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Mineral Wealth and Equitable Development

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Introduction

In theory, new mineral wealth should offer governments a chance to boost economic growth and reduce inequality.¹ In practice, it often leads to economic stagnation, civil conflict, and heightened inequality. To avoid these problems, governments must navigate a complex series of economic, social, and political challenges.

One of the most difficult challenges is deciding how to deal equitably with the regional or local communities where the extraction occurs.² Both the central government and local communities typically claim ownership of the resources, dispute the other side's claims, and have some ability to slow or block projects they dislike. Mineral firms are often caught between the two sides. When these disputes can be resolved, mineral development can proceed; when they cannot – as in Bolivia, Sudan, Indonesia, and Papua New Guinea – the result may be political unrest and violent conflict.

This paper explores the problems and opportunities that governments, firms, and local communities face when they must divide the costs and benefits of a mineral development project. It makes four central arguments:

- Mineral-producing countries have the highest risk of violent conflict when they have low income levels; when they produce oil or other deep-shaft minerals; and when the mineral-rich region is mountainous, lies on the country's periphery, and

¹ I use the term “minerals” here to include oil, gas, and gemstones.

² Of course, mineral-exporting states confront many other challenges. For a good discussion of these, see Gelb and Associates [1988]; Auty [2001]; Ross [1999, 2001]; Stevens [2003].

- harbors people who are ethnically or linguistically distinct from the rest of the country's population;
- Stable democratic institutions can help prevent central-local disputes from becoming violent, but new democracies are often unstable and face high conflict risks;
 - Granting additional rents to the extractive region is often not sufficient to avoid conflict;
 - To avoid violent conflict in the extractive region, governments, firms, and local communities should promote transparency; establish multi-stakeholder dialogues before projects begin; and take special care to protect human rights and security.

The paper proceeds as follows. The first section describes some of the economic and social characteristics of the mineral-producing countries. Section two explains why mineral-producing states tend to have atypically high rates of violent conflict. Section three describes six structural factors that can raise or lower the conflict risk in mineral-exporting states. Section four argues that even in high-risk regions, governments and firms can reduce the conflict risk by promoting transparency, using multi-stakeholder dialogues, and paying special attention to human rights, and security issues. Following a brief conclusion, an Annex briefly describes some of the non-territorial equity challenges that mineral producers face, and why some governments have performed better than others.

1. The Mineral-Producing Countries

One common way to measure the importance of a country's mineral exports is by the value of these exports as a percentage of GDP. In 2000, 53 countries had mineral exports worth more than five percent of GDP; I label these the "mineral dependent" countries.³ About half of these states – 27 of the 53 – had mineral exports worth more than 20 percent GDP; I refer to these as the "high mineral dependence" states, and list them in Table One.

As Table Two shows, the mineral-dependent states are overwhelmingly non-OECD countries. Only one OECD state – Norway – ranked among the top forty mineral-dependent countries in 2000. Most of the mineral-dependent states are found (in descending order) in Sub-Saharan Africa, the Middle East and North Africa, the former Soviet Union, and Latin America. Among the high mineral-dependence states, about forty percent are in the Middle East and North Africa.

Table Three summarizes the economic and social status of 159 sovereign states with populations over 200,000, by their level of mineral dependence. Incomes are somewhat lower among the mineral-dependent states than the non-mineral-dependent states, but not dramatically so. Indeed, the two groups have about the same proportion of highly-indebted poor countries (HIPC). Since 1970, however, growth in the mineral-dependent states – particularly the high mineral-dependence states – has been substantially lower than in the non-mineral dependent states. This pattern is consistent

³ The data are drawn primarily from the World Development Indicators 2002. Missing values were replaced by values from earlier years or from other sources.

with the claims made by Sachs and Warner [1995] and others that a country's dependence on natural resource exports tends to retard GDP growth.

The mean incomes noted in Table Three for the mineral dependent states, however, are somewhat misleading. The mineral-dependent states are a heterogeneous group: they include both countries with high income levels (Bahrain, Qatar, Saudi Arabia, Brunei, Libya) and those with much lower income levels (Congo-Brazzaville, Papua New Guinea, Nigeria, Turkmenistan). In section three, I will highlight this distinction when assessing the risk of violent conflict.

2. Minerals and Geographical Conflict

Since the seminal work of Collier and Hoeffler [1998], many scholars have found evidence that certain measures of mineral production or exports are linked to civil war. Econometric studies by Fearon [2004], Fearon and Laitin [2003], Humphreys [2003], De Soysa [2002], and Collier and Hoeffler [2002) all find that oil-exporting states face a higher risk of civil war than non-oil exporters.⁴

Why should mineral exports be correlated with civil war? Many scholars have sketched out theories that link oil and other minerals to conflict; for the purposes of this study, two are germane.⁵

⁴ For a review of these and similar studies, see Ross [2004].

⁵ Other important arguments linking mineral wealth to civil war include: oil wealth leads to state weakness, which in turn causes civil war [Fearon 2004; Fearon and Laitin 2003]; mineral wealth may encourage foreign intervention, which triggers or exacerbates internal conflict [Ross 2003]; trade shocks, which disproportionately affect commodity exporters, may lead to civil war [Humphreys 2003]; and mineral dependence may reduce a country's level of internal trade, which in turn could diminish the conflict-alleviating

First, sometimes the minerals-conflict link is spurious. Unlike other types of industries, mining is location-specific: firms must go where the minerals are, even if the area is remote or unstable. Manufacturing and service firms tend to stick to countries, and regions of countries, where the infrastructure is good and law and order have been well-established; mineral firms do not have this luxury. Hence we will sometimes find mineral firms working in war-torn regions, even though mineral extraction didn't cause the conflict. For example, some countries with long-running civil wars, like Angola, Algeria, and Liberia, have grown heavily dependent on mineral exports, simply because other types of businesses have been forced to close or relocate to safer countries while mineral firms have stayed behind.

But there are also cases where mineral extraction *does* lead to violent conflict. A second notable reason for the minerals-conflict correlation is that mineral wealth appears to heighten the perception of territorial inequalities, which in turn can cause secessionist movements.⁶ Table Four lists ten cases of violent separatist movements in regions with significant mineral wealth.⁷ In each of these cases, leaders of these movements appeared to believe that mineral rents would raise the benefits, or lower the costs, of attaining independence.⁸ As Collier and Hoeffler [2002] suggest, the 'allure of claiming

properties of commercial interaction [Humphreys 2003]. Also see Le Billon [2001]; Keen [1998?]; Klare [2001]; Switzer [2001].

⁶ On natural resources and inequality, see Easterly 2002; Spilimbaro et al.

⁷ The list may not be exhaustive; it is drawn from Ross (2004), which examines thirteen recent civil wars where there is *prima facie* evidence that natural resources have played a role. In these ten cases, there is at least some indication – usually based on rebel propaganda – that the presence of natural resources was a source of grievance.

⁸ Important ground-level research on the links between mineral wealth and secessionist movements has been carried out in the conflict over the Western Sahara issue in Morocco

ownership of a natural resource discovery' can encourage populations in peripheral regions to establish sovereign states.

One example of a mineral-related secessionist conflict is the rebellion in Indonesia's northwest province of Aceh. The rebel group – widely known as GAM (*Gerakan Aceh Merdeka*, Aceh Freedom Movement) – began in 1976, shortly after the construction of Aceh's enormous natural gas facility. GAM's 1976 "Declaration of Independence" denounced the Indonesian government for stealing Aceh's resource revenues, but it did not criticize the natural gas facility itself, or Mobil (now ExxonMobil), which operates the facility.⁹ One of GAM's first acts was to attack the plant. During the subsequent conflict, GAM propaganda often claimed that if Aceh were independent, and its citizens could appropriate all of Aceh's gas revenues – instead of sharing them with the rest of the country – the Acehnese would become rich. After waxing and waning between 1976 and 1998, the Aceh rebellion broke out into a full-scale civil war in 1999, following Indonesia's economic crisis and the fall of the Suharto regime [Ross 2004].

A second example is the war in the Sudan, which began in 1983 when Sudanese President Numeiry took a series of measures that upset the delicate balance between the

(Hodges 1983), the struggle over Cabinda in Angola (Hodges, 2001), the many independence movements in Burma (Lintner, 1999; Sherman, 2003), the Katanga rebellion in the Democratic Republic of Congo (Gibbs, 1991), the Aceh conflagration in Indonesia (Robinson, 1998; Ross, 2003b), the West Papua independence movement, also in Indonesia (ICG, 2002), the Bougainville rebellion in Papua New Guinea (Wesley-Smith, 1992; Regan, 1998), and the rebellion in the south of Sudan (O'Balance, 2000; Anderson, 1999).

⁹ Indeed, the founder of GAM, Hasan di Tiro, was a businessman who failed in his effort to win a bid for a work contract at the natural gas facility (Robinson 1998).

predominantly Muslim north and the heavily Christian and Animist south. Among these measures was his decision to place newly discovered oil in the country's south under the jurisdiction of the north, and to build an oil refinery in the north instead of the south.

The Sudan People's Liberation Army (SPLA) subsequently complained that the north was stealing the resources of the south, including oil; demanded that work cease on a pipeline to take oil from the south to the refinery in the north; and in February 1984, attacked an oil exploration base, killing three foreign workers and bringing the project to a halt.¹⁰ After two decades of combat, the two sides signed a peace accord in May 2004.

3. Structural Risk Factors

Even when mineral wealth makes secessionist conflict more likely, most of the time mineral extraction does not result in civil violence. This means there must be additional factors that help explain why mineral wealth sometimes, but not all the time, triggers civil wars. Some of these factors are structural – that is, they are major historical, economic, and geographic features of the region that cannot easily be changed by state policies.

Other factors are proximate, and can be readily influenced by the actions of governments, mineral firms, and non-governmental organizations. In this section I discuss six structural factors that – according to recent studies – are associated with a high civil war risk in mineral-dependent states; these factors help identify the countries and regions that face the highest civil war risk. In Section Four, I discuss some of the proximate factors that can alleviate, or exacerbate, the danger of conflict in these high-risk regions.

¹⁰ See O'Ballance 2000 and Anderson 1999.

a. Poverty

Perhaps the most important structural factor is income per capita in the affected country. Several major studies have shown that civil wars are more likely to occur in poor countries than in rich ones [Fearon and Laitin 2003; Collier and Hoeffler 2002]. To illustrate, I have coded the mineral-dependent countries in Table One by conflict levels, using a variable that measures how much political violence each country experienced between 1990 and 2000. The variable draws on a data base that assigns a score from zero to three to each country for each year: zero signifies no violent conflict between the state and any organized political group; one signifies violence that caused fewer than 25 deaths; two signifies violence that caused between 25 and 1000 deaths; and three signifies a conflict that caused over one thousand deaths.¹¹

Figure One is a scatterplot of the 27 high mineral-dependence states that places the “Conflict 1990-2000” variable on the vertical axis, and income per capita in 2000 on the horizontal axis. Note the strong negative relationship between income and conflict: while the wealthy mineral-dependent countries like Norway, Kuwait, and Qatar have avoided civil war, the poor mineral-dependent countries like Angola, Algeria, and Myanmar have been plagued by it. Indeed, no violent conflict occurred at all in mineral-dependent countries with incomes above the level of Trinidad – about \$11,175.

¹¹ The dataset was compiled by the International Peace Research Institute Oslo. I have made two changes to bring the database into conformance with other civil war datasets: I code Yemen as having a civil war in 1994; and I treat the Iraqi invasion of Kuwait as an international conflict rather than a civil war.

Fast economic growth can also reduce the conflict risk. In Indonesia, for example, the Aceh region – a major source of liquefied natural gas (LNG) exports, beginning around 1975 – enjoyed high growth rates throughout the 1970s, 1980s, and early 1990s. Even though the rebel movement periodically attacked government facilities, it was more of a nuisance than a threat to the central government’s authority. This changed dramatically with the onset of the 1997-98 Asian economic crisis, when Aceh’s non-petroleum GDP declined by 5.9 percent in 1998 and 2.9 percent in 1999. The crisis also produced a jump in unemployment and underemployment: in 1998 alone, the number of people in Aceh’s official labor force dropped 37.3 percent. The economic shock was followed by a dramatic rise in GAM’s popular support and military activities [Ross 2003].

b. Terrain

The second factor is terrain: several studies have found a strong correlation between the likelihood of rebellion, and the presence of mountainous terrain. There are several ways to interpret this correlation. Perhaps governments find it harder to control mountainous terrain, enabling rebel movements – which are, at least initially, greatly outnumbered by government troops – to hide and persevere [Collier and Hoeffler 2002; Fearon and Laitin 2003]. Alternatively, mountainous areas might serve as refuges for minority or dissenting groups. The greater risk of conflict in these regions could reflect historical antagonisms between peoples who live in plains and valley, and the minorities that have found protection in the adjacent highlands.

c. Peripheries

The third factor is the location of the extractive region: separatist movements are more common in regions that lie along a country's borders, or are not contiguous with the rest of the country [Le Billon 2001; Fearon and Laitin 2003]. All ten of the mineral-related conflicts listed in Table Four occurred in peripheral regions; three of them (Angola, Indonesia-West Papua, Papua New Guinea) happened in areas that were not contiguous with the rest of the country. Peripheral regions are more likely to harbor people who identify themselves as ethnically or linguistically distinct from the rest of the population. It is also easier for rebel movements in peripheral regions to get funds and weapons, and to protect themselves from government troops, by crossing the border into neighboring states.

d. Prior Regional Identity

The fourth factor is prior identity. Separatist movements may be *encouraged* by mineral wealth, but they do not seem to be *created* by mineral wealth. In each of the ten cases in Table Four, there was a strong sense of regional identity, and at least some interest in independence, before the mineral wealth was discovered or was exploited.

In most cases, this regional identity was rooted in historical or geographic differences from the rest of the country. Cabinda, for example, was governed separately by the Portuguese until 1956; it is also not contiguous with the rest of Angola. Bougainville is geographically closer to the Solomon Islands than New Guinea, and was

not governed as part of colonial New Guinea until 1886. Aceh was an independent sultanate until the end of the 19th century; the rest of Indonesia (then called the Dutch East Indies) had been subdued by the Dutch many decades – even centuries – earlier. The hill tribes of Myanmar had considerable autonomy under British colonial rule, and are ethnically and linguistically distinct from the Burman and Karen peoples of the country's lowlands.

In some cases, the rebellious regions were not originally part of the country whose sovereignty they later rejected: West Papua was under Dutch rule until it was invaded by Indonesia in 1961; Western Sahara was under Spanish rule until 1975, when it was taken over by Morocco (and for a time, Mauritania); and South Yemen was a separate country until 1990, when it peacefully united with North Yemen.

These historical, geographic, and ethnic factors gave people in each of these regions a prior sense of identity that was distinct from – and sometimes, opposed to – the national identity of the country they were annexed to. The presence of mineral wealth added the prospect of great wealth – or perhaps, removed the prospect of great poverty – to the attractions of sovereignty.

e. Political Institutions

There is evidence that stable democratic institutions help countries avoid violent conflicts [Hegre et al. 2001; Muller and Weede 1990].¹² When discontented groups can bring

¹² Not everyone agrees; some studies find that once income is accounted for, political institutions have no measurable effect on the likelihood of civil war. See, for example, Fearon and Laitin (2003); Collier and Hoeffler (2002).

about change through peaceful means, like elections, they may be less likely to resort to violence.

Scotland's movement for political autonomy, which was partly motivated by the value of North Sea oil, provides a good example. Until 1974 there was little support in Scotland for independence or autonomy: in the 1970 general election, the pro-autonomy Scottish National Party received just 11 percent of the Scottish vote, and won a single seat in Parliament. Yet the sharp rise in oil prices in 1973-74 multiplied the value of North Sea oil, and suddenly made Scottish autonomy economically attractive. In the 1974 election, the Scottish National Party adopted the slogan "It's Scotland's Oil"; the party won 30 percent of the Scottish vote, and captured eleven seats [Collier and Hoeffler 2002].

Between 1974 and 1998 there was a steady rise in Scottish nationalist activity. Advocates had both violent and non-violent options. The militant Scottish National Liberation Army was formed in the early 1980s to advance the cause through violence, while others worked through electoral and legislative channels, aligning themselves with the Labour Party. Twenty-four years after the 1974 vote, the peaceful campaign triumphed in 1998 when the British Parliament adopted the Scotland Act, which led to the devolution of considerable powers from London and the opening of Scotland's first Parliament since 1707. The availability of peaceful channels for political change made violent options, like those offered by the Scottish National Liberation Army, less attractive.

The East Malaysian states of Sabah and Sarawak offer another illustration. In the 1960s and 1970s, Sabah and Sarawak were high-risk areas for a separatist rebellion: they were part of a country that, at the time, was relatively poor; their terrain is mountainous; they are separated from West Malaysia by water; most of their populations are ethnically and linguistically distinct from the peoples of West Malaysia; they had markedly different colonial histories from West Malaysia; and they only joined the Malaysian Federation in 1963, six years after the rest of the country had gained independence. Moreover, Sabah and Sarawak's natural resource wealth gave both of them an economic incentive to secede: they have both been major timber exporters, and about half of Malaysia's petroleum exports come from off the shores of the two states, even though the state governments get only a five percent petroleum royalty. If they were independent – like neighboring Brunei – they would reap a large windfall from oil and natural gas revenues.

Yet there has never been a serious independence movement – violent or non-violent – in either state since it joined the Malaysian Federation. One reason is that Malaysia is both a stable democracy and a federal state. Both Sabah and Sarawak have local governments with substantial authority: citizens can express any grievances they have – at both the state and federal levels – through the electoral process; and officeholders have incentives to mitigate these grievances, lest they lose their elected positions.

There are important differences, however, between stable democracies and new ones: new democracies are often unstable, and may raise unrealistic expectations, which

in turn can lead to violence. In 1999, Nigeria transitioned to democratic rule; it also adopted a new constitution that raised the allocation of oil revenues to the oil-rich Niger Delta. Since 1990, the Niger Delta had been marked by confrontations – sometimes violent – between local communities, oil companies, and the federal government over access to oil rents, as well as environmental and human rights issues. At first, democratization and the promise of greater oil revenues had a palliative effect on the region: the number of protests fell sharply in 2001 and 2002 [Lewis 2004]. But in 2003 renewed fighting broke out when one of the Delta communities, the Ijaw, claimed they were not receiving their fair share of oil revenues. The 2003 election did little to resolve the issue: indeed, there were widespread irregularities at polling stations in the Delta.

Table 6 displays public opinion data from three successive Afrobarometer surveys carried out in 2000, 2001, and 2003; it contrasts the responses of Nigerians in the Niger Delta, where oil revenues had risen, with Nigerians from outside the Delta. Despite the infusion of oil revenues, Delta citizens felt their situation had deteriorated – both economically and politically – between 2001 and 2003. Support for Nigeria’s democratic government plunged to very low levels, risking even higher levels of violence.

f. Type of Minerals

The fifth factor is the type of mineral resource. Minerals (and other commodities) can be divided into two groups: “lootable” minerals like alluvial gemstones, which can be easily

extracted by small teams of low-skill workers; and “unlootable” minerals like oil, which can only be extracted with large capital investments and highly-skilled labor.¹³

In the popular media, civil wars are commonly linked to lootable commodities, like diamonds and other gemstones. Between 1990 and 2000, four civil wars were linked to the production of diamonds, and three others were tied to the production of other gemstones; they are listed in Table Five. Yet the most careful analyses suggest that gemstones do not make conflicts more likely to break out, although they may influence the duration of pre-existing conflicts [Fearon 2004a; Humphreys 2003; Ross 2004; Stedman 2001]. In Afghanistan, Angola, Burma, Cambodia, and Liberia, the economic devastation caused by years of armed conflict forced rebel groups to become dependent on gemstone sales: these were among the few remaining products that rebels could use to raise money [Ross 2003 IO].¹⁴

By contrast, unlootable resources like oil, natural gas, copper and gold seem to make the onset of civil war more likely – secessionist wars in particular. Consider once again the list of mineral-related secessionist conflicts in Table Four: in all ten of the conflicts, the separatist movements fought for control of regions with unlootable resources.¹⁵ Also note the gemstone-related conflicts listed in Table Five: six of the seven cases are not separatist wars. Myanmar, which has both lootable and unlootable minerals, is the sole exception.

¹³ The distinction between lootable and unlootable commodities was developed by Collier and Hoeffler (2002) and Le Billon (2001).

¹⁴ A similar pattern seems to hold for opium and coca. See Ross 2003.

¹⁵ In Myanmar, the separatist regions had both lootable (gemstones) and unlootable (tin) minerals.

There are at least two reasons why unlootable minerals, but not lootable minerals, are linked to separatist conflicts. First, separatist movements may thrive on exaggerated claims about the value of the rents. When locals can acquire and trade the resources themselves – as with gemstones – they may have fairly realistic ideas about the economic value of independence. But when the economic value of the resource is harder for local peoples to estimate – as with oil and gas – nascent rebel movements may find it easier to exaggerate the value of the region’s resources, and hence, the value of independence [Collier and Hoeffler 2002].

This argument is well-illustrated by the conflict in Aceh, Indonesia. Since the conflict began in 1976, the rebel movement has made grossly exaggerated claims about the value of the natural gas being extracted from Aceh. In recent years, pro-independence speakers and pamphlets have denounced the “theft” of Aceh’s mineral wealth, and claimed that if independent, Aceh would be as wealthy as Brunei, the oil-rich Islamic sultanate on nearby Borneo. This is misleading: if Aceh were fiscally independent in 1998 and collected all of the revenues from natural gas exports, per capita GDP would have risen by about one-third, to \$1,257. This would still be more than an order of magnitude below Brunei’s 1998 per capita income of \$17,600 [Ross 2004].

The second reason is that the extraction of unlootable resources provides relatively few jobs for local unskilled workers. Because oil, gas, and deep-shaft mineral firms tend to use highly-skilled labor, they employ few local, unskilled workers, and generate relatively little wealth – and hence little popular support – among local

communities. Often they work in enclaves, or in the case of offshore oil, on rigs at sea. Sometimes they employ foreign workers exclusively, or nearly so.

The presence of sequestered mineral firms in poor areas can generate extraordinary resentment among local communities, for their failure to abide by local reciprocity norms. In many traditional agrarian cultures, rich and poor citizens have reciprocal obligations: wealthy members of the community are obliged to provide the poor with jobs, loans, and other forms of assistance; the poor must offer the rich their fealty [Scott 1976, 1985]. Local communities are often obliged to surrender land and water rights to the mineral firm, yet they may get little in return. Mineral firms typically pay little attention to local norms; instead, they focus on their contractual obligations to the central government, and their responsibility to create value for their shareholders. The result may be local resentment against the firm for its violation of community norms.

The extraction of lootable resources, by contrast, entails large amounts of unskilled labor and little capital: for alluvial diamonds, a shovel and a wood-framed metal screen; and for timber, a chainsaw. Local, unskilled workers have innumerable opportunities to find jobs and earn money. Since there are few barriers to entry into the mining business and (at most) modest economies of scale, there are typically many small operations, each with relatively small profits. When a resource is unlootable, the rents will go to the firm and the government; when it is lootable, much of these rents will accrue to local peoples.

4. Averting Conflicts

Even in high-risk settings, there is much that governments, firms, and NGOs can do to avert conflict. While there is no single, foolproof formula for avoiding violent disputes, the likelihood of a conflict can be reduced by promoting transparency; developing a multi-stakeholder dialogue *before* mineral development begins; and paying special attention to security and human rights issues. While sharing rents with the affected region may help, it is generally insufficient to prevent conflict and promote equitable development.

a. *Sharing Rents*

Some might assume that disputes could be avoided if central and local authorities could agree in advance how to divide the rents from mining; or in the absence of any explicit agreement, if the central government made sure that the affected region received a larger share of the rents than other regions. Yet states that have tried these approaches have still been afflicted by violent conflict.

Since Aceh began to produce natural gas in 1976, the Indonesian central government has given the region a disproportionate share of development funds, in hopes of averting pro-independence sentiment. When support for independence began to swell in mid-1999, the government adopted a law granting Aceh 30 percent of net public income from natural gas. In 2001, a new law raised this to 70 percent. None of these arrangements had a measurable impact on the violence.

In Nigeria, the central government has recognized since colonial times that oil-producing regions should receive an extra share of the revenues they generate. The size

of this share has been the subject of constant dispute and negotiation: between 1946 and 2003, the formula for allocating oil revenues to the states was changed eighteen times – about once every three years. The 1999 Constitution established a new arrangement that gave oil-producing states a special “derivation grant” worth 13 percent of the revenues from their region. Unfortunately, this led to violent conflicts among tribal groups for these funds – disrupting both the 2003 elections, and the region’s oil production.

b. Transparency

Rebel groups often make exaggerated claims about the economic gains from independence. Transparency can reduce these misperceptions, and undercut support for rebellion. The more that communities understand about the real costs and benefits of any mineral project – such as how large revenues are typically offset by large risks, and large up-front costs – the less susceptible they will be to false appeals about the advantages of independence.

Transparency also helps restrain government corruption. Mineral-rich governments tend to be highly corrupt [Leite and Weideman 2001; Gylfason 2001]. In 2002, for example, an IMF investigation found that the Angolan government could not account for almost one billion dollars in oil revenue over the previous year; investigations by Global Witness, an NGO based in London, suggest the “missing” revenues may be even larger, and seem to disappear on an annual basis.¹⁶ Higher levels of corruption can only fuel popular discontent with the government: when citizens in peripheral regions

¹⁶ On Global Witness’s investigation into Angolan state finances, see www.globalwitness.org/campaigns/oil/angolagate.php.

believe their money is being stolen, they are more likely to prefer independence. While government corruption cannot be vanquished overnight, it can be reduced through greater transparency.

Several international initiatives are now promoting transparency in the extractive industry. Global Witness, in partnership with other NGOs, has developed a “publish what you pay” campaign whose goal is to make mineral firms disclose all payments they make to host governments. The British government has developed an Extractive Industries Transparency Initiative, which is working with a wide range of governments, companies, and NGOs to promote transparency in mineral-producing states.

One striking example of innovative transparency reforms is in Chad. Chad is one of the world’s poorest countries and faces a high conflict risk, due to its low income and unequal division of resources: while political and military power is held by tribes from the north, oil and agricultural land is occupied by tribal peoples in the south.

Although oil was found in Chad in the early 1950s, the country only recently attracted sufficient investment to exploit it. Following extensive negotiations with the World Bank, the Chadian government adopted the Petroleum Revenue Management Law of 1999. It specifies that all of the country’s oil revenues must be initially deposited in an offshore escrow account; that the account be annually subjected to an independent audit; that the funds be spent according to a strict formula that allocates 80 percent to education, health care, social services, rural development, infrastructure, and environmental and water resource management; that five percent of the royalties go to local communities in the oil-producing region; and that the revenue-allocation process be supervised by a

board that includes both government officials and representatives of labor and human rights NGOs.

The Chadian system has already faced challenges: in 2000, before these revenue controls were in place, Chadian President Idriss Deby used \$4.5 million in oil revenues to buy weapons to fight a rebellion in the northern desert. The Chadian system may also be difficult to replicate: it came about, in part, because of the World Bank's unusually strong position in that country. Still, Chad's transparency arrangements are unusually far-reaching for an impoverished country, and may offer an example for other emerging oil exporters.

c. Multi-stakeholder dialogues

Pouring money into a disaffected region, and offering high levels of transparency, may not be enough to avoid conflict; it is certainly not enough to create equitable development. A credible, ongoing dialogue among stakeholders can also help.

One reason that dialogues might be useful is that they may encourage local communities to forge *ex ante* guidelines for dividing up the rents that will flow to their region. When such agreements are in place, it can reduce the chance that one group or another will eventually feel disadvantaged. Much of the recent conflict over oil revenues in the Niger Delta, for example, is not between local peoples and the government, but among tribal groups – the Ijaw and the Itsekiri – over how to apportion these funds. Once a cycle of violence and retribution begins, it can be extraordinarily difficult to stop. This makes *ex ante* agreements, and working dialogues, valuable.

A second reason is that local communities care about many other aspects of mineral development besides rents, including environmental pollution, the loss or degradation of their lands, the absence of jobs, and the social and economic consequences of migration to their region. Typically these concerns are far easier, and cheaper, to address before mineral development begins than after it is underway.

Ignoring local concerns can create unnecessary problems for both firms and governments. In Ecuador in 1997, several local communities sought a meeting with a subsidiary of Mitsubishi, which had opened a mine in their region; they wished to discuss their concerns about deforestation, soil erosion, and pollution. After they were apparently rebuffed for three days by the mine's management, they removed goods and equipment from the mine site and burned the remains [Switzer 2001].

By contrast, firms that respect community concerns can reduce their security costs substantially. In Papua New Guinea, Placer Dome needed to protect nearly 70 km of electrical cables that provided its Porgera mine with power. Instead of hiring a security company, they were able to protect their cable less expensively simply by paying attention to the needs of communities that lived along the cable's path [Switzer 2001].

A dialogue should not end with a comprehensive agreement, however; it is equally important to have an ongoing forum for resolving problems as they arrive. Mineral-based development always creates problems that local communities cannot anticipate, particularly if the area is poor and isolated. In the Indonesian state of West Papua, for example, Freeport McMoran crafted a 1974 agreement with the indigenous Amungme peoples – a preliterate culture – that offered them schools, clinics, and markets

in exchange for mining rights. Yet within several years, local peoples were engaged in violent confrontations with Freeport: despite placing their thumbprints on the contract, they were wholly unprepared for the consequences of mineral development, which transformed the landscape and raised the local population more than one hundred-fold. A credible, ongoing multi-stakeholder dialogue – instead of a “once and for all” pact, in which one side was grievously uninformed – might have given communities a constructive way to address these issues as they arise.

Well-crafted agreements can also become outdated over the course of a mining project, due to generational changes among local peoples. Between 1968 and 1988, Papua New Guinea’s Panguna copper mine – operated by Bougainville Copper Limited (BCL), which was jointly owned by Rio Tinto and the Papuan government – brought major disruptions to the lives of the people of Bougainville. The mine was located in a region that was unusually poor and remote even by Papuan standards: many locals had had little prior contact with the cash economy. The mine’s social, economic, and environmental impact was pronounced: villages lost their land; thousands of young Papuan men from other islands came to Bougainville, bringing crime and alcohol abuse with them; local rivers became unfit to drink; fish disappeared from most of the tributary system of the Kawerong-Jaba rivers, covering some 480 square kilometers; and hunting and gathering became more difficult, due to pollution and environmental degradation [Polomka 1990; Thompson 1991].

The company provided compensation payments to locals for land it leased or damaged. It also made substantial efforts to contribute to the Bougainville economy: it

instituted training and scholarship programs, which by 1980 produced a workforce that was eighty percent Papuan and thirty percent Bougainvillean; and it helped establish a wide range of local business ventures, some of which proved successful [Wesley-Smith and Ogan 1992]. The development of the mine also led to the construction of roads, expanded access to education and health, and a sharp rise in the cash economy. By the late 1980s, BCL claimed that the Panguna operation directly or indirectly provided incomes to 30,000 of Bougainville's 150,000 people [Carruthers 1990].

Yet community support – or at least, acquiescence – to the project ultimately deteriorated as provisions in the original contract became outdated. When the original lease was signed in 1967, BCL agreed to a compensation package for local landowners; it was later revised many times in favor of the landowners, the local community, and the regional government. By the late 1980s, this arrangement had come under attack by a new generation of Bougainvilleans, who claimed it was unfair for two reasons. First, only primary landholders received BCL compensation, while those who held subsidiary rights – a common practice under traditional tenure systems – received little or nothing [Wesley-Smith and Ogan, 1992]. Second, there were now intergenerational problems: the money for land compensation went to 850 primary landholders and family heads, but their children – who had come of age during the mining lease – had less direct access to these funds. Since many of the island's traditional cultures had strong egalitarian norms, even small degrees of inequality provoked strong reactions.

After several years of non-violent disputes over these issues, a small group of frustrated young men formed the Bougainville Revolutionary Army in late 1988 and

launched a series of attacks on BCL property. By May 1989 they had forced the Panguna mine to close. The ensuing conflict lasted until 1997 and may have claimed over 10,000 lives.

In theory, a dialogue need only include local community leaders and the government, which has formal responsibility for handling these issues. In practice, mineral firms must often play a central role in these dialogues. Firms will be blamed for – and will certainly suffer the costs of – conflicts that break out between locals and the national government; this gives them a strong incentive to find solutions. A 2001 survey found that political instability is a major problem for the mining industry: 78 percent of the firms surveyed said that over the previous five years, political instability – particularly armed conflict – had caused them to refrain or withdraw from otherwise sound investments [Switzer 2001].

Transnational mineral firms can bring important skills to the dialogue process. They have extensive experience with extractive projects, and their many externalities; governments often do not. Mineral firms have long time horizons, executing complex, multi-decade projects; many governments cannot plan beyond the next election. Governments may also have little credibility, in the eyes of affected communities; sometimes it is easier for outsiders, like mineral companies, to negotiate with locals. In apartheid South Africa, where the government was viewed as illegitimate among the majority-black population, BP and Rio Tinto formed direct, bilateral partnerships with local communities.

Some mining firms have used dialogues to find innovative ways to head off conflicts. In the Las Cristinas area in southern Venezuela, Placer Dome has allocated part of its concession to local, artisanal miners, and helped train them in mining techniques and business management. In the Philippines, WMC has helped indigenous communities gain official recognition from the government, so they can obtain royalty payments and legal protection for their ancestral lands [Switzer 2001].

NGOs can also play a key role in these dialogues. Often they have experience in protecting the rights and interests of local communities, which the communities themselves may lack. They may have a level of credibility among local peoples that neither the government nor the mineral firm enjoys; this credibility can be essential to the dialogue's success. NGOs can help administer local development programs that are funded with mining revenues; monitor and sanction the activities of firms, government, and other actors; convene adversarial parties; and provide early warnings about impending conflicts.

d. *Human Rights and Security*

Large-scale mining can lead to conflict when it attracts police and military forces that engage in predatory behavior. In Indonesia, the government has forced many large mineral firms to make regular payments to military forces stationed nearby. These forces often extract payments from others who live or work near the mine site. Occasionally these military units will serve a useful purpose, but much of the time their presence is

simply a pretext for extortion. In several cases, military units may have staged or facilitated attacks on mining firms to extract additional funds.

Even when they refrain from extortion, poorly trained and poorly compensated soldiers and police officers may heighten animosity towards the government and the mining operation. The Indonesian government placed its Military Operations Command (*Kolakops*) for the province of Aceh directly in Lhokseumawe, home of the natural gas facility, instead of in the provincial capital. The large military presence created innumerable tensions in the region. Soldiers assigned to protect the Lhokseumawe facility have periodically been involved in the abduction, torture, and execution of Acehese in neighboring areas, whom they suspect are sympathetic to or associated with GAM. The presence of the military at the facility, and their disregard for human rights, helped spur popular support for the rebels and animosity towards Mobil.

A recent project by BP in West Papua, Indonesia, employs innovative techniques for protecting human rights and avoiding abuses by security forces. West Papua is a high-risk region for mineral development, due to its extreme poverty, mountainous terrain, peripheral location, and sharply distinct culture and history. Indeed, the large copper mine operated by Freeport-McMoran near the town of Timika has been the site of almost constant unrest, in part due to the Indonesian military presence.

To avoid replicating these problems at its new Tangguh natural gas site, BP has engaged in extensive consultations with local communities since the early days of the project. After BP determined that the optimal site for its facilities was near a village of 127 families, it enlisted the World Bank's help in forging a relocation agreement with the

community – along with plans for local hiring, restrictions on immigration, sustainable economic development, cultural preservation, and biodiversity conservation.

BP has also insisted that Indonesian security forces should remain away from the project area; instead, BP is training local Papuans to create a community-based security force. To give its policies greater credibility, BP has sought independent evaluations of its operations: it has carried out an Environmental Impact Assessment, a Human Rights Assessment, and established an independent advisory panel to subject the non-commercial parts of the project to external scrutiny. Both local and international NGOs have played important roles in developing, monitoring, and critiquing the project. When disputes between villagers, BP, and the government have arisen, they have been resolved non-violently, often through dialogue and compromise. BP's goal, according to the company's documents, is to gain "acceptance by the local populace as a responsible, and welcome member of the community; thus eliminating the need for extraordinary efforts by security forces to preserve and protect peoples and facilities."

Conclusion

The mineral-exporting states of the developing world are troubled by economic volatility, corruption, authoritarian rule, and violent conflict. This paper has discussed one facet of this resource curse: the distributional conflicts that commonly arise when resource wealth is unevenly distributed around the country. It summarizes some of the characteristics of the mineral-exporting states; discusses six factors that seem to increase the conflict risk in

these states; and recommends the use of transparency, multi-stakeholder dialogues, and special attention to human rights and security, to help reduce these risks.

The problem of conflict in the mineral-exporting states has global repercussions; it has only recently begun to receive the attention it merits. NGOs have taken lead in publicizing this issue, and have placed the “Publish What You Pay” issue on the global agenda. The British Extractive Industries Transparency Initiative, and the G-8, have also begun to address the issue, while the World Bank – having just completed a two-year review of its policies in the extractive sector – has pledged to support these initiatives. Still, there is much that remains poorly-understood about the resource curse, and many of the problems that face these states remain unaddressed.

Annex: Using Resource Rents to Help the Poor

The policies that help the poor in resource-poor countries – investing in primary and secondary education, sanitation, rural health care, and women’s rights – also help the poor in resource-rich countries. But resource-rich countries face an additional set of challenges, some of them economic and others political.

One key difference between resource-rich and resource-poor states is that in the former, governments have much larger revenues. Large revenues give governments the chance to achieve unusually fast gains in alleviating poverty and reducing inequality. But it also can place exceptional strains on the government, and magnify weaknesses in government institutions.

One result is that the performance of resource-rich countries, with respect to poverty alleviation, is exceptionally varied. Figure 3 plots a country’s mineral dependence against changes in the log of child mortality between 1970 and 2000, a measure of improvements in the condition of the poor. As mineral dependence rises, so does the variance in outcomes. Some of the most successful poverty-reduction records come from mineral-rich states like Oman, Brunei, Chile and Malaysia; some of the worst outcomes are also from mineral-rich states, including Zambia, Angola, Liberia, and Nigeria.

Another special problem for the resource-rich states is excessive volatility. The international prices for primary commodities have generally been more volatile than the prices for manufactured goods. Since 1970, this volatility has grown worse [Reinhart and Wickham 1994]. Economies that are more dependent on minerals exports are hence

more likely to face economic shocks. Export volatility may have distributional consequences, if it produces a shift in assets from those who are less able to anticipate, and guard against shocks, to those who are better able to do so – in other words, from the poor to the rich [Sinha and Lipton 1999].¹⁷

In theory, governments should be able to buffer their economies against these shocks by levying "stabilizing" export taxes and setting up stabilization funds. In practice, government stabilization plans work poorly. When times are good, governments typically raid their own stabilization funds and embark on spending sprees. When commodity prices drop, there is little money left to maintain government services, boost the economy, or protect the poor [Davis et al. 2001; Collier and Gunning 1999]. Hence mineral exports could harm the poor by making growth more volatile, and less likely to alleviate poverty; and by destabilizing the provision of public services, which low-income groups tend to rely on.

Minerals exports may also hurt the poor by crowding out jobs for unskilled or semi-skilled workers. Firms in the extractive sector typically have high capital-to-labor ratios: they generate a lot of revenue but create relatively few jobs. This would matter little if growth in the minerals sector had a significant multiplier effect, producing a diversified pattern of growth. Some studies suggest, however, that linkages between a country's mining sector and the rest of its economy tend to be weak [Mayer 1997; DeRosa 1992; Owens and Wood 1997].

¹⁷ In addition, Ramey and Ramey [1995] find that volatility is linked to slower growth.

What accounts for the weak linkages between minerals sectors and other economic sectors? Owens and Wood [1997] suggest that low skill levels outside the resource sector may inhibit export diversification. Another factor may be the enclave nature of production: offshore platforms, for example, can pump oil directly into waiting oil tankers, allowing it to leave a country's waters without ever touching shore. A third factor might be tariff escalation in high-income countries: the OECD states place higher tariffs on processed goods than on raw materials, to protect their own manufacturing firms against competition [Ross 2001b]. This may inhibit value-added processing in the mineral-exporting states.

Crowding-out may also occur through the Dutch Disease, if a booming minerals sector leads to an appreciation in the real exchange rate and the real wage rate; this in turn will reduce the international competitiveness of the country's agricultural and manufacturing exports, and potentially, reduce employment in these sectors [Corden and Neary 1982]. Both low-wage manufacturing and agriculture offer unusually good opportunities for the poor to generate income and savings [World Bank 2001; Ravallion and Datt 1996; Bourguignon and Morrisson 1998]. If growth in the minerals sector – where opportunities for the poor are limited – produces stagnation in the manufacturing and agricultural sectors – where opportunities are abundant – the poor may be harmed.

This crowding-out effect may help explain the grim performance of the Nigerian economy, where incomes fell, and the incidence of poverty almost certainly rose, between 1970 and 2000 [Ross 2003]. A sharp rise in petroleum exports in the 1960s and early 1970s led to an overvaluation of the exchange rate; the government was reluctant to

devalue the currency due to fear of inflation [Bevan, Collier, and Gunning 1999]. The overvaluation of the exchange rate, however, virtually extinguished both agricultural and manufacturing exports in the mid-1970s; by 2000, neither sector had revived [Figure 4].

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Table One: Countries Ranked by Mineral Dependence, 2000

| Rank | Country | Mineral Dependence | Conflict 1990-2000 |
|-------------|----------------------|---------------------------|---------------------------|
| 1 | Bahrain | 63.44 | 0 |
| 2 | Qatar | 53.37 | 0 |
| 3 | Turkmenistan | 49.91 | 0 |
| 4 | Gabon | 48.83 | 0 |
| 5 | Nigeria | 48.75 | 3 |
| 6 | Saudi Arabia | 44.74 | 0 |
| 7 | Papua New Guinea | 41.52 | 0 |
| 8 | Trinidad and Tobago | 41.16 | 0 |
| 9 | Congo, Rep. | 41.07 | 9 |
| 10 | Brunei | 37.65 | 0 |
| 11 | Kazakhstan | 36.11 | 0 |
| 12 | Libya | 35.91 | 3 |
| 13 | Algeria | 35.75 | 27 |
| 14 | Botswana | 35.10 | 0 |
| 15 | Kuwait | 32.41 | 3 |
| 16 | Azerbaijan | 28.83 | 9 |
| 17 | Angola | 27.88 | 74 |
| 18 | Zambia | 27.12 | 0 |
| 19 | Liberia | 26.76 | 14 |
| 20 | Norway | 25.97 | 0 |
| 21 | Oman | 25.65 | 0 |
| 22 | Iran, Islamic Rep. | 25.55 | 42 |
| 23 | Mongolia | 25.45 | 0 |
| 24 | Russian Federation | 25.38 | 15 |
| 25 | Venezuela, RB | 23.54 | 0 |
| 26 | Yemen, Rep. | 22.32 | 2 |
| 27 | United Arab Emirates | 22.13 | 0 |

Table Two: States by Region and Mineral Dependence, 2000

| | Non-Mineral Dependent (<5) | Mineral Dependent (>5) | High Mineral Dependence (>20) |
|---------------------------|--|--------------------------------------|---|
| OECD | 19 | 4 | 1 |
| Latin America | 18 | 8 | 2 |
| Sub-Saharan Africa | 30 | 14 | 7 |
| Mid East/N Africa | 8 | 11 | 10 |
| Asia | 10 | 4 | 2 |
| Former Soviet | 2 | 9 | 4 |
| Other | 20 | 3 | 1 |
| Total | 106 | 53 | 27 |

Table Three: States by Mineral Dependence, 2000

| | Non-Mineral Dependent (<5) | Mineral Dependent (>5) | High Mineral Dependence (>20) |
|--|--|--------------------------------------|---|
| Income per capita 2000 (1995 Constant \$) | 8580 | 7698 | 8278 |
| Mean Annual GDP Growth (%) 1970-2000 | 3.29 | 2.69 | 2.63 |
| HIPC Countries | 27 | 13 | 5 |
| Mean Conflict Level, 1990-2000 | 4.51 | 4.09 | 4.81 |

Figure One: Income and Conflict in High Mineral-Dependence States, 1990-2000

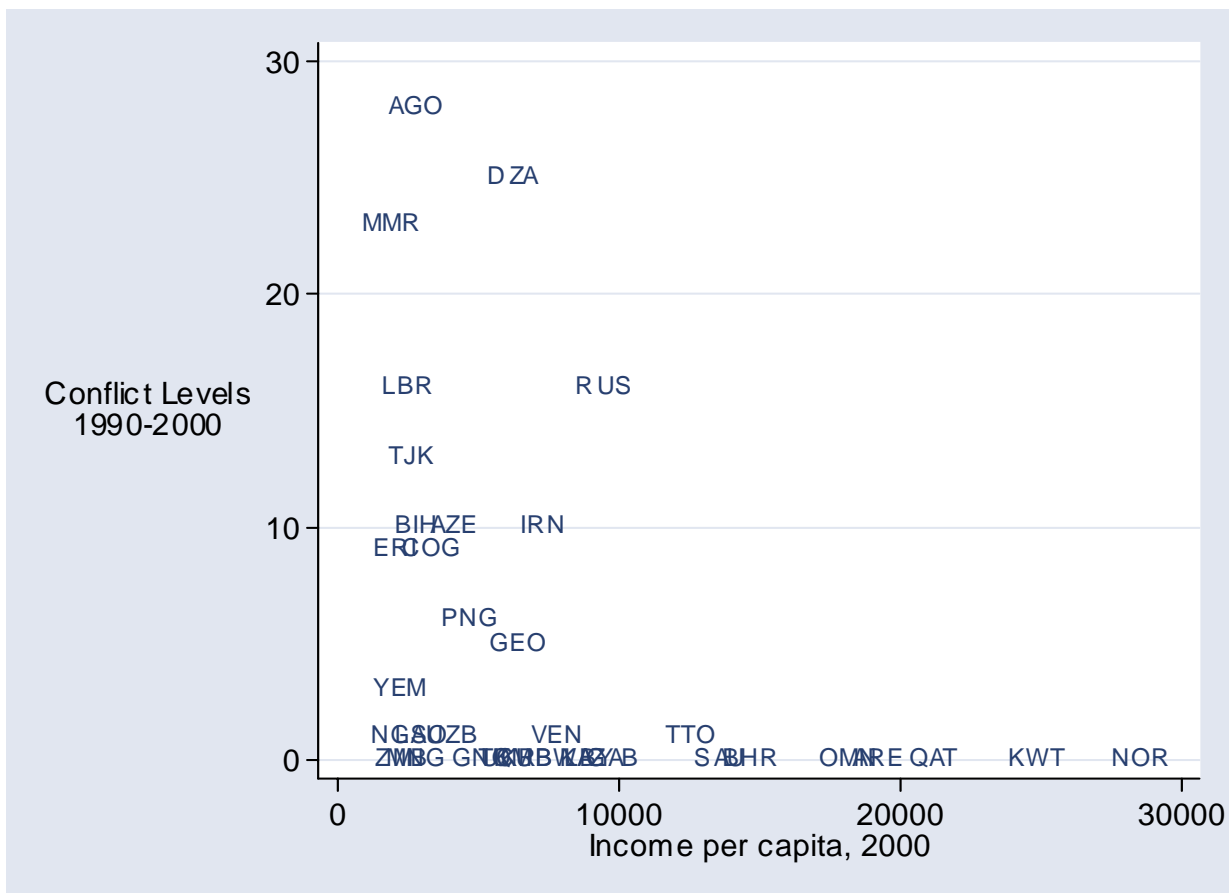


Table Four: Mineral Resources and Secessionist Movements

| Country | Region | Duration | Mineral Resources |
|------------------|----------------|-----------------|--------------------------|
| Angola | Cabinda | 1975-2002 | Oil |
| 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 |
| Myanmar | Hill tribes | 1983-95 | Tin, gems |
| Nigeria | Biafra | 1967-70 | Oil |
| Papua New Guinea | Bougainville | 1988-97 | Copper, gold |
| Sudan | South | 1983- | Oil |
| Yemen | East and South | 1994 | Oil |

Table Five: Civil Wars Linked to “Lootable” Minerals, 1990-2000

| Country | Duration | Mineral Resources |
|------------------|-----------------|--------------------------|
| Afghanistan | 1992-2001 | Lapis Lazuli |
| Angola | 1975-2002 | Diamonds |
| Cambodia | 1978-97 | Rubies |
| Congo, Dem. Rep. | 1996-99 | Diamonds, Coltan |
| Liberia | 1989-96 | Diamonds |
| Myanmar | 1983-95 | Gemstones |
| Sierra Leone | 1991-2000 | Diamonds |

Figure 2: Conflict and Population Levels among High Mineral-Dependent States

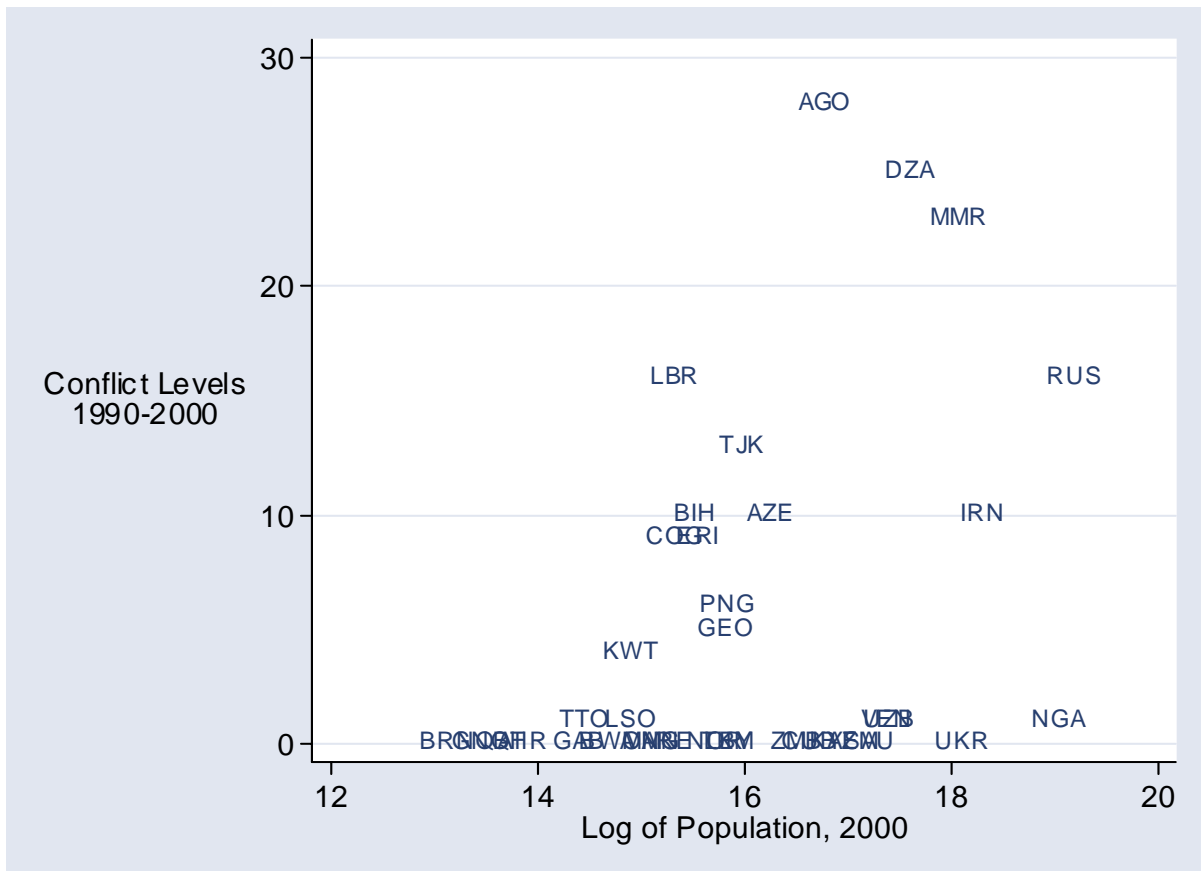


Table 6: Public Opinion in Nigeria

| | 2000 | 2001 | 2003 |
|--|-------------|-------------|-------------|
| <i>“Are [your group’s] economic conditions worse, the same, or better than other groups in this country?”</i> (% saying worse/much worse) | | | |
| Niger Delta | 13 | 33 | 60 |
| Other Nigerians | 12 | 39 | 31 |
| <i>“Overall, how satisfied are you with the way democracy works in Nigeria?”</i> (% saying fairly/very satisfied) | | | |
| Niger Delta | 84 | 47 | 13 |
| Other Nigerians | 84 | 57 | 37 |
| <i>Is “the ability of ordinary people to influence what government does” better now than under military rule?</i> (% saying better/much better) | | | |
| Niger Delta | 63 | 56 | 17 |
| Other Nigerians | 67 | 61 | 43 |

Source: Lewis [2004]

Figure 3: Mineral Dependence and Changes in Child Mortality 1970-2000

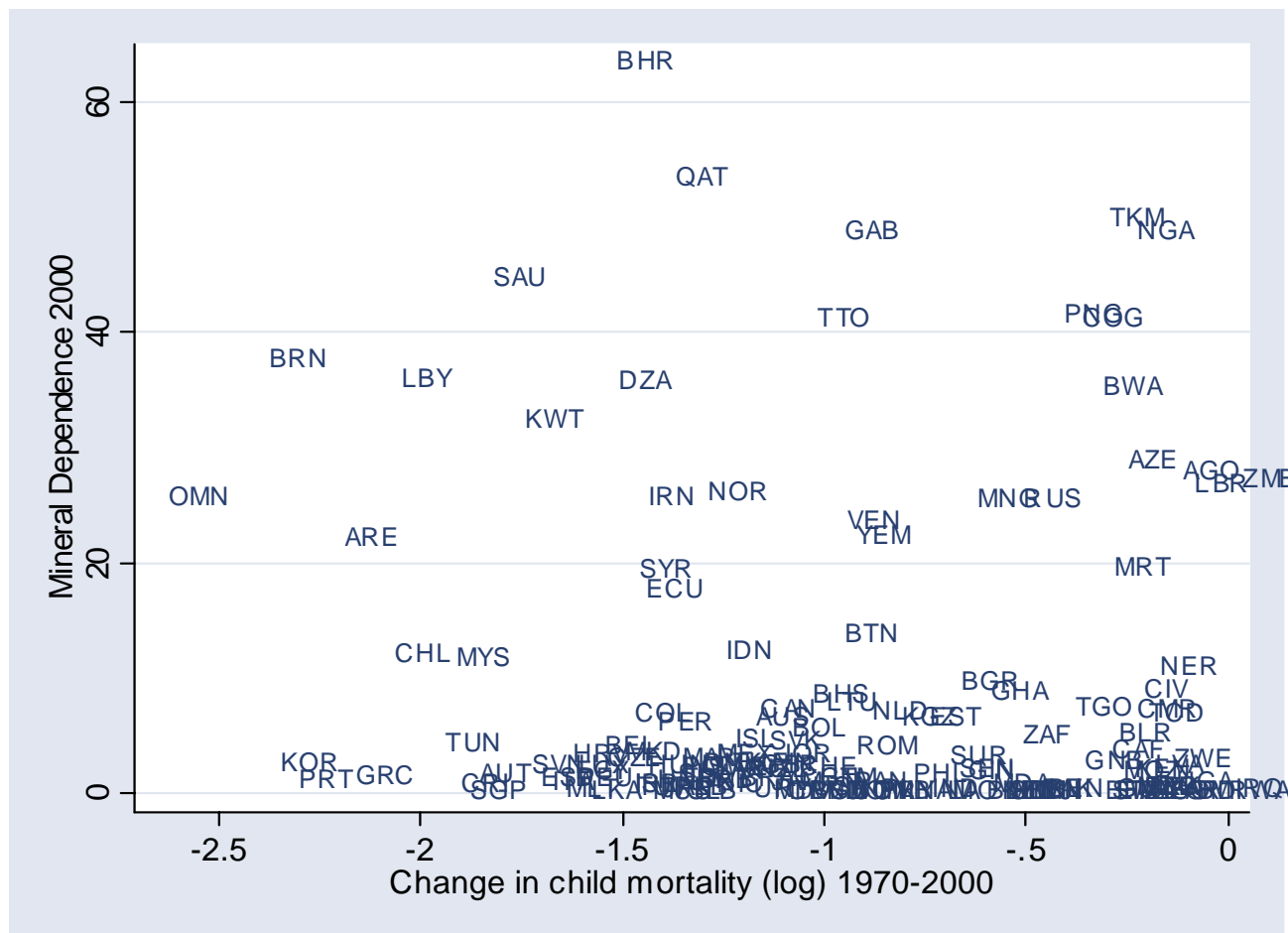


Figure 4: Nigerian Exports by Sector, 1962-2000

