

**REVERSE THE CURSE: THE CASE OF SUB-SAHARAN AFRICAN DEVELOPMENT**

by

Alyssa Buda

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## **Abstract**

Many African nations have been known to have an abundance of natural resources such as oil, minerals, diamonds, and other gemstones. With such resources at hand it comes as a surprise that African nations have not developed successfully. This is what is typically referred to as the resource curse. African countries are all too often characterized by corruption, slow economic growth, armed conflict, and damage to the environment. This paper will evaluate the extent to which the abundance of natural resources has affected development by looking at geographic factors such as location, climate, and resource availability in different African nations. By establishing the relationship between natural resources and development this paper seeks to expand the resource curse hypothesis to incorporate these additional geographic factors. The conclusion will offer suggestions for reversing the curse.

## **Introduction**

The question of why Africa has developed slowly is not new. Each argument utilizes different points to illustrate why Africa has been left out of modern economic development. There is a constant debate between whether African development has been hindered by its geographic destiny or poor policy decisions by individual governments. The physical geography of Africa leaves it with many challenges to overcome. Its tropical climate limits agricultural ability and allows for disease burdens. Sixteen African countries are landlocked, thus face high transportation costs which limits access to international trade. There are also huge disparities in natural resources; some African nations are resource rich and others are resource poor. Both resource abundance and resource scarcity lead to conflict. These geographic factors can be seen as products of “destiny”, but the conflict that often ensues can be caused through the strains of bad economic policy and corruption. Geographic destiny maintains there is no policy that can be implemented to change the climate, eliminate landlocked countries, or alter amounts of natural resources in Africa. This paper seeks to discover if countries that have natural resources and weak economies are experiencing a resource curse due to poor policy decisions or are constrained by factors of destiny. Africa’s physical geography hinders its ability to develop because so many countries are landlocked, have a tropical climate, and have economies dependent on natural resources. African countries cannot change their physical geography, but policies can be put in place to address these products of destiny. By establishing the importance of geography in African development, this paper will expand the resource curse and address ways to combat these geographic constraints.

### **The Destiny vs. Policy Debate**

Paul Collier and Jan Willem Gunning directly address the problems of African development by asking, “Why has Africa Grown Slowly?” They utilize four explanations for slow growth: domestic-destiny, domestic-policy, external-destiny, and external-policy. They frame the argument as destiny versus policy to explain how Africa has become what it is today. They attribute tropical climate, poor soil quality, and low population density to factors of destiny. On the other hand, policy mishaps take shape in the large number of public sector employees, a lack of democracy and accountability, government intervention impeding market economics, and a favor for manufacturing. The destiny versus policy question arises throughout debates on African development. Poor geographic features such as climate fall on the destiny side of the debate. David Landes discusses nature’s inequalities and the role of climate. Climate and temperate conditions play a role in where people live. For places with consistent heat, there are deleterious consequences (Landes 1998, 7). Landes states, “year round heat ... encourages the proliferation of life forms hostile to man. Insects swarm as temperatures rise, and parasites within them mature and breed more rapidly. The result is faster transmission of disease and development of immunities to countermeasures” (1998,7). Geography does not have to be destiny though, good policy can allow for economic development. Strong economic policy has the ability to combat destined geography. Jeffery Sachs and Andrew Warner address the balance between destiny and policy; they maintain that while Africa has poor physical geography, it does not “pose an insurmountable challenge to faster growth” (1997, 336). Countries are capable of reversing economic failure as seen in cases such as Chile since the 1970s. With Ghana and Uganda both implementing economic reforms, they may act as role models for other countries on the African continent. It is still vital to understand

the role of geography in African politics to address development. If destiny constrains policy as much as it seems to then there may only be so much policy capable of reversing their geographic curse.

### ***Destiny and Geography***

The continent of Africa is the second largest after Asia and five times the size of Europe, but its coast line is barely a quarter as long (Calderisi 2006, 29). There are few natural harbors south of the Sahara resulting in few well-protected deep-water ports, vital to economic development throughout the world (Caderisi 2006, 29). Collier and Gunning also note that because of Africa's colonial heritage, "Africa has much smaller countries in terms of population than other regions. Sub-Sahara Africa has a population about half that of India, divided into 48 states" (1999, 9). Because Africa contains so many states with small populations they have economies radically smaller than in other regions (Collier et al. 1999, 9). Landlocked countries have a particular challenge because sharing boarders and a lack of access to water leads to high transportation costs. Benno Ndulu notes this geographic problem in his book *Challenges of African Growth*. He states "On average, each country shares borders with four different countries, often with different trade and macroeconomic policy regimes" (2007, 12). Multiple borders are barriers to international trade and hinder a states' ability to export goods, a particular challenge for nations that are resource rich. With that being said, it is important to note the population densities throughout Sub-Sahara Africa. The continent has low population density, resulting in high transportation costs and poor market integration. Abiodun Alao notes in his book *Natural Resources and Conflict in Africa* that population, natural resources, and conflict are interrelated. He states that countries with large resource endowments and large populations have the ability to maintain power and clout useful for "intimidating their immediate neighbors over the management and control of natural resources" (Alao 2007, 57). The low population density also leads to a high amount of ethnic-linguistic diversity in African countries (Collier et al. 1999, 9). This diversity hinders a state's ability to function at its best when considering weak democracies and high incidence of civil war. This poses a challenge to creating successful policies influencing trade. Low population density mixed with high levels of exported natural resources can also create an appreciation of the exchange rate and make manufacturing less competitive (Collier et al. 1999, 9). These in turn are issues that policy must address, showing the strong relationship between geographic destiny and domestic policies.

Ricardo Hausmann points out the other important geographic features distinct to Africa noting the importance of Africa's tropical location. He notes, "In 1995, tropical countries had an average of income equivalent to roughly one third of the income of temperate-zone countries... Among the richest 30 economies of the world, only Brunei, Hong Kong, and Singapore are in tropical zones, and their geographical locations leave them ideally suited for growth through trade" (Hausmann 2001, 46). The tropical zone in which most of Africa is located in also hinders agricultural development. Jared Diamond explains that plant species and domesticated animals appropriate to once ecological zone and through east-west diffusion, Eurasia benefited whereas Africa (along the north-south axis) did not. Hausmann continues by noting that "Plant varieties need to be adapted to the local climate, meaning R&D [research and development] geared toward rich, temperate-zone agriculture is of little use in tropical areas" (Hausmann 2001, 48). Tropical climates have unsustainable rainfall, high levels of disease, and poor ecological systems for

agricultural development. Countries in tropical climates have not invested money in research and development to sustain growth in sectors affected by their climate such as agriculture. John Luke Gallup, Jeffery Sachs, and Andrew Mellinger also make note of other geographic factors, “First, nearly all countries in the geographic tropics are poor... Second, coastal countries generally have higher incomes than do landlocked countries. Indeed, none of the 29 landlocked countries outside of Europe enjoys a high per capita income” (Gallup et al. 1999, 180). These geographic factors indicate that economic development for tropical landlocked nations is grim.

### ***Policy and Geography***

Gallup et al. (1999, 204) discuss the role of geography in development but maintain, “geography is not necessarily destiny, but more than good policy is needed to foster economic growth”. Paul Krugman goes further by stating it might be a “false dichotomy” (1999, 156-7). He states that “geographic advantages are no longer relevant in any direct sense, and they have been able to cast such a long shadow over the future only because the geography of the economy has such strong self-reinforcing features that a concentration of population, once established, tends to persist and even grow” (Krugman 1999, 157). Moreover, Robert Calderisi maintains that even though African nations have a harsh environment and poor geographic location, Africans have been “trading—or smuggling—goods across borders for decades and have been migrating to jobs wherever they can find them” (Calderisi 2006, 30). He takes a more extreme view by maintaining that geography does not constrain any economic policy, whereas Krugman and Gallup, Sachs and Mellinger acknowledge that geography is a factor in development. An example of when policy and geography come together when a section of a state decides to secede. Secession occurs when groups of people living within a territory of the same country disagree over whether the central government should have sovereign control over the entire territory of the state (Tir 316, 2006). When Africa decolonized, the borders of former colonial countries were arbitrarily based on decisions by colonial powers without consent or ethnic consideration. Post-colonial Africa then faced secession issues as seen with Eritrea, who seceded from Ethiopia leaving the latter landlocked. The landlocked nature of Ethiopia was not predetermined during the colonial era, but rather they became landlocked because of policy choices made by different groups of people. Paul Collier also points out that neighbors matter. He noted in his book, *The Bottom Billion* that “the transportation costs for a landlocked country depend upon how much its coastal neighbor had spent on transport infrastructure” (Collier 2007, 55). He goes on to note that this is why Switzerland has an easier time transporting goods than Uganda. It is likely that Kenya does not spend as much money on transport infrastructure as Germany or Italy. This is an important distinction to make; the quality of neighbors is vastly important in the success of the landlocked state.

### ***Destiny and Natural Resources***

Natural resources are determined by geography. Because Africa is separated into 48 states, some were blessed with an abundance of resources, while others were not. As it turns out, resource rich nations are equally affected by the resource curse regardless of their geographic location (i.e., whether or not they are landlocked) (Collier 2007). To say countries with an abundance of natural resources are blessed is an overstatement. Resource rich African countries tend to make poor use of their wealth. In Africa, the abundance of natural resources has “fostered corruption, undermined

inclusive economic growth, incited armed conflict and damaged the environment” (Lawson-Remner 2012). Simply put, the resource curse dictates, “nations that are more dependent on natural resource wealth tend to grow more slowly than those that are resource-poor” (Barma et al. 2011, 1). From a political standpoint, bad economic policies tend to correlate with resource rents (Robinson et al. 2006, 448). With that being said the relationship between destiny and natural resources shifts. While countries cannot dictate which natural resources they are endowed with, their policies regarding those resources have an effect on their economy. This is why resource rich nations are not necessarily constrained by their geography. A clear example of this would be Botswana, a landlocked resource rich country that has effectively escaped the resource curse through effective government economic policy. This will be looked in more detail in an independent case study.

### ***Policy and Natural Resources***

Internally, managing resource wealth can prove challenging. Political institutions attempting to manage natural resource wealth are “eroded by reserve depletion, corruption, mismanagement of falling prices” and “resource rents ultimately risk leading to political instability and conflicts” (Le Billon 2004, 6). Atsushi Iimi notes that, “high resource dependency, concentration of government control over resources, and the government’s ability to tax the opposition, such as private entrepreneurs, all inhibit the development of democracy and provoke insurrection” (Iimi 2007, 665). The mismanagement of natural resources by government institutions can lead to violent conflict and resource wars. Oil, for example has caused countless interstate and intrastate conflicts globally. Jeff Colgan explains, “Oil is theorized to have two general effects on a state’s propensity for international conflict. One effect is conflict enhancing (by reducing the leader’s risk of domestic punishment for foreign policy adventurism and increasing the states military capacity) and the other is conflict-reducing (by increasing the economic incentives for peaceful international trade and stability in the global oil export market)” (2010, 662). Africa’s natural resources tend to be conflict enhancing, as seen in Nigeria and Ethiopia (Alao 2007, 114). Resource management proves to be an issue for both resource rich countries and resource scarce countries. Conflict can manifest in regards to both abundance and scarcity. Issues with scarcity can lead to the “employment of violence by elite groups to alter distribution of resources in their favor, possibility of fragmentation of state because of inability to meet the populations needs, tendency for authoritarianism to suppress protests from the population, competition by groups to eke out a living over scarce resources, and fall in the standard of quality causes tension” (Alao 2007, 27). Resource abundance can lead to a “tendency for mismanagement of abundant resources and the possibility of different interests groups emerging to have a stake on abundant natural resources” (Alao 2003, 27).

Countries with resource scarcity do not necessarily fall victim to the resource curse though. Paul Collier discusses resource scarce landlocked countries, “historically the most promising strategy for such countries has been to orient their economies towards trade with their more fortunately endowed neighbors ... Outside Africa, the landlocked, resource-scare economies on average gain large spillovers, at .7% ... In Africa, the growth spillover rate ... is a mere .2%. In other words, they are not orienting their economies towards their neighbors” (2006, 2). Collier addresses the economic policy decisions that resource scarce countries fail to utilize. Iimi notes the

role of landlocked geography in regard to economic growth. He finds through a linear regression model that slow growth in landlocked economies is attributable to more “general economic and social disadvantages shared by low-income countries rather than to geographical constraints” (Iimi 2007, 685). Collier discusses the different challenges that resource scarce and coastal countries face. Resource scarce-coastal countries should be the most successful, as seen in many Asian nations, but few African countries have been successful, such as Mauritius (Collier 2006, 4). Policies put in place by government can constrain the extent to which destiny controls internal economics. In order to expand the resource curse to incorporate geographic features, this paper will examine individual countries on the basis of resource rich-coastal, resource rich-landlocked, resource scarce-coastal, and resource-scarce landlocked.

### **Case Studies**

The continent of Africa has been a bit of an anomaly to academics. With such high levels of natural resources that are constantly in demand from rich countries, one would think African countries would be able to harness their wealth for developmental purposes. The argument that surrounds the reason why this has not occurred effectively usually goes between the left and right. The right argues that development traps do not exist and that any underdeveloped nation has the capacity to rise out of poverty through good policy. The left, on the other hand, argues that global capitalism inherently creates a poverty trap so for some countries to be rich, others must be poor. It would seem that the left would argue that it is Africa’s destiny to fail. Their natural resource endowments leave them with the short end of the stick and exist in this world for the benefit of other countries to exploit. In order to explore this further, the following cases seek to show the relationship between geography, natural resources, and development. Before jumping into the individual cases, the broad scope of African development must first be put into context.

According to Paul Collier, there are about a billion people living in the 50 poorest countries in the world. Of these billion people, 70% of them reside in Africa. What is also interesting to note is that of these billion people, nearly 30% of them reside in resource rich countries. Africa’s natural resources have not been used to their advantage, but rather as a tool for Western prosperity. The imperial legacy left behind by the British has been that of an abundance of wealth for Britain and the West, and chaos for Africa. The West profited from not only the slave trade, but also from sugar, coffee, cotton and tobacco (Drayton 2005). Entire cities were built directly and indirectly by stimulus of slave plantations (Drayton 2005). While Britain prospered, Africa suffered. Others argue that the current stagnation in so many African countries has been at no fault of the West, and rather look to post-1960s leadership in African countries. Even still, the entire process of decolonization was hindered by Britain and France’s attempt to constrain political sovereignty for Africa. Natural resources have been used as a vehicle for development for many resource rich nations, but this development comes at a price. Countries like Sierra Leone have been constrained by violent conflict fuel by natural resource endowments. These conflicts and civil wars erode the possibility of prosperity, especially when it entails harnessing natural resources. The work by Collier and Hoeffler utilized an econometric model to show that primary commodity exports substantially increase conflict risk (2004, 588). Not only are African states constrained by their geographic location, but their natural resource endowments leave them at a higher risk for internal

conflict. The following cases, Ethiopia, Mauritius, Kenya, Botswana, and Zambia will address the role of resource endowments, geography, and development.

### ***Landlocked, Resource-Scarce*** **Ethiopia**

Ethiopia is a resource scarce and landlocked country in eastern Sub-Saharan Africa. Forty percent of their GDP relies on agriculture. Their crop production relies on rain and fluctuates based on yearly rainfall patterns and is therefore subject to catastrophic drought. There is all public ownership of farmland, low levels of investment (FDI and otherwise), high levels of corruption within the government, and a dependence on foreign finance. Ninety percent of electric comes from hydropower, a major issue with infrastructure because of its reliance on rainfall. The hydroelectric plants are located in Ethiopia's lowlands, where pastoral and agro-pastoral societies are predominately located (Fratkin 2014, 95). These groups are often, small, tribal, and have little access to political power leaving them vulnerable to policies that marginalize them. The hydroelectric plant projects often require the relocation and resettlement of these groups. The marginalization of these groups prevents inclusivity and hinders economic development for Ethiopia as a whole. Additionally, their landlocked geography leaves it with no ports or significant navigable waterways. They also have ill-defined and porous borders with their neighbors, Eritrea and Somalia. Eritrea and Ethiopia were once under the same Ethiopian government, but after a brutal civil war lasting from 1961 to 1991, leading to a de facto independent Eritrean state (Falola and Chijioko Njoku 2010). An interstate war broke out between the two countries in 1998 and 2000. Since, the relationship between the two countries has been strained at best, leaving Ethiopia with little access to water, hindering their ability to participate in international trade. Because Ethiopia is resource scarce and landlocked, it should try to orient its economic policy towards its neighbors. For Ethiopia and other African nations alike, their neighbors are no more well off than they are, nor are they cooperative when it comes to coordinating economic policy.

### ***Coastal Resource-Scarce*** **Mauritius**

Mauritius is located off the continent of Africa, east of Madagascar. Despite it being a small island country vulnerable to exogenous shocks, the Mauritian economy has had stable growth since the 1970s. What was once a poor sugar based economy has now transformed itself into a diverse market and service economy. The combination of political stability, strong institutional framework, low levels of corruption, and a favorable regulatory environment has paved the way for sustained economic growth (Zafar 2011, 4). Though the Mauritian economy is now a marked success, it was not always this way. James Meade, a Nobel Prize winner in economics predicted a dismal future for Mauritius in the early 1960s. He cited their dependence on one crop, vulnerability to trade shocks, rapid population growth, and potential for ethnic tensions as factors to prevent economic growth. Meade was not wrong about any of his statements, Mauritius was heavily reliant on sugar, had an increasing population, and different ethnic groups. These factors of destiny did not hinder their development. Instead, the country embraces globalization and an open trade policy



(Subranmanian 2003). The establishment of export processing zones and an openness to foreign direct investment were key to economic growth, but other factors also assisted in development. Mauritius's domestic institutions prevented export processing zones from "being plagued by rent seeking, abuses, and leakages" by a weak administration as seen in other African EPZs (Subranmanian 2003, 411). The ethnic diversity in Mauritius was not a hindrance to development. The Chinese community in the country attracted investors from Hong Kong who sought out labor for their emerging textile industry to circumvent textile quotas in Hong Kong (Subranmanian 2003, 412). Their diversity also separated the political elite from their economic elite, creating a balance to prevent excess taxation and exploitation. Their diversity additionally led to the creation of participatory institutions, which insured the rule of law and respect for property rights, making Mauritius attractive for overseas investors (Subranmanian 2003, 412). The attraction of overseas investment leads to a boom in the textile industry, which allowed for effective utilization of their growing population. Meade's citation of a rapidly growing population turned out not to be a disadvantage at all. Through diversification, utilization of labor, and successful institutions, Mauritius was able to establish an economy that has continued to grow despite constraining factors.

### ***Coastal Resource- Rich*** **Kenya**

Kenya is on the eastern coast of Africa, located between Somalia and Tanzania. They have an abundance of natural resources including limestone, soda ash, salt, gemstones, and other metals. UK explorer Tullow Oil and Canada's Africa Oil companies also discovered oil reserves in the Ngamia 1 and Twiga oil wells (Zawya 2014). These discoveries have resulted in more than a dozen oil and gas companies from China, the United Arab Emirates, and Japan to further explore the land for more reserves. The Kenyan government has been criticized for its lack of transparency leaving oil companies hesitant to pour money into research and development for the natural resource sector (Zawya 2014). The new oil discoveries add to the abundance of natural resources in Kenya, but only a small portion of GDP is attributed to resource rents, 1.44 in 2011 (Table 1). Kenya's climate and altitude leaves it with a hot and humid coast, temperate inland, and dry in the north and northeast. These conditions leave both Kenya and Tanzania relatively underpopulated. Additionally, Kenya has large tracts of territory unsuitable for living because of low levels of rainfall and the prevalence of diseases like malaria and trypanosomiasis (Mountjoy et al. 1988). Kenya's low population density can also be attributed to the effects of the Arab slave trade that caused extensive depopulation before the arrival of colonial powers. Kenya's natural resources can be harvested to foster economic growth, but because of lack of government transparency, poor climate, low population density and environmental degradation they have yet to achieve success.

### ***Landlocked Resource-Rich*** **Botswana**

Botswana is a landlocked resource rich country north of South Africa. Seventy percent of Botswana is covered by the Kalahari Desert, leaving the country sparsely populated with little agricultural ability (Global Edge n.d.). It is the world's largest producer of diamonds and has successfully utilized resource rents to build a strong economy in both the public and private sectors (Oppenheimer 2008). The discovery of diamonds in the 1970s brought dramatic growth in GDP,

per capita income, and a balance of payment surplus. Prior to this discovery, Botswana was ranked among the poorest countries in the world (Oppenheimer 2008). The diamond market catapulted the economy into a new period of growth that has continuously been used as a case to refute the resource curse. The diamond revenues have “been used, through prudent and wise stewardship, to create the country’s physical and financial infrastructure, to build its transport system, to educate its citizens, and to create a proper healthcare system, which includes free access to anti-retroviral drugs to counter the scourge of AIDS” (Oppenheimer 2008, 213). Iimi also attributes the success of Botswana to their successful establishment of sound institutions and good governance (Iimi 2007). This adds to the overarching theme that Botswana has not been constrained by their geography and has been able to utilize their resources to combat the geographic resource curse. While revenues from diamonds have helped grow and sustain the economy in Botswana, their dependence makes them vulnerable to a diamond market collapse. Resource rents are vulnerable to exogenous shocks and therefore need to be managed under a strict saving mechanism (Iimi 2007, 691). The economy needs to diversify the market and manage funds successfully to prevent a shock if the diamond market were to collapse. The government has played a critical role in managing their revenue surplus through sensible macroeconomic policies. While these policies have lifted Botswana out of dire poverty, their diamond resources are nonrenewable. Policy options such as adopting a non-diamond deficit target would accelerate the revenue base diversification (Iimi 2007). Much of the successful economy in Botswana is attributed to the government’s economic policies and system of checks and balances.

Although Botswana has successfully enacted government and economic policies to sustain its growth, their high levels of HIV/AIDS are extremely detrimental to their overall wellbeing. Botswana’s population is just over 2 million with a population density of only 3.5 people per square mile (Table 2). This limits the number of people they have to be able to work, not only in their natural resource mining sector but also in agriculture, which could lead to scarcities. The loss of manpower puts a strain on the supply base and has the ability to devastate the economy (Alao 2007, 58). Botswana has had successful growth over the past couple decades, but market instability has the ability to prevent further growth unless economic diversification is implemented.

## **Zambia**

Zambia is also a landlocked, resource rich country in Sub Saharan Africa. It is located north of Botswana, and shares a border with eight other countries. When Zambia declared independence, it was a private enterprise economy (Kinney 7). They also had a well-developed and established mining industry focusing largely on copper. Their agriculture was still underdeveloped but had potential to strengthen and grow (Kinney 7). The country followed a Fabian socialist principle, leaving the state responsible for “collecting and redistributing rents from capital, natural resources, and labor to achieve egalitarian goals” (Ndulu 2007, 52). The country’s first leader as an independent state had a large involvement in the copper industry. The strong state involvement in turn created capital hostile environment, “limiting accumulation and undermining productivity growth by diverting investable resources into unproductive uses” (Ndulu 2007, 52). The monopolistic structure implemented by the government hindered their ability to grow. Additionally, the government structure discouraged private investment and nationalization left the

economy in stagnation. The different paths taken by Zambia and Botswana highlight the importance and pertinence of good governmental economics.

### **Conclusion**

The relationship between destiny, policy, geography, and natural resources can be challenging to discern. It seems that although these entities are separate, they are all intertwined. Resource scarce and coastal countries can be successful if they have a population that can be utilized in the workforce. Mauritius was able to capitalize on their labor force and their economy boomed in the 1980s and has continued to sustain itself since. Botswana successfully refutes the resource curse through strong inclusive economic reform, allowing for decades of sustained growth. The comparison with Zambia shows the importance of policy in the utilization of natural resources as a vehicle for development. Both Kenya and Ethiopia have yet to establish success because of their inability to create policy. Kenya's inability for inclusivity is preventing their ability to harness oil resources. The lack of government transparency has hindered their capacity for productive uses of their natural resources. Ethiopia is constrained by resource scarcity and geographic location. They have been unable to orient their economies towards their neighbors to create stronger infrastructure for development. It is clear that geography and policy both prevent and provide opportunities for success. This paper has sought to show the relationship between policy and geographic destiny. Through the use of each case, it is clear that although there are nuances in the geographic capacity, good government policies and institutions have the ability to prevent the resource curse.

## Appendix

Table 1

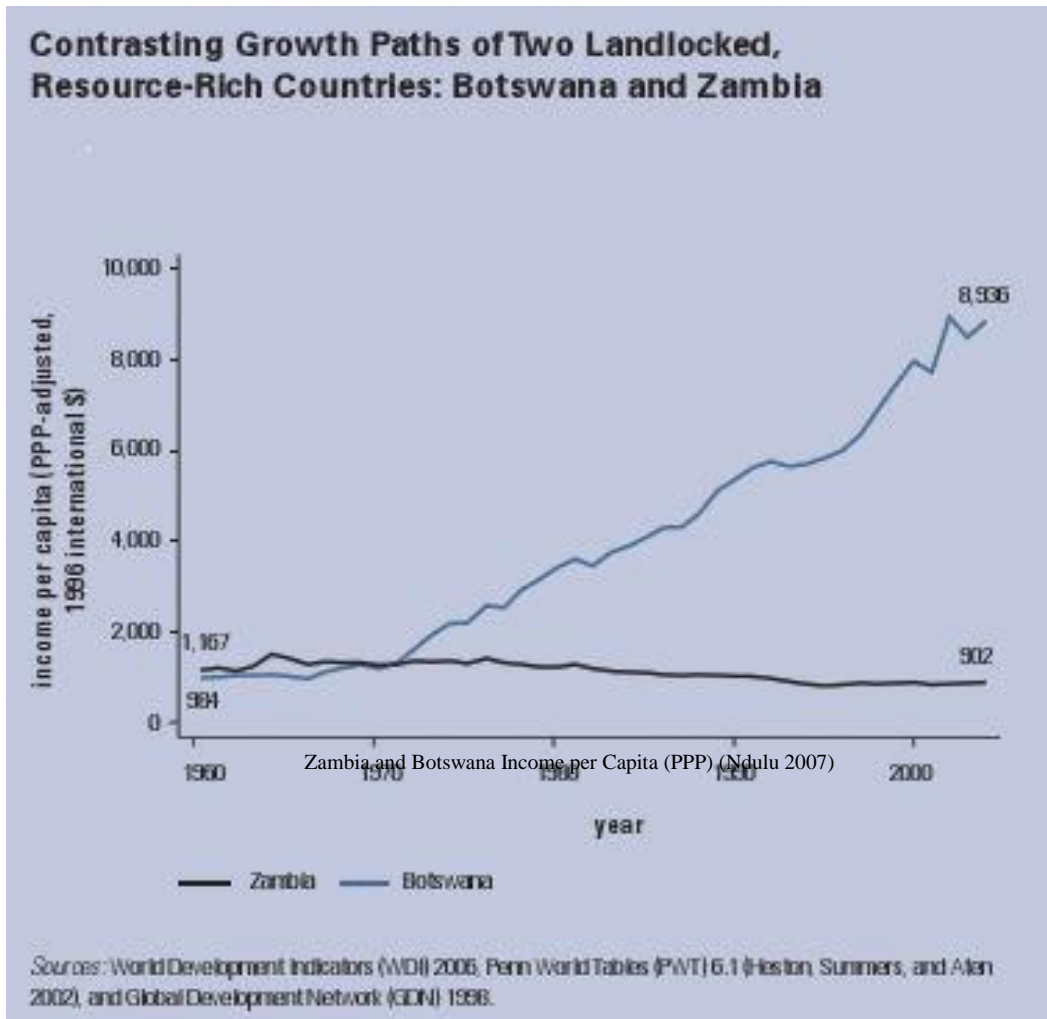
	Landlocked					Coastal						
	Botswana (Upper Middle Income)					Kenya (Low Income)						
	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
<b>Resource Rich</b>												
Natural Resource Rents	8,068,243,944	4,853,434,742	3,102,551,654	4,638,815,151	4,662,838,157		1,405,544,232	1,433,573,386	1,370,953,145	1,376,671,752	1,445,051,755	
Labor Participation Rates	76.19999695	76.30000305	76.40000153	76.5	76.59999847	76.69999695	65.59999847	65.90000153	66.19999695	66.5	66.80000305	67.09999847
Total Population	191,5187	193,3719	195,1715	196,9341	198,6701	200,3910	377,52304	387,73277	398,24734	409,09194	420,27891	431,78141
HIV Prevalence	24.8	24.5	24.1	23.7	23.4	23	6.4	6.3	6.2	6.2	6.2	6.1
GDP per capita (PPP)	13,590.15322	14,258.2398	13,119.29586	14,250.18371	15,324.90604	16,104.90527	15,528.965139	15,401.962017	15,531.177519	16,181.526282	16,761.679204	17,361.897963
<b>Resource Poor</b>												
Natural Resource Rents	0.790772019	1.043069007	0.546136373	0.656943381	0.691333786		0.008734064	0.011476745	0.012433276	0.006744655	0.005953475	
Labor Participation Rates	84.40000153	84.19999695	84	83.90000153	83.80000305	83.80000305	58	58	58	58.700000076	58.59999847	58.59999847
Total Population	804,40708	826,21190	848,80032	870,95281	893,93063	917,8849	126,0403	126,8565	127,5032	128,0924	128,6051	129,1456
HIV Prevalence	2.1	1.9	1.7	1.6	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2
GDP per capita (PPP)	759.9317613	835.7107553	892.3301665	967.1463954	1030.921001	1108.771965	11668.89535	12471.83537	12880.02322	13509.28078	14247.90095	14902.27412

Matrix adapted from World Bank data indicators (World Bank 2014)

Table 2: Population Densities in Sub-Saharan Africa 2007-2011

Country Name	2007	2008	2009	2010	2011
Angola	14.20776771	14.69033529	15.18139889	15.68069624	16.18712601
Benin	77.22144377	79.57868925	81.95089571	84.33662646	86.73106598
Botswana	3.379364071	3.412063946	3.443818044	3.474919274	3.505551144
Burkina Faso	52.02878289	53.58057749	55.17166301	56.79928363	58.46240132
Burundi	324.311215	335.8364486	347.6124221	359.5308801	371.5094237
Cabo Verde	120.0280397	120.260794	120.5245658	120.992804	121.7260546
Cameroon	40.40040617	41.45253115	42.52912991	43.63001206	44.7552876
Central African Republic	6.592341648	6.717881794	6.848128351	6.982440849	7.12096215
Chad	8.492984435	8.76002859	9.030594822	9.308117058	9.593422014
Comoros	339.9978506	348.8936056	357.9242343	367.0505105	376.2579258
Congo, Dem. Rep.	25.2257083	25.9451878	26.6806096	27.43263757	28.20030965
Congo, Rep.	11.00690483	11.35131772	11.69881698	12.04016105	12.37293997
Cote d'Ivoire	56.44358805	57.42152201	58.49478616	59.67480503	60.97469811
Equatorial Guinea	22.80278075	23.45900178	24.13016043	24.81878788	25.5257041
Eritrea	51.58263366	53.28874257	55.02860396	56.84315842	58.74110891
Ethiopia	80.440708	82.62119	84.838032	87.095281	89.393063
Gabon	5.617215819	5.754814297	5.895738736	6.039593278	6.186339116
Gambia, The	151.1270751	155.9272727	160.9023715	166.0711462	171.4393281
Ghana	98.99647974	101.565171	104.1202997	106.6313659	109.082825
Guinea	40.88786831	41.97736448	43.11105323	44.26189565	45.42377503
Guinea-Bissau	52.78581081	53.94452347	55.15309388	56.42332859	57.76059744
Kenya	66.33219243	68.1260797	69.97352848	71.87896475	73.8445567
Lesotho	64.41976285	64.96044137	65.54258893	66.16999341	66.8483531
Liberia	36.56866694	38.13033638	39.6744186	41.09208887	42.35565822
Madagascar	33.30987206	34.26554493	35.24382674	36.24777659	37.27849159
Malawi	145.4577641	149.9597688	154.5750742	159.2457997	163.9534472
Mali	10.42921922	10.76742065	11.11244642	11.46211738	11.81515748
Mauritania	3.230849908	3.320947899	3.411348598	3.501911322	3.592474047
Mauritius	620.8881773	624.908867	628.0945813	630.9970443	633.5226601
Mozambique	28.19426232	28.94596124	29.70704367	30.47796867	31.25889138
Namibia	2.527299008	2.563848705	2.603575897	2.646657921	2.693604927
Niger	11.2080911	11.63487408	12.08095682	12.54736402	13.03502171
Nigeria	161.6075991	166.0222449	170.6040164	175.3546779	180.2792417
Rwanda	402.4379003	414.3883664	426.820754	439.2676125	451.7355087
Sao Tome and Principe	170.1979167	175.2635417	180.4583333	185.6541667	190.809375
Senegal	61.83438425	63.56822833	65.37592583	67.26517426	69.2397912
Seychelles	184.8543478	189.0347826	189.7782609	195.1521739	190.0891304
Sierra Leone	75.62154426	77.24293493	78.76545658	80.3124267	81.897389
Somalia	14.20418115	14.56986483	14.95338094	15.36036758	15.79351388
South Africa	39.78046311	40.22209564	40.65662894	41.2098855	41.7007452
South Sudan					
Sudan	17.65782239	18.16433123	18.67582029	19.18894402	19.70203409
Swaziland	65.98703488	67.08889535	68.23709302	69.36906977	70.47436047
Tanzania	46.42096749	47.81416798	49.26592007	50.77142696	52.33078234
Togo	107.2771833	110.0844089	112.9703438	115.9406876	118.9980511
Uganda	153.7898353	159.0450878	164.477894	170.0976578	175.9074321
Zambia	16.28972679	16.75638225	17.25208975	17.77934193	18.34003148
Zimbabwe	32.93307484	33.0465064	33.31761148	33.80374305	34.53208737

Graph 1



(Ndulu 2007)

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