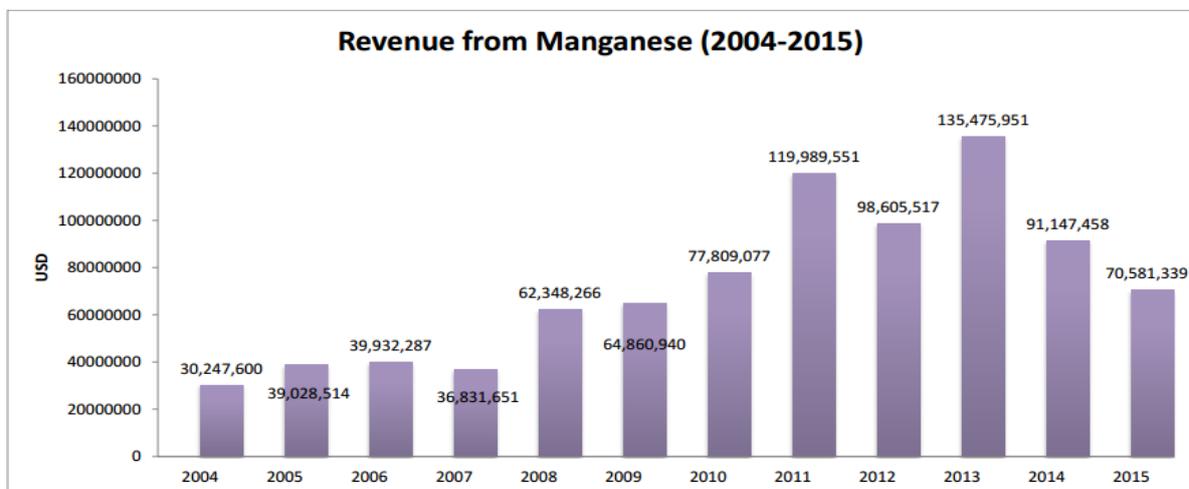
c. Revenue from Bauxite



*Even though bauxite continues to be produced in Ghana, the Chamber's current scope of data does not include it as the Chamber's data is largely reflective of its member companies.

Source: Ghana Chamber of Mines Report

d. Revenue from Manganese



* The above data reflects export sales only (excludes local sales) of Ghana Manganese Company.

Source: Ghana Chamber of Mines Annual Reports

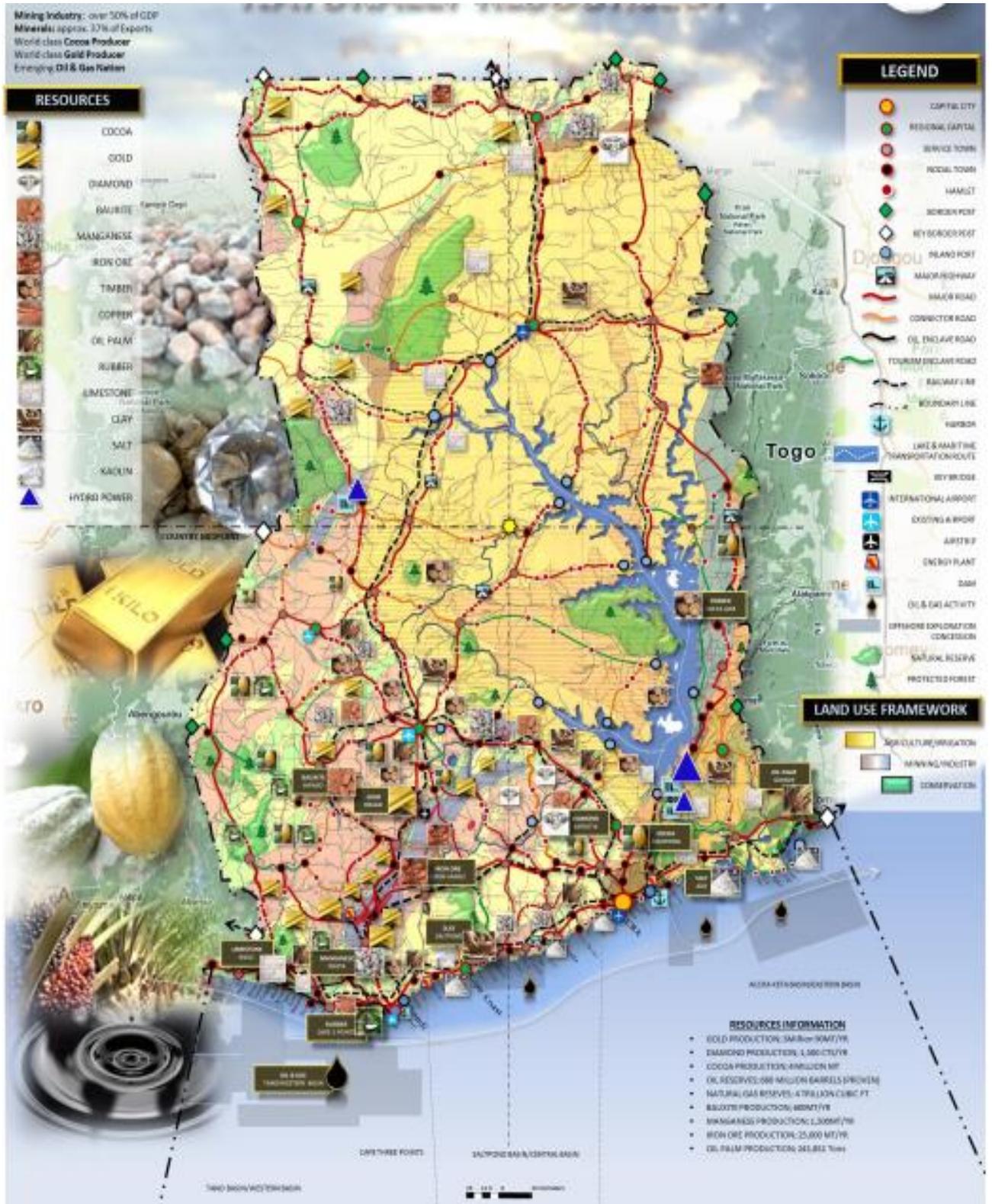
Appendix 7

Table 3: The Global Competitiveness Index 2012–2013 rankings and 2011–2012 comparisons

GCI 2012–2013					GCI 2012–2013				
Country/Economy	Rank/144	Score (1–7)	Rank among GCI 2011–2012 sample	GCI 2011–2012 rank	Country/Economy	Rank/144	Score (1–7)	Rank among GCI 2011–2012 sample	GCI 2011–2012 rank
Switzerland	1	5.72	1	1	Ukraine	73	4.14	73	82
Singapore	2	5.67	2	2	Uruguay	74	4.13	74	63
Finland	3	5.55	3	4	Vietnam	75	4.11	75	65
Sweden	4	5.53	4	3	Seychelles	76	4.10	n/a	n/a
Netherlands	5	5.50	5	7	Georgia	77	4.07	76	88
Germany	6	5.48	6	6	Romania	78	4.07	77	77
United States	7	5.47	7	5	Botswana	79	4.06	78	80
United Kingdom	8	5.45	8	10	Macedonia, FYR	80	4.04	79	79
Hong Kong SAR	9	5.41	9	11	Croatia	81	4.04	80	76
Japan	10	5.40	10	9	Armenia	82	4.02	81	92
Qatar	11	5.38	11	14	Guatemala	83	4.01	82	84
Denmark	12	5.29	12	8	Trinidad and Tobago	84	4.01	83	81
Taiwan, China	13	5.28	13	13	Cambodia	85	4.01	84	97
Canada	14	5.27	14	12	Ecuador	86	3.94	85	101
Norway	15	5.27	15	16	Moldova	87	3.94	86	93
Austria	16	5.22	16	19	Bosnia and Herzegovina	88	3.93	87	100
Belgium	17	5.21	17	15	Albania	89	3.91	88	78
Saudi Arabia	18	5.19	18	17	Honduras	90	3.88	89	86
Korea, Rep.	19	5.12	19	24	Lebanon	91	3.88	90	89
Australia	20	5.12	20	20	Namibia	92	3.88	91	83
France	21	5.11	21	18	Mongolia	93	3.87	92	96
Luxembourg	22	5.09	22	23	Argentina	94	3.87	93	85
New Zealand	23	5.09	23	25	Serbia	95	3.87	94	95
United Arab Emirates	24	5.07	24	27	Greece	96	3.86	95	90
Malaysia	25	5.06	25	21	Jamaica	97	3.84	96	107
Israel	26	5.02	26	22	Gambia, The	98	3.83	97	99
Ireland	27	4.91	27	29	Gabon	99	3.82	n/a	n/a
Brunei Darussalam	28	4.87	28	28	Tajikistan	100	3.80	98	105
China	29	4.83	29	26	El Salvador	101	3.80	99	91
Iceland	30	4.74	30	30	Zambia	102	3.80	100	113
Puerto Rico	31	4.67	31	35	Ghana	103	3.79	101	114
Oman	32	4.65	32	32	Bolivia	104	3.78	102	103
Chile	33	4.65	33	31	Dominican Republic	105	3.77	103	110
Estonia	34	4.64	34	33	Kenya	106	3.75	104	102
Bahrain	35	4.63	35	37	Egypt	107	3.73	105	94
Spain	36	4.60	36	36	Nicaragua	108	3.73	106	115
Kuwait	37	4.56	37	34	Guyana	109	3.73	107	109
Thailand	38	4.52	38	39	Algeria	110	3.72	108	87
Czech Republic	39	4.51	39	38	Liberia	111	3.71	n/a	n/a
Panama	40	4.49	40	49	Cameroon	112	3.69	109	116
Poland	41	4.46	41	41	Libya	113	3.68	n/a	n/a
Italy	42	4.46	42	43	Suriname	114	3.68	110	112
Turkey	43	4.45	43	59	Nigeria	115	3.67	111	127
Barbados	44	4.42	44	42	Paraguay	116	3.67	112	122
Lithuania	45	4.41	45	44	Senegal	117	3.66	113	111
Azerbaijan	46	4.41	46	55	Bangladesh	118	3.65	114	108
Malta	47	4.41	47	51	Benin	119	3.61	115	104
Brazil	48	4.40	48	53	Tanzania	120	3.60	116	120
Portugal	49	4.40	49	45	Ethiopia	121	3.55	117	106
Indonesia	50	4.40	50	46	Cape Verde	122	3.55	118	119
Kazakhstan	51	4.38	51	72	Uganda	123	3.53	119	121
South Africa	52	4.37	52	50	Pakistan	124	3.52	120	118
Mexico	53	4.36	53	58	Nepal	125	3.49	121	125
Mauritius	54	4.35	54	54	Venezuela	126	3.46	122	124
Latvia	55	4.35	55	64	Kyrgyz Republic	127	3.44	123	126
Slovenia	56	4.34	56	57	Mali	128	3.43	124	128
Costa Rica	57	4.34	57	61	Malawi	129	3.38	125	117
Cyprus	58	4.32	58	47	Madagascar	130	3.38	126	130
India	59	4.32	59	56	Côte d'Ivoire	131	3.36	127	129
Hungary	60	4.30	60	48	Zimbabwe	132	3.34	128	132
Peru	61	4.28	61	67	Burkina Faso	133	3.34	129	136
Bulgaria	62	4.27	62	74	Mauritania	134	3.32	130	137
Rwanda	63	4.24	63	70	Switzerland	135	3.28	131	134
Jordan	64	4.23	64	71	Timor-Leste	136	3.27	132	131
Philippines	65	4.23	65	75	Lesotho	137	3.19	133	135
Iran, Islamic Rep.	66	4.22	66	62	Mozambique	138	3.17	134	133
Russian Federation	67	4.20	67	66	Chad	139	3.05	135	142
Sri Lanka	68	4.19	68	52	Yemen	140	2.97	136	138
Colombia	69	4.18	69	68	Guinea	141	2.90	n/a	n/a
Morocco	70	4.15	70	73	Haiti	142	2.90	137	141
Slovak Republic	71	4.14	71	69	Sierra Leone	143	2.82	n/a	n/a
Montenegro	72	4.14	72	60	Burundi	144	2.78	138	140

Appendix 8

Natural Resource in Ghana

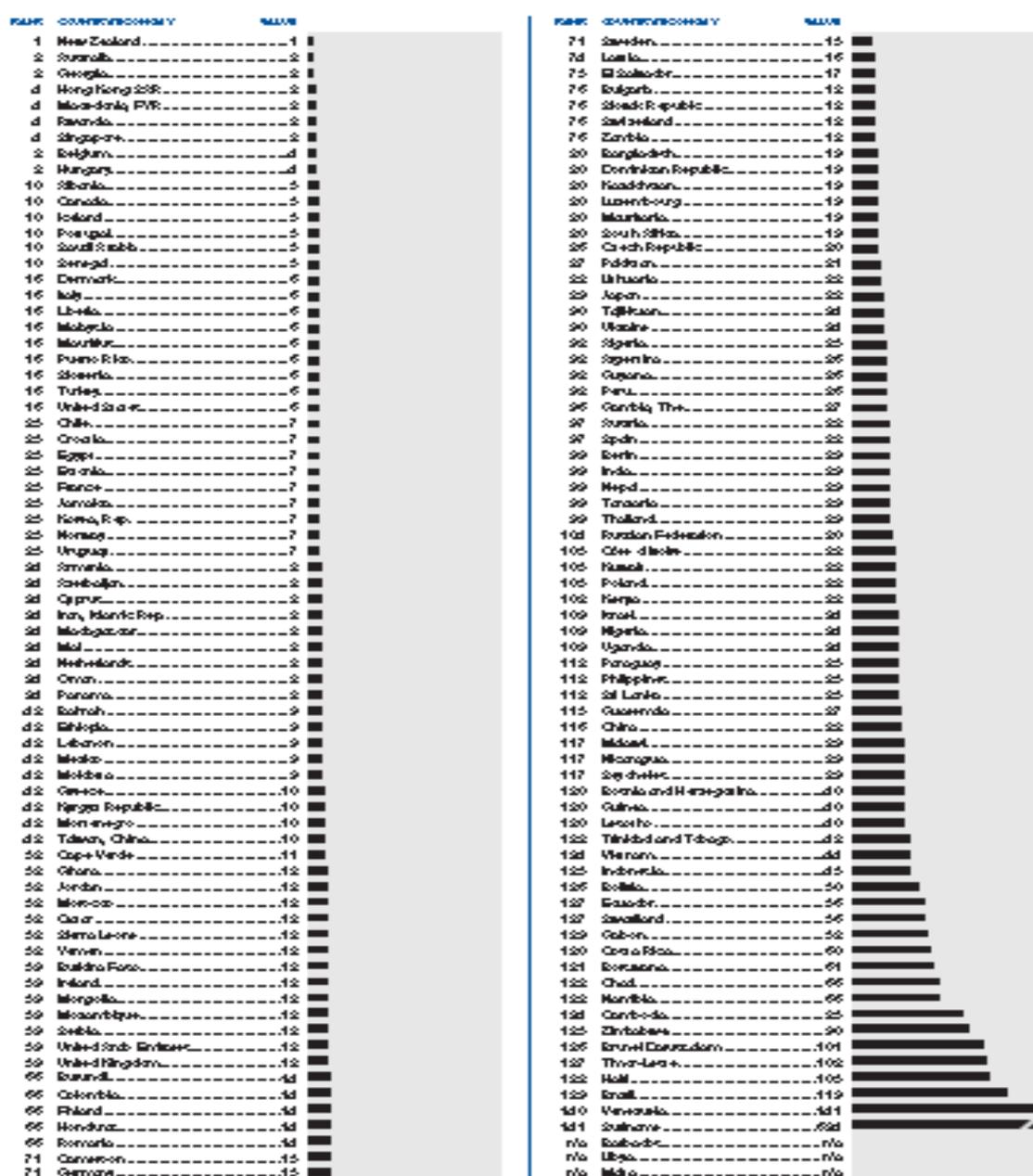


Compiled and designed by Prof. Kwame Henaku Addo

Appendix 9

6.07 Time required to start a business

Number of days required to start a business in 2011



SOURCE: World Economic Forum Global Competitiveness Index 2011-2012, Global Competitiveness Index 2011-2012

ⁱ <https://www.government.nl/latest/news/2015/01/16/dutch-agricultural-exports-top-80-billion-euros>

ⁱⁱ <http://www1.american.edu/TED/tin.htm>

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<https://web.archive.org/web/20060923180306/http://www.miningweekly.co.za/min/sector/coal/?show=75117>

^{iv} <https://www.theguardian.com/world/2016/jun/22/venezuela-economic-crisis-guardian-briefing>