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Western impact on Africa's economic development and the progress of democracy

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by

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ABSTRACT

Africa has been a politically disturbed place for centuries, during which the African people have been struggling for independence, living in conflicts and continuous wars, and fighting against poverty and diseases. There are so many problems and issues in Africa that almost every country is caught in one trap or another except for a few who thrived out of their traps and achieved relative success in economic growth. Africa has been receiving aid worldwide, but things are not getting better. I cannot refrain from asking questions: why is Africa so poor? What is preventing from growing and developing? In addition to that, what is hindering the progress of democracy in Africa countries?

Many theories might explain why Africa has been the poorest continent despite its many valuable resources and vast amount of land. In this thesis, I mean to test my theory that Western influence has had a major impact on economic development and the progress of democracy in Africa. This influence, which I view as an ongoing effect that went through the past to the present, can be either good or bad. This process includes the colonial history, the resources and culture distribution, and also foreign aid, which I view as one of the major ways of implanting Western impact in the modern era.

Africa is in desperate need of foreign aid and foreign direct investment; however, the influences of foreign aid and investment on economic growth and democracy promotion are as yet unknown. I recognize that the potential positive influence of foreign aid and investment on Africa's development is hard to ignore; on the other hand, I think foreign aid and investment are hurting Africa's economy because many foreign aid programs are designed neither to fit the economic structure that leads to promising growth nor to meet the need of local people. Another concern is that foreign aid is far from enough to build Africa's economy and resolve issues because it is heavily unevenly distributed.

To conduct my research I decided to do panel data analysis for all 51 African countries. In this study I have coded selected variables that I believe reflect of Western impact, as well as variables that cause different outcome of democracy and development among African countries. I hope this study can be as inspiring for me as it is for other people to continue on further studies.

CHAPTER 1. INTRODUCTION

Africa, Asia and Latin America once were under colonial control of Europe and the United States. After the third wave of democratization and independence, Asia and part of Latin America have been viewed as making big progress in economic and social development. Meanwhile, in striking contrast, many African countries are still under the rule of authoritarian leaders or, even worse, functioning in anarchic chaos, which generates many social problems such as natural resource predation, the spread of HIV and other deadly diseases, famine, poverty, etc. Africa's problems are unique, because no other continent that possesses so many valuable resources has ended up being so poor; no continent has been colonized for so long and divided up by so many different European settlers. Recently there is a trend of political revolution around the Gulf area and North Africa fighting for democracy and freedom. Africa is clearly undergoing a major transformation, and it would be great if the growth and expansion of democratic governments paralleled by significant economic reforms and liberalization; however, Africa is the only region of the world where poverty is expected to increase during coming years (Moose, 1996, p. 53). In history and reality, there are many factors that contribute to African poverty, such as environmental conditions or historical and institutional factors (Rowntree, Lewis, Price, & Wyckoff, 2008, p. 178), but I believe inappropriate Western influence is one of the most important ones, which I will look into in this thesis.

Alongside the general situation and severe issues across the African continent, different regions have their own unique problems. Sub-Saharan Africa and North Africa are obviously telling different stories. The countries north of the Sahara are generally considered more developed than those in sub-Saharan Africa, where most of the continent's population resides (Dudley, 2000, p. 12). Sub-Saharan Africa is known for poverty, disease, violence, and refugees (Rowntree, Lewis, Price, & Wyckoff, 2008, p. 145); however, North Africa is doing relatively well because they have rich oil resources, and many countries in North Africa depend largely on oil exports.

There are internal and external contributors for Africa's issues. External factors such as the long history of colonization, along with discrimination by Europeans, Americans, and Southwest Asians, might be the reason for Africans' poverty (Rowntree, Lewis, Price, & Wyckoff, 2008, p. 145). Internal factors are more complicated, because of the unique features of African culture, with an estimated one thousand different languages spoken and at least as many as distinct ethnic groups, Africa is perhaps the most linguistically and ethnically diverse of all the world's continents (Dudley, 2000, p. 12). The diversity of African culture makes it hard to unify the continent through language, religion, and philosophy (Rowntree, Lewis, Price, & Wyckoff, 2008, p. 145). In addition, population density is relatively low in Africa compared to other continents', which makes it harder to establish a well-functioning government. Jeffrey Herbst in his book *States and Power in Africa* argues that Africa had not developed powerful centralized states because it had low population density and inter-state warfare was absent (Acemoglu & Robinson, 2012). Also, due to colonization, the African continent was not divided according to ethnic groups, religion, or culture, and this causes constant ethnic conflicts among and within nations.

Since the diversity of culture and religion is not in line with the division of political regime, the result is conflicts and warfare (Rowntree, Lewis, Price, & Wyckoff, 2008, p. 146).

In addition to Western colonial influence that has been imposed upon Africa, the Western impact has not weakened at all even in the modern era. The West insists on the continuous lowering of the price of Africa’s raw materials and on the regular devaluation of Africa’s currencies; it always succeeds in this, and it also puts tariff barriers against Africa’s manufactured goods (Chimutengwende, 1997, p. 31). Conservative estimates put the financial outflow from Africa to the west at about US$200 million per day, and for every one dollar put into Africa, the West receives back four (Chimutengwende, 1997, p. 32). Meanwhile foreign aid and foreign direct investment are continuously flowing to African nations, but things are not getting better as we speak. Even though there are millions of dollars that are supposed to help the poor to survive poverty, famine, and diseases, and to provide children with health care, food, and education, people are in the end still living the way they were, tortured by hunger, diseases, ignorance, and conflicts. I believe the effect of foreign aid largely depends on the economic structure of that state, and sectors that receive foreign aid can be really important as to how much influence they can have on domestic economic development. There are many other factors can limit, even reverse the function of foreign aid, such as corruption, predatory, ethnic conflicts, etc.

A popular belief is that the improvement of political values such as democracy, political participation, or freedom of speech has a positive correlation with economic development. Since Western countries—the early pioneers of democracy—successfully adopted the institutions for centuries, they believe that it should be the ultimate cure for all. The question is that, is it going to work for other countries? One possibility is that, given the huge cultural impact of the European colonizers, the import of Western culture and political institutions such as European languages and democracy can make it easier for African states and ethnic groups to adapt and unify. In addition, pursuing democracy by getting rid of an authoritarian leader can be the first step for the state to find a democratic way of resolving ethnic conflicts. Moreover, democracy can help release the capital and resources that were originally under control of social elites and political leaders, and ordinary people might finally have a chance to take advantage of those, producing development, economic growth, and improvement of living standards.

Theoretically, democracy should be an important factor that associates with economic growth, but another, harsher possibility is that democratic movements can lead to failed states. Thus would-be democracies lose political and social stability, let alone economic growth, in such chaos. Is democracy really the solution for Africa? If African countries achieve democracy, will that make a difference? Even though regime type does not necessarily relate to growth directly, successful stories of Western democratic countries that achieved both democracy and development are backing up many arguments that democracy is the driving force for development. In this thesis, I argue that western influence has bad influence on Africa's economic development and positive influence on the progress of democracy in Africa. In addition to that, I will look into other factors that might affect the correlation between democracy and development.

CHAPTER 2. LEADING FACTORS FOR POVERTY OF AFRICA

There are many factors contributing to the poverty of Africa, such as natural resources, landlocked geographic environments, conflicts caused by religious and ethnic divergence, and, most severely, bad policies and execution. There are many works in the literature revealing existing African problems and possible factors causing those problems and thus hindering African countries' economic growth.

2.1 Colonization

Despite that Africa has many problems of its own, there are many that caused by their early settlers, and the long and painful colonial history. Although Asia and South America suffered from colonization for a long time as well, never has a continent been divided and split into so many regions and territories because of colonization. Early European settlers split the continent regardless of the natives' culture, religion, and tribe distribution. Africa became the victim of the constantly unstable political environment, and its resources and population were emigrating to foreign countries and continents. The division of Africa by European colonizers forced many major tribes to split in two or several different countries; some were living in the same country with other tribes; some split tribes ended up being ruled by different settlers who spoke different languages. Besides, different colonial powers turned to rule their colonies in different ways and with different policies. This might be another reason why some colonies are relatively doing better than others. Among the European settlers, France occupied the biggest amount of land while Great Britain took the largest population and probably the most strategically important areas of the continent;

other portions of the land were divided among other, smaller European powers (Obadina, 2007, p. 43). In addition, the form of the governments and the way territory is ruled varied according to which European country was in control. The French tried to rule in a highly centralized way while the British preferred to rule through the local chiefs; also, France promoted their colonies adopting French culture, while Britain typically made fewer changes and left culture the way it was (Obadina, 2007, p. 47). Some colonial powers started genocide or massacres that caused continuous conflicts and chaos, which might hinder local economic and cultural development for a long time (Obadina, 2007, p. 47-49). Thus different ruling powers can lead to very different result of how countries are doing today.

2.2 Religion Division

Many people contributed to African issues such as the division of languages and religions across Africa continent. African people speak more than one thousand different languages, and there are different groups of traditional religions. The continent of Africa started to attract visitors way back in ancient time. As ancient Egyptian civilization declined, new groups came to Africa and spread their religions. According to Matthews (2010), “In early days of Christianity, converts multiplied in Egypt and sent missionaries north of the Sahara Desert[,] and in the seventh century, Muslims swept out of Arabia, crossed North Africa, and eventually reached Spain” (p. 41). During colonial times, British, French, and German settlers came to Africa and promoted Christianity.

As the colonial power spread from North Africa to sub-Saharan Africa, European settlers made more people convert to Christianity, and Muslims did not reduce their effort, either (Matthews, 2010, p. 42). Matthews stated (2010), “Through missionary activities many peoples of Africa have become officially either Christian or Muslim” (p. 42). We cannot attribute the division of religions in Africa all to colonization: as the history tells, Christianity entered Egypt in the 1st century, and Islam entered Egypt in the later 7th century (Matthews, 2010, p. 46-47).

2.3 Natural Resources: Blessing or Curse?

Another question arises from the failure of Africa’s economy: the African continent possesses a major amount of all kinds of valuable resources such as oil, diamonds, and precious metals; why have Africans failed to pull things together on their own? Some scholars believe that the only way out of the trap of poverty is through internal efforts, such as economic and political reform from the inside out. Why are resources in Africa a curse?

Many scholars have looked into Africa and come out with some explanations of its problems and possible solutions. Richard M. Auty first mentioned the idea of “resource curse,” where abundant natural resources may be less beneficial to countries at low- and mid-income levels of development (Auty, 1993, p. 1). This idea is followed and enhanced by other scholars such as Jeffrey D. Sachs and Andrew M. Warner. Other scholars later have proposed the question: why did some countries that have abundant resources succeed while some did not? One bad effect brought by natural resources is that people usually focus too much on the profit made by exporting natural resources rather on constructing a sustainable economic structure. The reason behind the resource curse does not then lay in the resource itself, but the political and economic environment, which determines the outcome of taking advantage of the resource. Poteete pointed out (2007), “A political resource curse associates valuable natural resources with rent seeking, authoritarian rule and political instability” (p. 544). Depending on the natural resource endowment, countries tend to specialize in either mineral or agricultural exports (Chimutengwende, 1997, p. 32). Some counties even rely exclusively on a single resource or commodity as a foreign exchange earner, such as oil in Nigeria and copper in Zambia (Chimutengwende, 1997, p. 32).

However, there are not just sad stories for those countries that have rich resources. A successful example like Botswana, which has the highest per capita growth rate of any country since the 1960s, has achieved the economic miracle as an Africa country (Easterly, 2006, p. 28). Botswana has rich diamond mines, compared to other counterparts, but its story of success is not simply about resources, being one of the few countries in Africa that embraced democracy. Poteete argued (2007), “Botswana has not entirely avoided symptoms of Dutch Disease, but has kept them largely in check despite the fragility of state institutions when diamonds were discovered” (p. 544).

In the end, it is not natural resource itself that leads to the poverty of African nations, but the way that the resources are put into use in their national economics, and the role the resources play in the economic structure cause those problems; in addition to that, problematic policies and political institutions make the situation even worse, which is why natural resources become a curse. In this paper, I view the function of natural resource from the perspective of economic structure, and I will discuss how I measure that in the methodology part.

2.4 Foreign Aid and FDI: Neocolonialism?

Even after decolonization, Western influence has been infiltrating Africa in every aspect. Some view Western policies and actions over these decades as a great conspiracy against the African continent. Caplan stated (2008), “The collective complicity of Western governments and banks, multinational corporations and African business and political leaders in this massive fraud is a perfect example of the great conspiracy against the people of the continent” (p. 82). Chen Chimutengwende, the environmental and health minister in Zimbabwe, argues that Africa is moving from neo-colonialism to recolonization—the worst form of neo-colonialism (Chimutengwende, 1997, p. 34). After decolonization, Western developed countries and other developing countries such as China and India, alongside all kinds of NGOs and organizations have invested enormous aid and help into African countries; however, they have so many strings attached that often contradict each other. This often results in little payoff and inefficiency of the aid programs. In addition, Chimutengwende argues that because of the unbalanced trade among African countries and Western countries and corporations, Africa’s countries often gained much less than that of the Western countries, and Africa should resist foreign economic exploitation (Chimutengwende, 1997, p. 28-37).

Foreign direct investment obviously tells a different story from foreign aid. They have different purposes: the former is seeking business profit, and while it can be better if it adds some vitality and jobs to local economy, this is not exactly corporations' priority; aid, however, is supposed to designed for a specific purpose, which is going to be helpful for local economy, to relieve poverty, to eliminate disease, to provide basic living supplies and infrastructure to local people. However, we are all aware of the fact that goal is far from reached. Scholars have mixed feelings about aid; some believe that foreign aid promotes African development, while others hold the opposite opinion. Foreign aid can play a big role in general African human and economic development, and it is usually handed over to the government or delivered by NGOs. The question is: has foreign aid been helpful to African nations? Some scholars believe that foreign aid, delivered through special programs, along with good policy actions can promote economic development of that region or country; even if it has no substitute for good government and cannot make up for failed economic policies, it can make a decisive difference in promoting opportunities for prosperity, democracy and stability around the world (Moose, 1996, p. 52-57).

In the meantime, just as scholars have questioned the beneficial effect of natural resources, they have doubts about the influence of foreign aid as well. One may think foreign aid is very much like a curse as well; it turns out there is always something wrong with whatever is handed over instead of earned. Djankov, Montalvo, and Reynal-Querol's study states that aid is an even bigger curse that oil (Djankov, Montalvo, & Reynal-Querol, 2005, p. 169). They argue that oil and other minerals may not be the biggest curse in developing countries, because in many countries the amount of foreign aid is a far larger share of government revenues (Djankov, Montalvo, & Reynal-Querol, 2005, p. 169). In addition, they conclude that being dependent on foreign aid seems to result in worsening democratic institutions (Djankov, Montalvo, & Reynal-Querol, 2005, p. 169). Tembo argues that a development NGO is an agent of new imperialism, and projects lunched by NGOs are providing facilities that can only be accessed by well-off people, while the poor, suffering from disease and hunger, seem to be irrelevant (Tembo, 2003, p. 531). Isaias Afwerki, the president of Eritrea, argued that foreign aid programs are often self-perpetuating and serve the interests of donors instead of the intended beneficiaries (Afwerki, 1997, p. 58).

Though there are billions of dollars that flowed to the poorest part of Africa, those countries are not getting better in economy. So does aid promote growth? Do countries that receive more aid do better than the others? I'm afraid that the answer is negative. In *The White Man's Burden*, Willliam Easterly's study proved that over 1950-2001 among the poor countries, countries with below-average aid had the same growth rate as countries with above-average foreign aid; so that poor countries without foreign aid had no problem having positive economic growth (Easterly, 2006, p. 39). If that is in fact the case, where did all the money go to? What kind of purpose are donors serving in the development of poor countries? Another study, by London School of Economics economist Peter Boone, found that aid financed consumption rather than investment; when he controlled for reverse causality, he found that aid had no effect on investment or growth (Easterly, 2006, p. 45). The reasons behind this might be that donor agencies give aid to poor countries with bad government; in addition, foreign aid is used as a reward to allied governments, no matter how unsavory they are (Easterly, 2006, p. 132).

I believe that only when foreign aid is designed to meet the need of a country or a particular program will it work to relieve the poverty. Aid should benefit the local economy in the long run, and also stimulate domestic demand in order to create a healthy competitive environment for local businesses and industries. Only when a healthy financial environment is established can African countries attract more investment to build up their own economy. Eventually it will come to the issue of globalization—it is inevitable, but Africa is far behind.

2.5 Democracy Fits Everywhere?

As ideology and institution imported from the west, democracy has been recognized as the “best” institution to pursue even though it is not in the nature of certain political cultures. The idea that under democracy people can pursue equal rights and freedom is fascinating, not to mention the examples set by the developed democratic countries that represent the successful combination of democracy and development since World War II.

Even though Western policy has been neither effective for economic growth in Africa, nor sufficient to prevent conflicts, democracy is still highly valued by African social elites who had been struggling for the independence and freedom of Africa. Obadina argued (2007), “…Most African leaders came to value modern democratic institutions. Today, they generally agree that the political problems faced by most African nations since independence have stemmed from deficits in modern democratic culture rather than from too much democracy” (p. 87).

I believe that the poverty and other issues of Africa are not a result of its environmental conditions or natural resource volume, but of its instable or inefficient government or political institutions. Lacking an efficient and democratic government, those countries' wealth and resources are controlled by a handful of powerful and rich people. Democratic political values and political institutions can help those countries manage and distribute the wealth and natural resources, so that they can be a better motivation for the economic development rather than a source of dispute. In Bates' work *When Things Fell Apart*, he researched into the problems of failed states. Bates argued (2008), "searching for wealth and power, political elites reconfigured African political institutions, transforming them from multi- to single- or no-party systems or replacing civilian governments with military regimes" (p. 52). The consequence that comes with that is the resource and benefits are diverted to those who are in position that can access them rather than to the well-being of the public (Bates, 2008, p. 53). The strength of his argument is that he does not view resource, ethnic conflicts, etc. as the single contributor of economic collapse; his argument focuses on "the logic that systematically links these forces to the political incentives that underlie state failure" (Bates, 2008, p. 29).

Once again I have to refer to the Botswana story in *The White Man's Burden*: I may not able to tell what exactly democratic government does to achieve the economic miracle, or what proportion of the economic success can be attributed to the government. I can only tell that as one of the few countries that embrace democracy in Africa, the fact that being a democratic country does make a difference. The question is that, does democracy fit anywhere, and does the success of democracy always come along with positive economic growth?

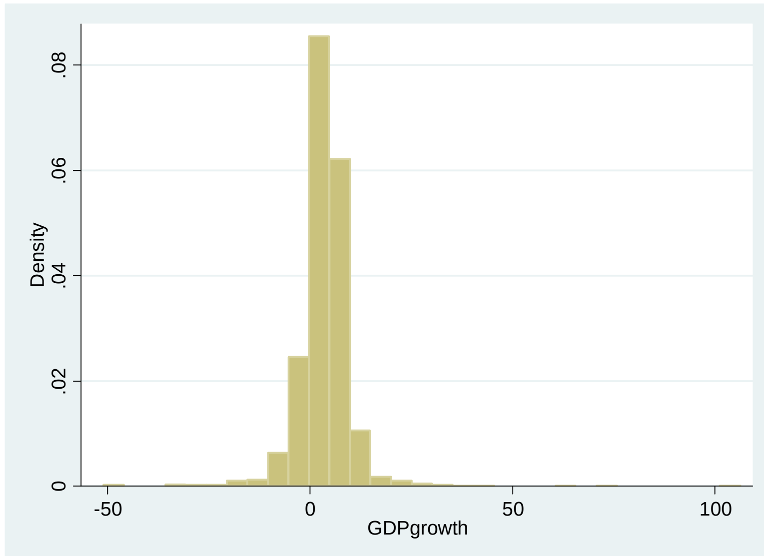
CHAPTER 3. HYPOTHESIS AND METHODOLOGY

3.1 Coding Method, Definition of Variables and Measurement

This paper means to examine whether Western influence has a major impact on Africa economic development and the progress of democracy. I am hoping to provide statistically based suggestions on how Western countries can help African development in the future. I test the relationship between democratic level and economic development. Even though today democracy is recognized as the “best” political institution, it is not clear whether democracy is directly related to development, nor is it obvious that which one is the cause of the other. Is democracy the ultimate trend of globalization? Does democracy only work in particular circumstances and environments? This paper intends to find out what are the factors that might make a huge difference in the relationship between democracy and development in Africa. All 51 African countries have been included in this paper; they will be grouped under the influence of different factors in the tests.

First, I am using Polity IV data as a measurement for the level of democracy, and World Bank GDP data in constant dollar as the measure for economic development. I used 30 years of data for both measurements. The reason is that by the 1980s, almost all African countries have gained independence; data is available for almost all countries since then. I conducted a histogram test using STATA to check GDP growth data; the data is normally distributed, except for a few positive and negative outliers. Democracy data though, largely distributed on the left axis, overall the data shows that economic development and democracy situation is Africa is not very positive.

Figure 1 Histogram test of GDP growth



Source: World Bank, 2012.

There are several factors that I view as important to the relationship between economic development and democratic level of Africa. To begin with, region can be important as region reflects the geographical environment of countries, which usually determines natural resources and economic structure. In addition, region can be a very important factor related to the progress of democracy, because countries within one region that might share similar political culture, historic background, and natural environment, and would have a huge impact on each other in political institutions. It is possible that countries within one region are in a totally different financial situation, but they can be on the same positive or negative progress towards democracy. To code the region factor, I coded all 51 Africa countries in five regions: North, South, West, East and Central Africa. All of them are coded as dummy variables.

As to the Western influence I mentioned above, I decided to measure Western influence with the help of several variables that I categorized as “past influence” and “present influence.” By past influence I mean influence that has occurred in the past such as colonization and religion conversion; in addition to that, I defined foreign aid as “present influence.” Given the special historical background that Africa has, colonization is one of the major reasons that Africa became the way it is. In the panel data test, I will test how different colonial settlers and the years of independence can affect the result of economic growth and level of democracy. First of all, all countries are coded according to their colonial settlers, and all countries are categorized in three groups, which are French colonies, British colonies, and other colonies. Considering that different settlers tried to run their colonies in different ways, through different types of government and policies, I expect that there is going to be differentiated results. This coding method has a little defect that I grouped colonies other than French and British together; after all, German colonies can be as different from Spanish colonies as from French, so there seems to be no obvious reason for grouping all the other colonies together. In addition to the measurement of the influence of colonization, I coded another variable called “indepy” in four scales to measure the length of colonization: 1 being gained independence before 1960; 2 being gained independence between 1961 and 1965; 3 being claimed independence between 1966 and 1970; and 4 being claimed independence after 1970. In such measurement, get a higher score in this variable meaning being colonized for longer time and received more Western influence during colonial time. The boundaries are chosen in interval of five years among those decades of decolonization.

Compared to the above dummy variables, I coded religion variables in a different method. I coded religion into four categories: Christian, Islam, African religion, and Divided. To respect the fact that many countries in Africa are largely divided by religion, I treated religion as dominant religion when its population takes up more than 20% of the total population, which is why countries can fit into several categories; if a country fit into 2 categories or more, that country will be coded as "divided," meaning that 2 or 3 religions are dividing the population and have impact on their religious practice. I admit that Africa's religious situation is far more complicated because of the variety of religions that are being practiced across Africa continent, and the coding method I use has simplified this problem. Since I only use religion variables to observe the relationship between growth and democracy, and the effect of possible aid inflows, I think there is no need to go into details about different religious sects. Christianity includes Roman Catholic and Protestant; Islam refers to all Muslims, regardless of the religious sects; and traditional African religion includes all other religions that originated or are practiced in the continent of Africa. All the religion information I used to code this set of variables came from the book *Encyclopedia of the Nations Africa*.

I defined foreign aid as part of "present influence" from the West, as I intended to discuss about aid and its relationship with natural resources, so I create another set of variables that I believe is important to the model—natural resource. I chose four kinds of resources that have unique and important value to local economy and that also are very often described as the "main characters" in the "resource curse" story: oil, diamond, gold and copper,. I coded countries that are top producers of the above listed four resources. All the information I used to code this set of variables came from the website "Africapedia." In addition to that, I sorted aid data retrieved from AidData 2.0 for 51 Africa countries in each country year in my regression model. In order to improve readability, I rescale the data into 10 million USD dollars.

3.2 Hypothesis and Test Method

The general hypothesis in this paper is that Western influence has negative impact or no positive effect on developing the economy of, and promoting democracy in, Africa. To begin with, I hope to find positive correlation between development and democracy. And in the regional test, I expect to see different results in each region. I will perform regression tests separately on each region and then together, because I want to observe each variable's effect on the relationship between development and democracy.

Some literature shows that colonization has disastrous effect on economic growth in Africa, and the outcome might be different given different colonial settlers. In the test about colonization, I expect to observe that colony factors have negative effect on economic growth and the progress of democracy. In addition, I believe the longer since a country has gained independence, the higher growth rate and level of democracy that country will achieve. I am going to test this hypothesis in the tests involving colonial factors.

In the measurement I defined "Western influence"; religion is one of the factors that I considered important. I think how Christianity is affecting local religious practice is an indicator of receiving more Western influence. Of course the effect of religion is more than that; it is very often associated with “present influence”—foreign aid. This set of tests mean to find out which religion practiced is more often associated with positive growth or higher level of democracy and aid inflows.

Originally about this paper and this topic, I have many thoughts about the discussion of economic structure, which I view as very important for local economic growth. As the paper developed, I still hoped I could implement this idea in test and analysis. I believe that foreign aid and favored policy in the proper sector of economy is vital for economic development. In this test that includes variables like aid inflows and natural resources, I intend to find out if development aid has a positive effect on economic development; moreover, to see if aid is biased towards certain sector but failed to generate growth, because some of the data required to conduct this test is not available, eventually the test is not proceeded as I expected.

CHAPTER 4. RESULTS OF ANALYSIS

4.1 Political Stability and GDP Growth

In the first test of the correlation of level of democracy and economic growth for all African countries, the level of democracy is measured according to the annual Polity IV data, using the indicator of polity2; and development is measured by GDP growth rate published by the Word Bank.

Table 1 Regression test between growth and level of democracy

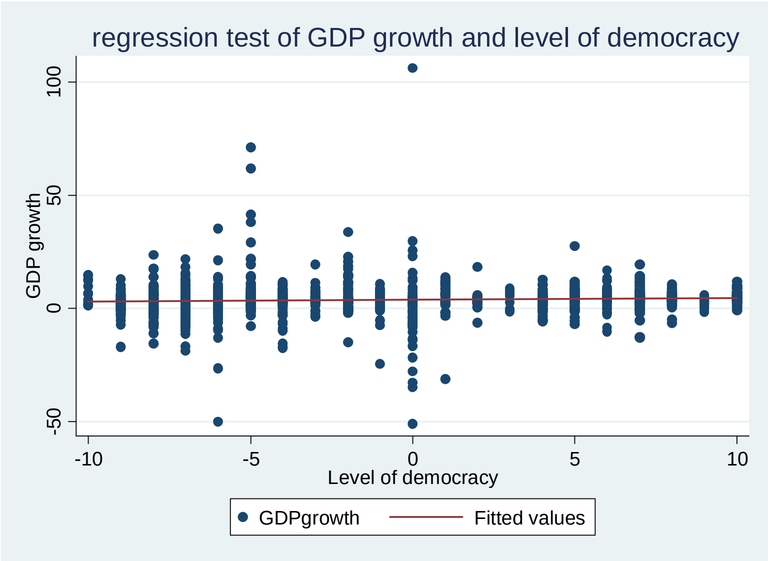
Regression test	Coefficient	P-value
GDP growth and polity2	0.0824	0.011
GDP growth and constant	3.739	0

Note: N=1430, “polity2” and “GDPgrowth” data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The coefficient between level of democracy and GDP growth is 0.082, indicating that those two variables have positive correlation. The two variables’ correlated two-tailed significance value is 0.011, which is lower than 0.05, indicating that at the 0.05 significance level, the hypothesis that the two variables are not correlated is rejected.

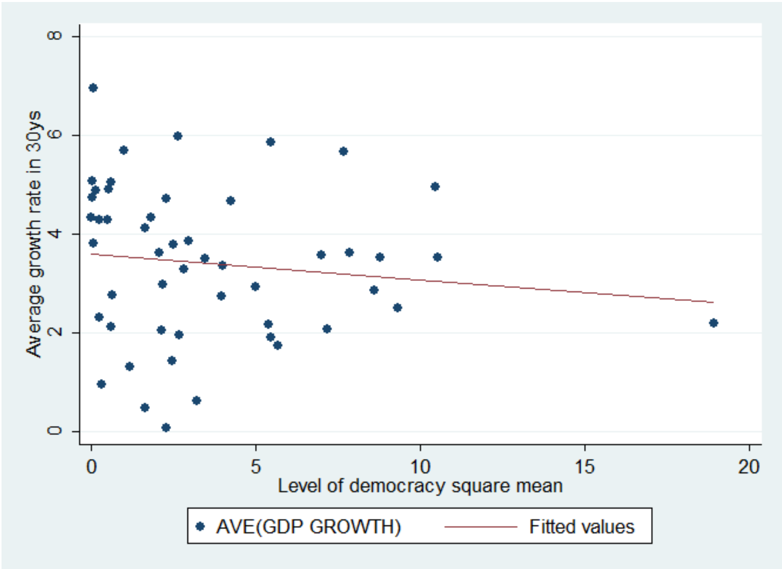
The cause of the correlation between democracy and development is not obvious, and there is remaining uncertainty about which one is the cause of the other. Certainly there are other factors affecting this relationship, later I will introduce some other variables into the model. The first hypothesis tested in here is: the stability of political environment of one country would affect the economic growth rate.

Figure 2 Bivariate regression graph between GDP growth and level of democracy



Source: Polity IV, 2012; World Bank, 2012.

Figure 3 Bivariate regression graph between growth and political stability



Source: Polity IV, 2012; World Bank, 2012.

According to the previous test, economic growth and democracy are positively related.

In this regression test, the level of political instability is measured by the mean of squared year-to-year changes in democracy level. The larger the mean is, the more unstable that country is. Also this calculation tells the difference of two situations, one where some countries are moving back and forth in democracy, and another where some are gradually moving forward to democracy. The dependent variable is the average growth rate across thirty years. The regression formula $y=-0.16x+4.19$ indicates that the higher the measure of political instability is, the lower the growth rate is. This regression indicates that political stability should be a very important factor to explain growth rates. Given the average value of growth rate and democracy level variance for all 51 tested African countries, I select two groups of outliers: countries that have high measure of political instability and high growth rate (above average value), and countries that have low measure of political instability and low growth rate (below average value).

Table 2 The political instability and average growth rate of outliers group 1*

Country	**Political Instability**	**Average Growth Rate**
Congo PRC	20.4	3.8
Mozambique	4.2	4.7
Sudan	10.4	4.9

* *Note*: Outliers group 1 here stands for countries with average growth rate > 3.6 and measure of political instability > 3.6. *Source*: Polity IV, 2012; World Bank, 2012.

Among the first group I choose, all three countries have relatively high measure in political instability and above average growth rate in the past 30 years. Two of the three countries, Congo-Brazzaville and Sudan, experienced dramatic changes in democracy in the past 30 years, and both have a slightly growing trend in democracy level. Mozambique is doing much better in democracy, meaning that for more than ten years since the 1990s, its democracy value changed from -6 to 5.

Table 3 The political instability and average growth rate of outliers group 2*

Country	Political instability	Average Growth rate
Burundi	2.7	1.9
Cameroon	0.6	2.8
Congo Kinshasa DRC	2.5	0.1
Djibouti	2.3	1.0
Eritrea	2.2	3.0
Gabon	2.1	2.0
Ivory Coast	2.4	1.4
Liberia	1.6	0.5
Mali	3.4	3.5
Senegal	2.8	3.3
South Africa	0.2	2.3
Togo	0.6	2.1
Zimbabwe	3.2	0.6

* *Note*: Outliers group 2 here stands for countries with average growth rate < 3.6 and political instability < 3.6. *Source*: Polity IV, 2012; World Bank, 2012.

In the second group, countries that have lower measures of political instability; all countries are not doing very well working towards democracy. Consistently bad political institutions might be one of the reasons why these countries are doing poorly in economic development when they have a stable political environment. This result indicates that political stability does not always associate with promising growth rate. In addition to that, GDP per capita data shows that, except for South Africa, Gabon, and Djibouti, the countries listed above are below or way below Africa average GDP per capita in the past three decades.

4.2 Regional Influence

4.2.1 Western Africa

The following regression test shows that, with a control for the West regional factor, indicating countries in Western Africa, the coefficient of GDP growth and level of democracy increased, indicating that the west regional variable has influence on the relationship of growth and democracy.

Table 4 Regression test between growth and level of democracy and Western Africa factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0881	0.006
GDP growth and west	-.815	0.043
GDP growth and constant	4.016	0

Note: N=1430, “west” is coded as a dummy variable, “polity2” and “GDPgrowth” data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

Focus on the two predictors, whether they are statistically significant, and, if so, the direction of their relationships. The coefficient between GDP growth and level of democracy (polity2: b=0.088) being positive, which would indicate that higher democracy level is related to higher GDP growth, and it is significant (p=0.006). The coefficient between GDP growth and region of Western Africa (west: b=-0.815) is negative indicating that Western Africa countries are not doing well in GDP growth compared to other regions in Africa controlling for democracy, and the coefficient is significant (p=0.043).

4.2.2 Northern Africa

With the north regional factor, the coefficient of GDP growth and level of democracy increased, indicating that the north regional variable has influence on the relationship of growth and democracy. In this test, the coefficient between GDP growth and level of democracy (polity2: b=0.094) is positive which would indicate that higher democracy level is related to higher GDP growth and it is statistically significant (p=0.004). Next, the region of Northern Africa (north: b=0.990) is positively related to GDP growth indicating that Northern Africa counties are doing relatively better in GDP growth compared to other regions in Africa.

Table 5 Regression test between growth and level of democracy and Northern Africa factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0944	0.004
GDP growth and north	-.990	0.108
GDP growth and constant	3.645	0

Note: N=1430, "north" is coded as a dummy variable, "polity2" and "GDPgrowth" data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.2.3 Eastern Africa

With the same test, Eastern Africa countries have less significant association with GDP growth. Given the current status of Somalia, it is hard to make a precise measurement of its democratic level, and its economic data is missing from the data set. In such situation, Eastern Africa is still positively associated with growth.

According to the result, the level of democracy (polity2: b=0.084), is statistically significant (p=0.01). The coefficient is positive which would indicate that higher democracy level is related to higher GDP growth. Eastern Africa countries are positively (east: b=0.220) associated with growth, indicating that Eastern Africa countries are doing relatively better in economic development comparing to other countries.

Table 6 Regression test between growth and level of democracy and Eastern Africa factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0840	0.010
GDP growth and east	-.220	0.680
GDP growth and constant	3.708	0

Note: N=1430, "east" is coded as a dummy variable, "polity2" and "GDPgrowth" data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.2.4 Southern Africa

The coefficient between GDP growth and level of democracy (polity2: b=0.090) is positive, and is significant (p=0.008); which would indicate that higher democracy level is related to higher GDP growth. With Southern Africa variable in the model, the coefficient between GDP growth and level of democracy increases, showing that the south regional variable has influence on the relationship of growth and democracy.

Table 7 Regression test between growth and level of democracy and Southern Africa factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0898	0.008
GDP growth and south	-.336	0.455
GDP growth and constant	3.838	0

Note: N=1430, "south" is coded as a dummy variable, "polity2" and "GDPgrowth" data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The region of Southern Africa (south: b=-0.336) has a negative coefficient with GDP growth indicating that Southern Africa counties are not doing well in GDP growth compared to other regions in Africa. Even though Southern Africa countries are doing relatively better in promotion of democracy, those countries haven't been viewed impressive growth rate except for Botswana.

4.2.5 Central Africa

Although in above tests, all regional factors cause the increase of coefficient between growth and the level of democracy, the coefficient of GDP growth and level of democracy increases one basis point with Northern Africa and Central Africa in the model, shows that northern and central regional factor has an even larger influence on the relationship between growth and the level of democracy.

Table 8 Regression test between growth and level of democracy and Central Africa factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0919	0.005
GDP growth and central	.981	0.073
GDP growth and constant	3.612	0

Note: N=1430, "central" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

In Central Africa, the coefficient between GDP growth and the level of democracy (polity2: b=0.092) is positive, which would indicate that higher democracy level is related to higher GDP growth, and it is statistically significant (p=0.005). Next, the region of Central Africa (central: b=0.981) has a positive coefficient with GDP growth indicating that Central Africa counties are positively associated with growth.

4.2.6 All Regions

1) Regional factors on growth

In this test including all regional factors, the coefficient between GDP growth and the level of democracy (polity2) rises significantly comparing to the coefficient in above tests (polity2: b=0.12), and is highly significant (p=0.001); in the meantime, the R-squared value rises too. Some scholars believe that geography is a very important factor that relates to economic development or economic growth.

Table 9 Regression test of growth and democracy with all regional factor

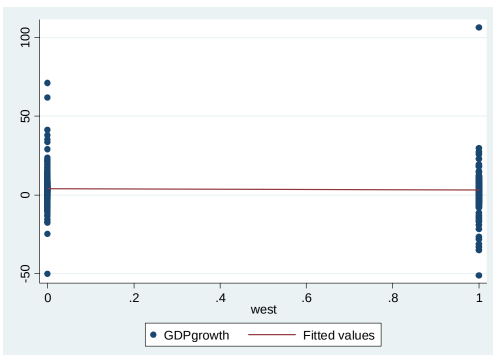
Regression test	Coefficient	P-value
GDP growth and polity2	.115	0.001
GDP growth and west	-1.521	0.024
GDP growth and north	omitted	omitted
GDP growth and east	-.719	0.337
GDP growth and south	-1.277	0.073
GDP growth and central	-.0619	0.935
GDP growth and constant	4.743	0

Note: N=1430, “west”, “north”, “east”, “central” and “south” are separately coded as dummy variables, while “polity2” and “GDPgrowth” data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

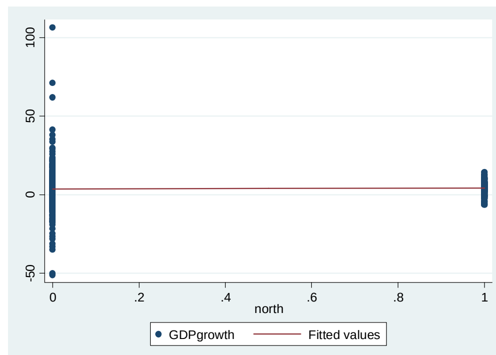
Some theories explain that geographical difference can lead to huge impact in custom, culture, religion, political philosophy, etc. and can be very influential to work culture and economic development. Controlling for the level of democracy (polity2), regions in west, east, south, and central have lower growth rate compared to Northern Africa. And when compared with other regions, west has a significantly lower growth rate (west: b=-1.52, p=0.02).

After I conduct the regression between economic development (GDP growth) and regions (all region dummy variables), the result indicates that there is no direct relationship between economic growth and region, although there's statistically significant difference between regions such as west and central, west and north.

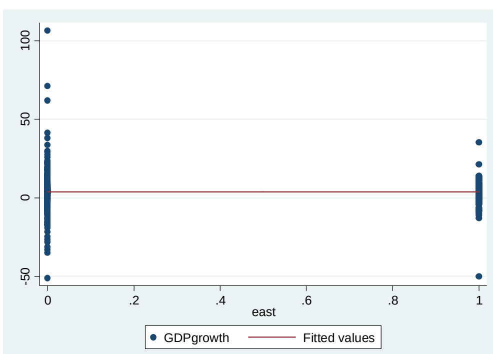
Figure 4 Bivariate regression graphs between growth and each regional factor



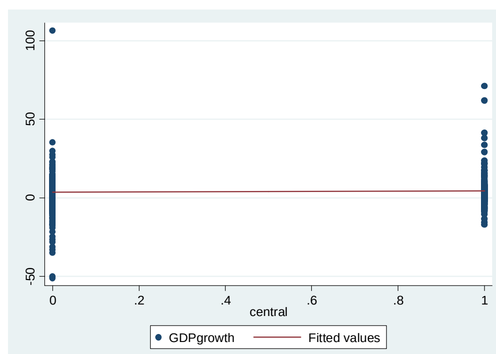
(a)



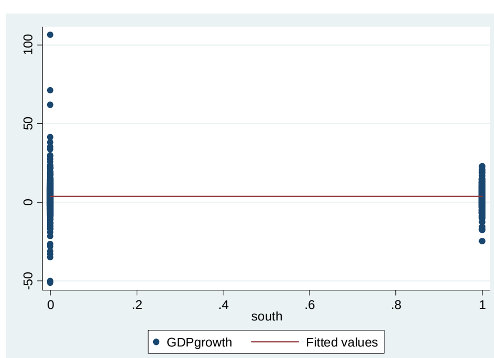
(b)



(c)



(d)



(e)

Note: (a) west; (b) north; (c) east; (d) central; (e) south. *Source*: World Bank, 2012.

However regression test between level of democracy (polity2) and regions (all region dummy variables) suggests that there is a strong relationship between democracy and region, which I will show in following test. I'm not surprised to see this result because political environment can be similar within region, and I believe that shared political culture and tradition can be important whether that country or countries within one region choose to pursue democracy or not. Also neighboring countries can have strong influence among the others, which can explain why one region is more democratic than the other. Even so, this doesn't explain why one region or one country is growing faster than the other, and I can't confirm that this is because of how far they have gone towards democracy.

2) Regional factors on democracy

Although region variables are not strongly related to growth, they have a much stronger relationship with the level of democracy. In this table, other regions have higher level of democracy when comparing to Northern Africa. In addition, coefficient associated with regions and level of democracy is highly significant. Southern Africa appears to be far more democratic than the rest of regions, however it hasn't achieved higher growth rate than them, especially when comparing to Northern Africa. Although in the above tests, the coefficient between democracy and development is positive, that doesn't explain why in Southern and Northern Africa, the coefficient is negative. In the following test, I will try to find out if such situation is caused or affected by other factors.

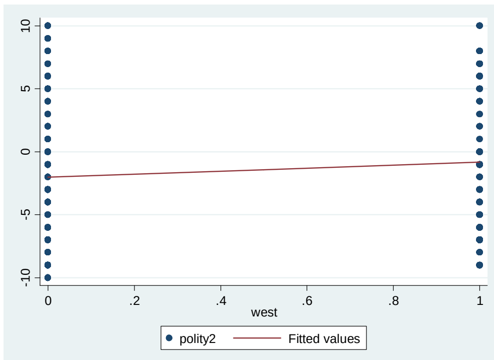
Table 10 Regression test between level of democracy and growth with all regional factors

Regression test	Coefficient	P-value
polity2 and GDP growth	.0664	0.001
polity2 and west	4.512	0.000
polity2 and north	omitted	omitted
polity2 and east	2.124	0.000
polity2 and South	6.191	0.000
polity2 and central	1.397	0.015
polity2 and constant	-5.469	0.000

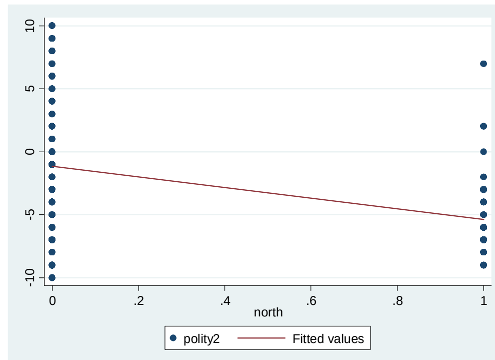
Note: N=1430, “west”, “north”, “east”, “central” and “south” are separately coded as dummy variables, while “polity2” and “GDPgrowth” data are retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

Another interesting fact is that different from Western Africa countries, the level of democracy scores in Northern Africa are largely distributed below zero. The coefficient between level of democracy (polity2) and Northern Africa region (north) is -4.22, and is statistically significant. This indicates that even if Northern Africa countries are doing pretty well in economic development compared to Sub-Sahara Africa, most Northern African countries are undemocratic. In Above test, the value of Northern Africa is omitted to serve as a base line to be compared with other regions. Comparing to Northern Africa, other regions in Africa is more democratic, especially Southern Africa and Western Africa. Although Eastern and Central Africa are doing relatively better than Northern Africa in pursuing democracy, they are not as democratic as other regions in Africa, and as showed in Figure 5 below, both Eastern and Central Africa are negatively related to level of democracy.

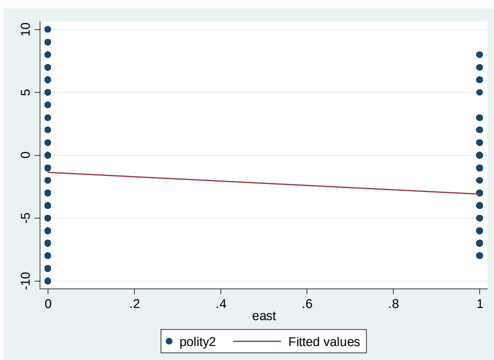
Figure 5 Bivariate regression graphs between level of democracy and each regional factor



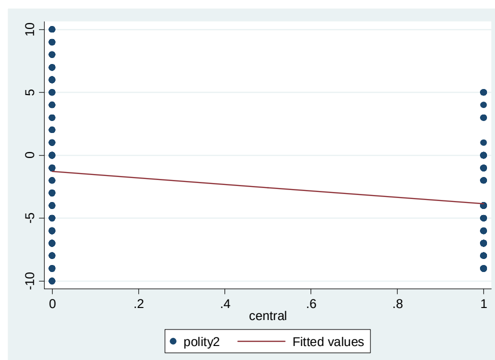
(a)



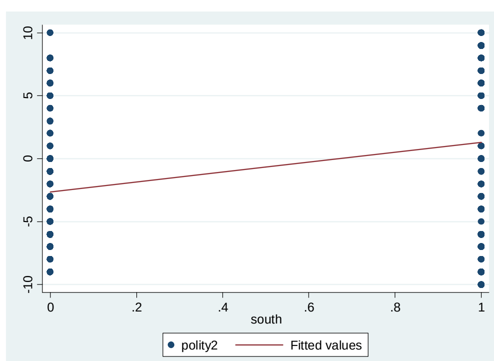
(b)



(c)



(d)



(e)

Note: (a) west; (b) north; (c) east; (d) central; (e) south. *Source*: Polity IV, 2012.

4.3 Colonization Influences

4.3.1 French Colony

In this table, there are two predictors are very important, both for whether they are statistically significant, and, if so, the direction of their relationships. The coefficient between GDP growth and level of democracy (polity2: b=0.077) is positive and statistically significant (p=0.017), but with French colony factor in the model, the coefficient between growth and level of democracy decreases. The French colony (colonyf: b=-0.935) has a negative coefficient with GDP growth indicating that French colonies are not doing well in GDP growth compared to other colonies in Africa, and it is statistically significant (p=0.015).

Table 11 Regression test between growth and level of democracy with French colony factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0767	0.017
GDP growth and colonyf	-.935	0.015
GDP growth and constant	4.111	0.000

Note: N=1430, "colonyf" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.3.2 British Colony

With British colony in the model, the coefficient between GDP growth and level of democracy decreases as well, indicating that colonial factor seems to have influence on the relationship between growth and democracy. The British colony (colonyb: b=0.224) has a positive coefficient with GDP growth, but this is not a firm evidence that indicates British colony is doing better in GDP growth than others since it is not significant (p=0.572).

Table 12 Regression test between growth and democracy with British colony factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0810	0.012
GDP growth and colonyb	.224	0.572
GDP growth and constant	3.657	0.000

Note: N=1430, “colonyb” is coded as a dummy variable, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.3.3 Other Colony

The variable other colony includes Belgian colony, Portuguese colony and Spanish colony, and some other, like German colony.

Table 13 Regression test between growth and level of democracy with other colony factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0834	0.009
GDP growth and colonyo	1.429	0.002
GDP growth and constant	3.433	0.000

Note: N=1430, “colonyo” is coded as a dummy variable, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The coefficient associated with other colony and growth rate is highly significant. One issue about this test is that, it might not be reasonable to include Belgian, Portuguese, Spanish, and others in one group, because these settlers all have very different ways of managing their colonies. I have two reasons to code this variable in this way: one is that each colony settler does not form a sample that is large enough to be significant; the second is that this variable is more like a baseline that I use to compare with French and British colonies. In this test, result shows that other colony has a positive coefficient with GDP growth (colony: b=1.43), and it is statistically significant (p=0.002), indicating that other colony associates with positive growth rate.

4.3.4 All Colonies

It is interesting that even though the colonial origin variables have relatively significant effects in separate tests, the significant effects reduced when conduct the test with all colonial variables. It seems that colonial factors do not have much influence on the relationship between growth and level of democracy, because the coefficient between growth and level of democracy decreased comparing to the original test.

Table 14 Regression test between growth and level of democracy with all colonial factors

Regression test	Coefficient	P-value
GDP growth and polity2	.0806	0.012
GDP growth and colonyf	2.664	0.046
GDP growth and colonyb	3.360	0.012
GDP growth and colonyo	4.337	0.001
GDP growth and constant	.520	0.689

Note: N=1430, “colonyf”, “colonyb” and “colonyo” are coded as dummy variables. “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

Only the other colony variable (colonyo) seems to have a statistically significant coefficient; that is positively related to growth. When comparing countries with colonial background and those whose country has never been colonized, it seems that countries with colonial background have higher or positive correlation with economic growth. More interestingly, the coefficient on polity2 is much like it was without the control variables – this control does not have the same coefficient-enhancing effect as does the control for region. However, one cannot conclude that colonial history does not have any bad influence on economic development and political culture of that country. Only that statement about bad influence of colonization has upon nations' economic growth seems to be overstated. Additional tests prove that the difference among the coefficient on French colony, British colony and other colonies are statistically significant.

Table 15 F-test among colony factors

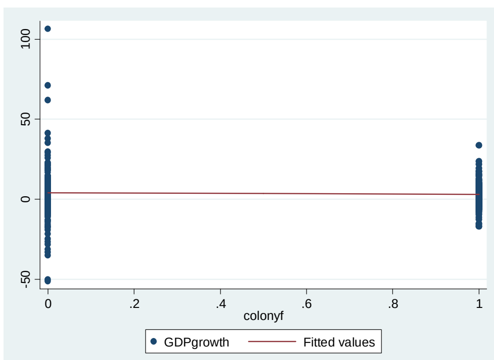
Regression test	F (1, 1425)	Prob>F
colonyf and colonyb	2.58	0.1082
colonyf and colonyo	11.11	0.0009
colonyb and colonyo	3.61	0.0578

Note: "colonyf", "colonyb" and "colonyo" are coded as dummy variables.

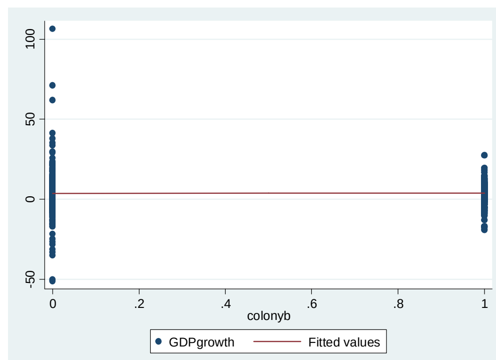
Take a look at the table above of the F-statistic test between colony dummy variables. The first one is finding an F value of 2.58, which, with 1425 degrees of freedom for the error, produces a p value of 0.11. I can be around 90% confidence that the difference between the coefficient on French colony (colonyf) and British colony (colonyb) is statistically significant.

In addition to that, the statistical difference between French colony and other colony, or between British colony and other colony, is even higher; therefore, there is a substantial difference among the colony settlers, just particularly what kind of difference variable makes is yet unknown. According to the figure below, different colonization histories do not seem to have a large effect on growth; especially, there isn't much difference between British and French colonies.

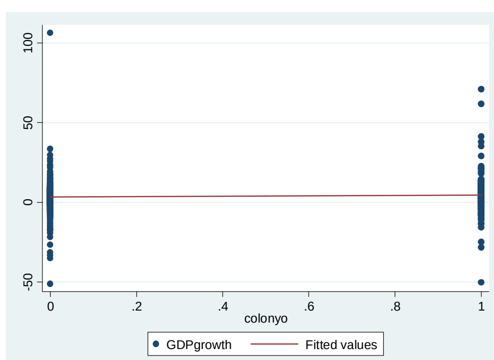
Figure 6 Bivariate regression graphs between growth and each colonial factor



(a)



(b)

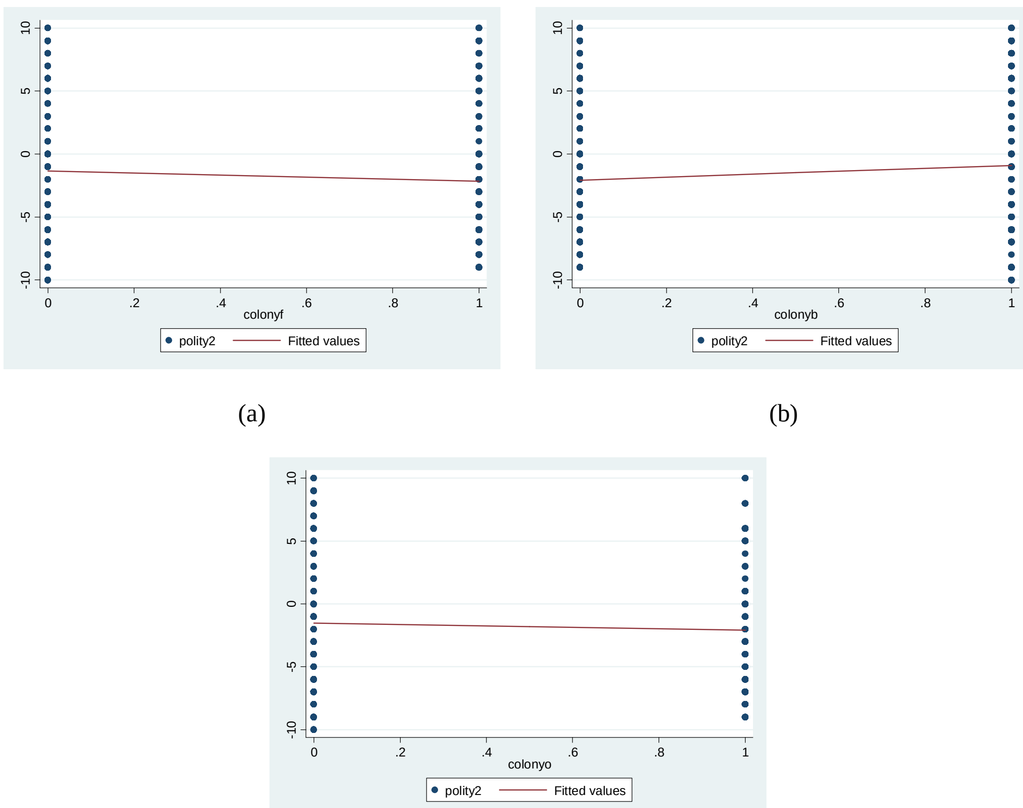


(c)

Note: (a) French; (b) British; (c) others; *Source*: World Bank, 2012.

According to the figure below, British colony is positively associated with the level of democracy and French colony is negatively associated with the level of democracy. Using colonial settler as a categorical factor does not seem to have much influence on growth. However the result proves that British way of ruling their colonies helps those countries adapt to democracy better in post colonization era than other colonies.

Figure 7 Bivariate regression graphs between level of democracy and each colonial factor



(c)

Note: (a) French; (b) British; (c) others; *Source*: Polity IV, 2012.

4.3.5 Colonization Length

In addition to the influence of different colonial settlers, I think the year that a colony gained independence can be another important factor in this topic. The result shows that the coefficient of years of colonization associates with growth is positive (indepy: b=0.37) and is statistically significant (p=0.021). This indicates that fewer years of independence associates with positive growth. Years of independence as an indicator to measure Western colonial influence, shows positive effect it has on previous colonies in economic growth; this once again suggests that statements about bad colonial influence on growth is overstated.

Table 16 Regression test between growth and democracy with length of colonization factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0712	0.021
GDP growth and indepy	.371	0.029
GDP growth and constant	3.026	0.000

Note: N=1430, "indepy" is coded as a categorical predictor, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

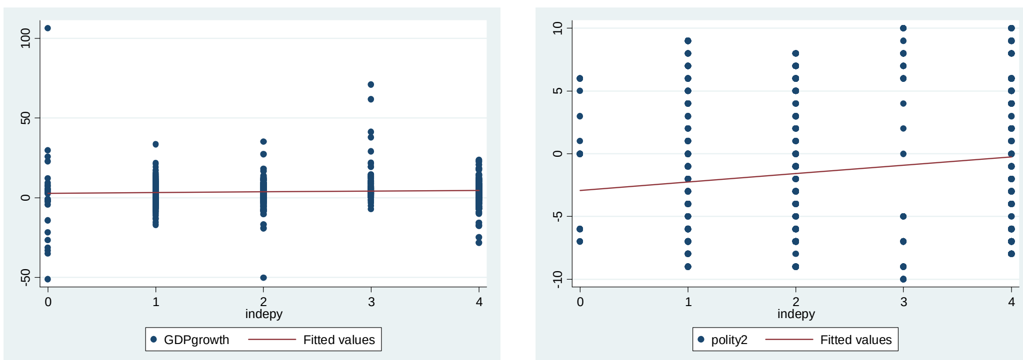
Table 17 Regression test between level of democracy and length of independence factor

Regression test	Coefficient	P-value
polity2 and indepy	.641	0.000
polity2 and constant	-2.859	0.000

Note: N=1509, "indepy" is coded as a categorical predictor, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV dataset. *Source*: Polity IV, 2012.

Similarly, in this table, fewer years of independence associates with higher level of democracy as well (indepy: b=0.64), and is highly significant (p=0.00). Result of the above two tests reflect that countries that are under colonization for longer time are doing well not only in economic growth, but also has gained higher level of democracy. This is contradictory to what I have always believed, that colonization often does more damage than contribution. Using years of independence as a measurement for Western influence, this test rejects the hypothesis that colonization only has bad impact on economic growth and the progress of democracy.

Figure 8 Bivariate regression graphs between growth/ democracy and length of colonization



(a) (b)

Note: (a) GDP growth and length of independence; (b) level of democracy and length of independence; Source: World Bank, 2012; Polity IV, 2012.

Above figures show that countries that have been colonized longer actually associate with positive growth rate and progress of democracy. Although I cannot conclude that colonization is a good thing for economic growth and promoting democracy, it proves that statement about colonization being absolutely evil is over-stated. At least colonization might help the promotion of democracy in countries that don't have democracy imbedded in their own political culture.

4.4 Religion Influences

The reason I choose religion as an important factor with which to predict development and democracy is that I believe religion can reflect, or, in a way, measure how much influence that country or region received from the West or the outside world; especially for Africa and its unique colonial background, religious conversion is an important part of the story. In this thesis, domination by Christianity is treated as a sign of receiving western influence. Islam on the other hand, widely spread in Middle East and Northern Africa, is not viewed as western influence in here, but as a variable to be compared with Christianity and traditional Africa religion domination. As religion has always been a sensitive issue, misunderstood conclusions and interpretations can be drawn from related topics. I hope one can see from my study that I treated this variable as an important historical factor, with no implication of superiority of any religion.

4.4.1 Dominated by Christianity

The Christian religious factor does not seem to have a particularly strong effect on relationship between growth and democracy. With a control for the Christian religious factor, the coefficient between growth and the level of democracy decreased.

Table 18 Regression test between growth and level of democracy with Christianity factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0803	0.013
GDP growth and religionc	.274	0.520
GDP growth and constant	3.536	0.000

Note: N=1430, “religionc” is coded as a dummy variable, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The level of democracy (polity2: b=0.08) has a significant (p=0.013) effect on economic growth. A country's adherence to the Christian religion (religionc: b=0.27) has a positive coefficient with GDP growth indicating that Christian religion country is doing better in GDP growth comparing to other countries in Africa.

4.4.2 Dominated by Islam

In this test, with Islam religious factor in the model, the coefficient between GDP growth and level of democracy decreases a little (polity2: b=0.08), indicating that Islam religion has influence on the relationship between growth and level of democracy. The level of democracy (polity2: b=0.08) has a significant (p=0.014) effect on growth. The Islamic country has a negative coefficient (religionc: b=-0.08) on growth indicating that Islamic countries are associating with negative growth.

Table 19 Regression test between growth and level of democracy with Islam religion factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0811	0.014
GDP growth and religioni	-.0770	0.843
GDP growth and constant	3.771	0.000

Note: N=1430, "religioni" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The above two tests show that religious factors do not contribute much to the relationship between growth and democracy either. The coefficient between growth and democracy actually decreased a little comparing to the original test.

4.4.3 Dominated by Traditional Africa Religions

Unlike the tests conducted in the previous religious areas, being a country dominated by traditional African religion (religiona) appears to have stronger effect on the relationship between growth and democracy.

Table 20 Regression test between growth and democracy with traditional Africa religion factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0953	0.003
GDP growth and religiona	-1.520	0.003
GDP growth and constant	4.013	0.000

Note: N=1430, “religiona” is coded as a dummy variable, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The coefficient of level of democracy (polity2: b=0.095) associates with growth and religion factor rises one basis point, and it is highly significant (p=0.003). The coefficient on being a traditional-African-religion country (religiona: b=-1.52) is highly significant (p=0.003), and it is negative, indicating that traditional African religious countries associate with lower growth rate. The reason might be that countries that are dominated or largely dominated by traditional African religion have received less Western influence in the past and present. I am not saying that those people should turn their backs on their own religion, culture, and beliefs. If the correlation is caused by less communication with the outside world, lack of communication could be the reason why economy doesn’t grow. Another issue is that a lot of charities and NGOs are religious and designate the aid to countries and programs that are religion-related. The issues that concern aid will be tested and discussed in the following chapters.

4.4.4 Influenced by More Than One Religion

The coefficient measuring whether countries dominated by multiple religions associates with growth is negative (religiond: b=-0.58), indicating that countries that are dominated by multiple religions associate with negative growth.

Table 21 Regression test between growth and level of democracy with religion division factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0826	0.010
GDP growth and religiond	-.581	0.145
GDP growth and constant	3.938	0.000

Note: N=1430, “religiond” is coded as a dummy variable, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.4.5 All Religions

The regression test with all religion variables shows that religion factors do not affect the relationship of growth and democracy as much as the region factor did, but the result shows that religion has a stronger effect on this relationship than did the colonial factor (polity2: b=0.09): the coefficient of level of democracy and growth rises about one basis point from what it was without religion variables. As previous tests stated, only the variable of countries dominated by traditional African religion (religiona: b=-2.18) shows a significant coefficient; that is negatively related to growth.

In Table 23, countries that are dominated by Christianity (religionc: b=-1.95) and Islam (religioni: b=-3.64) have negative coefficient when predicting the level of democracy, and both of them are statistically significant (religionc: p=0.02; religioni: p=0.00).

Table 22 Regression test between growth and level of democracy with all regional factors

Regression test	Coefficient	P-value
GDP growth and polity2	.0906	0.006
GDP growth and religionc	.195	0.847
GDP growth and religioni	-.500	0.623
GDP growth and religiona	-2.177	0.031
GDP growth and religiond	.515	0.609
GDP growth and constant	4.023	0.000

Note: N=1430, “religioni”, “religionc” “religiona” and “religiond” are coded as dummy variables, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

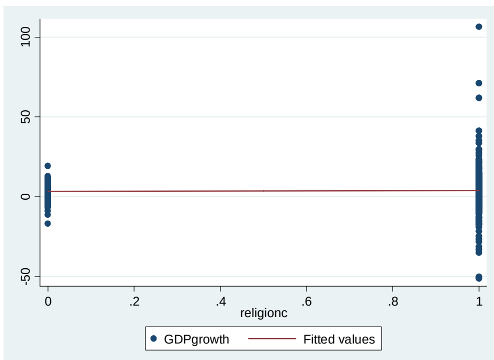
Table 23 Regression test between level of democracy and growth with all regional factors

Regression test	Coefficient	P-value
polity2 and GDP growth	.0583	0.006
polity2 and religionc	-1.955	0.000
polity2 and religioni	-3.641	0.016
polity2 and religiona	.479	0.555
polity2 and religiond	1.168	0.148
polity2 and constant	.887	0.278

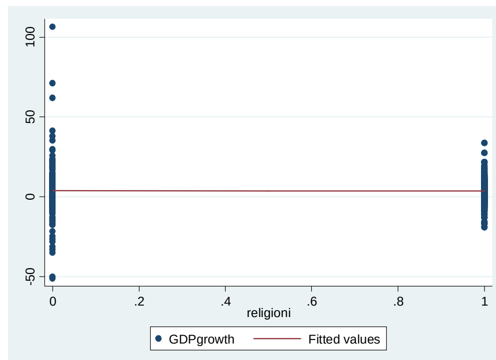
Note: N=1430, “religioni”, “religionc” “religiona” and “religiond” are coded as dummy variables, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

Countries dominated by Islam religion are mostly located in Northern Africa. This fits the story, but it is yet hard to tell what causes such situation in Northern Africa. Also countries dominated by more than one religion seem to have positive correlation with both growth (religiond: b=0.52) and level of democracy (religion: b=1.17), therefore religion division should not be the reason for negative growth nor low level of democracy.

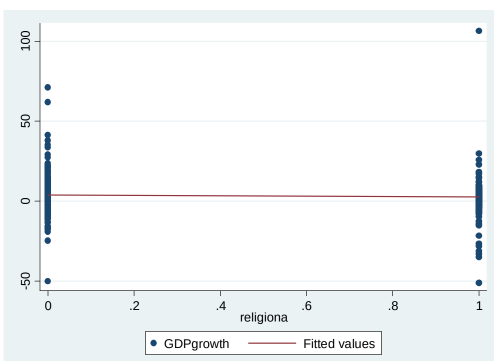
Figure 9 Bivariate regression graphs between growth and each religious factor



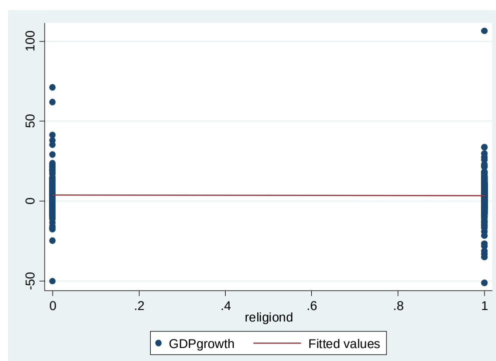
(a)



(b)



(c)

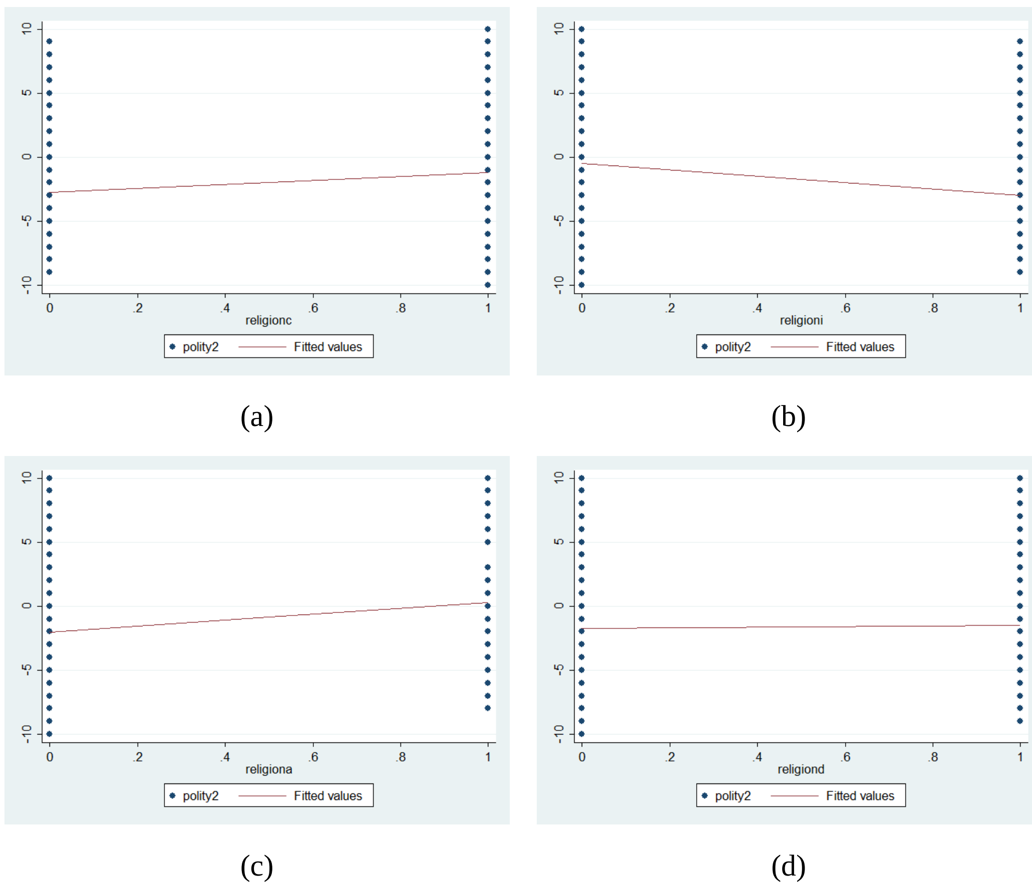


(d)

Note: (a) Christianity; (b) Islam; (c) traditional African religion; (d) dominated by several religions; *Source*: World Bank, 2012.

Figure 9 shows that religious factor does not have anything to do with the growth rate, and countries dominated by several religions do not particularly associate with positive or negative growth either; however, in Figure 10, countries influenced by Christianity and traditional African religion have a positive correlation with the level of democracy, while those influenced by Islam have a negative correlation with the level of democracy. In addition to that, countries influenced by multiple religions do not seem to have strong influence on growth, but they do relate to higher level of democracy.

Figure 10 Bivariate regression graphs between level of democracy and each religious factor



Note: (a) Christianity; (b) Islam; (c) traditional African religion; (d) dominated by several religions; *Source*: Polity IV, 2012.

4.5 Natural Resources

In order to test the effect of natural resources on growth and level of democracy, I code four specific natural resources: oil, gold, diamond and copper. Africa has varieties of natural resources; some are very valuable and unique compared to agricultural resources.

And those resources are very often considered as a source of the "resource curse," meaning that countries in possession of those resources do not do well in economic growth. The story of resource curse has many explanations, such as corruption, bad policies, predation, and so on; however, none of these are directly related to the resource itself. Countries with rich resources can do either well or badly; this has something to do with policies and political system.

4.5.1 Top 10 African Oil Producer Countries

In this regression test, the coefficient between GDP growth and level of democracy (polity2: b=0.12) is positive, and is highly significant (p=0.00), which would indicate that higher democracy level is related to higher GDP growth. Also with the oil variable in this model, the coefficient of level of democracy (polity2) with growth rises about 30% from its value in the original test of growth and democracy, and it has become more statistically significant, indicating that oil is a very influential factor in this relationship.

Table 24 Regression test between growth and level of democracy with oil producer factor

Regression test	Coefficient	P-value
GDP growth and polity2	.115	0.000
GDP growth and oil	2.360	0.000
GDP growth and constant	3.341	0.000

Note: N=1430, "oil" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

In addition to that, the oil factor has a significant positive coefficient (oil: b=2.36, p=0.00) with growth and is highly significant, and its coefficient is positive indicating that top oil producers are associating with positive growth rate in Africa.

4.5.2 Top African Gold Producer Countries

In this regression test, the variable of gold does not seem to have the same effect as oil, the level of democracy (polity2: b=0.09), is highly significant (p=0.01), and its coefficient with GDP growth is positive which would indicate that higher democracy level is related to higher GDP growth. However, with the gold variable in this model, the coefficient of level of democracy (polity2) with growth does not increase so much. The variable gold may have some effect in the democracy-growth relationship, but not a very strong one like oil does. The gold factor (gold: b=-0.60) has a negative coefficient with growth, indicating that top gold producers are associating with negative growth in Africa.

Table 25 Regression test between growth and level of democracy with gold producer factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0851	0.008
GDP growth and gold	-.602	0.144
GDP growth and constant	3.926	0.000

Note: N=1430, "gold" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.5.3 Top African Diamond Producer Countries

In this regression test, the level of democracy (polity2: b=0.089), is highly significant (p=0.006), but its coefficient with GDP growth does not rise so much. The variable diamond may have some effect in this relationship, but not a very strong one like oil either. The diamond factor (diamond: b=-0.87, p=0.04) is significant and its coefficient is negative, indicating that top diamond producers are associating with negative growth in Africa.

Table 26 Regression test between growth and democracy with diamond producer factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0892	0.006
GDP growth and diamond	-.874	0.036
GDP growth and constant	4.006	0.000

Note: N=1430, "diamond" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

4.5.4 Top African Copper Producer Countries

In this regression test, the variable of copper also fails to cause significant increase in the coefficient of the level of democracy (polity2: b=0.08), however that coefficient on democracy is highly significant (p=0.01) and its coefficient with GDP growth is positive.

Table 27 Regression test between growth and level of democracy with copper producer factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0839	0.010
GDP growth and copper	-.251	0.615
GDP growth and constant	3.785	0.000

Note: N=1430, "copper" is coded as a dummy variable, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

The copper factor (copper: b=-0.25) has an insignificant negative coefficient with growth indicating that top copper producers might be associating with negative growth in Africa.

4.5.5 All Natural Resource Factors

Given the result of above natural resource variables, the coefficient of level of democracy with GDP growth increases about 30% (polity2: b=0.12, p=0.00) with the natural resource variables in the model comparing to the model without resource variables, and it is highly significant. Oil factor seems to have a very significant effect on growth and level of democracy compared to the other resources'. In an additional test including all variables in the model, coefficients on countries that are top producers in gold, diamonds, and copper have slightly changed, but the test result is not really significant (in each case, $p > 0.05$). Those resource indicators have to be examined further before one rashly comes to the conclusion that they are bad for growth and the progress of democracy.

Table 28 Regression test between growth and level of democracy with all resource factors

Regression test	Coefficient	P-value
GDP growth and polity2	.119	0.000
GDP growth and oil	2.297	0.000
GDP growth and gold	-.0295	0.947
GDP growth and diamond	-.782	0.087
GDP growth and copper	.237	0.657
GDP growth and constant	3.341	0.000

Note: N=1430, "oil", "gold", "diamond" and "copper" are coded as dummy variables, "polity2" and "GDPgrowth" data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

Even so, in the regression test with these four resource variables, oil shows statistical significance not only in its positive coefficient in growth, but also its negative effect in the level of democracy, as Figure **Error! Reference source not found.**34 shows below.

In this table, the coefficient of oil as a predictor of the level of democracy is highly significant (oil: b=-3.20, p=0.00). Indicating that even though oil is very often associated with positive growth, it is very much likely to be connected with autocracy, which makes perfect sense that in countries where the state institution is weak, people in power turn to take control over the valuable resources. Economic growth in such situation depend largely on policies, undemocratic countries with good policies can still achieve impressive growth rate.

Table 29 Regression test between level of democracy and growth with all resource factors

Regression test	Coefficient	P-value
polity2 and GDP growth	.0771	0.000
polity2 and oil	-3.196	0.000
polity2 and gold	-.262	0.463
polity2 and diamond	.913	0.013
polity2 and copper	.825	0.054
polity2 and constant	-1.486	0.000

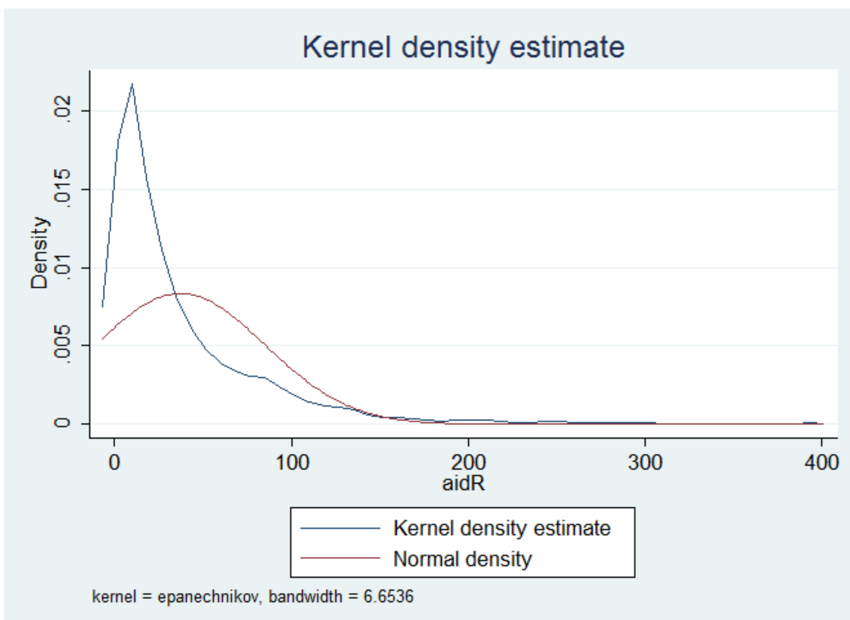
Note: N=1430, “oil”, “gold”, “diamond” and “copper” are coded as dummy variables, “polity2” and “GDPgrowth” data retrieved and sorted from Polity IV and World Bank dataset. *Source*: Polity IV, 2012; World Bank, 2012.

In addition to that, top gold producers seem to have a negative correlation with the level of democracy as well, but it is not very large or significant (gold: b=-0.26, p=0.46). Top diamond (diamond: b=0.91, p=0.01) and copper (copper: b=0.83, p=0.05) producers are positively associated with level of democracy, and those relationships are statistically significant.

4.6 Foreign Aid

In the above literature review, I spent a lot of paragraphs discussing the effect of aid, and how I do not really believe that aid is the way to economic growth and improvement in level of democracy. In this test, I gathered development aid data (aid released from different aid program and for different purpose) for each country-year in my study. In my data source, aid is categorized into 25 different purposes; I chose the ones that are related to economic development, regardless of the sector, as well as development aid.

Figure 11 Kernel Density Estimation on aid in the regression model



Source: Polity IV, 2012; World Bank, 2012; AidData 2.0, 2012.

The data is rescaled (fitted value in USD) in 10 million, and its distribution is positively skewed.

4.6.1 Aid as a factor influencing growth and democracy

It seems that aid does not add too much effect on the relationship between democracy and development. The coefficient of democracy and growth rises (polity2: b=0.09, p=0.01), but not too much compared with its change upon the addition of other factors in the model in the previous tests. The coefficient of foreign aid (aidR5: b=0.22, p=0.11) with GDP growth is positive, but not significant enough to conclude that aid can generate positive growth.

Table 30 Regression test between growth and level of democracy with aid factor

Regression test	Coefficient	P-value
GDP growth and polity2	.0870	0.007
GDP growth and aidR5	.217	0.109
GDP growth and constant	3.084	0.000

Note: “aidR5”, “polity2” and “GDP growth” data retrieved and sorted from AidData 2.0, Polity IV and World Bank dataset. *Source*: AidData 2.0, 2012; Polity IV, 2012; World Bank, 2012.

Even though in the Table 30 test, foreign aid does not seem to have an obvious effect on the relationship of growth and democracy nor have a significant coefficient with GDP growth, in the Table 31 test, result shows that foreign aid is negatively associated with the level of democracy (aidR5: b=-0.38, p=0.01), and it is highly significant. The causal relationship between foreign aid and democracy is yet unknown, but this result presents the fact that country with weak democratic system get to receive more aid. It starts the questions: where did the money go? Did the money serve its purpose of promoting growth and relieve poverty? What happens if people in power get their hands on the money and there are no institutions to check their power? Is aid just a waste of money by reinforcing the government power instead of generating growth?

Table 31 Regression test between level of democracy and growth with aid factor

Regression test	Coefficient	P-value
polity2 and GDP growth	.0582	0.007
polity2 and aidR5	-.380	0.001
polity2 and constant	-.528	0.160

Note: "aidR5", "polity2" and "GDP growth" data retrieved and sorted from AidData 2.0, Polity IV and World Bank dataset. *Source*: AidData 2.0, 2012; Polity IV, 2012; World Bank, 2012.

4.6.2 All Factors

In this test, I intend to find out how aid flows and which category seems to attract most aid to cause the extreme imbalanced aid inflow situation in Africa. Result shows that Central Africa is the region that has been receiving the least aid compared to other regions; a separate test indicates a negative coefficient between aid and central Africa. In addition to that, former French colonies seem to have been receiving more aid than other colonies, indicating that French colonies have been receiving more influence from the west than other colonies. This indicates that it is too early to say that colonial influence is completely in the past: even though those countries have already achieved independence, their former colonizers have not yet given up their privilege to influence on their previous colonies. The question is that, is this new round of colonization or just aftermath in post-colonial era in order to help previous colonies to get back on their feet?

When looking at the religious factor in above table, countries that are largely influenced by Christianity and Islam have been receiving more aid than have others: those countries are positively associated with aid (religioni: b=0.74, p=0.00; religionc: b=1.62, p=0.00), and the relationships are highly significant. Unfortunately, countries dominated by traditional African religion practice are negatively associated with aid inflows (religiona: b=-0.4, p=0.055); this might be caused by religious-missioned NGOs, which often create programs and provide aid to countries that convert to their religion; however, further research needs to be performed to find out the real facts. As to the resource factor, countries of top oil (oil: b=-0.77, p=0.00) and diamond (diamond: b=-0.22, p=0.02) producers are negatively associated with aid inflows, and they are highly significant. And top gold producers (gold: b=0.48, p=0.00) are positively associated with aid inflows.

Table 32 Regression test between aid and all other categorical factors

Regression test	Coefficient	P-value	Regression test	Coefficient	P-value
aidR5 and west	.385	0.007	aidR5 and colonyf	.924	0.000
aidR5 and east	.468	0.005	aidR5 and colonyb	.660	0.013
aidR5 and north	1.838	0.000	aidR5 and colonyo	.179	0.501
aidR5 and central	omitted	omitted	aidR5 and oil	-.771	0.000
aidR5 and south	.0179	0.899	aidR5 and gold	.509	0.000
aidR5 and religioni	.761	0.000	aidR5 and diamond	-.257	0.008
aidR5 and religionc	1.616	0.000	aidR5 and copper	.0390	0.705
aidR5 and religiona	-.333	0.113	aidR5 and constant	.706	0.055
aidR5 and religiond	-.440	0.030			

Source: AidData 2.0, 2012; Polity IV, 2012; World Bank, 2012.

CHAPTER 5. LIMITATIONS OF THIS STUDY

It is clear that some factors I tested are vital for the economic growth and the progress of African countries, and some have less effect and very often have been overstated in the literature. As much effort as I have devoted to this study, there are still many methods that need to be tried in order to make this better; a lot of variables that I do not have access to need to be introduced to the model. I hope this study can present some facts to let people become aware of the reality that solving African issues is a long term process and that discrimination still exists. Discrimination and bias prevent us from observing the real problem that exists, and hinder those who are still trying to help.

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