

Nigeria's Oil Sector and the Poor

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Introduction

Between 1970 and 1999, the Nigerian petroleum industry generated about \$231 billion in rents, or \$1900 for every man, woman, and child. Yet from 1970 to 1999 Nigeria's real income per capita *fell* from \$264 to \$250 a year. Why has Nigeria's remarkable oil wealth has done so little to raise incomes and alleviate poverty?

There have been many important studies of how oil has influenced Nigerian economic and political life. This report draws on both past studies, and recent cross-national studies of mineral-rich countries, to cast light on the political and economic implications of Nigeria's oil wealth.

The first section summarizes the key role that oil has played in Nigeria's economy and politics. Section Two describes five common reasons why mineral wealth fails to alleviate poverty. Section Three examines Nigeria's performance in these five areas, and Section Four compares Nigeria's experience with Indonesia's. Section Five discusses some recent 'beacons of hope' and 'catalysts of change' in the oil sector, and Section Six offers several recommendations for further policy reform.

1. The Role of Oil and Gas in Nigeria's Economy and Governance

It would be difficult to exaggerate the role of oil in the Nigerian economy. Since the first oil price shock in 1974, oil has annually produced over 90 percent of Nigeria's export income. In 2000 Nigeria received 99.6 percent of its export income from oil, making it the world's most oil-dependent country [Tables 1 and 2].

Oil production has also had a profound effect on Nigeria's domestic sector. One way to characterize its impact is by looking at the rents produced by oil – that is, the returns in excess of production costs – in the Nigerian economy. From 1970 to 1999, oil generated almost \$231 billion in rents for the Nigerian economy, in constant 1999 dollars. Since 1974, these rents have constituted between 21 and 48 percent of GDP [Figure 1].

Yet remarkably, these rents have failed to raise Nigerian incomes and done little to reduce poverty. Since 1970, Nigeria's per capita income has fallen by about four percent, in constant dollars [Figure 2]. Although Nigerian poverty rates have never been well-measured, there is little indication that they have declined over the last three decades.

This lack of improvement is striking, given the size of Nigeria's oil windfall. Had each year's oil rents been invested in a fund that yielded just five percent real interest, at the end of 1999 the fund would be worth \$454 billion. If divided among the general population, every man, woman, and child would receive about \$3,750, equivalent to about 15 years of wages.

Oil has also had a deep influence on the Nigerian government. Since the early 1970s, the Nigerian government has annually received over half of its revenues – sometimes as much as 85 percent – directly from the oil sector. These oil revenues are not only large, they are also highly volatile – that is, they can fluctuate drastically in size from year to year, causing the size of government, and the funding of government programs, to fluctuate accordingly. For example, from 1972 to 1975, government spending rose from 8.4 percent to 22.6 percent of GDP; by 1978, it dropped back to 14.2 percent of the economy [World Bank 2002].

Few governments are able to cope with this kind of volatility, and it is not surprising – in retrospect – that the Nigerian government was unable to adhere to wise fiscal policies during the 1970s and 1980s, when oil prices fluctuated sharply. The decentralization of the Nigerian government made sound revenue management even more difficult, since much of the oil revenue has been automatically passed on from the federal government to the state and local governments. The ability of these governments to spend their funds wisely, and limit corruption, has been low.

Nigeria's oil wealth has also led to social and political unrest, particularly in the Niger Delta. The Igbo effort to secede from Nigeria, which led to the 1967-70 civil war, was deeply rooted in ethnic tensions and Nigeria's colonial past; but the rebellion was encouraged by the presence of oil, and hence the belief that independence would be economically beneficial for the Igbo people. Similarly, the unrest among the Ogoni and Ijaw peoples in the Niger Delta can in part be traced to their desire to win a larger share of the region's economic wealth.

If Nigeria's petroleum were soon depleted, these problems might eventually recede into the past. But there is every reason to think that over the next several decades, Nigeria's dependence on petroleum exports will remain exceptionally high; it may even grow. Estimates of Nigeria's proven oil reserves range from 24 billion to 31.5 billion barrels [EIA 2003]; at the current production rate of 2 million barrels a day, these reserves alone would last between 32 and 43 years.¹ Nigeria also has an estimated 124 trillion cubic feet of proven natural gas reserves, the ninth largest such reserve in the world; it is rapidly increasing its capacity to liquefy and export this gas, which will further raise petroleum revenues.

International demand for Nigeria's energy supplies will almost certainly remain strong. World energy demand is projected to rise more than 50 percent over the next two decades; demand for natural gas is expected to rise especially fast [CSIS 2000]. The high quality of Nigeria's oil, and Nigeria's location outside the volatile Persian Gulf, suggest that global demand for Nigerian oil and gas will remain high over the next several decades. While this is good for the Nigerian petroleum sector, it poses major problems for the economy and the government.

2. Oil Wealth and Human Poverty

The problems created by abundant mineral wealth are not unique to Nigeria. Mineral exporters tend to suffer from a cluster of economic and political ailments [Auty 2001]. Recent econometric studies show that states that depend on mineral exports tend to have atypically slow economic growth [Sachs and Warner 1997, 2001; Manzano and Rigobon 2001]; unusually high corruption rates [Sachs and Warner 1999; Leite and Weidemann 1999; Gylfason 2001]; abnormally low rates of democratization [Ross 2001a; Lam and Wantchekon 1999]; and sharply higher risks of civil war [Collier and Hoeffler 1998, 2001; Fearon and Laitin 2003].

¹ The government has announced plans to increase production to 4 million barrels a day, and raise reserves to 40 billion barrels, by 2010. If it achieves these goals – which would entail a large rise in Nigeria's OPEC quota – oil supplies would last until approximately 2036.

In general, the more that states depend on mineral exports, the more likely they are to suffer from these problems. Since Nigeria is remarkably dependent on oil, it has been highly susceptible to these tribulations.

In addition to the ailments above, mineral dependence also tends to aggravate poverty [Ross 2003]. There are five ways that mineral wealth can hurt the poor: by causing economic volatility; by crowding out the manufacturing and agriculture sectors; by heightening inequality; by inducing violent conflict; and by undermining democracy.

2.1 Economic Volatility

Oil wealth can harm the poor by creating economic volatility. Volatility tends to hurt the poor in two ways: by causing macroeconomic shocks, and by making government revenues unstable.

Annex 2 notes that unmanaged external shocks create a number of economic problems, including:

- fiscal and monetary disequilibria and inflation;
- exchange rate appreciation, which can hurt other export sectors;
- lower private investment, and capita flight.

These problems tend to cause greater difficulties for the poor than the general population, since the poor are less able to protect themselves against negative shocks, and to offset their impact when they occur [Sinha and Lipton 1999].

The volatility of the oil sector also produces volatility in government revenues. All oil-rich countries are subject to the same fluctuations in international oil prices. But not all governments are equally dependent on oil as a source of income. The more that a government relies on oil, the greater the impact that oscillations in oil prices will have on the government.

Both negative shocks and positive shocks hurt the quality of government services. Negative shocks cause unexpected interruptions in government programs; long-term projects that require years of sustained government funding and management will be disrupted, perhaps fatally.

The revenues produced by positive shocks tend to be squandered for two closely-linked reasons. First, governments are limited in the rate they can grow while still remaining effective; positive shocks typically produce unhealthy rates of expansion in the size of government, leading to a drop in efficiency, and a rise in corruption and rent-seeking [Ross 2001b].

Second, positive shocks often lead to a fall in the quality of public investments. While growth in the quantity of investment is good, a drop in the quality of these investments can be harmful. In any country, there is a limited number of investments that are prudent, and yield a significant return, at any given moment. A sudden rise in revenues can lead a government to relax its standards for choosing investments, due either to a desire to “speed up” economic growth, or pressures from rent-seeking. With few exceptions, rapid growth in the size of public investments leads to a drop in the quality of these investments, leading to a squandered windfall [Gelb and Associates 1988]. As a result, the investments are squandered, and corruption and rent-seeking increase.

Revenue volatility also shortens the time horizon of all who are influenced by government programs.² This tends to be harmful, regardless of how the revenues are used. Consider the example of political patronage. When patronage is spent by governments with long planning horizons, it is more likely to help the economy and help the poor. In Indonesia and Malaysia (both major oil exporters), patronage has often been used in ways that help the poor, by improving rural infrastructure, and providing health and education facilities in low-income areas. In both of these countries, the planning horizon of government actors has generally been long; hence public officials have been willing to invest in (and maintain) infrastructure projects, and in public goods like education and health, that produce long-term benefits for targeted populations; in return, politicians receive the long-term support of their clients.

Planning horizons are influenced by many factors, among them, the expected flow of future income. Since volatility creates uncertainty about future income, it forces people to adopt a shorter planning horizon – and hence look for short-term benefits. A shorter planning horizon also tends to increase corruption: if actors have no confidence in the stability of government funds, they have a greater incentive to appropriate as much as possible, as quickly as possible, before it disappears.

Finally, revenue volatility may also hurt the poor by causing instability in government policies and institutions. Poverty alleviation depends in part on economic growth, which in turn depends on a stable set of government policies and institutions. Rich and poor alike are more inclined to invest in their future if the government functions they depend on – including policies (such as agricultural support programs) and institutions (such as laws and courts) – are seen as stable. When actors have no confidence that the government’s policies and institutions will function in a predictable way over the next two, three, or five years, they will be less inclined to invest in their own future.

2.2 Crowding Out Manufacturing and Agriculture

As the Drivers of Change Summary Report suggests, economic growth is “pro-poor” when it creates job opportunities for unskilled workers. Oil and gas industries are not themselves pro-poor, since they typically employ few unskilled workers. Manufacturing and agriculture, by contrast, are more ‘pro-poor’ since they tend to produce more low-skill jobs than the petroleum industry [Ravallion and Datt 1996; Bourguignon and Morrisson 1998].

This would matter little if growth in the petroleum sector had a significant multiplier effect, producing growth in other sectors of the economy. Although this issue has not been well-studied, petroleum industries are usually seen as failing to produce growth in other economic sectors [Mayer 1997; DeRosa 1992; Owens and Wood 1997]. One reason may be the enclave nature of oil and gas production: in extreme cases, petroleum can be pumped from offshore platforms into waiting oil tankers, allowing it to leave the country without touching its soil. A second factor may be tariff escalation in high-income countries: the OECD states place higher tariffs on processed petroleum products than crude oil or liquefied natural gas, to protect their own manufacturing firms

² A shorter time horizon is the same as a higher discount rate.

against competition [Table 3]. This tends to inhibit the development of downstream industries that add value to petroleum products.

A large petroleum industry can also *reduce* the number of jobs for the poor by causing the Dutch Disease [Corden and Neary 1982; Neary and van Wijnbergen 1986; Sachs and Warner 2001]. The Dutch Disease occurs when a booming minerals sector raises both the real exchange rate, and the cost of inputs for the manufacturing and agricultural sectors. Both of these effects will raise the price – and hence reduce the international competitiveness – of exports from the manufacturing and agricultural sectors. The net result may be an absolute decline in opportunities for the poor.

2.3 Fostering Inequality

Inequality tends to hurt the poor by reducing the poverty-alleviating effects of subsequent economic growth. According to the World Bank [2001, 55] “when initial inequality is low, growth reduces poverty nearly twice as much as when inequality is high.”

Several studies have found that resource-abundant countries tend to have higher income inequality [Leamer et al. 1999; Spilimbergo et al. 1999]. The reasons are straightforward: typically resource industries generate substantial rents for governments or investors, but employ relatively few workers. The result is greater inequality.

2.4 Undermining Democracy

When governments are democratic, they are more likely to maintain pro-poor policies. Sen [1981] suggests that democracy helps governments avoid famine. According to Przeworski et al. [2000], democracy also tends to reduce infant mortality and improve social welfare by producing greater policy stability. Baum and Lake [2003] find that democracy increases life expectancy in poor states.

Several studies have found that oil wealth tends to make states less democratic [Ross 2001a; Lam and Wantchekon 1999]. This effect works through three mechanisms. First, when a government has abundant oil revenues, it is less likely to impose taxes on the general population; yet the taxation process typically forces governments to become more accountable to their citizens. Conversely, when they are able to keep taxes low, governments find it easier to elude the scrutiny of their citizens [Ross forthcoming].

Second, governments with abundant oil revenues tend to spend heavily on their military forces; by developing a more effective repressive apparatus, they are better able to undermine movements that challenge their authority.

Finally, democracy typically evolves from societies undergoing industrialization. The industrialization process gives rise to a larger, and more influential, urban working class, which tends to make for a more stable and democratic government. Oil development generally does not lead to industrialization; it can even retard industrialization by causing the Dutch Disease. This tends to weaken democracy, which in turn harms the interests of the poor.

2.5 Sparking Violent Conflict

Oil dependence tends to increase the danger of civil war, which poses special dangers for the poor. Collier and Hoeffler [1998, 2002] find that a state’s dependence on primary commodities – particularly oil – sharply raises its civil war risk. Fearon and Laitin [2003] and de Soysa [2002] also find that oil dependence increases the hazard of civil

war. Table 4 lists nine secessionist civil wars in regions that have abundant mineral resources.

Civil wars can hurt people at all economic levels. Yet they often have a ruinous effect on the poor by reducing employment, hindering food production and distribution, constraining access to schools and medical facilities, and forcing people off their land and into refugee camps. Those in middle and upper income groups who have savings, and the ability to emigrate, can better survive than those at the bottom who have neither [Stewart, Humphrey, and Lea 1997].

Most mineral-related insurrections have four common elements. First, before the resource was exploited, people in these regions had a distinct ethnic or religious identity that set them apart from the majority population. Second, they shared a belief that the central government was unfairly appropriating the wealth that belonged to them, and that they would be richer if they were a separate state. Third, in most cases local people bore many of the costs of the extraction process itself – due to land expropriation, environmental damage, and the immigration of labor from other parts of the country. They commonly argue that they have not been sufficiently compensated for these costs.

Finally, the rebellions have been more costly – in lives and money – when the extraction process is susceptible to hold-ups by local peoples. When production is offshore – as in Angola’s Cabinda enclave – the rebel movement finds it difficult to threaten the government by interfering with production. But when oil is onshore, and must be transported through long pipelines, it is easier for rebels to undermine the government, and extort money from oil companies, by sabotaging the pipelines. It is also more likely that governments will take harsh measures to prevent such hold-ups. Recent conflicts in Colombia, Sudan, and Indonesia (Aceh) have all been exacerbated by this dynamic.

It is important to note several characteristics these cases do *not* share: the people in these regions were not necessarily poorer than people elsewhere in the country; moreover, they have sometimes benefited substantially from the development of the mineral industry in their region. The key factor seems to be the belief that secession would make them richer.

The case of Aceh, Indonesia, offers a good illustration.³ In many ways, Aceh – a province on the northern tip of the island of Sumatra – is an unlikely place for a separatist rebellion. Aceh played an important role in throwing off Dutch colonial rule in the 1940s, and establishing the Indonesian republic. Although the Acehnese consider themselves ethnically distinct from the rest of Indonesia’s population, they adhere to the same religion (Islam) and generally speak the national language (Bahasa Indonesia). Aceh had one of the highest rates of economic growth of any province in Indonesia in the 1970s and 1980s; by the late 1990s Aceh was at or above the national average in per capita income, and in most welfare categories.

Yet a secessionist movement was formed in Aceh in 1976, just as a large natural gas facility was beginning its operations. The facility generated a series of local resentments: the site’s construction displaced hundreds of families and several entire villages; the area’s development created a wave of immigration and subsequently an anti-

³ This account draws on Ross [2002], Robinson [1998], Kell [1995].

immigrant backlash; and the discharge of chemicals, plus periodic gas leaks, appeared to cause health problems among locals.

Two factors were exceptionally important in fuelling the rebellion. First was the belief that the jobs and the revenues from the natural gas plant were not being adequately shared with the people of Aceh. This issue was seized upon by the separatist movement, popularly known as GAM (*Gerakan Aceh Merdeka*). GAM propaganda suggested that if independent, the Acehnese would become wealthy like the citizens of Brunei, the tiny oil-rich sultanate on the nearby island of Borneo. The second factor was the random brutality of the government's anti-insurgency campaign, which led to widespread human rights abuses, sowed hatred towards the government, and produced a generation of children determined to avenge the unjust killing of their parents. These two factors helped turn a small and marginal insurgency into a large and popular one.

These essential features – an ethnically distinct population that believes that secession would make them wealthier, and an anti-insurgency campaign that produces new resentments among the targeted population – are repeated in many of the other cases and planted the seeds for a bitter civil war.

3. Oil and Poverty in Nigeria

Data on Nigeria's poverty record over the last several decades is scarce; however, there are strong indications that improvements have been modest at best.

A careful analysis by Ngwafon, Thomas and Canagarajah [1997] found that between 1985-1992, the extremely poor became poorer, but the standard of living for other groups improved. It is important to note, however, that the period covered by the study (1985-92) was one of rising incomes in Nigeria; between 1992 and 2000, however, incomes generally fell. Bevan, Collier, and Gunning [1999, 164] conclude that per capita consumption was lower, and the incidence of poverty was "probably higher," in 1992 than it was in 1950.

Other poverty measures are ambiguous. According to the UNDP, infant mortality dropped by eight percent between 1970 and 2000 [UNDP 2003]; according to the European Commission and the World Bank, it rose by about seven percent between 1965 and 1993 [Wright 1998]. In constant dollars, Nigeria's per capita income rose about 13 percent between 1960 and 2000. Yet all of these gains occurred between 1960 and 1970, when the oil sector was still relatively small. Since 1970, Nigeria's per capita income has fallen by about four percent [Figure 2].

Nigeria's disappointing record in reducing poverty is striking, given the size of the oil sector. Between 1970 and 1999, the Nigerian petroleum industry generated about \$231 billion in rents, or \$1900 for every man, woman, and child, in constant 1999 dollars. The oil sector was also responsible for a sharp rise in the size of the government in the mid 1970s, and a subsequent fall in the size of government in the 1980s.

Why has Nigeria's oil wealth done so little to reduce poverty? To answer this question, I examine Nigeria's performance on the five problems that typically link mineral wealth to poverty: volatility; the crowding out of manufacturing and agriculture; inequality; democracy; and violent conflict.

3.1 Economic Volatility

There has been substantial volatility in both the Nigerian economy, and the revenues accrued by the Nigerian government, due to volatility in international oil markets. This volatility may have harmed the poor through macroeconomic shocks, the reduction of time horizons, and the weakening of government institutions and policies.

The Nigerian government can do little to reduce fluctuations in the international petroleum market. But these external fluctuations are only part of Nigeria's problem; they have been made worse by four additional factors: the Nigerian economy's exceptionally small volume of non-oil exports; the government's heavy reliance on revenues from the oil sector; the federal system of revenue-sharing; and frequent policy changes in the revenue-sharing system.

As Tables 1 and 2 suggest, Nigeria has grown extraordinarily dependent on oil exports: in 2000, 99.7 percent of its export income came from oil, making it the most oil-dependent country in the world. As this implies, Nigeria's non-oil exports were remarkably small. If the export sector were more diversified, the economy would be less affected by fluctuations in international petroleum markets.

The Nigerian government is highly dependent on oil revenues [Figure 3]. Since at least 1981, the government has collected between 56 and 86 percent of its annual revenues from the oil sector; moreover, this dependence has not decreased over time [Udeh 2002]. Because the government has not diversified its revenue base, government revenues tend to fluctuate in tandem with the value of oil exports. This tends to make the government's fiscal policy procyclical: spending rises when the economy is booming and falls when the economy slumps. As a result, government spending exacerbates the impact of oil shocks on the economy.

The problem of volatility is further complicated by Nigeria's system of intergovernmental finance. Nigeria currently has 36 states (plus the federal territory of Abuja) and 774 local governments, all of which receive direct allocations from the federal government according to a constitutionally-mandated formula. Collectively, the states and local governments spend about half of the government's total budget. States have a wide degree of autonomy and have not been required to coordinate their fiscal policies with the central government, making a coordinated fiscal policy – which could potentially offset revenue volatility – very difficult [IMF 2003, 54].

Until April 2002, the central government was able to retain somewhat greater flexibility in managing oil revenues by deducting certain expenses (called “first charges”) before sharing the remainder with state and local governments. The Supreme Court ruled in April 2002 that the deduction of first charges was unconstitutional; this has deprived the central government of one possible revenue-stabilizing tool.

Finally, the volatility in revenues has been compounded by frequent changes in the government's formula for allocating revenues to the states and local governments.⁴ Between 1946 and 2003, the allocation formula was changed at least eighteen times – about once every three years. Some of the major changes include the following:

- Colonial Period (1946-59): While Nigeria was initially administered as a unitary state, the Phillipson Commission (1946) devised a revenue-sharing formula based on the principles of derivation and “even development.” The formula was

⁴ This section is based on IMF 2003; Ahmad and Singh 2003; and Udeh 2002.

subsequently revised by the Hicks-Phillipson (1951-53) and Chick (1953-59) Commissions, adding several new criteria, including need, fiscal autonomy, and national interest.

- Post-independence Period (1959-68): The allocation formula was further revised by three commissions: Raisman (1958), Binns (1964), and Dinns (1968). The new allocation criteria they set were based on the need to maintain continuity of government services, responsibilities of the regional governments, balanced development, derivation, and population (added by decree in 1967).
- Military Rule and Oil Boom (1968-80): The military government recentralized the distribution of oil funds, mainly by decrees issued in 1970, 1971, and 1975. The Aboyade Technical Committee (1977) suggested the establishment of a new mechanism to share all federally-collected revenues with the states and local governments, but its recommendations were rejected by the Constituent Assembly.
- 1980-1999: The Okigbo Commission offered a new approach, rejecting the idea of derivation and advocating an allocation formula for states and local governments based on population, social services, and lump sum transfers to help fund administrative costs. The federal government reinstated the principle of derivation, however, by introducing a special fund for the oil producing areas. Minor changes in the new arrangement were brought about by the Revenue Act of 1982, by decree in 1984, and by the Danjuma Commission in 1989.
- 1999-2003: The 1999 Constitution set a new arrangement for allocating oil revenues among the federal, state, and local governments, while placing a portion in special funds. Ten factors were identified as the basis of transfers to states, including a 13 percent derivation grant. In April 2002 the Supreme Court ruled that the government's attempts to subtract certain costs from all oil revenues before passing them along to the states and local governments was unconstitutional. In October 2002 the National Assembly altered the basis of the derivation grant, raising it from 60 percent of total oil production (the assumed amount of onshore oil) to 100 percent.

It is understandable that in an ethnically-divided country like Nigeria, the division of oil revenues would be strongly contested. However, when the allocation formula is frequently revised it hinders long-term planning and may encourage further rent-seeking, since it informs actors that lobbying for additional changes may be profitable.

3.2 Crowding Out Manufacturing and Agriculture

Growth in the manufacturing and agriculture sectors has followed an erratic pattern and has produced relatively small gains the last two decades. While the oil sector has created obstacles to growth in these sectors, wise government policies could have removed these obstacles and produced a more balanced pattern of growth – as the Indonesian case (below) suggests.

As Figure 4 illustrates, productivity growth in both the agricultural and manufacturing sectors – measured as the annual change in value-added – has been highly variable, particularly before the 1990s. Over the last decade, annual growth in manufacturing value-added has averaged 1.72 percent; growth in agricultural value-added has been somewhat higher, 3.57 percent [Table 5].

The oil boom of the 1970s created difficulties for both agriculture and manufacturing by producing an overvalued exchange rate; this, in turn, made Nigerian agricultural and manufacturing exports less competitive on international markets. The Nigerian government could have devalued exchange rates to support these sectors; it chose not to do so, in part because it feared inflation. The government could have provided further benefits to the non-oil export sector, and simultaneously warded off inflation, by liberalizing its restrictions on trade. Yet Nigerian elites were politically and ideologically opposed to trade liberalization, and the combination of overvalued exchange rates and trade restrictions kept growth in the manufacturing and agricultural sectors low [Bevan, Collier, and Gunning 1999]. Exports from these sectors were further hampered by unfavorable domestic pricing policies, and strong domestic demand [Lukonga 1994].

3.3 Fostering Inequality

Nigeria has one of the highest inequality rates – measured by the gini coefficient – in sub-Saharan Africa [Table 6]. Moreover, inequality apparently rose from the mid-1980s to the late 1990s [Table 7].

The oil sector may have contributed to Nigeria's high inequality rate, although no studies have been done that would support or refute this possibility. Nonetheless, the high and growing inequality rate may reduce the poverty-alleviating effects of future economic growth. This might also be taken into account as the government considers measures to support pro-poor sectors of the economy such as export agriculture and manufacturing.

3.4 Undermining Democracy

Since independence, Nigeria has experienced alternating cycles of democracy and military rule. There may be several ways that the nation's oil wealth has discouraged democracy. It is important to note, however, that other factors may have played an even greater role: democracy tends to be weak and unstable in countries with incomes as low as Nigeria's; and democracy has been uncommon in Africa generally.

One way that Nigeria's oil sector has undermined democracy is by contributing to the weakness of the manufacturing sector. Industrialization tends to strengthen democracy by creating an urban middle class, which in turn offers a stable basis for democratic institutions. As section 3.2 suggests, the oil sector has presented obstacles – obstacles that the government has so far failed to surmount – to growth in the manufacturing sector. Without a stronger middle class, Nigerian society has remained both culturally and economically polarized, a less-than-ideal foundation for democracy.

A second way has been through patronage and tax reductions. Oil-rich governments are commonly able to maintain low tax rates, and use their abundant revenues for patronage, while maintaining low tax rates. These patterns also weaken the basis for democracy by reducing the public demand for accountable government. The

Nigerian government distributes a large fraction of its budget in the form of patronage; it has also eliminated the personal income tax (at the federal level). Although state and local governments have the legal authority to cut patronage and raise taxes on their own, they have insufficient incentives to do so, given the large transfers they receive from the federal government [Forrest 1993; Watts, 1997]

Nigeria has admirably avoided at least one of the ways that oil wealth has often contributed to authoritarian rule elsewhere: by strengthening the military. Nigeria has suffered from a series of military coups, and top military officials have repeatedly been implicated in gargantuan corruption schemes. Yet ironically, the fraction of the government budget that goes to the military has been slightly below average, compared to both African states and non-African states. While some military leaders may have sought (or retained) political power to profit from oil wealth, they apparently did not use this wealth to strengthen the military as an institution.

3.5 Sparking Violent Conflict

Oil wealth has repeatedly contributed to the outbreak of violent conflict in Nigeria, by exacerbating tensions between the oil-rich Southeast – particularly the Niger Delta – and the rest of the country.

The 1967-70 civil war was caused, in part, by ethnic tensions between the Ibo and non-Ibo peoples, which had been mounting since independence. But oil wealth contributed to the conflict: the Delta originally came under the jurisdiction of the Eastern Region, and the belief that an independent Ibo state (Biafra) would prosper may have been influenced by the growing awareness of the scale of the Delta's oil reserves. In 1967, the governor of the Eastern Region, Colonel Ojukwu, authorized his government to collect all oil revenues that originated in the state, instead of allowing them to pass to the federal government. The federal government reacted by creating three new states in the Delta that offered the prospect of greater wealth and autonomy to the region's minority groups. Shortly thereafter, Okwuju proclaimed independence for Biafra, marking the beginning of the war [Watts 1997].

Oil has also played a major role in the recent Delta conflicts. The Delta region contains the key ingredients for an oil-based conflict: it is the source of most of the country's oil; the region is populated by minority groups that have borne a disproportionate share of the costs of oil extraction, and believe they have received inadequate compensation; and the geographical spread of oil platforms, pumping stations, pipelines, and other infrastructure gives local groups ample opportunity to express their dissatisfaction by blocking the extraction process.

The Delta has three additional liabilities, which raise the dangers of conflict further still. First, the incidence of poverty is unusually high. According to a household survey conducted in 1996 by the Federal Office of Statistics, poverty in the south-south region is 58.2 percent, the highest rate in Nigeria; literacy rates, access to health services, and access to safe water are exceptionally low, and unemployment rates are exceptionally high. Second, the Delta's swampy terrain is difficult and expensive to develop, making it harder for the government to satisfy the population by promoting local economic growth and diversification. Finally, the youth-based movements that have challenged the oil companies have also challenged traditional authorities within their own communities; this

means that the aggrieved groups are fractured themselves, creating a “moral social disorder” that makes negotiations more difficult [Annex 3].

Since 1990, the Delta has been the site of much political violence. The demand of local ethnic minorities for a greater share of oil revenues has often been at the center of these conflicts. Most of the violence has involved the Ogoni peoples in Rivers State. The Ogoni include 500,000 people divided into three sub-groups and six clans, living in 111 villages in the northeastern part of the Niger Delta [Watts 1997].

Although oil development began in Ogoniland in 1958, the prospect of violent conflict only arose around 1990 with the rise to prominence of the Movement for the Survival of Ogoni People (MOSOP) and several allied groups that took a more aggressive stance on Ogoni interests. MOSOP’s leaders argued that oil development had led to environmental degradation, health problems, the deterioration of fishing grounds, and a “genocide” against the Ogoni people. In 1990, MOSOP presented an “Ogoni Bill of Rights” to the federal government, including a demand for a “fair share” of the economic resources originating in Ogoniland. Allied groups went further, asserting a right to self-determination and full control over the oil rights in their traditional lands.

In December 1992, MOSOP leaders demanded \$10 billion from the oil firms working in Ogoniland, as well as environmental restoration and other measures; MOSOP threatened to disrupt their operations if firms failed to meet these demands within 30 days. The government responded with a military crackdown. Several months later, violent clashes broke out between the Ogonis and the neighboring Andonis, clashes that the Ogoni believed were instigated by the government [Osaghae 1995]. In 1994, MOSOP’s leader, Ken Saro-Wiwa, and eight others were arrested; in 1995 they were placed on trial and executed.

The death of MOSOP’s leaders, however, has not put an end to dissatisfaction among the Delta minorities, including the Ogoni, the Ijaw, and the Itsekiris. The federal government has made efforts since independence to address poverty in the Delta: first through the Niger Delta Development Board; from 1993 through 1999 through the Oil Minerals Producing and Development Commission (OMPADEC); and since 1999 through the Niger Delta Development Commission. Over the last decade, the federal government has also made a series of financial concessions to the oil-producing regions, under both the Babangida and Obasanjo governments. Yet community demands for greater autonomy, and greater control over oil revenues, have also escalated [Africa Today 2001]; moreover, local groups continue to obstruct the activities of oil firms, in order to press their demands.

4. Indonesia’s Experience with Oil

Although oil wealth may create obstacles to poverty reduction, most of these obstacles can be overcome by sound government policies. The case of Indonesia provides a useful illustration of how a government can increase income and reduce poverty despite the hazards of an oil boom.

In the mid-1960s Nigeria and Indonesia had the same level of real GDP per capita. Over the next three decades, real incomes in Nigeria remained virtually unchanged, while in Indonesia, they quadrupled [Figure 5]. In 1960, the mortality rate of children under the age of five was lower in Nigeria than in Indonesia; by 2000,

Nigeria's rate was three times higher than Indonesia's [Figure 6]. What accounts for Indonesia's greater success?

Both countries received large oil windfalls from the late 1960s to the late 1970s, and both countries squandered much of it on patronage and money-losing public investments. The key difference between the two, however, was the Indonesian government's stronger commitment to developing the non-oil sector – particularly by promoting manufactured exports, and supporting agricultural development. The steady growth of these pro-poor sectors created jobs for low-skill workers and boosted rural incomes; it also diversified Indonesia's export sector, making the economy and government less dependent on oil, and hence, less susceptible to the volatility of the international oil market. As Figure 7 shows, Indonesia's oil dependence has dropped sharply since the early 1980s, while Nigeria's dependence has risen.

The drop in Indonesia's oil dependence was *not* caused by pumping less oil: Figure 8 shows that both Indonesia and Nigeria produce about the same quantity of oil today as they did in the 1970s. It was caused, rather, by a sharp rise in Indonesia's exports of manufactured goods. In 2000, fully 57.1 percent of Indonesia's exports were manufactured goods; in Nigeria, it was just 0.21 percent [Figure 9].

The success of Indonesia's manufacturing sector came about through decades of steady growth, nurtured by a stable environment on fiscal, monetary, exchange rate, and trade policies. While Nigeria experienced brief episodes of growth in its manufacturing sector, these were typically followed by sharp declines, due to political instability, stop-and-go reforms, and a volatile public spending program [Figure 10].

As a fraction of exports, agriculture has fallen in both countries, although it remains significantly higher in Indonesia than Nigeria [Figure 11]. Part of the difference comes from Indonesia's stronger pro-export stance; part of it comes from Indonesia's higher growth in agricultural productivity. Indonesia's support for the agricultural sector included strong public investments, the adoption of green revolution technologies, and a favorable exchange rate policy. Since most of Indonesia's poor rely on agriculture for their subsistence, support for agriculture was a highly effective pro-poor strategy [Bevan, Collier, and Gunning 1999]. From 1962 to 1984, real value added per agricultural worker rose by over 65 percent in Indonesia; in Nigeria, it dropped by about 15 percent [Figure 12]. Since 1984, however, agricultural productivity in Nigeria has been gradually catching up to Indonesian levels.

The success of Indonesia's non-oil sector can be largely attributed to three far-sighted policies. First, the government adopted a rule of fiscal balance. In the 1970s and 1980s, Indonesia generally kept its fiscal deficit around two or three percent of GDP; since 1990, it has kept its budget roughly balanced. Nigeria's budget deficit has been over four percent of GDP for most years since 1975, often substantially higher [IMF 2003, 20].

Second, Indonesia has maintained a competitive exchange rate, frequently devaluing the rupiah and maintaining substantial foreign reserves. As a result, goods produced in Indonesia were competitive on international markets. Moreover, the competitive exchange rate, combined with the commitment to a balanced budget, forced the government to restrain public spending.

By contrast, Nigeria's exchange rate became overvalued during the oil boom of the 1970s, and remained overvalued so the government could fight inflation. The country

was finally forced to devalue the naira in 1986, when slumping oil prices and a stagnant economy led to the depletion of foreign reserves. Nigeria's brief move towards liberalization, however, was not sustained.

Third, Indonesia invested more in primary education [Bevan, Collier, and Gunning 1999]. This reflected the government's longstanding commitment to universal education, and has been reflected in the gains in primary school enrollment [Figure 13]. The Nigerian government made a similar commitment in 1980, but despite important gains it still lags behind Indonesia in enrollment.

5. Catalysts of Change, Beacons of Hope

Since 1999 the Obasanjo government has made major progress towards rectifying many of the oil sector's problems. From afar it is not possible to identify the individuals, or institutions, behind this progress. Yet it is important to record these advances, which provide a 'beacon of hope' for reform, and may catalyze further changes in the oil sector.

The critical improvements include:

- Peacefully resolving boundary disputes over offshore oil rights with neighboring Cameroon, Sao Tome and Principe, and Equatorial Guinea.
- In February 2003, resolving a dispute between the federal government and the littoral states over the division of revenues from offshore development.
- Aggressively moving forward with a plan to end the flaring of natural gas – a practice that was wasteful, environmentally damaging, and was opposed by local communities. In January 2003, President Obasanjo announced that the target date for ending all gas flaring would be moved up to 2004, four years earlier than originally planned.
- Developing the natural gas sector. Nigeria has vast natural gas reserves, which will soon be a major source of income. Natural gas is generally sold through long-term contracts, which tend to reduce the volatility of revenues; natural gas is also more environmentally-friendly than oil. Nigeria currently has three gas liquefaction facilities in operation and two more under construction.
- Upgrading the government's decaying oil refineries, by contracting out their management to private firms. A better refining capacity will both ease domestic gas shortages, and open the door towards more value-added industries.
- Addressing at least some of the demands for greater oil revenues, and faster social development, in the Delta region. The federal government has agreed to allow states to retain 13 percent of the oil revenues derived from their own territories. It also scrapped the much-criticized OMPADEC in 1999, replacing it with the Niger Delta Development Commission.
- Moving away from joint venture contracts and towards production sharing contracts with oil companies. Under joint venture contracts, the Nigerian government must regularly produce funds to help finance exploration, development, and production costs; under production-sharing contracts, these expenses will simply be deducted from the government's oil share. The government had difficulty producing sufficient funds to meet its obligations under joint venture agreements, leaving the oil sector under-financed, and contributing to labor disputes and a poor working environment for oil firms.

- Finally, the government is encouraging the development of offshore – including deep water – oil and gas extraction. By gradually shifting the petroleum industry offshore, the government may be able to reduce oil-related social unrest in the Delta region.

Collectively, these reforms will increase the revenue-generating capacity of the Nigerian petroleum industry, reduce the likelihood of conflict in the oil-producing states, ease tensions between Nigeria and its neighbors, make Nigeria a more attractive environment for international firms, and diminish the volatility of petroleum revenues. All of these reforms are good for the economy and should ultimately benefit the poor.

6. Policy Recommendations

Despite these important reforms, the Nigerian economy and government are almost certain to remain highly dependent on oil for many years to come. This will continue to create obstacles to poverty alleviation. Still, there are four measures the Nigerian government could take to help overcome these obstacles.

6.1 Promote Economic Diversification

The best solution for oil dependence is diversification. When the economy is dependent on a single export sector, it becomes subject to excessive volatility, which hurts the poor. When the government is highly dependent on oil revenues, it will be plagued with corruption and rent-seeking; it will also be harder to consolidate democratic reforms. Again, the poor will suffer.

Ironically, these problems may be best resolved through reforms of the non-oil sector. One strategy would be for Nigeria to adopt the Indonesian approach: diversify the economy by promoting manufacturing and agriculture through public investments and market-friendly reforms. As the non-oil sector grows, the dependence of the government and economy on the oil sector will diminish.

6.2 Reduce the Volatility of Government Oil and Gas Revenues

Regardless of the progress of the non-oil sector, the government will continue to receive sizeable oil and gas revenues for decades to come. These revenues would be less harmful for the government if they were less volatile.

In theory, the government should be able to use its own institutions – such as the Petroleum Trust Fund and the Petroleum Reserve Account – to stabilize its annual revenues. In practice, few governments have been able to manage stabilization funds effectively; as Annex 2 notes, Nigeria’s own record is poor. When times are good, governments typically raid their own stabilization funds and embark on spending sprees. When oil prices drop, there is little money left to buffer the economy or protect the poor [Collier and Gunning 1999]. Due to the frequent failure of these institutions, the ‘conventional wisdom’ in both the World Bank and the IMF is shifting away from the use of specialized petroleum accounts [Davis et al. 2001].

Only a handful of states have successfully used special funds to smooth out their petroleum revenues. One of the rare examples of a success is the U.S. state of Alaska, which set up the “Alaska Permanent Fund” to save a portion of the state’s oil revenues

for future generations.⁵ The plan for the Fund was adopted by voters in a special referendum in 1976; because it was adopted through a popular vote, its basic rules cannot be altered by the governor or the legislature. It is run independently from the government by a special Board of Trustees, and its operations and investments are fully transparent. Each year a fraction of Alaska's oil revenues are transferred to the fund to build up its principal. Between 1976 and 2002, the government received about \$56 billion in oil revenues; the Fund saved about 13 percent of this. Although the principal cannot be touched, a portion of the interest on the principal is returned each year to Alaskan citizens; during the 1990s, this annual 'dividend' was between \$900 and \$1000. Due to careful investment policies, the fund had an annualized rate of return of about 10.2 percent between 1984 and 2002, and should be able to produce a large annual dividend for each Alaskan citizen in perpetuity.

A much simpler option for Nigeria would be for the state-owned National Nigerian Petroleum Company (NNPC) to restructure its contracts with its private sector partners to stabilize government oil revenues. Nigeria's joint venture contracts – as well as the production sharing contracts that are gradually replacing them – are designed so the government can maximize its revenues. But these contracts also exaggerate the volatility of the revenue stream: private firms are guaranteed a steady flow of revenues, while the government tries to capture the fluctuating oil rent.

A better type of contract would place a much higher priority on the stability of the government's revenue stream. Firms, for example, could be offered revenue concessions in exchange for their commitment to provide the government with a flow of revenues whose year-to-year fluctuations remain within a prescribed limit.

Such a contract would be better suited to both parties. Oil firms are typically adept at using oil futures and other derivatives to hedge their risks and smooth out their income. Governments are poorly suited to this task; they should hence be better off with contracts that smooth out their revenues streams – which would help reduce government corruption, create more stable government institutions, and give both government and non-government actors a longer planning horizon.⁶

6.3 Avoid Further Changes to the Derivation Formula

Since 1946 the government has changed its policies on the allocation of oil revenues at least eighteen times, about once every three years. The frequency of these policy changes tends to further shorten the planning horizons of state and local officials. It also creates the impression that the current derivation formula – whatever it is – is temporary, and that

⁵ The Alaska Permanent Fund is designed as a savings fund, not a stabilization fund. But because it can absorb unanticipated windfalls, it tends to smooth out the government's oil revenue.

⁶ The DOC project might usefully commission a study of how the Nigerian government can improve its contractual arrangements to smooth its revenue flows. There are many international experts in the design of petroleum taxes and contracts, a topic that is beyond my expertise. One highly-regarded consultant who has advised both governments and firms, and who has authored some of the standard books on this topic, is Daniel Johnston. His web page (www.danieljohnston.com) describes his background, and his email address is daniel@danieljohnston.com.

state and local actors should therefore continue to lobby for more favorable treatment in the next round of changes.

There is no magic allocation formula that everyone will think is just. The division of oil revenues is a zero-sum game in which every state and local government wants as much as it can get. Getting the derivation formula “right” should be less important than making it stable. The government should hence resist any further changes, and try to make the current – and recently adjusted – derivation formula as stable as possible.

6.4 Establish Greater Transparency

Nigeria has a reputation as one of the world’s most corrupt countries, a reputation that is partly based on oil-related scandals that occurred when Nigeria was under military rule. The Obasanjo government’s task is to signal a clean break with past corruption; if it is successful, it will attract new investment into the non-oil sector that could boost the economy and aid the poor. Deterring future corruption, and restoring public confidence, would help calm public tensions around the distribution of oil funds.

Introducing greater transparency in the government’s accrual and use of oil revenues would constitute an important step towards reducing corruption and establishing greater confidence in the government. It is difficult to formulate specific proposals from afar. It is important to note, however, that the British government has launched an “Extractive Industries Transparency Initiative” designed to encourage oil sector transparency, and may be able to offer useful assistance.

**Table 1: Twenty Most Oil Dependent Countries, 2000
(Fuel Exports as a Percentage of Total Exports)**

1	Nigeria	99.6
2	Algeria	97.2
3	Saudi Arabia	92.1
4	Iran, Islamic Rep.	88.5
5	Venezuela, RB	86.1
6	Azerbaijan	85.1
7	Oman	82.5
8	Turkmenistan	81.0
9	Syrian Arab Republic	76.3
10	Bahrain	71.0
11	Trinidad and Tobago	65.3
12	Norway	63.9
13	Kazakhstan	53.9
14	Russian Federation	51.3
15	Ecuador	49.4
16	Colombia	41.4
17	Papua New Guinea	28.8
18	Indonesia	25.4
19	Australia	21.9
20	Lithuania	20.9

**Table 2: Twenty Most Oil-Dependent Countries
(Fuel Exports as a Percentage of GDP)**

1	Bahrain	50.9
2	Turkmenistan	49.7
3	Nigeria	48.7
4	Saudi Arabia	44.7
5	Trinidad and Tobago	41.1
6	Algeria	35.7
7	Azerbaijan	28.3
8	Kazakhstan	27.0
9	Iran, Islamic Rep.	25.3
10	Norway	23.7
11	Venezuela, RB	22.7
12	Russian Federation	21.5
13	Syrian Arab Republic	19.1
14	Ecuador	17.6
15	Papua New Guinea	14.9
16	Malaysia	10.5
17	Indonesia	10.3
18	Cote d'Ivoire	8.8
19	Lithuania	7.0
20	Colombia	6.6

Table 3: Mean OECD Tariffs on Processed and Unprocessed Petroleum Products

Description	Tariff
Petroleum oils; crude	0.00
Petroleum resins, coumarone, indene or coumarone-indene resins and polyterpenes	7.00
Woven fabrics made from high tenacity yarn of nylon or other polyamides or of polyesters	8.47
Polyethylene (used for grocery bags, shampoo bottles, children's toys, etc.)	6.87
Polymers of vinyl chloride (PVC plastic)	7.52
Polycarbonates (used for light fittings, kitchenware, and CD's)	7.84

Source: UNCTAD-TRAINS database (United Nations Conference on Trade and Development Trade Analysis and Information System); available at <http://www.unctad.org/trains/index.htm>. Consulted June 1, 2001.

Table 4: Mineral Resources and Secessionist Movements

Country	Region	Duration	Resources
Angola	Cabinda	1975-2002	Oil
Burma	Hill tribes	1949-	Tin, gems
Congo, Dem. Rep	Katanga/Shaba	1960-65	Copper
Indonesia	West Papua	1969-	Copper, gold
Indonesia	Aceh	1975-	Natural gas
Morocco	West Sahara	1975-88	Phosphates, Oil
Nigeria	Biafra	1967-70	Oil
Papua New Guinea	Bougainville	1988-	Copper, gold
Sudan	South	1983-	Oil

Table 5: Annual growth manufacturing and agricultural value-added, by decade

Period	Manufacturing	Agriculture
1961-70	14.91	1.77
1971-80	11.48	0.54
1981-90	3.5	2.27
1991-2000	1.72	3.57

Data compiled from World Bank 2002

Table 6: Gini coefficients in Sub-Saharan Africa, 1994-2000

Country	Gini Coefficient	Year Measured
South Africa	59.3	1994
Kenya	57.5	1994
Nigeria	50.56	1997
Niger	50.5	1995
Mali	50.5	1994
Burkina Faso	48.9	1994
Guinea	46.8	1994
Ethiopia	44.2	1996
Senegal	41.2	1994
Mozambique	39.6	1996
Mauritania	38.9	1995
Djibouti	38.1	1996
Cote D'Ivoire	38	1995
Ghana	32.7	1997

Data are taken from Dollar and Kraay 2002

Table 7: Nigerian gini coefficients over time

Year	Gini
1997	50.56
1993	37.47
1992	41.45
1991	45
1986	37.02
1985	38.68

Data taken from Dollar and Kraay 2002

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