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From Riches to Rags: The Political Economy of the Natural Resource Curse

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<u>Abstract</u>

The natural resource curse paradox has given rise to a wide range of explanations, which look at the economic, social and political characteristics of resource-rich countries. This paper focuses on the political economy of natural resources and finds that controlling for sociopolitical factors eliminates the natural resource curse. The analysis then turns to these sociopolitical factors and examines the significant, complex and varied effects of democratization on economic growth in general, as well as in resource-rich countries in particular. I conclude that the type of institutions needed for economic development in resource-rich countries are not specific to either democratic or autocratic systems, but are equally likely to be adopted by either regime, so that no one ideology is more suitable than the other. A corollary to this, however, is the case of weak democracies or low democratization levels. Such states are unable to adopt the necessary strategies and institutions and, thus, pose the greatest threat to economic growth in resource-rich countries. On the other hand, highly autocratic systems in resource-rich countries, such as those in Bahrain and UAE, or perfectly democratic systems, such as those in Norway and Iceland, utilize resources more efficiently for economic development.

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1. Introduction

In the 1970's, Venezuelan Oil Minister, Juan Pablo Perez Alfonzo, predicted that oil would one day ruin Venezuela, referring to the much-coveted resource as "the devil's excrement". The ominous words have proved disturbingly accurate in the last few decades and the empirical evidence behind this has led economists to a baffling question: why is it that resource-rich countries have been surpassed in economic performance by resource-poor countries?

Alfonso's chilling prophecy was not limited to his own country, or even just to oil. Across geographical boundaries, economies with large deposits of natural resources, including fossil fuels, minerals and rocks, have demonstrated stunted development, compared with resource-poor economies. This paradox became increasingly evident in the latter half of the twentieth century, with the resource-poor countries, the so-called Asian Tigers, greatly outperforming most resource-rich developing countries, such as, Venezuela, Iraq, Brazil and India. This poses a critical question for development economists and policy makers, answers to which have ranged from purely economic to institutional reasons.

There cannot be something inherently bad about the raw materials themselves, the answer must lie in their extraction or exploitation. This paper focuses on the political economy of the resource curse, and aims at explaining the sociopolitical reasons behind it. Section 2 summarizes the literature that has

provided the background and inspiration for my study, covering a wide range of explanations and theoretical approaches to the subject. In section 3, I discuss the panel dataset and conduct an empirical analysis of the effects of natural resource dependence, the polity and stability on economic development. Isolating the effects of natural resource dependence from key sociopolitical factors eliminates the natural resource curse. Further, democratization is, in general, beneficial for economic growth but natural resource dependence tends to dilute this effect. For high-income economies and highly-resource dependent economies democratization can even GDP per capita. In section 4 there is a detailed discussion of the key findings and section 5 concludes.

2. Survey of Literature

In the latter half of the twentieth century, development problems became ever more urgent and the focus of a large body of economic literature. As the newly independent former colonies began struggling with economic hardship and stunted growth, the field of development economics became largely concerned with the reasons for this underperformance and solutions to the perceived problems. One issue that came to light in this discourse was that resource-poor, developing economies were outperforming the resource-rich ones.

Richard M. Auty first coined the term "Resource Curse" in 1993 to describe this paradoxical trend. As the following studies illustrate, much of the literature in this field focused on purely economic explanations, such as declining prices of raw materials, susceptibility of the resource-rich economy to the Dutch Disease, as well as the idea that over-dependence on the primary sector results in underdevelopment of the overall economy.

Focusing his research on Latin American countries, Auty (1993) hypothesized that large natural resource endowments may not be beneficial for the development of low and middle-income countries. He concluded that these economies were indeed distorted by over-dependence on the natural resource-based industry as natural resource industries have few linkages and do not build human capital and, even more importantly, they cause the Dutch Disease, where

natural resource rents cause the exchange rate to appreciate and, thus, render other sectors of the economy uncompetitive.

The research into the natural resource curse, however, dates further back than the coinage of the term. The work of Prebisch (1950) aimed at explaining the economic hardship of Latin America. He pointed out that the prices of raw materials, which were the main exports, were declining relative to manufactured goods. Singer (1950) reached a similar conclusion but pointed to differing income elasticities of demand for agricultural goods compared to manufactured goods. What came to be known as the Prebisch-Singer hypothesis brought forth the idea that countries with abundant natural resource wealth should not depend on it for growth.

Sachs and Warner (1995) built on this work by conducting a worldwide study of the resource curse hypothesis. Their findings were largely in line with those discussed above, as they showed evidence of the Dutch Disease hypothesis, where labor shifts from "learning-by-doing" sectors to the primary sector. In a subsequent study Sachs and Warner (2001) explained the phenomenon by arguing that resource-rich countries rely heavily on the resource-based industry and, thus, fail to benefit from export-led growth.

This was merely an aspect of the great body of literature concerned with the development problems of natural resource-dependent economies. While the Dutch Disease hypothesis and the idea of over-dependence are enlightening explanations, a deeper look at the factors at play is critical in understanding the link between natural resource dependence and economic development.

Favorable and growth-oriented policies are the driving forces behind economic development. Without these even the wealthiest country may face stagnation, inequality and poverty. Mehlum, et al. (2006) build upon the work by Sachs and Warner, but reach a different conclusion, where the quality of institutions determines whether or not a country suffers from the natural resource curse. Thus, those resource-abundant countries that have better quality institutions (according to the measure developed by the authors) do not suffer from a resource curse at all. Such institutions are crucial in controlling the unfavorable political incentives created by natural resource rents, especially corruption, as factions compete to control the resources and use them for their political gain. Politicians are seen as particularly susceptible to the temptations of natural resource booms, as they struggle to remain in power and use the resource rents to do so (Robinson et al., 2006). Another source of concern is that politicians in resource-rich countries need not rely on the private sector for tax revenue, and so they tend to leave it neglected and underdeveloped (Acemoglu, et al., 2000). This shift in the emphasis on sociopolitical causes represents a larger shift in the literature, where more recent studies focus largely on the polity and institutions. Thus, the economic policies and policy makers in resource-rich countries are of extreme relevance in this study of economic development.

Auty (2001) describes "a developmental political state" as a necessary precondition for equitable economic development but one that is more likely to be found in resource-poor countries. Sound economic policies and long-term welfare exemplify this state. Auty (2001) then outlines the "staple trap model",

where resource-rich economies develop an over-dependence on the primary sector, thus resulting in a lack of economic diversification, industrialization, urbanization and human capital. This work suggests that the absence of a polity that makes investments in long-term development leads to the resource curse.

Given the importance of economic policies in determining the economic fate of a nation, I intend on exploring further the relationship between the polity and economic performance. The work of Douglass North provides a foundation for this, highlighting the correlation between sound institutions, efficient enforcement mechanisms and economic performance. The central dilemma for developing countries is, therefore, the development of a polity that efficiently and impartially enforces contracts, property rights and the formal and informal rules that structure economic exchange. Another issue of concern is that efficient property rights may not exist because of bribery or because powerful groups might be blocking them as they may be benefitting from the lack thereof. The fact that incentives for corruption are greater in countries where the potential benefits, that is, natural resource rents, are larger, explains why the issues outlined by North, inefficient institutions, bribery and lack of property rights and enforcement, may occur in resource-rich economies.

The result of inefficient and corrupt institutions and polity is that the cost of transacting in third world economies tends to be very high. Moreover lack of property rights and poor enforcement mechanisms mean that firms tend to be small and large firms can exist only under government protection, so that development in other sectors of the economy is obstructed. While North's work

was not specific to resource-rich countries, it outlines a problem where the institutional structure does not encourage productive economic and developmental activity, and stands as an obstacle to socioeconomic development.

The intersection of politics and economics is brought to light in North's work, and is a motivation for this study. Given the large body of literature that has hypothesized correlations between natural resource abundance and sociopolitical issues of political instability, authoritarianism and conflict, it is conventional belief now that natural resource rents encourage bad institutions, political uncertainty and violence conflict. With this as my theoretical background, I intend on testing the hypothesis that the channel through which resource dependence affects economic growth is the polity. As rent-seeking elites have a source of easy revenue without having to invest in good institutions and enforcement, there is little incentive for long-term development. My analysis will lead me to a discussion of what characterizes a favorable polity in the context of natural resource abundance. As the data will show, there is no clear answer to this question but, for now, let us return to the foundations of this study.

It seems intuitive that the potential control of a large natural resource endowment would offer great incentives for violence between sociopolitical factions. Collier and Hoeffler (2005) argue that the existence of natural resource rents increases the risk of conflict, as they can finance rebellions. Further they are likely to be looted by corrupt governments owing to ethnic fractionalization

or inefficient institutions. Wantchekon (2000) addresses a number of potential political effects of natural resource abundance. He argues that resource-rich countries are likely to have authoritarian governments as the rents create incentives for governments in power to become repressive and strengthen their hold. This also creates potential for open conflict or civil war. Of interest here is the idea that the correlation between natural resource wealth and economic development occurs through a medium – whether it's the rent-seeking activities of factions or the socio-political structure and institutions of the society.

Economists have also brought to light evidence that social fractionalization can have a negative effect on development. Easterly and Levine (1997) constructed a measure of ethnic diversity to find its correlation with economic growth. They find a negative relationship between ethnic fractionalization and income per capita. While resource-rich economies have failed to develop at steady rates, many of them have also been undergoing war, ethnic tensions and violence. Further the creation of rents in resource-rich economies tends to aggravate conflict and tensions, making the level of social fractionalization deeply relevant to any study of the performance of resource-rich countries.

In addition to sociopolitical peace and stability, the type of political regime also has a role to play and is a central point of focus of this paper. From Venezuela to the Middle East, resource-rich countries tend to have authoritarian regimes and do not benefit from democratic institutions. Ross (2001) explores what he refers to as the "oil impedes democracy claim". He found that oil

wealth does harm democracy and even more so in developing countries. Although he focused largely on oil-dependent countries, he concluded that both oil and mineral dependence lead to a "rentier effect", where governments elude democratic pressures through low taxes and high spending. Given the strong empirical evidence of the negative correlation between resource wealth and democracy, this area is worth probing further.

The central aim of this paper is to study the relationship between resource-dependence and economic growth, as well as the relationship between political stability and GDP growth in resource-dependent economies. As the data shows in section 3, resource-rich countries tend to be less democratic than the resource-poor. A study of the possible effects of democratic institutions on these economies is of great importance. While the economic effects of democracy have been heavily debated, the noneconomic merits of such a system that promotes accountability and liberty need no explanation. Collier and Hoeffler (2006) find an ambiguous, and often negative, correlation between economic growth and democracy in the context of natural resource abundance, but this should not lead one to conclude that the agenda of promoting democracy in autocratic societies is counterproductive. The authors trace the negative relationship to the idea that the pre-existing institutions in developing countries are corrupt, so that bribery and vote buying are rampant and cannot be prosecuted as the judiciary and the police are rarely independent. The existence of large resource rents worsens the outcome, as sources of financing for corrupt activities are abundant. The problem here lies in the fact that developing

countries do not have as mature and thorough a system of checks and balances as developed countries. Where there are large natural resource endowments, therefore, this can create even more negative incentives, as the opportunities for embezzlement and corruption are huge.

It is important to note, though, that a system of checks and balances takes time to develop. As numerous economists have pointed out, institutions are sticky and historically persistent. North (1990) made a significant contribution to the literature on institutional change in his discussion of the forces that shape it. He argues that the initial set-up costs of institutions are very large and that there are increasing returns to institutions. Thus, once an institutional framework is established, it is very costly to change it and the benefits may not be realized in the short run. As a result, given a world characterized by imperfect information, persistent underdevelopment will result as existing institutions are continually reinforced. Thus, once a country is on a particular development path, economic or political, it is difficult to set it on a new course. Countries that face persistent underdevelopment are trapped in a bad equilibrium where institutions and policies are unfavorable for economic development. Corruption, inefficient property rights and lack of investment in long-term development projects, such as infrastructure, education and finance, may be some of the characteristics the institutional structures in these countries. As an overhaul of the economic and political institutions is costly, the bad equilibrium persists and development does not occur. Thus, once exploitive and corrupt institutions are established, they are likely to endure and harm economic

growth. In the case of the developing world, much of which is former colonies, the establishment of these institutions can be traced to colonial times. Acemoglu, et al. (2000) find that in resource-rich countries in particular, colonizers tended to establish inferior institutions which best served the purpose of extracting resources for profit rather than promoting economic growth. This finding is critical in explaining what appears to be a curse of natural resources, but may be better described as a curse of bad institutions.

As valuable natural resource endowments offer great short-term profits they may encourage and reinforce such institutions, just as they did in the case of colonial settlements discussed above. If the reason that natural resource rich countries may be unable to develop is that they cannot establish favorable institutions and are trapped in bad equilibria, the question arises of the kind of institutions they need for economic growth.

Botswana is an example worthy of discussion here. While the country is the largest diamonds-producer in the world, it has enjoyed political stability and economic growth since independence over four decades ago. A significant difference between Botswana and its resource-rich counterparts is its long-running democracy. Relatively accountable and stable governance has led to high investments in education, health, most notably, measures against HIV/AIDS, and moves towards diversification of the economy. To extend the discussion to energy sources, let us consider Norway, one of the largest oil exporters in the world. Its unparalleled success in converting its oil endowment into economic growth rather than a curse has resulted in the country being

named the most developed country in the world in the UNHDI list. While oil has been considered the most volatile and counterproductive of natural resources, this example shows that the wealth it produces has the potential to fuel long-term growth and development. It is not the substance in itself that is to blame. Further pointing to the Dutch Disease does not go to the heart of the problem. In fact, as the sixth largest oil exporter in the world, Norway is highly dependent on its energy, which accounted for 50% of exports, 22% of GDP and 27% of resource revenues in 2009. What has made Norway distinct from its resource-rich counterparts is its long-term strategy, characterized by high public spending and welfare policies. These examples suggest then, that good governance and development policies may result in an outcome very different to the natural resource curse. This idea lies at the heart of this paper and motivates the empirical analysis.

3. Data Description and Analysis

3.1. Key Variables and Sources

The dataset includes 147 countries and ranges from the years 1960 to 1999. Only those countries for which data was unavailable have been excluded from the sample. The data is recorded in 5-year averages, i.e., 1960-1964, 1964-1969, … , 1995-1999. The variables included are detailed below.

Log of GDP:

This is the dependent variable, which is intended to indicate the level of economic growth for each country. It is calculated using real GDP per capita (PPP adjusted), and is measured at the beginning of each 5-year period. This variable was extracted from Collier & Hoeffler's (2007) dataset.

Share of Exports that are Primary Products (SXP):

A measure of primary commodity exports as a fraction of GDP, this independent variable is a proxy to natural resource abundance and it ranges from 0 to 1. Using level of primary exports has been the norm in literature exploring the natural resource curse. Primary products are all raw materials extracted from the land and ocean and include industries such as agriculture, forestry, fishing, mining and quarrying. This variable was extracted from Collier & Hoeffler's (2007) dataset. Henceforth, the abbreviation SXP will be used interchangeably with level of natural resource abundance.

At Civil War (atcivwar):

This is a civil war dummy that takes on a value of 1 if the country is experiencing civil war. If a minimum of 1000 battle-related deaths occurs in any given year, the civil war dummy takes on a value of 1. This variable was extracted from Collier & Hoeffler's (2007) dataset.

Social Fractionalization (frac):

This indicates the level of ethnic and religious fractionalization in each country. The range is from 0, where the population is completely homogenous, to 10000 where the population is completely heterogeneous. Ethnic fractionalization is defined as the probability that any two randomly drawn members of the population will belong to two different ethnic groups. The religious fractionalization index was drawn using data on religious affiliations. Together, the product of the two indices plus the one that has the greater value equals the social fractionalization index. This variable was extracted from Collier & Hoeffler's (2007) dataset.

Polity:

The values range from -10, for a highly autocratic system of governance, to +10, for a strong democratic system. The variable is a combination of two separate measures of "democracy" and "autocracy". Given the subjectivity of the two terms it is worthwhile to describe their usage here further. The former is

assessed on three levels, firstly, the existence of institutions and procedures that allow citizens to express their preferences and choose their leaders, secondly, constraints on executive power and, finally, the extent of civil liberty. Thus, countries that excel in the three aspects described above are seen as strong democracies. The second measure, autocracy, explores the level of competitive participation in politics, the procedures of selection of the chief executive and the institutional restraints on executive power. Thus, countries that lack competitive political participation, whose chief executives are selected by a political elite and where the chief executive's power is relatively unconstrained are seen as autocracies. This variable was extracted from the Polity IV dataset.

Regime Change (regchange):

Where the polity score changes by over four points within any five-year interval, it is though to be a period of regime change. This is consistent with the Polity IV Project, which recognizes changes of over 4 points within three years as regime changes. To apply this threshold to my dataset the time period is altered to five years. Thus, regime change is a dummy variable, which takes on the value 1 for a period of regime change and 0 otherwise. This variable is intended to explain the effects of political change, instability and uncertainty on economic development.

Democracy (Dem):

Using the Polity III dataset, Collier & Hoeffler calculated this variable to measure the openness of institutions. It ranges from 0 to 10, with higher numbers indicating greater levels of democracy, or openness.

Oil:

This is a dummy variable that takes on the value 1 for those countries where the bulk of GDP reflects the value of extracted oil (Mankiw, et al., 1992). In this case GDP will necessarily be closely and positively correlated with the level of natural resource dependence and will, therefore, skew the data. Another source of concern is that oil is a commodity that is associated with an unusual amount of volatility and unrest. As Terry Karl (2007) notes, oil possesses certain characteristics that set it apart from other resources. These include its importance as an energy source that fueled global industrialization, the fact that it is scarce and non-renewable and its price volatility and consequent boom-bust cycles. The rents from oil are also large compared to other raw materials – leading to its appropriate description as "black gold" – and mean that a large oil endowment has great potential to skew the incentives of leaders and politicians and encourage unrest and corruption.

Regional dummies:

There are regional dummies for Africa, Asia and Latin America. These variables takes on a value of 1 if the country is in the region specified, and 0

otherwise. It is included to control for any regional or geographical differences that may account for inter-country differences in growth rates.

GDP/Capita:

GDP per capita is gross domestic product divided by midyear population, expressed in current U.S. dollars, for the year 2008. The source is World Development Indicators. Data is available at http://data.worldbank.org/indicator/NY.GDP.PCAP.CD.

Literacy Rate:

Adult literacy rate is the percentage of people ages 15 and above who can, with understanding, read and write a short, simple statement on their everyday life. The data used is for the year 2008. The source is World Development Indicators, and the data is available at http://data.worldbank.org/indicator/SE.ADT.LITR.ZS.

 Life Expectancy:

Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. The data used is for the year 2008. The source is World Development Indicators and the data is available at http://data.worldbank.org/indicator/SP.DYN.LE00.IN.

Public Spending on Education:

This variable expresses the government spending on education as a percentage of total GDP. The data used is for the year 2002 as there was considerable missing data for more recent years. The source is World Bank Development Indicators and the data can be found at http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS/countries.

Public Health Expenditure:

This variable represents public health expenditure as a percentage of total expenditure on health in the nation. The data used is for the year 2008. The source is World Bank Development Indicators and the data can be found at http://data.worldbank.org/indicator/SH.XPD.PUBL/countries.

3.2. Summary Statistics

Table 1 shows the summary statistics for the full sample, as well as two subgroups, one of high-income countries and the other of middle and low-income countries. The division is in accordance with the World Bank's classification of countries by Gross National Income, where the high-income countries (those with an income per capita greater than $12,196 in the year 2009) are placed in the "High-Income Countries" sample, and the rest are lumped in the "Middle and Low-Income Countries" sample.

As the first row indicates, on average, the high-income economies tend to have greater levels of natural resource dependence. Thus, countries with large

natural resource endowments are not necessarily poor, as the resource curse hypothesis would have one believe. This observation reinforces the idea that it is not the natural resource endowment that often results in the paradox of plenty, but other factors that may or may not be related to it.

As the table goes on to show, the lower-income economies tend to be less democratic than the high-income countries. Moreover, they suffer greater social fractionalization and a higher incidence of civil war as well as regime change. Together this shows that lower income countries are not only more authoritarian but also suffer greater unrest and political instability. This provides the basis for the detailed study of the relationship between the polity and economic development in the next two sections. While lower-income countries are not distinct from higher-income countries in terms of natural resource dependence, there are differences with regard to sociopolitical climate. The implication is that the answer to the paradox of plenty lies in the political economy of developing nations, and the next section will empirically test this hypothesis.

Given the large body of literature concerned with the effect of natural resource endowments on economic growth it is worth considering whether or not there is empirical evidence of a natural resource curse. Mehlum, et al. (2006) describe countries with a ratio of primary product exports to total exports (SXP) of greater than 10%, as highly resource-dependent. Identifying those countries with an SXP value greater than 0.1 for a majority of the forty-year period, resulted in a sample of 64 low-dependence countries and 83 high-

dependence countries. Finally, a fourth sample was made to represent only those high-SXP countries, which have authoritarian institutions, or an average polity value of zero or less. Table 2 shows some important statistics for these countries.

I explored the areas of income per capita, education and health as these are considered important indicators of living standard, well-being and socioeconomic development. As the table shows, the low-SXP economies have a far higher income per capita than the high-SXP economies, on average. The high-SXP economies perform lower than the world average, even though valuable natural resources such as oil and diamonds, can contribute heavily to GDP. Moreover, once the democratic countries are taken out of the subset, GDP per capita falls considerably lower. This indicates that countries with high resource endowments may perform even worse if they are non-democratic.

For the literacy rate and life expectancy rows, the high-SXP nations perform lower than the world average, while the authoritarian, high-SXP nations continue to perform the worst. This indicates that countries with large natural resource endowments may perform worse in areas of social development. The fact that the non-democratic nations in this group perform even worse, indicates that democratic institutions may be important for socioeconomic development. It also reaffirms the idea that large natural resource rents create political and economic incentives that are incompatible with economic development, for example, to loot the easily available wealth rather than invest it in long-term development projects. To explore this area

further the table looks at public expenditure on the key variables of education and health, as such investments are crucial to economic growth. Public expenditure on education appears the lowest for the low-SXP nations. This should be interpreted with caution, however, as the expenditure is expressed as a percentage of GDP and may be low because the countries in this sample have relatively high levels of GDP. It is important to note that the authoritarian, high-SXP nations perform worse than their democratic counterparts in this area. In terms of public expenditure on health, the low-SXP nations perform the best while, the authoritarian, high-SXP continue to underperform.

Finally, the last row shows that the average polity level for high-SXP nations is far lower than that for the world. The polity value in the last column simply indicates that the authoritarian, high-SXP nations are defined by a polity value lower than 0. The numbers imply that high-SXP nations are more likely to be authoritarian than low-SXP nations. These results are in keeping with the literature, and indicate the need to further explore the interaction of the polity and natural resource endowments.

Table 1. Mean value and standard deviation, for each independent variable for different samples.

Variable	Full Sample	High Income Countries	Middle and Low Income Countries
SXP	0.16 (0.19)	0.19 (0.28)	0.15 (0.13)
Democracy	3.96 (4.20)	7.13 (4.22)	2.67 (3.44)
Social Fractionalization	1880 (1921.31)	837.65 (1154.18)	2280.11 (2005.49)
Regime Change	0.34 (0.47)	0.26 (0.44)	0.38 (0.48)
At Civil War	0.12 (0.32)	0.003 (0.06)	0.17 (0.37)
Oil	0.13 (0.34)	0.24 (0.43)	0.09 (0.29)

Table 2. Average income per capita, literacy rate, life expectancy and polity values for different samples.

	World Average	Low-SXP	High-SXP	High-SXP & Authoritarian
GDP/capita	$14749.29	$17032.87	$12744.19	$8075.67
Literacy Rate	79.47%	81.71%	77.86%	75.68%
Life Expectancy	68.34 years	70.71 years	66.20 years	63.65 years
Public Education Expenditure	4.73%	4.52%	4.97%	4.55%
Public Health Expenditure	57.5%	58.38%	56.93%	53.09%
Polity	-0.2	0.63	-1.03	Polity<0

3.3. Methodology

The purpose of my empirical analysis is to explore the effects of political regime and climate on economic growth, in the context of natural resource abundance. Using panel data on 147 countries, I explore whether or not there is evidence of a negative correlation between natural resource dependence and GDP growth. Adding variables that are indicative of the sociopolitical climate in each country, I was further able to observe how sociopolitical factors interact with natural resource dependence to affect growth outcomes. As this is ultimately a study of economic development, observing dynamics and developments over time is absolutely necessary. Development is not an immediate occurrence and, as is extremely relevant to this study, it takes time to develop institutions and policies that are compatible with economic growth. Thus, the motivation behind panel data was to observe economic and political dynamics over time. Moreover, data across several countries gives indications of general trends and prerequisites for development, rather than country-specific explanations.

The next step in formulating an econometric methodology was choosing which variables to include in the model. The dependent variable is log of GDP per capita, as GDP per capita stands as the most useful quantitative measure of economic growth. Next the measure for natural resource dependence was chosen, as well as controls for geographic region. An additional control, the oil dummy, was used to control for the effect of oil, as it is considered to be the

natural resource that is most incompatible with development and stability. Finally, the most useful sociopolitical indicators had to be identified. To capture the effect of the polity, I wished to account for the nature of the political regime and institutions, as well as for their stability. Thus, the democracy variable indicates the nature of the regime, while the regime change variable indicates the uncertainty of the political climate and the fragility of the state. The other area I wished to explore was social unrest as a society riddled with violence and factionalism is unattractive for investment and unlikely to develop. The civil war dummy represents social unrest and violence, and the social fractionalization indicator is used as an alternate measure of the same.

Finally, a random effects model was chosen as the sociopolitical variables and the regional dummies can account for some of the country-specific differences. The base regression takes the following form,

$Y_{it} = \alpha + \beta X_{it} + \varepsilon$,

where Y is log of GDP per capita, β is a vector of regression coefficients and X_{it} includes all the independent explanatory and control variables.

3.4 Results

The hypothesis was that natural resource endowments, in the enormous wealth they have the potential to produce, are beneficial to economic growth. In the absence of a growth-compatible sociopolitical climate, however, that same wealth has the potential to create corrupt and inefficient institutions, sociopolitical conflict and instability and economic decline. Thus, the

regressions include controls for sociopolitical factors, to isolate the effect of natural resource dependence. It was further hypothesized that democratic institutions, owing to their transparent and accountable nature, would be most beneficial for economic growth. Meanwhile, given the great body of literature discussing the incentives for conflict that are produced by natural resource rents, it was hypothesized that sociopolitical uncertainty and conflict could explain much of the growth problems of the resource-rich, developing world. These factors were then explored further to reach a better understanding of the development problems of resource-rich countries.

The base regression (Regression 1.1) is on the entire sample of 147 countries, while the regression in the second column of Table 1 is for a subset of high-income economies and the third column is for the remaining low and middle-income countries, as defined by the World Bank. Table 4 carries out the same regressions, but each sample is reduced to exclude oil-producers to ensure the effects are robust.

The main regression results indicate that the relationship between natural resource dependence and economic growth is positive and significant for the full sample, as well as the subset of high-income economies. While the positive effect does extend to the low and middle-income sample, it is insignificant. Regressions 1.1 and 1.2 also suggest that, there are decreasing returns to natural resource dependence, so that higher levels of dependence are decreasingly beneficial for economic growth. This may lead to the conclusion that as long as dependence does not increase beyond a certain point, there will be a positive

effect on economic growth. However, the finding is insignificant and does not extend to Regression 1.3. The large and positive coefficients on SXP confirm the hypothesis that natural resource abundance, in isolation from other factors, can fuel great economic growth.

Table 4 replicates the regressions in Table 3, but on a smaller dataset that now excludes the oil-dependent economies. While there are certain differences, the positive effect of natural resource dependence is consistent and robust. There are two notable differences that are worthy of discussion here. First, the increase in the coefficients on SXP suggests that oil is less beneficial for economic growth than other natural resources. Second, the weak evidence for decreasing returns to natural resource dependence in regression 1.2 becomes significant in regression 2.2

The regressions in Tables 1 and 2 show that after controlling for sociopolitical factors, as well as, geographical location, natural resource dependence has a positive effect on economic growth. This relationship is only insignificant in the case of the middle and low-income group. This shows that while the relationship may be positive, the two variables may also be uncorrelated. The important conclusion to draw here is that no negative relationship was found that might explain the development problems of the middle and low-income countries. The regression analysis, therefore, goes on to explore the effects of the polity on economic growth.

The coefficient on the democracy variable for the full sample in Table 1 is positive but insignificant. A look at Regression 1.2 for the high-income group

shows a significant relationship where the positive effects of democracy set in only after a certain point. A simple calculation shows that this point occurs where the democracy value is 3.75. This indicates that once institutions have developed to a point where they are sufficiently open and transparent, democracy can have huge benefits for economic growth. This result extends to Table 2 where the oil producing countries are excluded, so that the increasing returns to democratic institutions are significant and robust for the high-income group. Regression 1.3 and 2.3 show that the positive effects of democracy are significant and robust for the middle and low-income group, with the higher positive coefficient in Regression 2.3 implying that democratic institutions may be less valuable for oil-dependent countries. These regressions further show that there are decreasing returns to democratic institutions so that, at greater levels of openness and transparency, the gains in economic growth become smaller and smaller. While this coefficient is insignificant, the nonlinearities in the relationship between economic growth and democracy will be explored further.

Given the significantly positive effect of democratic institutions on economic growth, it is important to further explore the effect of institutions in the presence of large natural resource endowments. The coefficient on the interaction variable (SXP*dem) is intended to show whether the effect of natural resource dependence on economic growth depends on the polity of the country. The value is negative, significant and robust across all the samples in Tables 3 and 4, implying that democratic institutions are not beneficial to economic growth in a context of natural resource dependence. Thus, while

democratic institutions are, in general, beneficial for economic growth, for countries with large natural resource endowments, authoritarian governments are more favorable. This outcome is discussed in greater detail in the next section.

The next two variables in Tables 3 and 4 explore the effects of political uncertainty and social unrest on economic growth. The regime change variable has a negative and significant effect that is robust throughout the samples, with the exception of the high-income groups. The insignificance here may, however, be explained by the fact that regime change is rare in this group and, therefore, does not correlate with fluctuations in GDP per capita. In fact, as the summary statistics show, the average incidence of regime change is far lower for the high-income group than for the middle and low-income group. This indicates that political stability may play a large part in economic growth outcomes.

The civil war variable is intended to denote the effect of social unrest on economic growth, which is found to be insignificant across all the samples in Tables 3 and 4. The variable is omitted in Regression 2.2 as none of the countries in the sample had a civil war during the time interval studied. The civil war variable has been substituted for the social fractionalization variable, which also represents the level of social unrest, in the regressions in Table 5. The results continue to be insignificant, except in the case of Regression 3.2, where there is a significant, positive effect of social fractionalization on economic growth. It should be noted, however, as the summary statistics show, that, on average, the high-income nations are far less ethnically and religiously

fractionalized than the middle and low-income nations. This may be indicative of the fact that below certain levels and in certain conditions, ethnic fractionalization is not harmful. One of these conditions may be the existence of just and democratic institutions that promote stability, invest in public welfare and, therefore, prevent social unrest. Thus, as the summary statistics show, high-income countries have far more democratic institutions than the developing countries as well as the whole world, on average.

Further, table 5 shows that the coefficients on the interaction variable (SXP*frac) are negative, but insignificant, for all the samples. Thus, while natural resource abundance may be negative for economic growth where there is social fractionalization, it is also likely that the two may be uncorrelated. I conclude, therefore, that social unrest does not play a significant role in economic growth and the null hypothesis must be rejected.

The oil variable in Table 3 is designed to control for the abundance of oil, as it is often believed to be the most contentious of the natural resources. As discussed previously, oil has been hypothesized to hinder democratic institutions and to create conflict. The results show, however, that the existence of oil wealth has a positive effect on GDP per capita. This is significant only for the full sample, and is intuitive as oil is one of the most valuable resources and oil-dependent countries such as UAE and Saudi Arabia earn high incomes from it.

Finally, the last three variables are regional dummies. The Africa dummy is omitted for the high-income group as none of the countries in this

sample are in Africa. The negative coefficients on Africa and Asia are negative, significant and robust across Tables 3 and 4, while the coefficient on the Latin American dummy is ambiguous in its effect on economic growth.

Table 3. Economic Growth, Natural Resource Dependence and the Polity

	Regression 1.1	Regression 1.2	Regression 1.3
SXP	1.157***	1.630**	0.501
	(0.369)	(0.722)	(0.488)
SXP^2	-0.177	-0.774	0.646
	(0.402)	(0.635)	(0.795)
dem	0.029	-0.240***	0.060***
	(0.019)	(0.074)	(0.019)
dem^2	0.003	0.032***	-0.003
	(0.002)	(0.007)	(0.002)
SXP*dem	-0.232***	-0.243***	-0.170***
	(0.035)	(0.069)	(0.040)
regchange	-0.073**	-0.058	-0.078***
	(0.032)	(0.102)	(0.030)
atcivwar	-0.005	0.233	0.010
	(0.043)	(0.402)	(0.038)
Oil	0.467***	0.041	0.192
	(0.156)	(0.170)	(0.209)
Africa	-1.805***	(omitted)	-1.174***
	(0.134)		(0.249)
Latin	-0.815***	0.600	-0.241
America	(0.156)	(0.377)	(0.261)
Asia	-0.868***	-0.050	-0.672***
	(0.149)	(0.165)	(0.265)
Observations	1176	328	848

Notes: Dependent variable: log of GDP per capita. Standard deviations are in parentheses.
*=significant at the 10% level
**= significant at the 5% level
***= significant at the 1% level

Table 4. Economic Growth, Natural Resource Dependence and the Polity in non-Oil Exporting Countries

	Regression 2.1	Regression 2.2	Regression 2.3
SXP	1.586***	4.338***	0.505
	(0.513)	(1.023)	(0.593)
SXP^2	-0.918	-3.098**	0.536
	(0.781)	(1.280)	(1.073)
dem	0.022	-0.137*	0.049**
	(0.021)	(0.073)	(0.020)
dem^2	0.004	0.024***	-0.001
	(0.002)	(0.007)	(0.002)
SXP*dem	-0.224***	-0.393***	-0.148***
	(0.042)	(0.081)	(0.049)
regchange	-0.064*	-0.065	-0.074**
	(0.034)	(0.113)	(0.032)
atcivwar	-0.008	(omitted)	0.008
	(0.044)		(0.039)
Africa	-1.719***	(omitted)	-1.177***
	(0.138)		(0.241)
Latin	-0.724***	0.459*	-0.207
America	(0.157)	(0.279)	(0.254)
Asia	-0.949***	-0.151	-0.710***
	(0.155)	(0.134)	(0.259)
Observations	1016	248	768

Notes: Dependent variable: log of GDP per capita. Standard deviations are in parentheses.
*=significant at the 10% level
**= significant at the 5% level
***= significant at the 1% level

Table 5. Economic Growth, Natural Resource Dependence and Social Fractionalization

	Regression 3.1	Regression 3.2	Regression 3.3
SXP	1.794***	1.899***	0.773
	(0.465)	(0.733)	(0.531)
SXP^2	-0.519	-0.80*	0.835
	(0.418)	(0.642)	(0.818)
dem	0.027	-0.191***	0.060***
	(0.019)	(0.069)	(0.018)
dem^2	0.003	0.027***	-0.003
	(0.002)	(0.007)	(0.002)
SXP*dem	-0.228***	-0.207***	-0.169***
	(0.036)	(0.079)	(0.040)
regchange	-0.069**	-0.044	-0.079**
	(0.032)	(0.093)	(0.030)
frac	-0.00002	0.0002***	0.00002
	(0.00003)	(0.00005)	(0.00004)
SXP*frac	-0.0001	-0.0003	-0.0001
	(0.00008)	(0.0001)	(0.0001)
Africa	-1.745***	(omitted)	-1.123***
	(0.149)		(0.259)
Latin	-0.872***	0.314	-0.274
America	(0.155)	(0.360)	(0.274)
Asia	-0.954***	-0.061	-0.668**
	(0.152)	(0.151)	(0.276)
Observations	1176	328	848

Notes: Dependent variable: log of GDP per capita. Standard deviations are in parentheses.
*=significant at the 10% level
**= significant at the 5% level
***= significant at the 1% level

4. Discussion of the Key Findings

4.1. Is there a Natural Resource Curse?

One of the key findings of this paper is that, after controlling for sociopolitical factors, natural resource dependence does not have a negative effect on economic growth. On the contrary, the positive effect is robust and is significant in all cases except for the middle and low-income sample. This is consistent with conventional thinking that large natural resource endowments are less beneficial for middle and low-income countries (Auty, 1993). It is important to note, however, that the coefficient is not negative for any of the samples. This reaffirms my hypothesis that natural resource abundance is, itself, neutral to economic growth and the hypotheses of other researchers such as, Mehlum et al., who divide countries into those with good institutions versus those with bad institutions and show that the former do not suffer a resource curse at all (Mehlum, et al., 2006). Thus, the affect of natural resource abundance on economic growth is dependent upon the political economy. Therefore, let us now turn the discussion to the political economy of the resource curse.

4.2. The Effect of Democratization on Economic Growth

While the positive effects of democracy are robust across all samples, it is insignificant for the full sample. Looking at the effects for the subsets of high-

income countries and middle and low-income countries provides more insight into this relationship. In general, the effects for both groups are positive, but the relationship is complex and there are important differences. The non-linear relationship is significant for the high-income sample but insignificant for the developing countries group.

As the summary statistics show, developing countries are less likely to have democratic regimes than high-income countries. In fact, the conditions that are favorable for the existence and development of democratic institutions have been the subject of a great body of literature. Lipset (1959) suggested that wealthier countries were better able to sustain democracies owing to their improved social conditions and more equitable socioeconomic structure, which bring social stability. Muller's (1995) study reinforces this conclusion, as he finds that income inequality obstructs democratic institutions. As inequality is generally higher in developing countries, this explains why they are less likely to have democratic regimes. This aspect of the literature concerns itself with the effect of income level on the polity. It is important to consider the opposite direction of causality as well, since the quality and nature of institutions and policies inevitably effect subsequent economic development.

A large body of literature is concerned with the affect of democratic institutions on economic growth, and its dependence on the level of economic development. The debate is ongoing and inconclusive as there are prominent political and economic theorists on each side. The arguments of the pro-authoritarianism theorists center around the idea that, given all the issues facing

third world countries, only authoritarian regimes can spur economic growth. An example of this is that social fractionalization may be less harmful for development in autocratic countries, where any grievances can be silenced and rebellions can be repressed. Those arguing for the positive effects of democracy focus on the benefits of civil liberties, accountability and political and economic freedoms on growth (Sirowy & Inkeles, 1990).

The ambiguity of the relationship between the polity and economic growth in the literature is also reflected in the empirical analysis of the dataset. The graph below illustrates the effect of democracy on log of GDP per capita for each sample.

Figure 1. The Effect of Democratic Institutions on Economic Growth
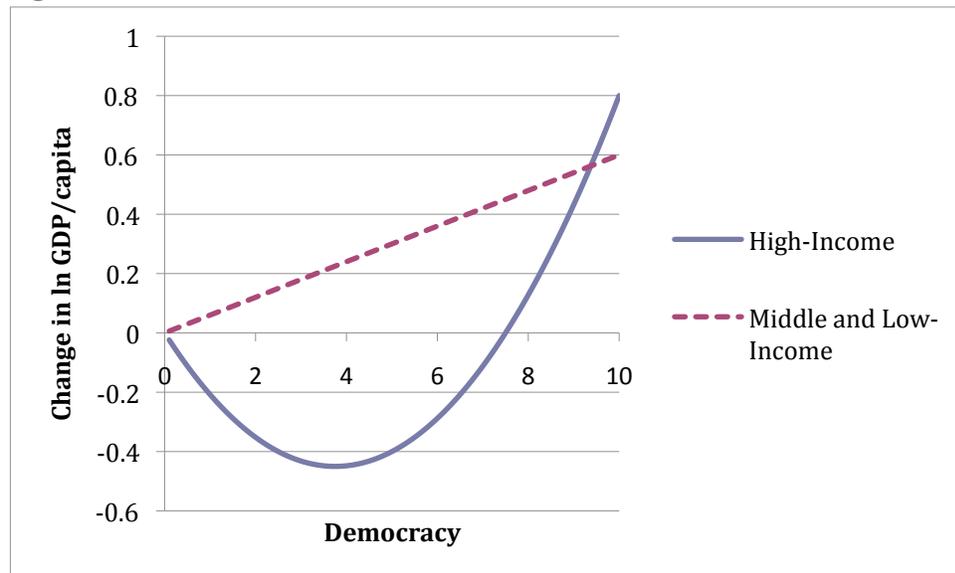
Note: The graph illustrates the relationship between the level of democratization and log of GDP per capita. This is given by the regression results 1.2 and 1.3 in Table 3. For the high income economies, $\Delta ln\ gdp = -0.240\Delta X_{Dem} + 0.032\Delta X_{Dem}^{2}$ and, for the middle and low-income economies, $\Delta ln\ gdp = 0.060\Delta X_{Dem} - 0.170\Delta X_{Dem}^{2}$).

The figure above shows that increasing the level of democracy affects growth rates of developed countries differently from those of developing

countries. The first step towards understanding this difference is to identify the differences between high-income countries and middle and low-income countries in order to understand why democracy may affect the economy differently in each sample. Developed and developing economies differ in several aspects of political, economic and social life. The differences that are most relevant to this study are in the areas of income distribution, institutional efficiency and transparency, the nature and size of the public sector, the provision of public goods and public investment in social welfare

As the Kuznets curve illustrates, income inequality is rises in the low to middle-income range, after which it starts to fall. Thus, in general, the countries in the sample of middle and low-income economies will have greater income inequality. Moreover, Sacks (2010) finds that individual well-being is significantly correlated with income level, so that the citizenry of high-income countries are more likely to have "life satisfaction". This would also presumably make for a more peaceful society. Given that democratic governments are characterized by greater spending on public welfare and more meritocratic institutions, it is easy to see how the potential economic benefits of democratization would be great for the third world, especially in the area of income inequality.

With regard to public spending, Devarajan, et al. (1996) argue that the developing world may be growing slower due to the misallocation of public investment. They find that overinvestment in capital goods slows growth, and suggest that the public sector in developing countries should shift expenditure

from capital investment to consumption goods. It is intuitive that democratic states face greater pressure for expenditure on welfare and consumption, particularly as they are accountable to the electorate and must satisfy voters in order to remain in power. Government expenditures that yield immediate benefits are, therefore, likely to be favored in democratic regimes. This finding is of importance here as, not only does it refute one of the main arguments for authoritarianism in the third world, but is also reaffirmed by the upward growth trajectory of developing countries as democratization takes place This work suggests, therefore, that the democratic regimes' lower propensity to save may be beneficial for the third world.

Moreover, given the freedoms and liberalization that accompany democratization, the upward trajectory of developing countries in Figure 1 may also be explained by the economic benefits of these. While the economic effect of the extension of civil liberties is a source of contention, many economists argue that such freedoms are a necessary condition for economic growth (Nelson and Singh, 1998). Further, sociopolitical freedoms and the abilities to receive an education, find adequate employment and to actively participate in society are best granted by democratic regimes, which are necessarily more receptive to the needs of the citizenry. It is clear how such a climate would better promote education, employment, competition and efficiency.

Mourmouras and Rangazas (2008) point out that the public sector expands as development occurs and the economy shifts from traditional to modern production methods. The discrepancy they find is that today's developing

economies have a larger government size relative to their development level, than today's developed world and explain that this may be a result of less democratic institutions. The economists find that larger public sectors obstruct modernization through higher tax rates, which may result from a lack of concern for economic development and modernization, or from the political leverage of the landed elites. The problem for economic growth lies in a large, undemocratic public sector that inefficiently allocates resources. Thus, middle and low-income economies tend to have large public sectors, but are unlikely to have democratic governments, resulting in a prolonged dependence on the traditional sector. Again, it is easy to see how the economic benefits of democratization – in this case, modernization of the economy – would be large for developing countries, in particular.

For the middle and low-income countries sample, therefore, democratization is especially conducive to economic growth, as it has the potential to reduce inequality and increase general well being, liberalize the sociopolitical and economic structures and efficiently allocate resources. In contrast to this, democratization in the high-income economies has a more ambiguous effect on economic growth. In fact, as these countries first begin to democratize, the effect on economic growth is negative. When they reach a level of 3.75 (on the democracy scale of 0-10) the relationship inverts and positive and increasing returns set in.

As discussed above, the literature suggests several channels through which the process of democratization may have negative effects on economic growth.

The first question to consider is the allocation of resources, as this is the most important channel through which the polity can affect economic growth. In an advanced democracy, which has transparent voting and justice systems, the government will presumably utilize resources efficiently and with the aim of producing the best public good and economic development. In a weak democracy, however, there is less accountability and corrupt politicians may loot public resources (Collier & Hoeffler, 2007). The wealth of high-income economies makes them more susceptible to this outcome, as the potential profits of corruption are very large. Moreover, as people gain more freedom and education, they also develop the means to voice their opinions, demand their rights and play a part in the policy-making process. Thus, at earlier stages, while institutions are still weak and governments do not have the legitimacy those of more advanced democracies do, social conflict and unrest may rise and this can negatively affect growth rates. These factors can explain much of the variation in the effects of democracy between the developing and the developed countries samples. Corruption, unjust and inefficient institutions and social unrest are issues that are characteristic of developing nations regardless of political regime.

The idea that there will be less accountability at lower levels of democracy than in an authoritarian regime is contingent upon the assumption that the authoritarian regime in question is relatively benevolent and just, and has an efficient law and order system. In the case of most developing nations this is not the case, as most states are autocratic, and are also rife with corruption. Thus, it

is plausible that even a weak democratic regime may have marginally better checks and balances. In the case of the high-income nations, on the other hand, those that are highly autocratic are countries such as, Bahrain, UAE and Saudi Arabia, which have well-developed autocratic institutions and, though there is little freedom, these countries enjoy relative sociopolitical stability. It is not surprising then, that weak democratic institutions may be relatively less favorable for economic growth than the well-established autocratic regimes. Thus, while the effects of democratic institutions may be negative at first, at higher levels of democracy, the positive gains set in.

It is also important to consider possible biases in the data. First, of the 41 high-income countries, over 25% are identified oil-exporters, while only under 10% of the middle and low-income countries are identified as such. Many oil-rich countries tend to have authoritarian governments as well as high incomes, and it is now believed that petro-states are unique in their development issues, trajectories and solutions. It is interesting to note that removing the oil-exporting countries from the high-income sample alters the relationship, as shown in Figure 2. This illustrates that the relationship between the polity and economic growth may be different in the context of resource abundance, a finding that is explored in the next section.

Figure 2. The Effect of Democratic Institutions on Economic Growth in high-income, non oil-exporting countries.
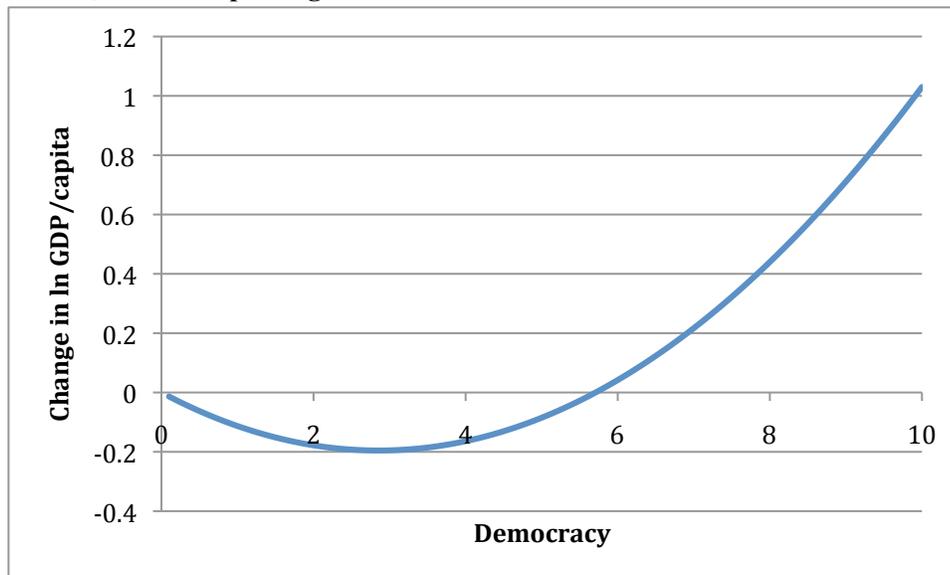
Note: This graph shows the effect of an increase in the level of democratization on log of GDP per capita, for a subset of high-income economies that excludes the oil-producing countries. This is in accordance with regression 2.2 in Table 4, so that $\Delta ln\ gdp = -0.137X_{Dem} + 0.024\ X_{Dem}^2$.

4.3. The Role of the Polity in the Natural Resource Curse

While the statistical findings indicated that natural resource abundance, in isolation from other factors, is beneficial for economic growth, interacting the former with democracy resulted in a negative and significant effect on economic growth. The natural resource curse exists, therefore, but only for countries which have democratic regimes. Economists agree that, in the absence of institutions that effectively check corruption, natural resource endowments result in a resource curse. Robinson et al. (2006) find that natural resource booms create perverse political incentives that, in the absence of good institutions, cause the natural resource curse. Thus, without an independent

judiciary, for example, politicians are more likely to misuse natural resource rents to remain in power.

Collier and Hoeffler (2007) emphasize the need for checks and balances in controlling the negative incentives created by natural resource rents. This is especially relevant as they conclude that the lack of checks and balances in developing countries makes democracy unfavorable for growth. High resource rents exacerbate the issue of corruption in such countries as they increase embezzlement, so that politicians use resource revenues for their own political gain rather than for the provision of public goods. This paper confirms this conclusion, but also extends it to the developed world. Tables 3, 4 and 5 show that the negative effect of natural resource abundance, where there is a democratic regime, is even greater for the high-income sample.

Thus, on average, even in high-income, resource-rich economies, democratic regimes may give rise to the natural resource curse. Figure 3 shows the effect on GDP per capita of an increase in the level of democratization at various levels of natural resource dependence. For the middle and low-income sample, increasing the level of democratization positively affects growth at low levels of resource dependence. As natural resource dependence increases, the positive affect is increasingly diluted. Beyond a resource dependence level of 35%, increasing democratization reduces income per capita. This confirms Collier & Hoeffler's (2007) finding that promoting democracy in the resource-rich, developing world will not have positive effects on economic development. The sample of high-income economies extends this finding to the developed

world as well. As the regression results showed, democratization reduces income per capita in high-income economies. As Figure 3 shows, at higher levels of resource dependence, the negative affect increases in magnitude at a rate faster than that for developing countries. This indicates that democratization is even more harmful for high-income economies at higher levels of resource-dependence than for low-income economies.

Figure 3. The effect on log of GDP of increasing the level of democracy by 1 unit depends on whether or not there is natural resource abundance
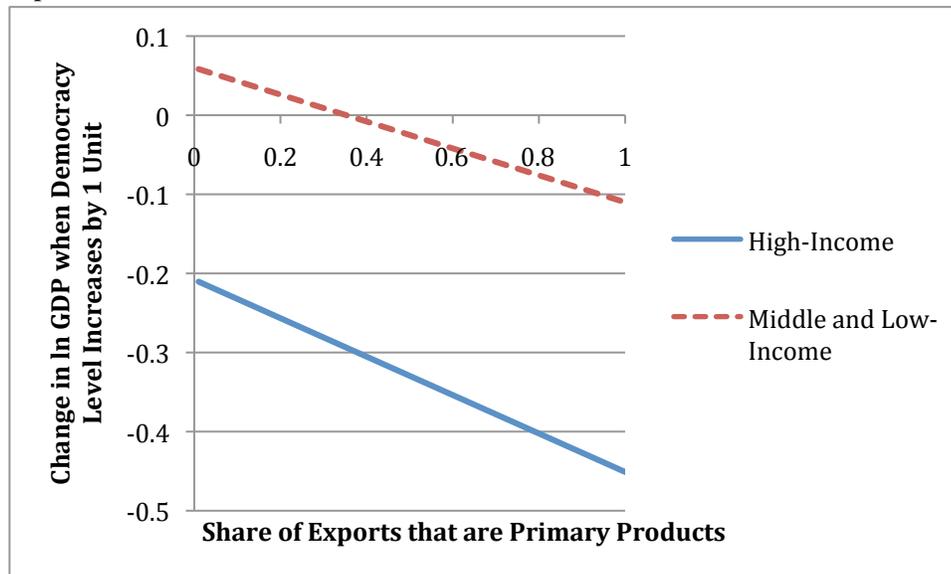

Note: The graph shows the effect on log of GDP of increasing SXP by 10% at various levels of democracy. This is given by regressions 1.2 and 1.3 in Table 3. For the high-income sample this is given by the equation, $\Delta ln\ gdp = \Delta X_{Dem} * (-0.240 + 0.032\Delta X_{Dem} - 0.243X_{sxp})$, and for the middle and low-income sample, the equation is $\Delta ln\ gdp = \Delta X_{Dem} * (0.060 - 0.170X_{SXP})$.

The literature suggests that democratization only has this effect in the case of resource-rich, developing countries where institutions are less transparent and efficient and there is little accountability. The data, however, suggests that democratic institutions are even less beneficial for high-income, resource-rich countries. A look at this subset of resource-rich (those with an

average SXP value greater than 0.1) high-income economies provides some insight. Figure 4 shows that the more resource-dependent economies tend to have autocratic regimes. These include countries such as Bahrain, Oman, Kuwait, Saudi Arabia and UAE, which have high levels of resource-dependence and autocratic institutions, but also enjoy high levels of income per capita. Moreover, as the regression results in Table 4 show, excluding the oil-producing nations from the sample does not alter this negative effect.

**Figure 4. Democracy and SXP Levels for a sample of High-Income, Resource-Rich Countries.**
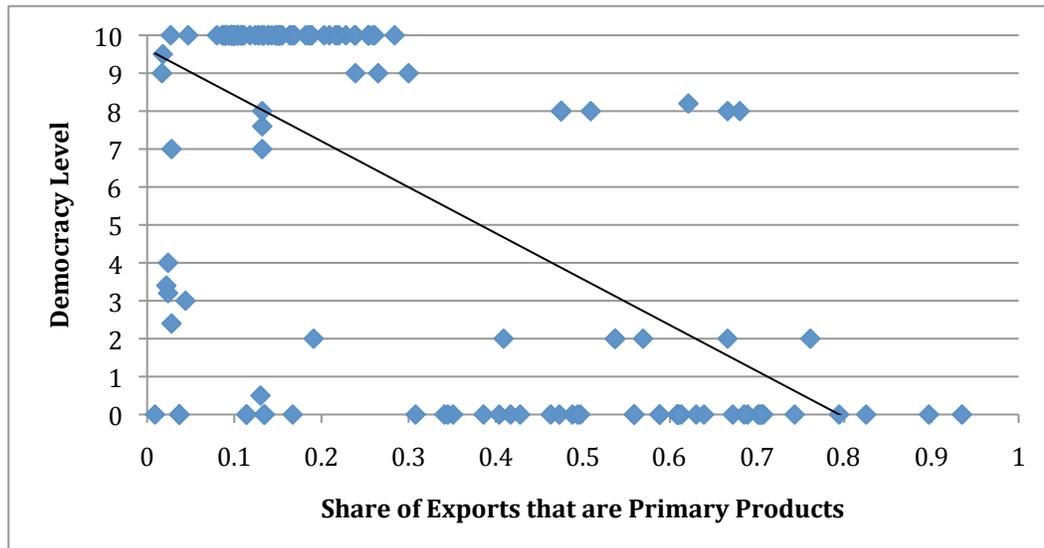
Note: This graph shows observations of democracy level and SXP for a sample of high-income and resource-rich economies. This is a subset of the high-income sample, which excludes all the high-income countries, which have an average SXP value below 0.1 for the 1960-99 period.

Taking a different approach to interpreting the interaction variable, figure 4 shows the effect of increasing SXP by 10% on log of GDP per capita, when the effect of an increase in SXP depends on the level of democratization. This illustrates the statistical result that natural resource abundance holds greater benefits for economic development in less democratic societies. In fact,

in highly democratic societies, an increase in the level of natural resource dependence reduces income per capita. This finding holds true for the sample of developing economies as well as, high-income economies. Thus, autocratic states are more likely to benefit from natural resource dependence than democratic states, as having a large natural resource endowment poses greater problems for countries that have democratic institutions.

Figure 5. The effect on log of GDP of increasing SXP by 10% depends on the level of democratization.
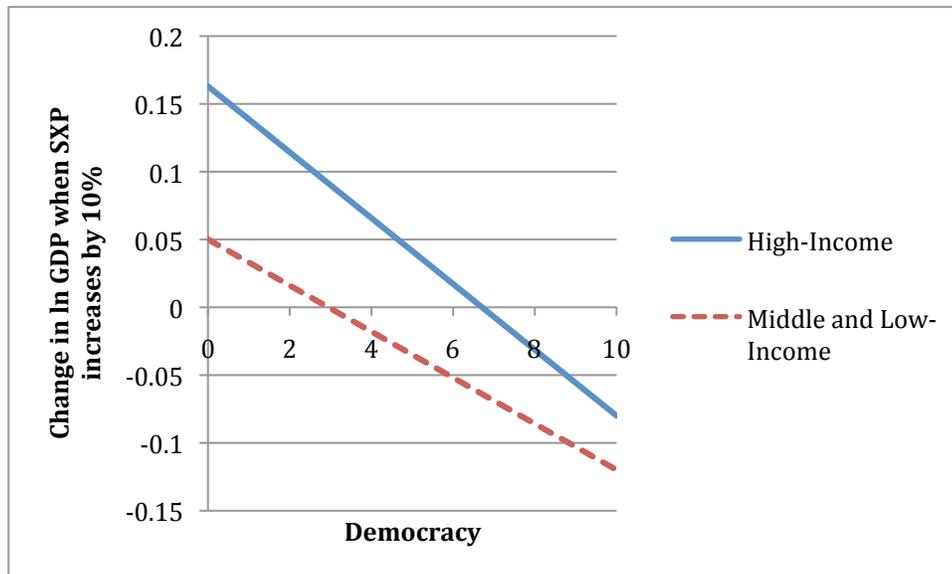
Note: The graph shows the effect on log of GDP of increasing SXP by 10% at various levels of democracy. For the high-income sample this is given by the equation, $\Delta ln\ gdp = \Delta SXP * (1.63 - 0.243 X_{Dem})$, and for the middle and low-income sample, the equation is $\Delta ln\ gdp = \Delta SXP * (0.501 - 0.170 X_{Dem})$.

5. Conclusion

While democratization of institutions is significantly beneficial for economic growth, this holds true only for resource-poor economies. In general, democratic regimes do not utilize natural resources in a way that is conducive for economic development. This finding holds true for countries at high levels of development as well as low. Let us focus on the high-income, resource-rich countries as these may hold some policy lessons for those that have been less successful.

There are countries at both ends of the democratic spectrum in this group, with countries like Norway, Iceland and Canada performing successfully under democratic regimes, and countries like Bahrain, Saudi Arabia and UAE reaching high development levels under autocratic regimes. The success of the above advanced democracies is contradictory to the general trend, where democracy negatively impacts natural resource-dependent countries. The literature largely suggests that this may be the result of a mature and transparent system, which does not allow corruption, bribery and misallocation of resources. Another important point is that high levels of social, political and economic advancement result in general well being, a satisfied citizenry and little unrest. In such conditions, democratization is unlikely to spur factionalism and violent struggles for control of the resources. The results might not be so favorable, however, in more unequal economies.

Thus, it is important to consider that there are other important policies that regimes of resource-rich countries must adopt that are not particular to

either democratic or autocratic regimes. One of these may be the manner in which resource rents are utilized, so that governments that loot rather than invest them in long-term development will prevent economic growth, whether they are democratic or autocratic. Another is the establishment of efficient property rights and laws that will favor the investment and the growth of the private sector. Although these characteristics may exist in any regime, they are generally believed to be closely associated with democratization. Only in the case of such a mature democracy can democratic institutions be beneficial for economic growth in resource-rich countries (Eifert, et al., 2002). As such a polity may take years to develop, marginal steps towards democratization hold little benefits. Instead, they serve to increase instability and opportunities for corruption, so that autocratic regimes are preferable in all cases except for the perfect democracies.

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