Oil... Path to Prosperity or Poverty?
Political Reach and Capacity in Africa
June 2009

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Abstract

Development in Africa is a puzzle and a challenge, one rife with confounding theories and prescriptions for overcoming the challenges of poverty, human development and economic growth. To date, few if any successful efforts have been identified, despite significant infusions of capital, and economic restructuring. The discovery of vast oil resources and the subsequent massive resource inflows realized from oil exploitation have not produced resulted in a better quality of life for the majority of the population. On the contrary, the failure to develop has been so prevalent that has been identified as the resource curse or a paradox of plenty. The general consensus on development has been to increase wealth through resource development or investment and wait for the corresponding growth to translate into increases in human development, a process that has not yet occurred. We address the economic growth/ development question from a unique perspective, identifying the political and economic foundations of both. Utilizing two robust measures of government capacity, relative political extraction and relative political reach, we test the impact of government capacity on economic and human development for the period of 1960 to 2007 across 49 African countries. The cross sectional time series analysis used in this analysis avoids many of the sample driven conclusions noted in other studies. Our findings demonstrate the futility in many current development approaches that neglect the importance of politics in driving improvements in human development. Oil, foreign direct investment, and foreign aid do contribute to the accumulation of economic resources, but without political mobilization and capacity, these economic gains will not be realized in the form of human development.
Introduction

A general consensus on development has emerged in recent years, positing that the fastest route to both economic and human development is through economic growth. In Africa, the vehicles for generating this growth are limited by lack of infrastructure, low levels of education, HIV, and political instability to name a few. Consequently, external resources are deemed critical for most countries in Africa to galvanize economic growth, either through FDI, borrowing, or foreign aid. Discoveries of vast oil resources in Africa appeared to present a solution to the growth and therefore development issue for a number of countries in western and central Africa. Multiple interests including international organizations, multinational corporations and foreign governments are converging to invest in this new “gold rush”. In contrast to a substantial literature on the “resource curse”, the World Bank indicated in late 2007 that this gold rush was accompanied by a turn-around in economic growth in Africa (World Bank 2007). With a third of the global oil discoveries and an anticipated 20% of global production capacity in the next five years, these tremendous oil resources have been touted as the path to prosperity for many African nations (Ghazvinian 2007).

At the same time, the United National Millenium Development Project refocus on abject poverty prompted the reinvigoration of efforts to deal with it in a global context. This project highlights the differences between economic growth and human development; which although intertwined have different goals and cultural implications and long term consequences. In this context, the World Bank has revitalized the original goal of resource transfers of .07% of GDP from the most developed to developing countries as a strategy for eliminating poverty. To date, most OECD countries have failed to realize these goals. More recently, concerns surrounding the 2008 global economic downturn have resulted in diminishing levels of foreign aid, with estimates in declines ranging from between 30-45% for Africa (Mendoza Jones & Vergara 2009; UNCTAD 2009). What will be the effect, if any, of this change in flow of money for economic growth and development?

One of the most perplexing issues surrounding these efforts is a general failure to demonstrate substantial improvements in human development as a consequence of these various efforts at growth. Explanations for this range from a failure to transfer adequate resources, to poor institutional development, to the phenomena referred to as the resource curse or paradox of plenty. However, the fundamental assumption that growth leads to development remains almost unchallenged. The domestic political context in which human development emerges, and in fact the role of politics in both growth and human aspects of development, are typically ignored in the analysis. We remedy this gap in the literature and evaluate two parts of the development puzzle in this chapter. First, we look at the contribution of external resources, oil wealth, and politics to the overall accumulation of wealth within societies. Then we look at these same factors in light of human development. Our findings are striking. Unlike the prevailing literature, we find that the economic growth does not translate into corresponding increases in human development. External resources and oil do in fact prompt growth, but the failure of that growth to translate into increases in the well being of a population is not surprising. We find that first the political mobilization of a population and then the political efficiency of the government are key levers in increasing human development.
This chapter is organized as follows: the initial section reviews existing work on economic growth, investment, oil, and development. The second section tests the relationship between growth, investment and oil. The third and fourth sections examine the relationship between economic and human development and elaborates on the results.

I. Economic Growth, Investment & Oil

Mineral wealth is often considered an asset that opens doors for economic growth and provides opportunities for social development to countries with few development opportunities. Recent discoveries of oil throughout central and western Africa have renewed hopes of generating rapid economic growth and eliminating poverty in large parts of the world’s poorest continent. Africa is relevant for this analysis since one-third of the world's new oil discoveries since the year 2000 have taken place in this continent. “Of the 8 billion barrels of new oil reserves discovered in 2001, 7 billion were found there. In the years between 2005 and 2010, 20 percent of the world's new production capacity is expected to come from Africa.” (Ghazvinian, 2007, p1). Six countries highlighted as important oil producers include Nigeria, Angola, Gabon, Equatorial Guinea, Sao Tome & Principe and more recently Chad and Sudan and new discoveries stretch from additional deposits in Sudan to Ghana, the Congo and Uganda (see Appendix 1, map of Africa.) Therefore, policy makers keep wondering if oil will be the key to a better life for these populations.

A body of empirical literature maintains that countries endowed with mineral resources perform worse than the less “lucky” ones. For instance, Sachs and Warner (1997) report that countries with exports concentrated in the natural resource sector, tended to grow relatively slowly, on average, by about 1 percent per year during the period 1970–1989. Understanding the causes of this empirical regularity has not been that easy. Despite evidence that overall growth occurs with oil exporting African countries, a rich literature has emerged on the existence of the paradox of plenty (Karl 1997) or the notion more commonly referred to as the resource curse (Auty 1993). The paradox of plenty describes the condition in which a country’s economy is characterized by tremendous resource wealth, however this resource wealth does not translate into actual gains for the well being of the population. The resource curse occurs when reliance on exports of a particular non-renewable primary commodity is likely to impede rather than stimulate long term economic growth. The reasons for these limitations on growth include arguments a trade-off between investments in the mineral and other sectors of the economy including agriculture and manufacturing. Compounding this problem is a thesis referred to as Dutch Disease which identifies a tendency for real exchange rates to appreciate overtly in response to positive shocks such as new found natural resources, which in turn lead to a contraction of the tradable sector fostering deindustrialization as a response (Sachs and Warner 1995). Furthermore, national economies become susceptible to boom and bust cycles as a consequence of change in international demand and prices. More politically oriented explanations of this argument include the assessment that governments with weak institutions reroute public investments and instead of investing in human capital gains likely from resource extraction (Ross 2003).

1 See also, Leite and Weidman (1999), Bravo-Ortega and De Gregorio (2001), Auty (1990) and Gelb (1988)
2 Except that conflict seems to be an important variable inversely related with economic growth. A number of works on civil conflict (Collier & Hoeffler 2000; Fearon & Laitin 2002) identify mineral resources as an important explanatory variable in civil conflict arguing that wealth mismanagement and the ability of populations to loot and fund opposition efforts is heightened in this context.
On the other hand, there is a large consensus among economists that economic growth and development are driven by factors that include investment, the accumulation of human capital, and the ability to innovate (Pritchett 2000). A number of insights that have particular relevance for Africa are gleaned from these approaches to economic growth. Differences in rates of growth based on levels of development demonstrate that developed countries evidence slow long term growth, while developing countries are characterized by rapid and volatile changes in growth rates, with huge variations around general trends (Prichett 2000). Historically, developed countries demonstrate that economic growth put to good use facilitates development. If the lessons from developed countries could be easily extrapolated to Africa and economic growth is a panacea for poverty, the story of Africa’s development would have had a quick and happy ending. Instead Africa is characterized by extensive poverty and a lack of institutional development.

Strong institutions that develop over time are often identified as integral to the ability to attract and utilize investments effectively (Rodrick 1999). In Africa in particular, enormous challenges have emerged in the attainment of investment and in the accumulation of human capital. Initially, there have been few reasons for investors to target African countries outside of the acquisition of primary commodities. However, the primary barriers to investment, even in profitable commodities, include poor institutional development, political instability, and nearly non-existent infrastructure. Moreover, poor institutional development in Africa has often been attributed to colonial legacies that have been carried over as post colonial economic models. While this approach did generate some greater degree of growth, a number of countries focused their efforts on primary commodity exports, with changes in international prices and demand dramatically impacting their domestic economies. Countries that have successfully adopted this approach to date seem to be ones that have primarily exported oil, for example Nigeria. It is clear that oil is not the only mineral resource that has impinged on the economic development of Africa.

The discussion above highlights the difficulties in determining if oil and mineral revenues generate improvement in overall quality of life for populations when they are the driving factor in economic growth. Certainly, export oriented growth models enjoy a mixed record, with the Asian “tiger” economies touted as successes, and Latin American countries experiencing a parallel contraction, countries choosing development strategies that rely on primary commodity exports are particularly subject to the boom and bust cycles identified above, among other issues. Despite the difficulties

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3 Ali and Elbadawi (2002) identify two approaches to managing economies under colonial powers: first approaches where populations and industries are subsidized heavily in the hope that they eventually will become efficient (long term colonizers) and those based on an extract and export model (the short term colonizers). Adoption of the first approach by a number of African countries resulted in inefficient industries and social programs that could not be supported in the long term.

4 Twelve of the world’s 25 most mineral dependent states, and six of the most oil dependent, are classified by the World Bank as Highly Indebted Poor Countries. Furthermore, it has been established that oil production is correlated with higher debt and increase in oil exports. Some of the reasons for this correlation are: an increase of direct investments, fiscal irresponsibility and increased volatility of oil prices.


6 A telling example is bauxite production in Caribbean and other small economies, where discoveries of additional bauxite resources coupled with a decline in global demand during the 1970’s was disastrous for countries that had made borrowing and expenditure decisions based on projections of continued growth in bauxite consumption. An additional parallel is the production and exhaustion of phosphorous resources in small island states like Nauru, that enjoyed a period
faced in the establishment of export based economic growth, oil is seen as a panacea for development in a number of African countries. This is based both on the empirical record of successful economic growth for oil producing economies in Africa, and on the notion that oil development can coincide with institutional development that can maintain the process of growth. As a continent, Africa has the highest levels of absolute poverty, the lowest levels of development. Efforts to eliminate poverty through increased education and access to health care have been thwarted by fiscal constraints and minimal infrastructure.

The dilemma in addressing the growth versus development issue in Africa is illustrated by the debate on growth led vs. poverty focused development strategies as better suited in the long run for African countries (Hayami 2003; Thurlow and Wobst 2006). Growth is often identified as the best means in the long run for alleviating poverty; however the distributional effects of wealth and the structure of growth influence the degree of poverty reduction. Oil booms create a massive infusion of capital into societies resulting in tremendous short term economic growth, which is why the World Bank and others identify Africa as in the process of turning around. Figure 1 illustrates the difference in mean GDP per Capita between oil and non oil producing African countries. Oil exporting countries on average have a 17% higher GDP per capita than non oil exporting countries.

Figure 1: Average GDP per Capita: 1960 - 2005

![Average GDP per Capita: 1960 - 2005](image)

We do not argue that oil discovery does not correlate with economic growth but the long term problem is that if growth is not translated into development, those countries will stagnate. Moreover, the pattern of non oil producers in Africa has been slow but steadily positive towards development once the per capita GDP starts taking off. Countries with greater resources have an opportunity to accumulate more wealth and start the process of development earlier but the empirical evidence tells us that this is

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7 GDP per capita data averages are calculated from GDP in 1990 constant dollars. The data are from the Penn World Tables (Summers & Heston 2002) and the World Development Indicators.
not always the case. The assumption that oil is the resource that will bring wealth is also suspicious for many authors. Serious criticism of variable selection and a lack of contextual examination have resulted in a reassessment of whether or not oil resources are likely to bring a boom or bust for Africa in the long term (Bannon & Collier 2003). Furthermore, most recent work on the resource curse has not held up for oil exporting countries (Basedau 2005). A number of scholars are returning to macroeconomic assessments of the possibilities of economic growth by looking at the likely future oil development will have for Africa’s growth, arguing that the increased wealth from oil may allow states to exercise control over populations without relying on tax revenue, but are also likely to facilitate long term investment and growth.⁸ (See Appendix 2, for a comparative table of diverging economic problems and indicators.) By far, the most salient component of recent claims that oil will alleviate many of Africa’s problems rely on the notion that if oil producing countries are able to develop strong or capable institutions, they will be able to adequately manage oil returns and maintain growth. The issue that remains unclear is if this growth translates into development.

Most economists contend that oil is the best chance for poverty reduction in Africa, primarily because it affords countries a massive and immediate acceleration in growth (Basedau 2005). Still others argue that oil exports represent an example of countries with widening poverty gaps, where the overall level of wealth in a country grows while the population becomes poorer (for an extensive overview of this argument see Ross 2003), where countries without the infrastructure to absorb resources, accounting capabilities, or transparency, will lose track of resources, face resource diversion, and are more susceptible to distribution of resources along clientelist or patronage networks. While initial arguments along the lines of resource looting were made in studies of the relationship between oil and conflict (Ross 2003; Collier & Hoeffler 2004), oil has been demonstrated to be a non-lootable resource. Unlike diamonds or precious metals, oil is difficult to transport and contain, particularly in sufficient quantities to make looking profitable. Oil companies provide fairly comprehensive security, and to date, looting of oil resources has been limited to small quantities for private use and would be more appropriately described as pilfering (e.g. Nigeria, where small holes are drilled in existing pipelines, but for energy use at an individual scale for household energy needs).

Not all countries in Africa share in the oil resource wealth. Investment and foreign aid projects are the primary external resources these countries receive. However, as indicated in the preceding section, Africa does not possess many of the attributes required to make investment attractive. For these countries, foreign aid is a primary tool for increasing economic growth. However, foreign aid shares some of the criticisms of other external revenue streams. Foreign aid is often politically driven, and conditioned on either targeted programs or objectives, or even to realize profits for companies from the donor country. A notable example is Japanese foreign aid to small Pacific Island states such as Vanatu or Tuvalu, where foreign aid has been used to construct massive docks to service Japanese fishing fleets. The consequence is little or no real investment in the actual “infrastructure” of these countries in a way that benefits citizens. Foreign aid is also subject to boom and bust cycles, and is often limited or unavailable when it is most needed, for example during economic downturns. A recent study by UNCTAD (2009) identifies contractions in foreign aid that accompany global recessions, up to 40%. Despite the significantly smaller amounts of revenue received through foreign aid compared to oil resources, the same institutional components and constraints impact its effective use.

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⁸ The trends show that oil exporters are performing slightly better than non oil exporters in overall GDP growth, for the last 5.3% compared to 4.8% for total Africa (Jerome 2007).
Institutional Development

Institutional development can comprise an important component of the management of oil revenue windfalls. Many countries in Africa lack the institutions to even absorb, much less distribute the tremendous increases in revenues. Positive examples, such as Botswana’s investment in roads, health care and infrastructure with mining revenues, demonstrate that good institutional development can facilitate the transformation of resource revenues into infrastructure that can assist in long term development goals. Initial evidence demonstrates that institutional development in oil producing countries may also facilitate long term growth efforts.  

Institutional development remains a significant component of a country’s ability to function and attract investment. A number of both economic and political measures are used in order to try to capture the degree institutions have formed (arguably institutions emerge over time as a confluence of historical and cultural influences). Existing measures of institutional performance include measures of corruption (for example the Corruption Perception Index) intended to reflect legitimacy and trust in institutional function, or stability in policy choices (Banks 2002). Institutions also capture the intersection of politics and economics, functioning as well as the existing political structure is able to utilize, maintain and enforce their rules. Essentially, the inclusion of politics has resulted from the general conclusion that there are political constraints on economic growth. Intuitively and theoretically, this is demonstrated by the ability of governments to implement a desired set of policy choices: governments can only implement policies to the degree they either can get consent from a population or can coerce a population. Early and rough measures for institutional development include degree of democratization, policy stability and certainty, and corruption. Each of these approaches runs into the problem that they assume particular forms of government will be superior in terms of implementing policies.

NEXT TO PARAGRAPHS NEED TO BE REWRITTEN FOR BOOK:
An alternate means of measuring institutional development relies on evaluation of the overall capabilities of governments. Relative political extraction measures capture both the juncture of politics and economics and the ability of governments to implement a desired set of policies given a country’s level of development (Organksi and Kugler 1980; Arbetman and Kugler 1997). This measure avoids the normative components assumed in measures based on democracy or western values, and instead assess if a country is able to extract the resources anticipated based on economic endowment.

An additional important assessment of institutional development can be found in the complementary measure of Relative political reach (Arbetman 1990; Arbetman and Kugler 1997), which measures the extent to which the government can mobilize their population by assessing if they are willing to abide by the rules and be part of the official labor sector. Theis measure looks at the size of the work force compared to the average profile of similar countries to gauge the degree of labor activity that occurs outside the purview of the government.

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9 For example, the oil stabilization fund Norway.
10 Contract Intensive Money is often used as an indicator of trust and performance of institutions, as it does indicate willingness of a population to trust enforcement mechanisms and property rights within a given society.
Methodology

This paper proposes two models, one looking at the determinants of economic development and the second looking at the determinants of human developments. The dependent variables are not correlated and do not embody the same outcomes or consequences, especially when referring to distribution of wealth or population wellbeing. Within this paradigm, this paper tests the relationship between oil resources and economic development for a group of 51 African countries for the period from 1960 to 2007. Appendix 3 details the sample and data sources. We use OLS estimation techniques as we have not found serial correlation problems within our data. Appendix 4 reports both the regular OLS, panel corrected estimations and diagnostic statistics.

The two theoretical models we propose, based on the current literature, are:

(1) Economic Development = oil + political extraction + political reach + income flows + error

Where
Economic development = GDP per capita (constant 2000 dollars)
Political extraction = level of rpe
Political Reach = level of rpr
Year = Temporal control
Income flows: Investment = FDI/GDP and Aid = foreign aid per capita
Oil = Oil production in barrels per day

(2) Human Development = oil + political extraction + political reach + income flows +
demographic base + error

Where
Human Development = Infant Mortality Rates
Demographic base = EAP, People of both sexes who furnish the potential supply of labor in the economy

We include controls for investment and for foreign aid, as each of these theoretically and empirically have been identified as critical components in both economic growth and human development.

The Poverty Trap I: Path to Prosperity and…. Penury.

One of the most important issues to note at the outset in the evaluation of these models is that this chapter is not intended to explain economic growth, instead our goal is to evaluate the influence of both internal and external factors on the accumulation of wealth within Africa and the role of these same factors in the distribution of resources throughout a population consequently in overall

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11 Included in the appendix are estimations using panel corrected standard errors, based on the recommendation of Beck & Katz 2003). We find little to no difference in our estimations based on this method and defer to the simpler estimation technique.

12 For operationalization and measurement details, see Appendix 3 and Chapter ???
development. These external and internal factors can more readily be described as external resources and internal political characteristics of a country. Whether or not politics or economics matter more in terms of wealth accumulation is an open and oft debated question, one that is critical to the question of how to develop. Development requires both economic growth and an increase in the quality of life; Africa comprises a development puzzle. Traditional development strategies, including external inflows of resources and increases in overall wealth, fall short of promised development gains for the countries under examination. We approach this puzzle in two ways. First, we evaluate the role of external and internal influences on GDP per capita growth. Then, we look at these same influences and the accumulation of wealth in the context of human development.

In recent decades, oil producing countries in Africa have demonstrated higher GDP per capita growth than non oil producing countries. In our sample, at constant 2000 values, the average oil producing countries GDP per capita is 1328.13, compared to non oil producing countries average of 644.72. Overall GDP per capita rates of differ by 22%, with oil producing countries demonstrating increases of 4.4% contrasted to 3.6% for non oil producers.

Table 1 illustrates the relationship between institutional capabilities and influences on economic growth between oil and non oil producing countries.

Economic Growth Equation: GDP per capita = RPE + RPR + Year + Income Inflows+ Oil Production + Error

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Model 1: Whole Sample</th>
<th>Model 2: Oil Exporters(^{13})</th>
<th>Model 3: Non Oil Exporters</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per Capita</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political Extraction</td>
<td>111.38 (56.00)</td>
<td>343.41 (137.57)</td>
<td>65.65 (43.78)</td>
</tr>
<tr>
<td>Political Reach</td>
<td>177.75 (79.42)</td>
<td>-271.32 (200.23)</td>
<td>331.62*** (59.56)</td>
</tr>
<tr>
<td>Year</td>
<td>6.37 (2.61)</td>
<td>12.46 (7.05)</td>
<td>8.40*** (1.94)</td>
</tr>
<tr>
<td>Investment: FDI</td>
<td>500.46*** (105.31)</td>
<td>299.73 (231.99)</td>
<td>491.56*** (85.66)</td>
</tr>
<tr>
<td>Foreign Aid</td>
<td>3.52*** (0.58)</td>
<td>8.13*** (1.55)</td>
<td>2.09*** (0.42)</td>
</tr>
<tr>
<td>Oil Production</td>
<td>0.92*** (0.06)</td>
<td>0.57*** (0.11)</td>
<td>807.04 (301.05)</td>
</tr>
<tr>
<td>Constant</td>
<td>-1254.39 (5189.52)</td>
<td>-24123.25 (14054.23)</td>
<td>-16812.82*** (3855.03)</td>
</tr>
<tr>
<td>Adjusted R. Sq.</td>
<td>.1649</td>
<td>.1117</td>
<td>.0915</td>
</tr>
<tr>
<td>Sample Size</td>
<td>1529</td>
<td>500</td>
<td>1029</td>
</tr>
</tbody>
</table>

\(^{13}\) Note, we define oil producers as the countries that produce more than 0.2 barrels of oil per day on average
Given the descriptive statistics preceding the results table, our findings are not surprising. In Africa as a whole, high levels of oil production, high levels of foreign aid, and high levels of foreign direct investment are positively related to overall increases in wealth per person. Most countries in Africa do not possess the ability to galvanize their economies with their existing resources, with the exception of countries with high value primary commodities such as oil. Differences emerge when the sample is divided between oil and non oil producers. Non oil producing countries comprise nearly 70% of the sample, with oil producing countries making up the remaining 30%.

In each subsample, the influx of external resources is positive and significantly related to increases in GDP per capita. In oil producing countries, the level of oil production and foreign aid per capita are the most important factors influencing GDP per capita. While it may seem counterintuitive that foreign direct investment is not significant, consider that in oil producing countries foreign direct investment is concentrated in the oil sector and most often only occurs at the onset of oil discovery and during initial infrastructure development and extractive phases. Following the initial production of oil, revenues realized from the oil sector overwhelm foreign direct investment. Equatorial Guinea is a good example; following the 1996 discovery of oil in the country FDI increased dramatically, only to be eclipsed by 1999 and the realization of substantive revenues from oil production. By 2004, Equatorial Guinea ranked third in Africa in terms of crude oil production (Vidal 2008), and the GDP per capita in the country was among the top 10 countries in the world (IMF 2008).

Foreign Aid per capita is also a positive and significant influence on GDP per capita in oil producing countries (with a coefficient of 8.22). Foreign aid is a complement to revenues realized from oil. In long term oil producing countries such as Nigeria, decline in other sectors of the economy such as agriculture and manufacturing accompany growth in the oil sector. This phenomena is detailed extensively in the preceding section of the chapter in the discussion of the resource curse. High levels of foreign aid per capita may assist in offsetting, at least in terms of GDP per capita levels, some of this contraction. A simpler explanation may lie in the politics of foreign aid. Governments make decisions surrounding the transfer of resources to further political objectives, which can include both the goals of securing access to resources and increasing development. Either way, foreign aid comprises an influx of resources into a national economy, increasing the wealth per person.

Political factors are not significant in increasing wealth per person in oil producing countries. However, the level of political reach, or the political mobilization of the country, in non oil producing countries is positive and significant (331.62) in relation to GDP per capita. Most non oil producing countries in Africa can be characterized as existing at very low levels of development. Political mobilization is a critical factor in the accumulation of wealth, and likely a precedent to efficient governments in terms of increasing wealth. In conjunction with external economic resources (FDI and foreign aid), politics plays an important role in increasing wealth per person in 70%, or non oil producing countries, in Africa.

Given these insights, the role of both political and economic influences are important considerations for development in Africa. Figure 2 (below) illustrates the relationship outlined above for non oil producing countries. Political mobilization is a necessary compliment to either FDI or foreign aid in order for increases in GDP per capita to be realized.

Figure 2: Political Capacity and Development
African countries lie primarily in the left hand portion of the distribution illustrated in Figure 2. The critical next question is: what triggers allow countries to escape poverty and increase development? Are the same factors that increase wealth accumulation also critical to increases in human development?

**The Poverty Trap II: Path to Prosperity and…. Penury**

Increase in overall wealth is a key facet for development in poor polities, albeit not a panacea. The ability of a population to realize increases in human development requires more than money. This assertion is more than borne out by discussions of a resource curse, structural adjustment policies and failures, and the continuing failure to observe increases in wealth translate into increases in the well being of populations. Solutions to the development question vary from political to economic, with shifting arguments surrounding everything from institutional development and democratization to economic restructuring, micro-lending and oil stabilization funds.

Given our results in terms of increases of wealth, consideration of the other side of the *paradox of plenty* issue lies in the issue of human development. One of the largest discussions in the resource curse literature lies in redistributive strategies of oil wealth as a mechanism to limit growing poverty and inequities in oil producing countries. The more compelling argument for a relationship between oil and poverty lies in two dimensions: one is that oil allows a small majority to retain power and obtain sufficient resources to quash dissent from a deprived population. Despite a record of reasonable economic growth, Nigeria for periods of time fits this model. In seeking to realize immediate returns from oil profits, countries will become heavily indebted. Countries that are higher credit risks are more likely to receive shorter terms on loans from private, government, and international lenders. In many of these instances, countries did not possess sufficient resources to realize the returns from resource extraction and were saddled with high levels of debt without a means to service it. In others, initial revenues were directed toward debt service, with increased capacity required to generate additional income for the national government. An examination of early oil exporting countries in Africa (Nigeria and Angola both initially financed oil extraction through high
levels of borrowing) also fits this model. Recent oil exploration and development have been based significantly less on borrowing and to a much greater degree on investment.

In order to address the effects of these same variables on human development, or to see if these gains are evident in the well being of the population enjoying oil resources, we need to begin by measuring poverty.

**Measuring Poverty**

Studies of poverty have shifted in recent years from an emphasis on overall wealth and wealth per capita levels to levels of human development or quality of life indicators. The emphasis on morbidity and mortality in populations arguably is more nuanced than one which either looks at the percentage of populations at or below a national poverty rate or at the average wealth per person. Recent efforts to gather more comprehensive data on poverty focus on the extent of populations residing at or near subsistence level. While there are a few wealth based assessments (e.g. the Millenium Development Indicators inclusion of the percent of populations residing at or below a dollar a day), emphasis has shifted to factors that comprise human development in a physical sense, or assess the extent to which the basic needs of a population are met.

Existing measures of quality of life focus on two dimensions: physical and social indicators reflecting a societal total, and/or the experience of life enjoyed by an individual. The first approach relies on objective data, viewing quality of life as something that happens to an individual or as the effect of environmental and other factors on physical reality. This approach evaluates quality of life as a collective unit for a society rather than focusing on the experience of an individual, in other words, quality of life defined in this sense is a multidimensional phenomena rather than an individual human experience. Initial studies of physical quality of life measures in political science are found in Morris’s (1979) book *Measuring the Condition of the World’s Poor: The Physical Quality of Life Index*, subsequently used in studies by Dixon and Moon (1985), London and Williams (1988) and Bradshaw and Tandu (1990). More recent efforts to establish poverty levels that extend beyond annual income include the Human Development Index (UN) and indicators identified as significant as part of the United Nations Millenium Development Project.

Human development measures often include quality of life components that address basic needs in addition to other facets of individual experience. Educational access and completion, access to health care and other services are often identified as important components of human development. There is tremendous overlap between both physical and social indicators of quality of life and indicators of human development. The Millenium Development Project and the United Nations Human Development Index utilize both in evaluating the well being of a population.

Multiple indicators for physical quality of life are difficult to come by, particularly in developing countries due to poor data availability. Indicators that measure basic survival including access to improved water, availability of health care, immunizations, and frequency of disease are difficult to collect in countries with substantial rural populations, or are available only when self reported by countries (often with questionable accuracy, for example literacy rates often appear to be inflated by national governments) or reported by international aid agencies that may only be present in particular parts of a country or for limited duration. An additional obstacle to researchers is the vast differences
in intervals of data collection: indicators such as literacy or infant mortality may be available on a nearly yearly basis, while immunization rates may be reported every five years in some countries and in others sporadically or not at all. The relationship between each of these indicators and other indicators of physical quality of life (for example access to formula and improved water and infant death before age one are probably highly related) compound the measurement problem. Many may indirectly or directly reinforce each other.

For the purposes of our study, we utilize infant mortality levels, as it is both readily available for the duration of the series and highly correlated ($r = .85$) with the Human Development Index. Infant mortality levels are also a better measure than many of the extant measures of physical well being because they capture near immediate influences on the economic well being of populations (where other indicators demonstrate a significant lag in registering) (World Bank Working Paper 36, 2006). Appendix 3 details comparisons between measures of human development and physical well being. (See Appendix 4 for details on measuring human development.)

Equation 2: Human Development & Economic Growth

Infant Mortality = RPE + RPR + Year + Demographic base + Income Inflows + GDP per Capita + Error

Table 2: Estimation

<table>
<thead>
<tr>
<th>Dependent Variable: Infant Mortality</th>
<th>Model 1: Basic Model</th>
<th>Model 2: FDI Control</th>
<th>Model 3: Foreign Aid Control</th>
<th>Model 4: FDI &amp; Foreign Aid Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPE</td>
<td>-4.85*** (1.35)</td>
<td>-5.49*** (1.54)</td>
<td>-5.51** (1.68)</td>
<td>-5.49*** (1.627)</td>
</tr>
<tr>
<td>RPR</td>
<td>-41.39*** (2.43)</td>
<td>-43.51*** (2.73)</td>
<td>-37.14*** (2.94)</td>
<td>-43.00*** (2.99)</td>
</tr>
<tr>
<td>Year</td>
<td>-1.41*** (0.05)</td>
<td>-1.42*** (0.07)</td>
<td>-1.35*** (0.06)</td>
<td>-1.47*** (0.07)</td>
</tr>
<tr>
<td>EAP</td>
<td>123.14*** (7.30)</td>
<td>138.22*** (7.87)</td>
<td>120.73*** (8.57)</td>
<td>140.78*** (8.44)</td>
</tr>
<tr>
<td>FDI</td>
<td>--</td>
<td>3.96 (2.94)</td>
<td>--</td>
<td>3.76 (3.14)</td>
</tr>
<tr>
<td>GDP per Capita</td>
<td>-0.009*** (0.07)</td>
<td>-0.008*** (.0007)</td>
<td>-0.008*** (.0008)</td>
<td>-0.007*** (.0008)</td>
</tr>
<tr>
<td>Aid</td>
<td>--</td>
<td>--</td>
<td>0.01 (0.01)</td>
<td>0.01 (0.01)</td>
</tr>
<tr>
<td>Constant</td>
<td>2876.00*** (103.97)</td>
<td>2904.00*** (144.94)</td>
<td>2773.04*** (126.76)</td>
<td>2985.89*** (155.32)</td>
</tr>
<tr>
<td>R Sq.</td>
<td>.4101</td>
<td>44.64</td>
<td>.3590</td>
<td>.4087</td>
</tr>
</tbody>
</table>

*** = Significant at the .0001 level, N=2381
The most salient and immediately obvious conclusion from these models is that politics is a critical component to development. Much of the extant development literature identifies infusions of external resources as the integral and galvanizing component of development. Across models, we note that political extraction, political reach, and GDP per capita are negative (meaning lower infant mortality rates are related to increases in political capacity and wealth) and significant.

The most substantial influence is the political reach variable, with coefficients consistently in the -41 to -44 range across models. Theoretically, this is very consistent with levels of development in Africa. In order for a government to deliver services and aid to a population, the government needs to be able to distribute, advertise, and generally be relevant in the lives of the population. Governments lacking political reach are unable to provide access or information to a population that can make real differences in the daily lives of the population.

One of the largest challenges in addressing poverty and development challenges in Africa is getting the population to “listen” to the government.

Political Extraction is also negative and significant across models, demonstrating that efficient governments that are able to enact their policy preferences are much more likely to effectively impact development. Essentially, governments need to be both horizontally (reach) and vertically (extraction) capable in order to facilitate development efforts. As posited in the previous section, political mobilization does seem to be a precursor to efficiency, but existing in conjunction is an important part of ameliorating low levels of human development.

Two other issues merit discussion surrounding the development question in Africa: first that the internal characteristics of a country are the most salient issues in development. In addition to the import of politics, two other findings support this. GDP per capita is also negative and significant although the coefficient is tiny; demonstrating that increases in wealth do translate into some small improvements in human development, but not nearly to the degree that political development matters. Second, the size of the economically active population has a significant and positive effect on infant mortality rates. In many ways this makes sense. The larger the population, the more scarce resources and access to services like health care become. Countries trying to maintain or manage development challenges in more populated countries are likely to encounter numerous additional challenges.

External influences on development, foreign aid and FDI, do not have a significant impact on infant mortality rates. Despite the lack of significance, we note that FDI and foreign aid do have positive signs.

In terms of development for Africa, these findings are striking. Increasing economic resources externally is not a solution that will result in measureable differences in the quality of life throughout Africa. The solution to the development puzzle lies in political capacity: first in terms of political mobilization, and then in terms of political efficiency.

Conclusions
Oil has been a blessing and a curse for developing countries. A blessing because economic growth that they are experiencing, gives African countries with oil resources the opportunity to offer better living conditions to their population. The economic challenges for oil and mineral exporters need to be mindful of capitalizing on their good luck making sure that the gains spillover to the rest of the system, while at the same time making sure they avoid problems often found with Dutch Disease.

The curse is that human development improvements are not following the same positive path as economic growth, and in fact that the standard tools used to facilitate growth from external sources seems to make human development worse. It appears that we cannot address human development in a vacuum. Increasing the overall resources per individual is the most important component in increasing human development. For countries that possess these resources, governance becomes incredibly important. Economic development and human development issues require consideration in conjunction with each other. This in part explains the contradictory discussions surrounding the resource curse, and illustrates the challenge in both managing wealth and attempting to escape the trap of poverty. Governance, or political capacity becomes critical when countries are on the precipice of the development trap – those that have a mobilized population are likely to realize real gains, while those that do not are not likely to amass substantial wealth.

There is a bleak side to this picture: without mobilizing the population, countries without resources appear to be growing from a base of economic development that is simply too low to facilitate realizing gains from either aid or investment. These countries are likely to remain in a development trap – evidenced by continued poverty and failing to meet the basic needs of the bulk of the population.
APPENDIX 1: Oil Resources in Africa
(Note, this graphic is from 2002, and excludes additional discoveries in Zambia, Uganda, South Africa, and the Congo).

From www.crs.org
APPENDIX 2

Diverging Economic Problems

<table>
<thead>
<tr>
<th></th>
<th>1998-2004</th>
<th>2005</th>
<th>2006(e)</th>
<th>2007(p)</th>
<th>2008(p)</th>
</tr>
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<tbody>
<tr>
<td><strong>GDP Growth</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Africa</td>
<td>4.0</td>
<td>5.2</td>
<td>6.3</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Net Oil exporters</td>
<td>4.5</td>
<td>5.9</td>
<td>6.0</td>
<td>7.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Net Oil importers</td>
<td>3.6</td>
<td>4.7</td>
<td>5.1</td>
<td>4.7</td>
<td>4.7</td>
</tr>
<tr>
<td><strong>CPI Inflation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Africa</td>
<td>10.0</td>
<td>8.8</td>
<td>9.1</td>
<td>9.2</td>
<td>9.5</td>
</tr>
<tr>
<td>Net Oil exporters</td>
<td>11.6</td>
<td>9.4</td>
<td>5.7</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>Net Oil importers</td>
<td>8.8</td>
<td>8.4</td>
<td>12.0</td>
<td>12.7</td>
<td>12.9</td>
</tr>
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<td><strong>Fiscal Balance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Africa</td>
<td>-2.0</td>
<td>2.4</td>
<td>3.2</td>
<td>2.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Net Oil exporters</td>
<td>-0.8</td>
<td>7.0</td>
<td>8.2</td>
<td>7.3</td>
<td>6.4</td>
</tr>
<tr>
<td>Net Oil importers</td>
<td>-3.1</td>
<td>-1.9</td>
<td>-2.3</td>
<td>-2.2</td>
<td>-2.4</td>
</tr>
<tr>
<td><strong>Trade Balance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Africa</td>
<td>1.8</td>
<td>6.7</td>
<td>7.8</td>
<td>7.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Net Oil exporters</td>
<td>7.5</td>
<td>20.3</td>
<td>21.3</td>
<td>20.6</td>
<td>19.4</td>
</tr>
<tr>
<td>Net Oil importers</td>
<td>-3.4</td>
<td>-6.2</td>
<td>-6.5</td>
<td>-6.2</td>
<td>-6.8</td>
</tr>
</tbody>
</table>

Source: Jerome 2007
APPENDIX 3

SAMPLE, VARIABLES AND DATA SOURCES.

The sample includes 51 Africa Countries for the period 1960 – 2005. Countries that are excluded are Zambia, the Canary Islands.

Variables & Data

GDP per Capita

GDP per capita is measured in constant 1990 dollars. The base series used is from the Penn World Tables (Summers and Heston, 2000). In order to complete the series, overlapping series including the World Development Indicators (1960 – 2005) and National Sources.

RPC Level

RPC is estimated by the actual value of extraction divided by the predicted level of extraction for a given country in a given year. In this case, a regional estimation (including all 45 African countries) for the time period included was estimated using a model for developing countries and omitting the control for oil. For more information on the estimation of RPC, see Organski & Kugler, Arbetman and Kugler(1997), and for the specific data set used Arbetman & Johnson (2007). Source for RPC:

RPR

RPR is estimated by the actual economically active population divided by the predicted economically active population. EAP data is from the ILO, WDI and national sources where data was lacking.

Year

Year is a temporal control.

Oil


Infant Mortality

Infant mortality is the rate per thousand that babies less than a year die. This data is from the World Development Indicators with overlapping series including UNICEF (2005), NCHS (2005), and UNCEA (2004). Where data was lacking we used national sources.
**Investment**

Investment is the ratio of FDI/GDP. The data was obtained from UNTAD (2007), Bennell (2003), the IMF Country Reports/ Statistical Annexes. Where data was lacking we used national sources.

**Foreign Aid**

Foreign aid is foreign aid per capita from the World Development Indicators.
APPENDIX 4

Measuring Human Development

Infant Mortality Rates have a .82 correlation to the Human Development Index published by the United Nations.

Moreover, across measures, patterns of basic needs variance are similar, demonstrated across a few variables in the following factor analysis of the most readily available basic needs indicators for Africa.

Principle Components Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor Loadings</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literacy</td>
<td>-0.95123</td>
<td>0.09516</td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>0.95112</td>
<td>0.09538</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>-0.95250</td>
<td>0.09275</td>
</tr>
<tr>
<td>Birth Rates</td>
<td>0.92465</td>
<td>0.14503</td>
</tr>
<tr>
<td>Fertility Rates</td>
<td>0.95014</td>
<td>0.09724</td>
</tr>
<tr>
<td>Education %</td>
<td>-0.90614</td>
<td>0.17891</td>
</tr>
</tbody>
</table>

**Principle Component Factor Eigenvalues**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Difference</th>
<th>Proportion</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.29554</td>
<td>4.95135</td>
<td>0.8826</td>
<td>0.8826</td>
</tr>
<tr>
<td>2</td>
<td>0.34419</td>
<td>0.13811</td>
<td>0.0574</td>
<td>0.9400</td>
</tr>
<tr>
<td>3</td>
<td>0.20608</td>
<td>0.09386</td>
<td>0.0343</td>
<td>0.9743</td>
</tr>
<tr>
<td>4</td>
<td>0.11222</td>
<td>0.08673</td>
<td>0.0187</td>
<td>0.9930</td>
</tr>
<tr>
<td>5</td>
<td>0.02549</td>
<td>0.00900</td>
<td>0.0042</td>
<td>0.9973</td>
</tr>
<tr>
<td>6</td>
<td>0.01648</td>
<td></td>
<td>0.0027</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

The principle component analysis reveals that it is likely that one factor does (particularly given the 4.9 difference value) determine the pattern of relationships between variables, assuming the uniqueness or variance in measures not captured by the components to be zero. The initial component above has an eigenvalue far larger than the other components, indicating that variance in the data can largely be explained by one component. The substantial drop in the eigenvalue evident in the second component indicates that while there is a possibility of a second significant component, it is likely that components 2 through 6 are sampling noise. This also suggests that the use of any of these variables as proxies is appropriate.
Bibliography


