

# Where Did Africa's Resource Curse Go?



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## Introduction

Are sub-Saharan Africa's abundant mineral and fuel resources undermining prospects for development in the region? An influential body of research asserts that natural resources curse the countries that possess them with a host of undesirable outcomes — from economic stagnation, to authoritarian rule, to violent conflict. Africa is no stranger to these maladies. With international commodity prices booming, its dependence on resource exports is unlikely to diminish anytime soon. Is Africa suffering from a resource curse?

Proponents of the resource curse hypothesis identify several channels through which natural resources may harm development.<sup>1</sup> In the economic sphere, lucrative natural resources attract attention and assets from other sectors with greater long-term growth potential. In the political sphere, the effects of natural resources depend on whether the state is able to capture resource wealth. Where the state does capture resource wealth, proceeds from resource extraction enable governments to use a mix of patronage and repression to evade meaningful accountability to the general public. Where it does not, proceeds from resource extraction enable the rebel groups that control them finance violent insurgencies.

The most influential evidence marshalled behind the resource curse hypothesis consists of cross-national statistical associations between natural resource abundance and undesirable development outcomes. For example, in a widely cited study of the impact of natural resources on economic performance, Jeffrey Sachs and Andrew Warner found that a “surprising feature of modern economic growth is that economies with abundant natural resources have tended to grow slower than economies without substantial natural resources.”<sup>2</sup> Turning to politics, in a widely cited study of the impact of natural resources on regime type, Michael Ross found that “the antidemocratic properties of oil and minerals are substantial.”<sup>3</sup> And in a widely cited study of the causes of violent conflict, Paul Collier and Anke Hoeffler found that “primary commodity exports substantially increase conflict risk.”<sup>4</sup>

The empirical case for the resource curse hypothesis is far from settled, though. Several studies of the past decade have used similar cross-national statistical methods to dispute it. For example, Jean-Philippe Stijns measured resource abundance using data on the “stock” of resource reserves rather than the “flow” of resource exports. Unlike Sachs and Warner, he found

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1 See Paul Collier, “Natural Resources, Development and Conflict: Channels of Causation and Policy Interventions,” in *Economic Integration and Social Responsibility: Annual World Bank Conference on Development Economics — Europe, 2004*, ed. François Bourguignon, Pierre Jacquet, and Boris Pleskovic (Washington: World Bank, 2007), 323–335; Jeffrey A. Frankel, “The Natural Resource Curse: A Survey,” *National Bureau of Economic Research Working Papers* 15836 (2010); Michael L. Ross, “The Political Economy of the Resource Curse,” *World Politics* 51 (1999): 297–322.

2 Jeffrey D. Sachs and Andrew M. Warner, “Natural Resources and Economic Growth” (Center for International Development, Harvard University, 1997), 2.

3 Michael L. Ross, “Does Oil Hinder Democracy?,” *World Politics* 53, no. 3 (2001): 342.

4 Paul Collier and Anke Hoeffler, “Greed and Grievance in Civil War,” *Oxford Economic Papers* 56 (2004): 588.

that “natural resource abundance has not been a significant structural determinant of economic growth.”<sup>5</sup> Stephen Haber and Victor Menaldo investigated the within-country relationships between natural resource trends and changes in political regime type. Unlike Ross, they found that “oil and mineral reliance does not promote dictatorship.”<sup>6</sup> And James Fearon replicated Collier and Hoeffler’s statistical analysis with minor changes. Unlike them, he found that “the empirical association between primary commodity exports and civil war outbreak is neither strong nor robust” and appeared to be driven mainly by oil.<sup>7</sup> Research of the past decade has chipped away at claims of a generalized resource curse that operates throughout the world.

Surprisingly little attention has been given to how well the resource curse hypothesis fits the experience of contemporary Africa. On the face of it, Africa’s record since the end of the Cold War looks like an ideal “laboratory” for investigating the relationship between natural resources and development. As of 1990 the region had experienced more than a decade of economic decline, and nearly every country was under some form of authoritarian rule. Since the mid-1990s global commodity prices have risen substantially, affecting resource-rich and resource-poor countries differently. Meanwhile, divergent political trajectories emerged, with some countries making transitions to democracy and others descending into spirals of state collapse and violent conflict.

Comparing the records of Africa’s resource-rich and resource-poor countries during this period of political and economic fluidity approximates a natural experiment, which can help clarify the effects of natural resources on development outcomes. Yet basic empirical questions nevertheless remain largely uninvestigated. Have Africa’s resource-rich countries fared any worse since 1990 than their resource-poor counterparts have? Have their economies grown more slowly, have they been less likely to democratize, and have they been more prone to violent political conflict? And on a regional level, has Africa’s increasing dependence on proceeds from natural resources since 1990 corresponded with greater prevalence of these unfavorable outcomes?

In this paper I present a preliminary analysis of the empirical relationship between natural resources and development outcomes in sub-Saharan Africa since 1990. The analysis is preliminary in that I aim simply to establish whether natural resources and adverse development outcomes have tended to go together in practice. I do not attempt to test causal hypotheses about the effects of natural resources. Correlation does not imply causality, but knowing what correlation exists is a good place to start investigating a causal claim. I present the evidence in a series of graphs that show regional trends over time and clarify similarities and differences between resource-rich and resource-poor African countries.

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5 Jean-Philippe C. Stijns, “Natural Resource Abundance and Economic Growth Revisited,” *Resources Policy* 30 (2005):

6 Stephen Haber and Victor Menaldo, “Do Natural Resources Fuel Authoritarianism? A Reappraisal of the Resource Curse,” *American Political Science Review* 105 (2011): 25.

7 James D. Fearon, “Primary Commodity Exports and Civil War,” *Journal of Conflict Resolution* 49 (2005): 503.

The rest of the paper proceeds as follows. In the first section, I address the challenge of measuring the theoretically relevant properties of natural resources, settling on a measure based on the unearned “rent” component of mineral and fuel extraction. The data confirm a substantial increase in Africa’s resource rents during the two decades beginning in 1990, much of which has occurred since the late 1990s. In the second section, I successively examine the empirical relationships between resource rents and three “outcome” indicators — economic growth, political regime type, and political violence. In the third section, I outline a research agenda that flows from analysis — focusing on issues the sustainability of resource-led growth, local and sectoral dimensions of resource governance, and the (potential) distinctiveness of oil. The fourth section is a brief conclusion.

## **Measuring natural resources**

Hypotheses about the resource curse hold that natural resources have distinctive properties that hinder development. A measure of natural resources should capture these properties and make it possible place countries on a continuum from resource-poor to resource-rich. Arguably what is most distinctive about the resources in question is that they derive from “natural” endowments that, because of their scarcity, can typically be sold for prices that far exceed the costs of extracting them.

For the purposes of this paper, I measure natural resources using “rent” component of proceeds from mineral and fuel extraction. The economic concept of “rent” refers to excess profits after accounting for all relevant costs including a normal return on capital, and a “resource rent” is a rent that originates from access to a scarce natural resource. The rent component thus depends on the quantity of a resource that is extracted, the cost of extracting it, and the international price at which it can be sold.

Resource rents are central to all major variants of the resource curse hypothesis. For example, Sachs and Warner emphasize how “wealth effects” caused by a resource boom undermine the competitiveness of the manufacturing sector. They assume for simplicity that the resource sector uses no capital or labor; so the boom consists entirely of rent.<sup>8</sup> Meanwhile, “political” versions of the resource curse assert the ability of either the state or rebel groups to capture “easy” rents from resource extraction.<sup>9</sup>

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<sup>8</sup> Sachs and Warner, “Natural Resources and Economic Growth,” 6–7.

<sup>9</sup> Ross, “Does Oil Hinder Democracy?”; Collier and Hoeffler, “Greed and Grievance.”

The data on resource rents that I use comes mostly from the World Bank’s Changing Wealth of Nations, which includes estimates for fourteen commodities<sup>10</sup>. A major omission from the World Bank data set is diamonds, which feature prominently in discussions of the resource curse in Africa, particularly regarding the link between resources and violent conflict. Reliable information about diamond production is not readily available, due to the historical secrecy of the diamond trade, wide variation in the value of gem-quality stones, and large-scale smuggling in conflict zones. To address the omission, I calculated my own estimates of diamond rents, using data from several sources (and a fair amount of informed guesswork), which are reported in an appendix. The estimates are very crude, but crude estimates are better than leaving diamonds out of the resource rent calculations.

Finally, the question arises of how to represent the value of resource rents while accounting for differences in country size. The two main candi

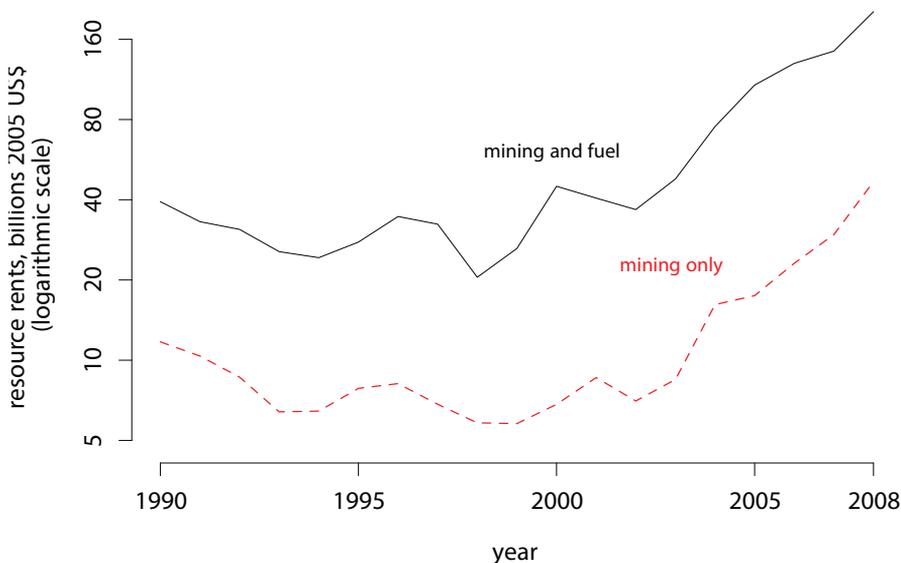


Figure 1: Resource rents in sub-Saharan Africa, 1990–2008

dates are to express rents as a percentage of GDP or to express them per capita. Many critics of early studies of the resource curse pointed out that dividing resource proceeds by GDP

<sup>10</sup> World Bank, *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium* (Washington: World Bank, 2011). The commodities included are oil, natural gas, coal, bauxite, copper, gold, iron ore, lead, nickel, phosphate rock, silver, tin, zinc, and “forest rent.” (Since I focus on minerals and fuels, I exclude forest rent.)

produces a measure of “resource dependence” and not “resource abundance.”<sup>11</sup> Imagine two countries with identical natural endowments reaping identical natural resource rents. One has succeeded in developing an internationally competitive manufacturing sector, and the other has failed to do so. Resource rents as a percentage of GDP will be lower for the successful industrializer, due to its larger GDP. The failed industrializer will appear more “resource-rich” by comparison, though its resource endowments and rents are the same as its “resource-poor” counterpart. This kind of bias is minimal in comparing African countries, most of which have similarly low levels of industrial development. So while I express resource rents as a percentage of GDP, using rents per capita would yield almost identical results.<sup>12</sup>

Figure 1 presents regional trends in resource rents from 1990 to 2008 (the latest year for which complete data were available), adjusted for inflation. The solid line is for the thirteen mineral and fuel commodities in the World Bank data, plus my estimates for diamonds. The dotted line excludes fuel rents.

One striking feature is that the solid line is consistently far above the dotted line, which highlights the fact that the bulk of Africa's resource rents are derived from fuel (especially oil). For most years, fuel rents alone are two to four times greater than mineral rents.

Another striking feature is that Africa has experienced a sharp boom in resource rents since about the year 2000. The trend in rents during the 1990s was downward. However, by 2008 total rents were about four times higher than in 1990, and about eight times higher than their low point in the late 1990s. The increase affected mining and fuel.

## Resource rents and development in Africa

Strictly speaking the resource curse hypothesis is not a single hypothesis but several related hypotheses. Natural resources are hypothesized to affect several development outcomes adversely. In this section I consider three unfavorable outcomes: first economic stagnation, then authoritarian rule, then organized political violence. For each I first summarize why natural resources might cause the unfavorable outcome; then I present the evidence on regional trends and cross-national patterns in sub-Saharan Africa.

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11 Annika Kropf, “Resource Abundance vs. Resource Dependence in Cross-Country Growth Regressions,” *OPEC Energy Review* 34, no. 2 (2010): 107–130; Michael Alexeev and Robert Conrad, “The Elusive Curse of Oil,” *Review of Economics and Statistics* 91, no. 3 (2009): 586–598.

12 To be more precise, the correlation between (the natural logarithm of) rents per capita and (the logistic transformation of) rents as a proportion of GDP is 0.96.

## **2.1 Slow economic growth**

The idea of a resource curse emerged as a possible explanation for the disappointing performance of many resource economies. Early versions posited narrowly economic mechanisms through which natural resource abundance might to slow economic growth. More recent work has also explored the importance of political institutions and governance in determining whether resource wealth contributes to long-term growth or impedes it.

Pessimism about prospects for resource-led growth has deep roots in the study of developing economies. In this sense the resource curse hypothesis resonates with “structuralist” perspectives in the field of development economics. Structuralists asserted a long-term tendency for world prices for primary commodities to decline relative to the world prices for manufactured goods. They emphasized the harmful effects of this decline for primary exporting countries, who would need to export more and more primary products over time just to earn enough to import the same amount of manufactures<sup>13</sup>. Pessimism about resource-led growth in Africa persists, informed in part by concern about downward long-term trends in world commodity prices.<sup>14</sup>

The hypothesis of an economic resource curse echoed the structuralists’ pessimism about resource-led growth, but with a very different take on the role of world commodity prices. Rather than stressing the impact of low and declining world commodity prices, the economic resource curse hypothesis focuses on dangers associated with high prices. The notion of “Dutch disease” captures how a boom in proceeds from the resource sector can be harmful to the economy as a whole. The name of the “disease” comes from the impact of the discovery of North Sea oil on the manufacturing sector of the Netherlands in the 1960s.<sup>15</sup> The main effect operates through the exchange rate. When proceeds of a resource boom enter the domestic economy, they cause the exchange rate to appreciate. Consuming imports becomes cheaper in local currency, discouraging import-competing production; meanwhile producing exports becomes more expensive in foreign currencies. Producers in the import-competing and non-booming export sectors thus become less competitive.

How Dutch disease affects economic growth depends upon whether the boom in resource proceeds is temporary or permanent. If it is temporary, perhaps caused by a short-lived price spike, the government can mitigate the domestic impact by saving windfall proceeds internationally, for example in a sovereign wealth fund. By preventing the currency from appreciating, such

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13 Raul Prebisch, *The Economic Development of Latin America and its Principal Problems* (Lake Success, NY: Department of Economic Affairs, United Nations, 1950); H.W. Singer, “The Distribution of Gains between Investing and Borrowing Countries,” in “Papers and Proceeding of the Sixty-Second Annual Meeting of the American Economic Association,” *American Economic Review* 40, no. 2 (1950): 473–485.

14 United Nations Conference on Trade and Development, *Economic Development in Africa: Trade Performance and Commodity Dependence* (New York: United Nations, 2003).

15 W. M. Corden, “The Economic Effects of a Booming Sector,” *International Social Science Journal* 35, no. 3 (1983): 441–54.

measures can preempt Dutch disease. If the boom is more permanent, perhaps caused by the discovery of lucrative resources, adverse effects on the competitiveness of non-resource sectors are harder to avoid. The impact on the economy as a whole depends on the relative growth potential of the resource and non-resource sectors. If the benefits of technological change or “learning by doing” are smaller in resource extraction than in other sectors (as is often assumed), Dutch disease can be self-perpetuating. The resource boom tempts economic actors to shift assets in directions that compromise long-term productivity growth.<sup>16</sup>

The most influential empirical analyses of the economics of a resource curse are contained in a series of papers by Jeffrey Sachs and Andrew Warner. They claim that a striking feature of “modern economic growth is that economies abundant in natural resources have tended to grow slower than economies without substantial natural resources.”<sup>17</sup> Their main evidence is a negative cross-national association between “resource abundance” (primary exports as a share of GDP) in 1970 and economic growth (growth in real GDP per person aged 15–64 years) between 1970 and 1989. (That is, countries with larger shares of primary exports in GDP as of 1970 tended to grow more slowly over the next two decades.) They find that the association persists even after controlling statistically for other determinants of growth, and they interpret this pattern as evidence of Dutch disease.

To assess whether sub-Saharan Africa is suffering from an economic resource curse, useful first steps are to check whether rising resource rents have been associated with slower growth in the region as a whole and to check whether countries with larger resource rents have tended to experience slower growth than countries with smaller resource rents have.

Figure 2 shows trends in real (purchasingpower parity) GDP per capita in sub-Saharan Africa during the two decades beginning in 1990.<sup>18</sup> The vertical scale is logarithmic, so that a straight trend represents constant growth in percentage (not absolute dollar) terms. The solid line is the cross-national average weighted by GDP. In the GDP-weighted average, countries “count” in proportion to the size of their economies. The solid line thus captures the GDP per capita of the “regional economy” as a whole. The dotted line is the unweighted average. In the unweighted average, all countries count the same, whether their economies are small or large. The dotted line is

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16 Thorvaldur Gylfason, “Natural Resources, Education, and Economic Development,” *European Economic Review* 45 (2001): 847–859; Sweder van Wijnbergen, “The ‘Dutch Disease’: A Disease after All?,” *Economic Journal* 94 (1984): 41–55.

17 Sachs and Warner, “Natural Resources and Economic Growth,” 2; also see Jeffrey D. Sachs and Andrew M. Warner, “The Curse of Natural Resources,” *European Economic Review* 45 (2001): 827–838.

18 Alan Heston, Robert Summers, and Bettina Aten, “Penn World Table, Version 7.1” (Center for International Comparisons of Production, Income and Prices, University of Pennsylvania, 2012).

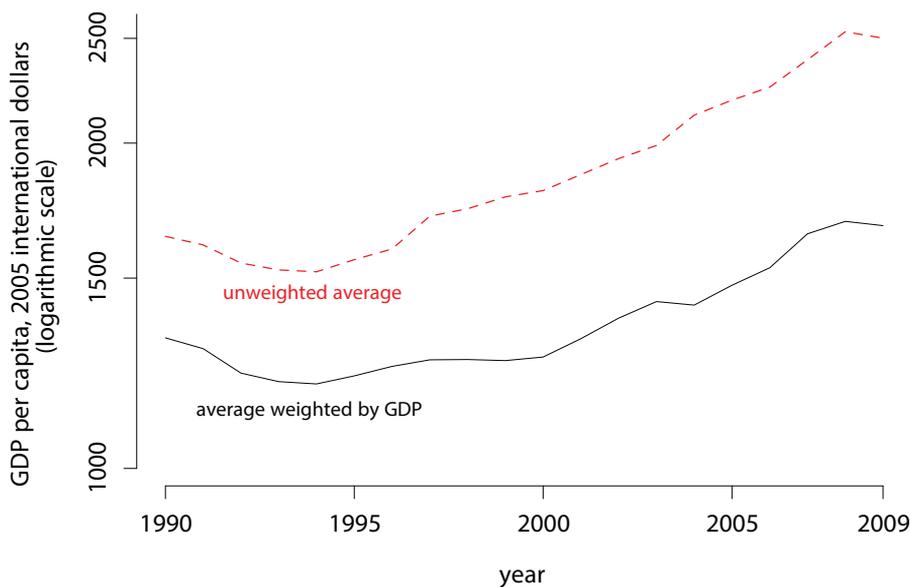


Figure 2: Economic growth in sub-Saharan Africa, 1990–2009

thus less sensitive to the GDP of a few large countries.

Both lines show steady economic growth from the mid-1990s, accelerating from about 2000, with a dip in 2009 following the global financial crisis. The dotted line roughly parallels the solid one from above. This reflects the tendency for smaller African economies to have higher levels of GDP per capita than larger ones do, though growth trends do not differ much based on economic size.

Growth and increasing rents have tended to go together regionally. Figure 1 showed a sharp rise in mineral and fuel rents beginning in the late 1990s, the same period in which economic growth resumed and persisted. (The rise in rents due to increasing global commodity prices does not directly explain economic growth, because GDP is calculated using constant prices.) The rising resource rents in Figure 1 probably helped stimulate the roughly contemporaneous growth in Figure 2. In any case, there is no evidence that rising rents slowed growth in the region: rising rents coincide with faster growth since 1990.<sup>19</sup>

19 Also see Angus Deaton, "Commodity Prices and Growth in Africa," *Journal of Economic Perspectives* 13, no. 3 (1999): 23–40

Breaking the pattern down to country level, Figure 3 is a cross-national scatter plot of resource rents and economic growth over the two decades beginning in 1990. Resource rents are measured as a percentage of GDP averaged over the entire period, and growth is measured as an average annual percentage change in real GDP per capita. Regression lines track the association between rents and growth. Countries are labeled using three

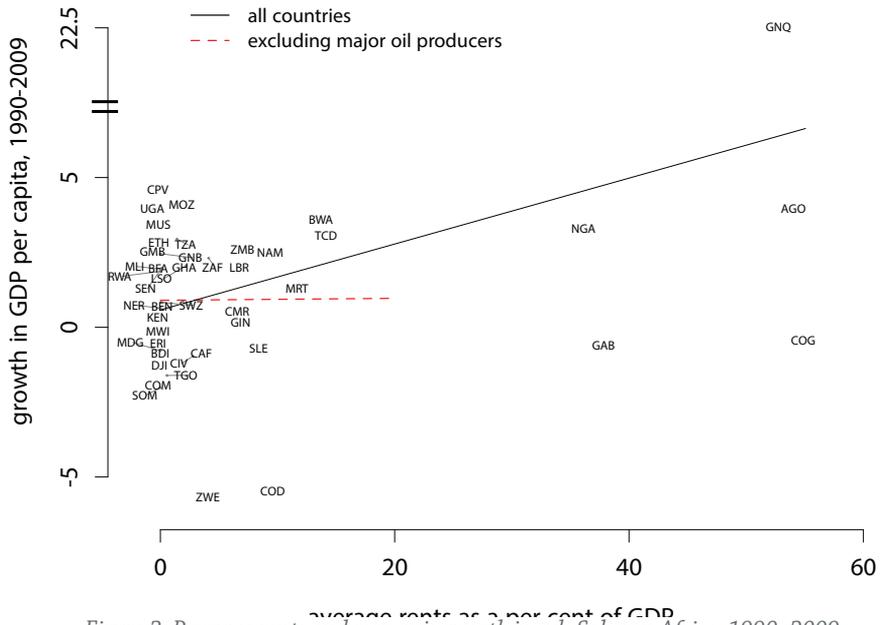


Figure 3: Resource rents and economic growth in sub-Saharan Africa, 1990–2009

letter codes (listed in an appendix).

Five major oil-producing countries are in the far right of Figure 3: Equatorial Guinea (GNQ), Angola (AGO), Republic of Congo (COG), Nigeria (NGA), and Gabon (GAB). They stand out for their heavy dependence on resource rents. The solid regression line is for the entire sample and is upward-sloping. The upward slope indicates a positive relationship between rents and growth: countries with greater resource rents have tended to experience faster economic growth over the period 1990 to 2009. The dotted regression line is for the sample excluding the five major oil-producing countries (that is, the sample if you put your hand over the right half of the graph). The slope of the dotted line is essentially flat. The flatness indicates the lack of any consistent association between rents and growth among the non-oil economies.

The patterns in Figure 3 provide little evidence of an economic resource curse, which would be expected to produce a negative association between rents and growth. When the major oil-producing countries are included, a positive association emerges. Closer inspection shows that this result is driven almost entirely by Equatorial Guinea (in the far upper-right of the figure), which did not produce oil in 1990 but has since developed an oil industry, propelling it to greater than 20 per cent growth per capita (against a low population base). Meanwhile, the other four major oil-producing countries, which were established well before 1990, have growth records more similar to the rest of the region, ranging between about 0 and 3 per cent per year. Overall, the picture that emerges is of no consistent association between resource rents and economic growth. Knowing whether a country is resource-rich or resource-poor is of almost no use in predicting its record of economic growth.

The regression lines track average patterns, but some countries lie far from them. While Equatorial Guinea is a positive outlier, whose growth has far exceeded regional trends, the Democratic Republic of Congo (near the bottom-left of Figure 3, labeled COD) is a negative outlier, whose growth has fallen far short of regional trends. Aside from the five major oil-producers, the Democratic Republic of Congo has among the highest levels of resource rents, and its economy collapsed in the post-1990 era. The combination of high rents and negative growth might seem to make the Democratic Republic of Congo look like a prime example of an economic resource curse.

Yet seen in regional perspective, the Democratic Republic of Congo is atypical. Several other countries with similar levels of resource rents, such as Namibia and Zambia, have grown faster than the regional average. Natural resources may have contributed to the depth and duration of the Democratic Republic of Congo's economic (and political) collapse. But they can hardly have been the main cause (if so, other countries with comparable rents would have experienced a similar fate). And the country can hardly be an exemplar of a generally negative relationship between natural resources and economic growth (if so, the regression lines in Figure 3 would slope sharply downward).

Overall, data on resource rents and economic growth in sub-Saharan Africa during the period from 1990 to 2009 provide little evidence of the symptoms of an economic resource curse. Considering regional trends over time, the period has been one of rising resource rents and rising economic growth, especially since the late 1990s. Rising rents have not been associated with slower growth at the regional level. Considering cross-national patterns, high-rent economies (especially those already established as high-rent economies in 1990) have on average grown at similar rates as low-rent economies. High rents have not been associated with slower growth at the national level.

## 2.2 Authoritarian rule

Early versions of the resource curse hypothesis asserted adverse economic consequences of natural resource abundance, operating mainly through economic processes. Later versions have asserted adverse political consequences. One such hypothesis of a “political resource curse” holds that countries with abundant natural resources are more prone to authoritarian rule.

The reasoning proceeds in two steps. First, governments with abundant natural resources find it easy to capture resource rents, resulting in “rentier states” — that is, states that rely primarily on resource rents, rather than taxing their populations, for revenue. Second, governments in rentier states have little reason to be politically accountable to their populations. They can survive politically by using rents to “buy off” or intimidate opponents, and they have little reason to accept restraints on their discretionary authority (such as institutional checks and balance) or to subject themselves to

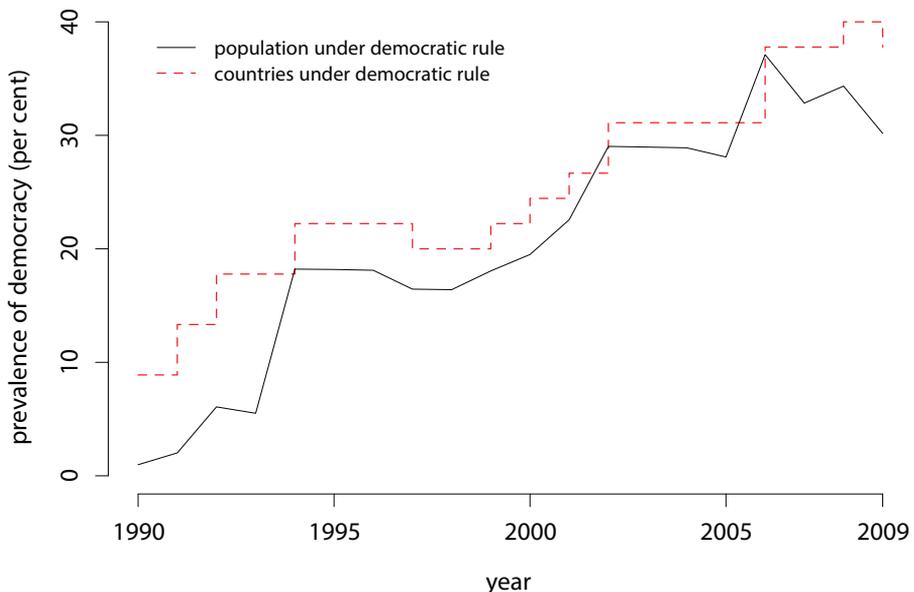


Figure 4: Democracy in sub-Saharan Africa, 1990–2009

elections. As a pioneer in research on rentier states put it, “A government that can expand its services without resorting to heavy taxation acquires an independence from the people seldom found in other countries.”<sup>20</sup>

The partial wave of democratization in sub-Saharan Africa since 1990 makes the region an almost ideal “laboratory” for assessing the hypothesis of a political resource curse. As the Cold War ended in late 1989, fewer than one in every hundred residents of sub-Saharan Africa lived in countries that met minimum standards of democracy. Twenty years later, roughly a third of the region’s countries and population lived under political regimes that can reasonably be classified as democratic. If a political resource curse has been operating, resource-rich countries should have been less likely to democratize, and resource-poor countries should be overrepresented among the new democracies.

To investigate the evidence empirically, I classified countries’ political regimes as democratic if they met minimal thresholds of open and competitive contestation and possessed some meaningful institutional restraints on the governments executive authority, using component measures from the well-established Polity IV data set of political regimes<sup>21</sup>. Some such classifications must be

marginal, as there will always be countries close to the threshold that some would regard as “democratic” and others not. Taking a systematic approach to classification is less likely to distort general patterns, especially in a setting where information is imperfect and subjective conceptions of democracy vary.

Figure 4 plots trends in the prevalence of democracy in sub-Saharan Africa from 1990 through 2009. The solid line represents the proportion of residents of sub-Saharan Africa living under democratic political regimes, and the dotted line represents the proportion of countries with democratic political regimes.

Democracy has become more prevalent, with noticeable increases during the decade starting in 1990 and during the decade starting in 2000. In 1990 very few Africans lived under even minimally democratic regimes. They were residents of four small countries: Botswana, Gambia, Mauritius, and Namibia. In most years, the dotted line is above the solid line, meaning that smaller countries have been a bit more likely to be democratic than larger countries are, but the general trend in both lines is similar.

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20 Hossein Mahdavy, “The Patterns and Problems of Economic Development in Rentier States: The Case of Iran,” in *Studies in the Economic History of the Middle East*, ed. M. A. Cook (Oxford: Oxford University Press, 1970), 466–467.

21 Political contestation is coded from the Polity IV variables *parcomp* (“competitive” or “transitional” political participation) and *xrcomp* (“election” or “dual/transitional” executive recruitment). Executive restraints are coded from the *xconst* variable (“moderate/substantial” (category 4) or greater executive constraints). See Monty G. Marshall and Keith Jaggers, *Polity IV Project: Political Regime Characteristics and Transitions: 1800–2010*, Dataset user’s manual (Vienna, VA: Center for Systemic Peace, 2011), 21–28, <http://www.systemicpeace.org/polity/polity4.htm>.

The spread of democracy in Africa since 1990 has come during a period of rising natural resource rents. These two simultaneous trends are difficult to reconcile with the hypothesis of a political resource curse. But there is also little reason to believe that rents have promoted democracy in Africa. First, Figure 4 shows a sharp rise in democracy in Africa during the 1990s, a decade that Figure 1 showed to be one of stagnant resource rents. Most likely other factors, such the changed global environment with the end of the

Cold War and rising domestic political opposition, had more to do with the wave of democratization than resource rents did. Second, the rise in resource rents from the late 1990s affected some African countries much more than others, and regional trends may obscure differences from country to country.

The political resource curse hypothesis holds that countries with large resource rents are less likely to establish and maintain democratic political regimes. Figure 5 plots resource rents against the proportion of years between 1990 and 2009 that each country met the minimum threshold for democracy. Have resource-rich African countries been any more or less likely to democratize?

The pattern again depends on whether the five major oil-producing countries are included. All five have failed to democratize, pulling the solid line down, and giving the impression that resource rents undermine democracy. Yet once these five are excluded, the dotted line for the rest of the sample is essentially flat, at just above 25 per cent democratic. For the non-oil African sample, knowing whether a country has high or low resource rents is in itself largely useless in predicting whether it has been able to establish and maintain a minimally democratic regime.

The evidence does not support the claim that resource rents have undermined prospects for democracy in Africa since 1990. Democracy has become more prevalent in the region at the same time that rents have increased. The cross-national record gives reason for caution about concluding that rents are good for democracy, as in most of the region the association is very close to zero. If a political resource curse has existed, it appears to have been confined to the five major oil-producing countries, all of which have a poor record of democracy since 1990.

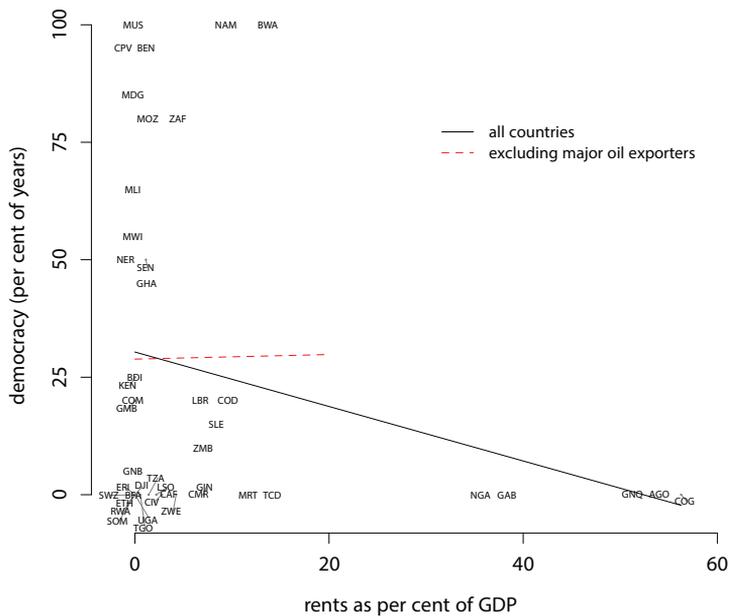


Figure 5: Resource rents and democracy in sub-Saharan Africa, 1990–2009

### 2.3 Violent conflict

Another version of the political resource curse hypothesis holds that natural resource rents increase the likelihood of violent political conflict.

Unlike the hypothesized link between natural resources and authoritarian rule, based on the expectation that the state captures resource rents, this one emphasizes situations in which rebel groups are able to capture the rents and use them to fund violent challenges to the state. A classic illustration is the role of “conflict diamonds” in funding rebels. Elsewhere, regions rich in minerals and oil have spawned secessionist movements.

To measure violent political conflict, I use georeferenced data on deaths from organized violence compiled by the Uppsala Conflict Data Program (UCDP)<sup>22</sup>. I first aggregated all recorded deaths by country and year, and I then classified a country as experiencing violent political

22 Ralph Sundberg and Erik Melander, “Introducing the UCDP Georeferenced Event Dataset,” *Journal of Peace Research* 50 (2013): 523–532; Ralph Sundberg, Mathilda Lindgren, and Austra Padskocimaite, “UCDP GED Codebook, Version 1.1” (Department of Peace and Conflict Research, Uppsala University, 2010).

conflict if its annual

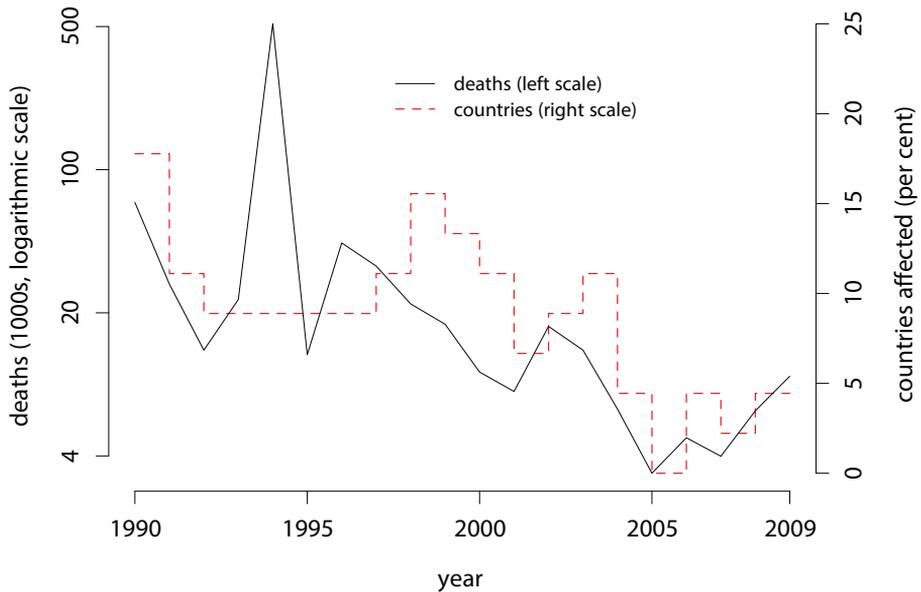


Figure 6: Violent conflict in sub-Saharan Africa, 1990–2009

total exceeded one thousand deaths.

Figure 6 shows regional trends in violent political conflict. The solid line represents the number of recorded deaths, shown against the logarithmic scale on the left. The dotted line represents the percentage of countries affected (with more than one thousand deaths per year), shown against the scale on the right.

The trends over time are not clear-cut, but violence levels tend to decrease. The upward spike in deaths in 1994 is mainly due to the Rwandan genocide. Even excluding that horrible anomaly, which was not directly related to mineral or oil rents, violence was more prevalent before 2000 than after. Figure 1 showed that resource rents rose sharply after 2000. So the downward trend in Figure 6 runs counter to the hypothesis that rising rents contribute to rising deaths from organized political violence.

Figure 7 shows the cross-national pattern of rents and violent conflict. Most countries are near the bottom, indicating that during the two decades beginning in 1990 they never or rarely

experienced more than one thousand annual deaths from organized violence. Both lines slope upward, showing at least a modest tendency for countries with greater resource rents to have seen more years of violent conflict. Unlike in Figures 3 and 5, the dotted line for countries excluding major oil exporters is sloped in an “adverse” direction. That said, five of eight non-oil countries with violent conflict in four or more years (Uganda, Burundi, Somalia, Rwanda, and Ethiopia) had negligible resource rents, and the slopes of the regression lines

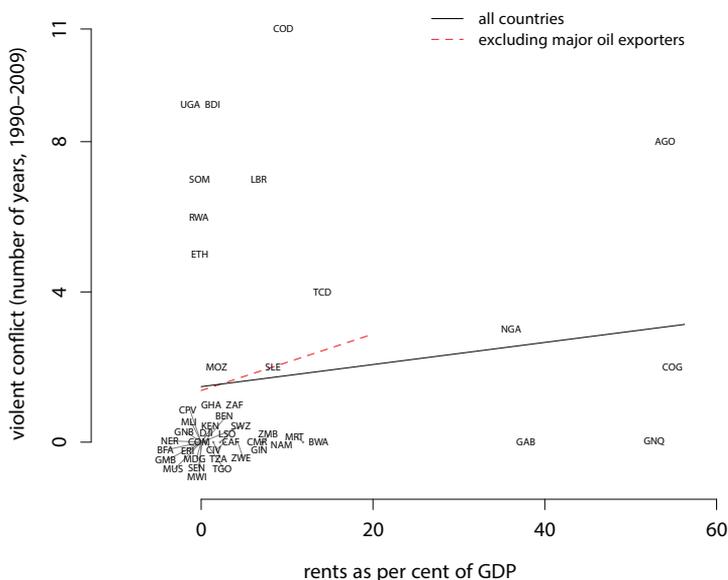


Figure 7: Resource rents and violent conflict in sub-Saharan Africa, 1990–2009

are quite sensitive to a few countries that have experienced protracted violence<sup>23</sup>.<sup>23</sup>

## A research agenda

The notion of a resource curse has cast a large shadow over economic and political research on resource-rich African countries. The previous section has shown that evidence that natural re

<sup>23</sup> In statistical terms, the patterns in the data for the observed sample are much too weak to confidently reject the possibility that the slope would be zero in a larger theoretical “population” of countries.

sources lead to undesirable outcomes is weak. Managing Africa's natural resources continues to be crucial to the region's development. But knowing that any adverse effects of mineral and fuel wealth are far from general or overpowering helps to identify new areas of research.

In the rest of this section, I highlight three such areas. The first focuses on the challenge of sustaining the positive trends in the region. Rising resource rents have not triggered the negative outcomes associated with the resource curse, but they could be obscuring underlying problems that will become more obvious if world commodity prices fall. The second focuses on the challenges of local and sectoral governance of natural resources. Resource-rich countries have not performed worse on average than their resource-poor counterparts according to national indicators, but they still face major challenges that are specific to the resource sector and the communities where resource extraction occurs. The third focuses on the major oil-producing countries. Oil is the main source of Africa's resource rents, and its strategic importance far outstrips other commodities. This raises the question of whether the effects of oil are distinctive.

### 3.1 Sustainability?

The sustainability of current patterns of resource-led economic growth in Africa is an important area for research. Any economic strategy based on the depletion of non-renewable natural assets poses obvious issues of economic and environmental sustainability. African countries that have enjoyed large rents from mineral and fuel extraction since 1990 have not consistently translated these rents into higher growth rates (see Figure 3).

Growth based on non-renewable natural resources can be sustained if the proceeds from the depletion of natural resources are saved and reinvested in reproducible capital, like productive "machines."<sup>24</sup> Yet many resource-rich African countries are probably "overconsuming" in the midst of the current boom, leaving them vulnerable to a drop in world resource prices or the exhaustion of economically viable natural assets.

The ways that economic performance is measured — particularly in terms of GDP and related concepts — can easily obscure problems of sustainability. For example, the proceeds of depleting mineral and fuel assets, including the rent component, are counted fully as part of GDP. Meanwhile, the value of the resources depleted (and any environmental damage done in extracting them) remain invisible. New approaches to national wealth accounting aim to provide a better basis for tracking changes in different kinds of assets in the process of development, though

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24 John M. Hartwick, "Intergenerational Equity and the Investing of Rents from Exhaustible Resources," *American Economic Review* 67 (1977): 972; Naazneen H. Barma et al., *Rents to Riches? The Political Economy of Natural Resource-Led Development* (Washington: World Bank, 2012).

these approaches remain in their infancy.<sup>25</sup>

If the buoyant economic growth of recent years is not sustained, political strains could emerge to threaten the viability of Africa's emerging democracies and the general trend toward reduced political violence.

### **3.2 Below the macro level?**

Resource-rich countries in Africa have been no more likely to experience slow economic growth, authoritarian rule, and violent conflict than their resource-poor counterparts. Despite the absence of obvious “macro-level” problems, resource-led development poses important sectoral and local challenges.

The institutions and policies governing the natural resource sector can substantially affect prospects for using rents as the foundation for economically and environmentally sustainable development. That resource-rich African countries are not collectively underperforming does not necessarily mean that all are performing well. For example, though larger resource rents do not seem to be associated with greater corruption in African democracies, rents and corruption do tend to go together among non-democratic political regimes.<sup>26</sup> Further research is needed to understand how institutions and policies affect the governance of natural resources.

The local consequences of resource extraction can be substantial even if they are not large enough to make a noticeable in national development indicators. Minerals and fuels are by their nature “point-source” industries that are concentrated around geological deposits of scarce resources. Though their expansion can be a source of employment, it can also trigger conflict over access to land and cause environmental damage. It has major implications for the livelihoods of communities and households, not all of them favorable. Research on the local impact of resource extraction is important in its own right, and it can also serve as an “early-warning system” for challenges not yet visible in macro-level indicators of development.

### **3.3 Oil?**

Oil accounts for the vast majority of Africa's resource rents, and resource rents in Africa's major oil producers outstrip those of mining economies. Oil also has a global strategic importance on a different scale from other natural resources. This raises the question of whether the challenges

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<sup>25</sup> See, for example, World Bank, *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium*.

<sup>26</sup> Rod Alence and Xichavo Alecia Ndlovu, “Why Some African Countries Are Better Governed Than Others” (paper presented at African Social Research Initiative conference, University of Michigan (11–12 October), 2013).

posed by large-scale oil production differ qualitatively from those in other resource economies.

Some of the evidence presented earlier could be taken as suggestive that the impact of oil may be different, though it is important not to generalize overconfidently from the experiences of the few major African oil producers. Economically, the expansion of oil production can stimulate very rapid economic growth for some time (as in the case of Equatorial Guinea. However, the growth record of “mature” oil producers (Angola, Republic of

African Countries Are Better Governed Than Others” (paper presented at African Social Research Initiative conference, University of Michigan (11–12 October), 2013).

Congo, Gabon, and Nigeria) is far from impressive. Politically, democracy has not thrived among Africa's five major oil producers, though on average they have not been unusually susceptible to violent conflict.

The extension of oil production to new African countries makes the question of whether oil is different especially important. Take the example of Ghana, a democracy with a solid record of governance, now beginning to reap large oil rents for the first time. Will the sheer volume of rents undermine or transform domestic political institutions, or will domestic political institutions ensure greater accountability and transparency than in Africa's established oil producers?

## **Conclusion**

An influential body of research asserts that abundant mineral and fuel resources curse the countries that possess them with a host of undesirable economic and political outcomes. Many countries in sub-Saharan Africa have abundant resources, and many have suffered from slow economic growth, authoritarian rule, and violent conflict. In this paper I have presented evidence to help clarify the extent to which Africa is suffering from a “resource curse.”

My approach has been to compile a measure of natural resource rents, along with measures of economic and political outcomes, and to check whether they are associated with each other. The period since 1990 has seen overall increases in resource rents as a share of the value of Africa's economic output, and the resource “boom” has been especially evident since the late 1990s. One set of questions I have addressed relates to regional trends: with resource rents rising, have outcomes in other areas suffered in the region as a whole?

Another set of questions I have addressed relates to cross-national patterns: have resource-rich countries suffered worse outcomes than have their resource-poor counterparts?

The analysis turned up little evidence that sub-Saharan Africa is suffering from a resource curse. The period of rising resource rents in sub-Saharan Africa since 1990 has been a period in which economic growth has increased, democracy has begun to take root, and violent political conflict has subsided. Alongside these favorable regional trends, cross-national patterns provide no reason to believe that resource-rich countries are faring any worse than their resource-poor counterparts are (or vice versa, for that matter). Knowing whether a nameless country is resource-rich or resource-poor is close to useless in “predicting” whether that country’s economy has grown slowly or quickly, whether it has made a transition to democracy, and whether it has experienced violent political conflict.

The title of the paper hinted at its conclusion: Africa’s much publicized “resource curse” is difficult to find. But though the region’s resource-rich countries seem no more prone to slow economic growth, authoritarian rule, and violent conflict, research on the challenges of resource-led development remains crucial. Perhaps the most important questions are about sustainability — whether the current resource boom is laying the foundations for a development path that can be sustained, or whether it is funding a consumption binge that obscures deeper economic, political, and environmental problems. Further research should also investigate issues of sectoral and local governance of natural resources, as well as whether the challenges faced by major oil exporters differ fundamentally from those of other resource-rich countries.

**Appendix**

Table 1: Country codes and diamond rent estimates (1990–2009)

<b>Code</b>	<b>Country</b>	<b>Diamonds/GDP</b>
AGO	Angola	0.04
BEN	Benin	0.00
BWA	Botswana	0.12
BFA	Burkina Faso	0.00
BDI	Burundi	0.00
CMR	Cameroon	0.00
CPV	Cape Verde	0.00
CAF	Central African Republic	0.04
TCD	Chad	0.00
COM	Comoros	0.00
COD	Congo, Democratic Republic	0.05
COG	Congo, Republic	0.00
CIV	Côte d'Ivoire	0.00
DJI	Djibouti	0.00
GNQ	Equatorial Guinea	0.00
ERI	Eritrea	0.00
ETH	Ethiopia	0.00
GAB	Gabon	0.00
GMB	Gambia	0.00
GHA	Ghana	0.00
GIN	Guinea	0.01
GNB	Guinea-Bissau	0.00
KEN	Kenya	0.00
LSO	Lesotho	0.02
LBR	Liberia	0.04
MDG	Madagascar	0.00
MWI	Malawi	0.00
MLI	Mali	0.00
MRT	Mauritania	0.00

<b>Code</b>	<b>Country</b>	<b>Diamonds/GDP</b>
MUS	Mauritius	0.00
MOZ	Mozambique	0.00
NAM	Namibia	0.08
NER	Niger	0.00
NGA	Nigeria	0.00
RWA	Rwanda	0.00
SEN	Senegal	0.00
SLE	Sierra Leone	0.08
SOM	Somalia	0.00
ZAF	South Africa	0.00
SWZ	Swaziland	0.00
TZA	Tanzania	0.00
TGO	Togo	0.00
UGA	Uganda	0.00
ZMB	Zambia	0.00
ZWE	Zimbabwe	0.00

**Notes on Table 1**

Diamond rent estimates are rough calculations using information from various sources: United States General Accounting Office, *International Trade: Critical Issues Remain in Deterring Conflict Diamond Trade*, GAO-02-678 (2002); Bain and Company, *The Global Diamond Industry: Lifting the Veil of Mystery* (Boston: Bain and Company, 2011); Thomas D. Kelly and Grecia R. Matos, *Historical Statistics for Mineral and Material Commodities in the United States, Data Series 140* (Washington: United States Geological Survey, 2013), <http://minerals.usgs.gov/ds/2005/140/index.html>; United States Geological Service, *Minerals Yearbook* (Washington: United States Geological Service, 1994–2010); World Bank, *World Development Indicators*, December data release (Washington: World Bank, 2012).

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SARW is a formative project within the Natural Resources Governance Initiative of OSISA. Its main objective is to monitor corporate and state conduct in the extraction and beneficiation of natural resources in Southern Africa. It seeks to assess the extent to which the policies, practices and efforts of the players in the sector can and do contribute to sustainable development. Other specific objectives include:

- To consolidate research and advocacy on natural resources extraction issues in Southern Africa;
- To put a spotlight on the specific dynamics of natural resources in Southern Africa, building a distinctive understanding of the regional geo-political dynamics of resource economics;
- To provide- for researchers, policy makers and social justice activists especially in academic and civic spaces- a platform of action, coordination and organisation, in the watching and strengthening of corporate and state accountability in natural resources extraction;
- To highlight the relationship between resource extraction activities and human rights as they obtain on the ground, and develop advocacy efforts that engage this reality.

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