Chapter 2

The Legacy and Lessons of Africa’s Commodity Price Boom and Bust

Introduction

The commodity price boom from 2004 to 2014 was a huge economic opportunity for African countries with an abundance of oil, gas, and minerals. During this period, resource-rich African countries’ government revenues from resources grew by an average of US$1.1 billion compared with the preboom years (1998–2003); meanwhile, these countries’ economic growth increased by almost 1 percentage point. However, even during these bountiful times, economic development was narrowly confined, with much of the value addition in the resource sector. Once the expanding resource sector’s contribution to GDP growth is subtracted, overall economic performance was not significantly higher than in the rest of Africa.

One legacy of the boom was that because higher growth rates were not translated into broader sustainable development, countries found themselves poorly prepared for the subsequent drop in commodity prices. Many had failed to save and invest a sufficient proportion of resource revenues or to convert the higher resource rents into government receipts to grow national wealth via the accumulation of offsetting assets during the boom. For example, figure 2.1 shows the quick drop in government revenues from natural resources and natural resource rents’ share of GDP in selected large resource-rich Sub-Saharan African countries from 2014 onward. As a consequence, the “bust” period undermined the economic gains made during the boom. Several resource-rich countries entered debt crises after 2014. This postboom (or bust) period (2015–18) has also resulted in a more general pattern of resource-rich countries experiencing slumps in GDP growth and nonresource sector GDP growth, with rates of both falling below those of the rest of Africa.

This chapter examines the effects of the commodity price boom, running from about 2004 to 2014, and what it meant for the economies of Sub-Saharan Africa.
Figure 2.1 Government Revenues and Rents from Natural Resources, Select Sub-Saharan African Resource-Rich Countries, 1990–2020

a. Government revenues from natural resources

b. Natural resource rents


Note: Estimates of natural resource rents as a percentage of GDP are based on sources and methods described in World Bank (2021).
It considers how this period marked a change from the preboom years, and also the state of resource-rich economies once commodity prices fell after 2015. The chapter examines the record of resource-rich countries in harnessing the opportunity presented by the boom and considers how their economic performance compares with their non-resource-rich neighbors in the region.

The chapter, perhaps unsurprisingly, finds that there has been a broad failure to translate the boom into more broadly based economic prosperity via investment in other parts of the economy. The starkest evidence for an unsustainable and narrow economic boom was seen in the slump in growth rates following the fall in commodity prices. In the postboom period, annual GDP per capita growth in resource-rich countries was, on average, 2.5 percentage points lower than during the boom, and 1.5 percentage points lower than that of non-resource-rich countries in the region.

The boom in and of itself created a set of major public policy challenges. First, high prices meant significant revenues would accrue to government, which, in turn, implied that “big government” in some form was hard to avoid, leading to bloated public sector wage bills. Government, as the constitutionally designated resource owners, had to attempt to capture the full value of resources on behalf of citizens while also efficiently managing state-owned resource companies and production shares. Second, governments had to maximize these revenues from the sector in a way that was also consistent with inward investment into the sector, for example, to take advantage of the geologic potential and new discoveries being made. Third, governments had to ensure those revenues were put to good use—fulfilling urgent development needs and longer-term investment goals for sustaining prosperity. Finally, governments needed to ensure the economy was protected from the harmful effects of resource dependence, ranging from Dutch disease (Corden and Neary 1982) to price and revenue volatility, corruption, conflict, and profligacy.1

The legacy of the boom and bust was one of missed opportunity and a failure to convert resource wealth into sustainable, diversified prosperity. During this period, countries were left with little to show for the surge in revenues and investment. Fiscal deficits and rising indebtedness have endangered gains made toward poverty reduction and economic growth during the boom years. With regard to overall economic performance and poverty reduction, resource-rich countries have slipped further behind non-resource-rich countries. This trend is repeated across Sub-Saharan Africa. This chapter offers five key insights and outcomes from the resource boom.

• First, economic growth collapsed once commodities fell. Although resource-rich countries in Sub-Saharan Africa outpaced their non-resource-rich Sub-Saharan African counterparts in average growth per capita during the boom, it was the non-resource-rich countries that sustained modestly positive growth in 2015 and 2016.
• Second, poverty has drastically increased in resource-rich Sub-Saharan African countries—a trend likely to continue. In 2000, 13 percent of the world’s poor lived in resource-rich Sub-Saharan African countries. Despite rich endowments of resources and a commodity boom, extreme poverty is increasingly concentrated among resource-rich Sub-Saharan Africa. Forecasts suggest that by 2030, 62 percent of the world’s poor will live in these countries.

• Third, inequality remains pervasive and prevalent in resource-rich countries. Half of all resource-rich countries in the region experienced worsening inequality from the start to the end of the boom. Mechanization contributed to this trend—the returns on the increasingly capital-intensive process accrue to capital rather than to labor.

• Fourth, there has been a failure to diversify. Though policy makers sought to capitalize on the boom to translate investment and revenues into broader economic transformation, economic, export, and asset concentration has remained largely within the extractive sector, indicating limited diversification.

• Fifth, institutions play an important role in both governance of resources and support of fiscal stability. Institutions play an important role in reducing corruption, managing expectations, implementing countercyclical fiscal policies to prevent overborrowing, and creating an environment with a more equitable distribution of benefits generated by the sector.

Outcome 1: Economic Growth in Resource-Rich Africa Collapsed Once Commodity Prices Fell

Although resource-rich countries in Sub-Saharan Africa outpaced their non-resource-rich Sub-Saharan Africa counterparts in average growth per capita during the boom, it was the non-resource-rich countries that sustained modestly positive growth in the postboom years. During the boom, resource-rich countries in Sub-Saharan Africa experienced strong growth beyond the extractive industry, owing partially to some development in backward and forward links, including construction, transport and logistics, and services. In fact, nonresource GDP growth rates exceeded 3 percent per year during the boom (figure 2.2).

Despite strong growth during the boom (Warner 2015), GDP growth during a resource boom is neither evidence of productivity gains in the wider economy, nor evidence that any such economic expansion can be sustained beyond the period of high prices or depletion. Almost by definition, an increase in demand and prices for a country’s commodities will lead to a surge in resource sector GDP. But the sustainability question is whether the boom can set the nonresource economy on a higher growth path, outliving the
boom period. Figure 2.2 suggests that resource-rich countries have performed suboptimally. Although resource-rich countries grew modestly faster than the rest of the region during the boom, growth following the boom was far lower. Further, the slump was not limited to the resource sector, given that nonresource sector GDP growth slumped concurrently. This outcome could partially be due to the many sectors that boom with the mining industry, including logistics, construction, services, and others. Warner (2015) notes that while Gulf states were able to use resource revenues to finance migration-facilitated economic expansion, Sub-Saharan African countries struggled to do so. In his assessment of 18 countries, five were from Sub-Saharan Africa—Chad,
Equatorial Guinea, Mauritania, Mozambique, and Zambia—and in all cases, there was no statistically significant difference in growth during the boom period compared with the counterfactual nonboom period.

Higher commodity prices that occurred during the boom increased rents and raised the overall level of wealth across human capital, natural capital, and produced capital. The Changing Wealth of Nations report (World Bank 2021) finds evidence that resource-rich African countries did not use this additional boost in wealth to invest in other assets during the boom. Therefore, both wealth and prices plummeted when the boom ended. As figure 2.3 shows, wealth per capita, which was declining before the boom in resource-rich Sub-Saharan African countries, had an outstanding annual growth rate during the boom, but fell back to a negative rate when the boom ended. In comparison, on average, non-resource-rich Sub-Saharan African countries started and followed similar wealth growth rates before and during the boom, but were spared from declining wealth because they were less resource-dependent and had more diversified economies.

Outcome 2: Poverty Has Deepened in Resource-Rich Sub-Saharan African Countries

Despite the increase in revenue that resulted from the boom, extreme poverty is increasingly concentrated in resource-rich Sub-Saharan Africa. By 2030,
80 percent of the world’s poor are forecasted to live in Sub-Saharan Africa, and resource-rich Africa will be home to about 62 percent of the world’s poor, compared to 13 percent in 2000 (figure 2.4) (Cust, Rivera-Ballesteros, and Zeufack 2022).²

In absolute terms, by 2030 the poverty headcount is projected to rise to about 379 million, whereas the count in non-resource-rich Africa is set to fall below 120 million (figure 2.5). By 2030, 62 percent of the world’s poor are projected to be found in Sub-Saharan African resource-rich countries, compared to 20 percent in non-resource-rich nations of this region. The overall trend in resource-rich African countries was an increasing poverty headcount during the boom, indicated by the solid orange line in figure 2.5, from about 280 million in 2003 to more than 310 million living in extreme poverty as of 2019.

Though the commodity price boom resulted in large inflows to African economies via resource companies’ exports and government revenues from production shares, royalties, and other resource sector taxes, these inflows have not meaningfully reduced poverty and inequality. Furthermore, the impact of climate change on income and real consumption could push even more African people into poverty (Jafino et al. 2020). Poverty eradication is therefore becoming a disproportionately resource-rich-country and Africa region problem.
Meanwhile non-resource-rich Africa saw a minor increase in the poverty headcount, from 110 million to more than 113 million over the same period, driven, in part, by a higher average (mean) poverty rate in resource-rich Sub-Saharan African countries that failed to converge with the poverty rates in non-resource-rich Sub-Saharan African countries. It was also driven by high population growth in these resource-rich countries; for example, according to data from the United Nations Population Division, the fertility rate during the boom in Nigeria was, on average, 5.9, and in the Democratic Republic of Congo it was 6.5, compared with 4.7 in Rwanda and 2.6 in South Africa. As a consequence, world poverty is increasingly concentrated in resource-rich Sub-Saharan Africa, which is expected to be home to more than 60 percent of the world’s poor in 2030 (figure 2.4).

From the start to the end of the boom, the poverty headcount increased in half of all resource-rich countries in Sub-Saharan Africa. Figure 2.6 shows the poverty headcount before and after the boom. Left of the 45-degree line indicates increased poverty headcount by the end of the boom compared with the period preceding the boom. Twelve of 24 resource-rich countries with poverty data available saw the poverty headcount increase, including Côte d’Ivoire, Madagascar, and Zambia. Several resource-rich countries, such as...
Ghana, Tanzania, and Uganda, did manage to reduce poverty during the same period. Some poverty alleviation mechanisms included new social protection programs, such as cash transfers and pensions.

Poverty is likely to continue deepening as a result of the COVID-19 (coronavirus) pandemic and the effects of climate change. The economy in Sub-Saharan Africa is struggling to recover from the COVID-19-induced slowdown in global economic activity, continued supply chain disruptions, outbreaks of new coronavirus variants, high inflation, and growing risk resulting in high debt levels. This slow recovery has already had an impact on poverty in the region, adding more to the poverty headcount than in 2015 (figure 2.7). Economic growth was expected to decelerate in 2022 amid compounding shocks (Zeufack et al. 2022). Climate change will adversely affect agricultural productivity, which can, in turn, increase food prices, food insecurity, and the share of household expenditures dedicated to food consumption (Jafino et al. 2020). The poor are the least able to respond to these shocks. Social protection mechanisms to support the most vulnerable are critical to supporting poverty reduction. However, climate change may have a significant impact on global poverty incidence and increase the number of poor in the region. Jafino et al. (2020) have identified
five climate change impact channels that can pull more people into poverty in the world, especially in Sub-Saharan Africa. The first impact is on agricultural productivity and prices, which can be more severe when a higher fraction of the population depends on and works in the agricultural sector. The second impact is associated with the extent of household expenditures dedicated to food consumption. The third impact relates to the exposure to and losses from natural disasters, such as cyclones, floods, or droughts. The fourth impact is linked to labor productivity for outdoor workers who may reduce their annual income as a result of extreme weather. The fifth impact of climate change centers on child stunting and diseases, including malaria and diarrhea. Resource-rich countries are vulnerable to climate change; thus, these impacts could raise current poverty rate forecasts.

Most alarmingly, by 2030, current projections suggest that, even after adjusting all countries for the impacts of COVID-19, 80 percent of the world’s poor will reside in Sub-Saharan Africa, and 75 percent of the world’s poor will be found in resource-rich countries. Taken together, 62 percent of the extreme poor could be concentrated in resource-rich Sub-Saharan Africa, up from only 13 percent in 2000 (Cust, Rivera-Ballesteros, and Zeufack 2022).
Outcome 3: Inequality Has Persisted in Resource-Rich Sub-Saharan African Countries

As with poverty, half of countries saw persistent or worsening income inequality from the start to the end of the boom. Most resource-rich countries for which Gini data are available (10 out of 18), including Mozambique, Tanzania, and Zambia, saw worsening inequality by 2014 compared with 2003, measured by an increase in their Gini coefficient. Figure 2.8 compares preboom (2003) inequality with inequality at the end of the boom (2014), with countries lying left of the 45-degree line having worsened their Gini coefficient during the boom. However, some resource-rich countries did manage to lessen inequality, including Botswana and Uganda. For instance, from its independence to the boom period, Botswana succeeded in converting its natural resource rents for use in enrolling the population 25 years old and older in secondary schooling. These successful public policies to convert resource endowments into human capital in Botswana and Uganda may partly explain the positive dynamics in poverty and inequality alleviation during the boom period.

Figure 2.8 Gini Coefficients in Sub-Saharan Africa, Preboom (2003) versus End of Boom (2014)

Source: Calculations based on World Bank and the Chartbook of Economic Inequality https://www.chartbookofeconomicinequality.com/.
Note: Inequality increased in countries above the 45-degree line. Missing Gini coefficient values in 2003 and 2014 are replaced with the closest value from previous years. RR = resource rich; SSA = Sub-Saharan Africa.
Some mineral-rich countries, such as Guinea and Mauritania, saw a large
decline in inequality during these boom years, whereas other large oil produc-
ers, such as Cameroon and Chad, saw rising income inequality (figure 2.9).

**Outcome 4: Despite Significant Earnings during the Boom, Resource-Rich Africa Failed to Diversify Its Economies**

Headline economic performance during the boom was strong but proved unsustainable. Resource-rich countries saw economic growth rise during the boom years, driven by resource exports and increased government revenues. However, economic growth, once the expanding resource sector is subtracted, was not significantly higher than in the rest of Africa. This situation reflects the overall dominance of the resource sector as a driver of growth, but also implies a failure to translate the boom into broader-based economic prosperity. The starkest evidence for an unsustainable and narrow economic boom was seen in the slump in growth rates following the fall in commodity prices. In the post-boom period, annual GDP per capita growth in resource-rich countries was,
on average, 2.5 percentage points lower than during the boom, and 1.5 percentage points lower than in non-resource-rich countries in the region.

**Economic Concentration: Limited Growth in Nonresource Sectors**

Policy makers sought to capitalize on the boom to translate investment and revenues into broader economic transformation. This objective was demonstrated by local content policies and export restrictions to increase domestic value added, undertaken to develop linkages. It also included the opportunity to boost the growth of manufacturing exports and other nonresource sectors of the economy. This economic diversification, with an emphasis on export diversification, was a popular economic objective during this period. However, there was little change in the overall sectoral composition of exports of resource-rich economies beyond a boost in the resource sector and a squeezing of agricultural exports (figure 2.10).

Evidence shows that 11 of 23 resource-rich countries in Sub-Saharan Africa saw increasing economic concentration.4 Figure 2.11 shows how each country fared: those lying to the left of the 45-degree line saw a higher ratio of resource to nonresource GDP after the boom, meaning economic concentration in resources increased by the end of the boom. Countries such as Chad,

**Figure 2.10** Sectoral Composition of Sub-Saharan African Exports, Preboom, Boom, and Postboom Averages

![Diagram showing sectoral composition of Sub-Saharan African exports](source)

*Source:* Estimates through the World Integrated Trade Solution platform from the Comtrade database maintained by the United Nations Statistics Division.

the Democratic Republic of Congo, and Zambia were in this category. In contrast, Botswana, Nigeria, and 10 other resource-rich countries managed to reduce economic concentration. For example, in Botswana, manufacturing’s contribution to GDP increased from 6 percent in 2004 to 8 percent in 2014.

Export Concentration: The Boom Drove Increased Export Concentration

A key tenet of best practice advice to resource-rich countries is to use the opportunity created by a boom to promote a more diversified economy. Doing so can reduce exposure to price volatility and price risk, while also moving the economy up the value chain to higher value added and shift the economy into labor-intensive export manufacturing and other nonresource sectors. Diversification is a protection against depletion of the resource base, and in
the case of hydrocarbons, it may be insurance against a future global shift away from fossil fuel consumption driven by alternative energy technologies and taxation of carbon emissions (Cust, Manley, and Cecchinato 2017).

Although many countries have actively pursued diversification strategies during their resource booms, the record of success is poor. For many oil-rich countries, including in Africa, the boom was associated with increases in export concentration. However, some regions saw some success, notably Latin American and Southeast Asian countries, according to Ross (2017). Ross finds evidence that for four of the eight successful cases in which oil-rich economies successfully diversified during periods of high oil prices, the countries were reaching resource depletion, or economic sanctions were being placed from outside.

The majority of resource-rich Africa reporting an export diversification index saw increased export concentration (14 of 24 were left of the 45-degree line). Figure 2.12 illustrates the export diversification performance of African economies. Those lying to the right of the 45-degree line increased their measure of export diversification late into the boom (2006–10) compared with the

**Figure 2.12** Export Diversification Index of Sub-Saharan African Countries, 1998–2003 versus 2006–10 Averages

Source: Cust, Rivera-Ballesteros, and Zeufack 2022.

Note: A lower index value means higher diversification; 2010 is the most recent year with data available.

RR = resource rich; SSA = Sub-Saharan Africa.
preboom period (1998–2003). For example, Chad and Sudan saw increased export concentration, while Tanzania and Uganda were able to diversify exports.

This rising export concentration in the resource sector is not unique to Africa. First modeled by Corden and Neary (1982), this phenomenon has become popularized as the Dutch disease. Harding and Venables (2016) find that for each additional dollar of resource revenues, countries tend to see a decrease in nonresource exports of US$0.75.

**Asset Concentration: What Happened to the Wealth of Nations?**

The process of resource extraction has a first-order effect of reducing a country’s overall wealth by depleting the stock of nonrenewable, finite natural capital. However, countries may use the proceeds from this depletion to accumulate other forms of capital, such as by building physical infrastructure or investing in human capital via improvements in education and the health care of citizens. Meanwhile, the stock of natural capital can also increase as a result of rising prices applied to the remaining resource base, or new discoveries, some occurring as part of the discovery-by-extracting process.

During the boom decade, the total wealth stocks in resource-rich countries in Africa generally increased. Thus, including price effects, the total value of a nation’s stock of human wealth, productive capital, and natural assets, rose. Figure 2.13 shows this effect for African countries expressed in per capita terms.

**Figure 2.13** Change in Total Wealth per Capita in Sub-Saharan African Countries, 2004–14

Source: Cust, Rivera-Ballesteros, and Zeufack 2022.
The total wealth stocks during this period rose by an average of US$4,190 per person for Sub-Saharan Africa. Outliers in this process included countries such as Gabon, which, because of a combination of high oil depletion and high population growth, saw per capita wealth fall during the period from 2004 to 2014. Countries such as Botswana and Namibia added more than US$20,000 per person to their total national wealth during this period. Still, additional wealth per capita does not necessarily translate to improved equality: despite its national wealth gains, Namibia’s income inequality remains the second highest in the world.

One of the key principles of prudent natural resource management is the accumulation of assets to replace a depleting asset. Known as Hartwick’s rule (Hartwick 1977), this principle states that economic sustainability rests on replacing a nonrenewable natural asset with an alternative productive asset to offset depletion. This replacement can take the form of physical capital, financial capital, or human capital.

A useful metric with which to evaluate how well a country is accumulating these offsetting assets is the rate of adjusted net savings, calculated and published by the World Bank. Resource-rich countries face the risk of negative rates of adjusted net savings, given the high levels of asset depletion associated with resource extraction. The implied rate of capital accumulation rises with the rate and value of the depleting asset; put another way, these countries need to save and invest proportionately more because their revenues are coming from asset depletion. Unfortunately, during the boom the relationship between resource wealth, measured as rents’ share in GDP, has been negatively associated with countries’ rates of adjusted net savings, as shown in figure 2.14. In Africa, many countries with the highest depletion (proxied by rents) have seen low and negative rates of net saving, meaning they are running down the overall stock of assets in the country, and instead are consuming a large share of this value. This pattern means countries are bringing forward consumption at the expense of future GDP, effectively reducing the available assets for future generations.

Analysis by the World Bank (2019) shows that the largest reasons for negative adjusted net savings in the Southern Africa region is not depletion, but depreciation. As mining becomes more capital-intensive, it absorbs a large part of national savings for investment to offset depreciation. And the more capital that is invested, the more assets are depreciated and the more savings are needed for investment to maintain the assets. Venables (2016) documents this phenomenon.

Investments in human and physical capital can improve adjusted net savings and reduce both poverty and inequality amid mechanization. Mining has become an increasingly capital-intensive process, and thus, the majority of returns accrue to capital. Investments in human capital, particularly
education and skills, and physical capital, particularly infrastructure, can create an enabling environment for more diversified industries and create a more productive and healthy workforce.

According to the 2021 Changing Wealth of Nations report data (World Bank 2021), in 2004, 10 countries in Sub-Saharan Africa held most of their wealth in natural assets versus human or productive assets or net foreign assets. Surprisingly, by 2014, natural capital was still the most abundant asset in the same number of countries. Only Ghana reduced its natural capital share of total wealth below its human capital share, while the share increased in Niger. A large part of this occurred because countries replaced their depleting reserves with new discoveries; in addition, if prices rise sufficiently, the value of those depleting reserves also rises even as their stock might decrease, reflected in increased natural capital wealth. When focusing exclusively on nonrenewable natural assets, seven countries still held the majority (more than 50 percent) of their total wealth in assets including oil, natural gas, coal, or metals and minerals. By 2014, total wealth in seven of these countries was still concentrated in nonrenewable natural resources (table 2.1). These countries were Central

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**Figure 2.14** Average Adjusted Net Savings as a Share of GNI and Average Natural Resource Rents as a Share of GDP over the 2004–14 Boom Period in Sub-Saharan African Countries

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Source: Cust, Rivera-Ballesteros, and Zeufack 2022.

Note: Dashed line = linear regression of resource-rich SSA countries. GDP = gross domestic product; GNI = gross national income. Non-resource rich and resource rich classifications are according to IMF (2012) classification.
African Republic, Chad, the Democratic Republic of Congo, Gabon, Guinea, Liberia, and Mali. According to the Commission on Growth and Development (2008, 34), “Strong enduring growth requires high rates of investment… If the sustained, high-growth cases are any guide, it appears that overall investment rates of 25 percent of GDP or above are needed, counting both public and private expenditures.”

The resource boom did not translate into a significant shift in the asset portfolio composition of resource-rich countries. On average, the value of total wealth per person available in both resource-rich and non-resource-rich countries increased compared with the start of the boom. However, the asset composition proportions did not change considerably. Despite the rising value of nonrenewable natural assets in resource-rich countries, the value of natural capital available per person grew by less than 2 percent and continued to be the second-largest source of wealth. The growth of natural capital per person in non-resource-rich countries was also limited and remained around 20 percent of total wealth (see table 2.1 and figure 2.15).

Policy makers in resource-rich countries may have more success working toward asset diversification rather than export diversification. Asset portfolio diversification is an important step toward sustained growth and is more feasible for resource-rich countries to achieve than traditional export diversification because of pressure from Dutch disease (Cust and Rivera-Ballesteros 2021). The Changing Wealth of Nations 2021 report (World Bank 2021) suggests that targeting asset portfolio diversification, by investing in the expansion of human and physical capital, may be a more successful policy than export diversification for sustainable economic growth. This recommendation
builds on earlier work exploring the benefits of portfolio diversification, including *Diversification and Cooperation Strategies in a Decarbonizing World* (Peszko, van der Mensbrugghe, and Golub 2020), “Economic Diversification for a Sustainable and Resilient GCC” (Ollero et al. 2019), and *Diversified Development* (Gill et al. 2014).
**Outcome 5: Governance Was an Important Determining Factor in Outcomes for Resource-Rich Countries**

The boom could have brought the opportunity for resource-rich countries to mobilize economic resources to build better institutions that could secure revenue savings to protect them from price shocks given the commodity market volatility. However, evidence shows that resource-rich countries missed this opportunity and instead some indicators of institutional quality tumbled. A comparison of Worldwide Governance Indicator dimensions between resource-rich and non-resource-rich African countries shows that, on average, the latter performed much better than their resource-rich peers. The data show that the perceptions of voice and accountability and rule of law declined during and after the boom in resource-rich countries. Meanwhile, the other four dimensions (control of corruption, government effectiveness, regulatory environment, and political stability) improved only slightly in resource-rich Africa compared with non-resource-rich Africa (figure 2.16). The largest difference between the two groups is in the perception of control of corruption, consistent with Konte and Vincent's (2020) findings.

Within the resource-rich group, some countries performed worse than others. In some mineral-rich countries, including the Central African Republic and Mali, where gold or diamonds may have triggered rent-seeking behaviors, at least five governance dimensions dropped. At the same time, there are mineral- and oil-rich countries that have slightly improved their good governance perceptions. For example, although starting from a low base, Angola, Liberia, and Sierra Leone have lifted all six dimensions since the end of the boom, led by better political stability and absence of violence, and improved voice and accountability. On the other hand, countries such as Botswana and Ghana have performed well consistently (figure 2.17).

Effective corruption, measured by the incidence of bribe payment at the local level and the sentiment of distrust in local government councilors, amplifies the negative effects of geographic closeness to an active mine. Mehlum, Moene, and Torvik (2006) find that in countries with abundant natural resources, grabber-friendly institutions push aggregate income down, while producer-friendly institutions raise income. Boschini, Pettersson, and Roine (2003) find that governance problems, such as rent-seeking and conflicts, can be countered by good institutional quality. Evidence suggests, however, that resource rents can gradually erode checks and balances (Collier and Hoeffler 2009), jeopardizing government savings and investment quality. Therefore, Arezki and Brückner (2011) conclude that resource-rich countries with stronger economic and political institutions have, on average, better macroeconomic performance. For example, fiscal policies in countries with weaker institutions tend to be more procyclical, which can complicate fiscal planning in the face of price volatility and the exhaustibility of natural resources (IMF 2012).
Figure 2.16 Indexed Worldwide Governance Indicators: Period Averages for Resource-Rich and Non-Resource-Rich African Countries

a. Voice and accountability

b. Control of corruption

c. Government effectiveness

d. Regulatory quality

e. Rule of law

f. Political stability and absence of violence/terrorism

Source: Based on data from Kaufmann, Kraay, and Mastruzzi 2010.
The “presource curse” hypothesis, first developed by Cust and Mihalyi (2017), points to the risks faced by countries with recent major resource discoveries. The research finds that some countries with major discoveries have experienced “expectations booms” followed by growth disappointments.

Figure 2.17 Change in Worldwide Governance Indicator Average Ratings, by Resource-Rich Sub-Saharan African Country, 1998–2003 to 2015–18

Source: Based on data from Kaufmann, Kraay, and Mastruzzi 2010.

Governing New Discoveries and Managing Expectations: The Risk of the Presource Curse

The “presource curse” hypothesis, first developed by Cust and Mihalyi (2017), points to the risks faced by countries with recent major resource discoveries. The research finds that some countries with major discoveries have experienced “expectations booms” followed by growth disappointments.
Meanwhile, access to Eurobond markets for many Sub-Saharan African countries has created new opportunities to issue sovereign debt at commercial rates and leverage resource wealth to do so. Combined with commodity price uncertainty, such debt can increase the risk of debt unsustainability, particularly if investment is not efficiently allocated on high-return projects. Overoptimistic expectations about future growth rates, revenue flows, or the speed of project development can exacerbate risk-taking behavior, particularly when overoptimism is shared among citizens, governments, international financial institutions, sovereign credit risk rating agencies, and market participants.

On top of this, the squandering of the past commodity boom has heightened pressures to move toward so-called resource nationalism and protectionist policies. Some countries have sought contract renegotiation or the regular revising of fiscal terms. Others have been plagued by delayed and halted projects, creating uncertainty about when and if production will begin. This has further fueled the perception of the resource sector underdelivering on the expected economic gains some had forecast.

The presource curse phenomena was first documented using analysis of the impact from giant oil and gas discoveries around the world between 1988 and 2010. This period saw discoveries in 46 countries that led to an average underperformance of economic growth relative to forecast growth based on the impact of these discoveries. This effect was found to typically occur after the discovery, but before any extraction process had begun (Cust and Mihalyi 2017). This underperformance was measured as the combined impact of overoptimistic growth forecasts made by international actors (primarily the International Monetary Fund [IMF] in its World Economic Outlook series) and subsequent undershooting of the realized GDP growth rate. Overoptimistic forecasts of growth can drive elevated expectations from governments following discoveries, leading to various suboptimal behaviors (figure 2.18). These suboptimal government behaviors can include risky borrowing (Mihalyi 2016), which is harmful to debt sustainability, or even arms imports, which can also be detrimental to fiscal sustainability (Vezina 2020). A stark example of this is Mozambique after 2009. Vezina (2020) explains that after the discovery of giant natural gas fields off the coast of Mozambique between 2009 and 2011, the country experienced rapid growth and a foreign investment boom, which translated into unprecedented borrowing used to illegally purchase military ships. Soon the country entered a fiscal crisis because revenues did not materialize on the scale and timetable originally expected.

The hypothesis of overoptimistic expectations on the part of citizens is tested by Cust and Mensah (2020) on hydrocarbon discoveries in 35 Sub-Saharan African countries between 2002 and 2015, using Afrobarometer
data surveys. They find that this overoptimism and overexpectations of citizens appear to be much less pronounced in countries with higher democratization scores.

Cust and Mensah (2020) use a difference-in-differences strategy to provide evidence of a 1- to 12-month postdiscovery overoptimism about macroeconomic conditions and improvements in standards of living (figure 2.19), especially when the degree of democratization is low, suggesting that enhanced political institutions and better administration could help manage and moderate the risk for inflated expectations that fail to be matched by subsequent performance. Similarly, they can help improve the likelihood that discoveries translate into timely economic benefits for the country.

More precisely, Mihalyi and Scurfield (2021) indicate that (a) reforms to licensing and company selection to extract resources could help improve the prospects that discoveries will be developed, (b) reforms to regulatory norms and negotiation processes could help reduce delays in operationalization, and (c) reforms to tax mobilization and incentives related to discoveries might be key to ensuring fiscal sustainability and state-financing capacity in a resource-rich context.

**Figure 2.18 Short-Term Growth Impact of Giant Hydrocarbon Discoveries**

- **a. In all countries with discoveries**
- **b. In countries with stronger institutions**
- **c. In countries with weaker institutions**

Source: Cust and Mihalyi 2017.
Note: IMF = International Monetary Fund.
Managing the Discovery Boom

Evidence shows an increase in both public investment and public and private consumption for several years following a discovery. For example, Ruzzante and Sobrinho (2022) document a “fiscal presource curse.” They find natural resources can jeopardize fiscal sustainability even before the first drop of oil is pumped. Specifically, they find that giant discoveries, mostly of oil and gas, lead to permanently higher government debt and, eventually, debt distress episodes, specifically in countries with weaker political institutions and governance. This evidence suggests that the curse can be mitigated and even prevented by pursuing prudent fiscal policies and borrowing strategies, strengthening fiscal governance, and implementing transparent and robust fiscal frameworks for resource management.

Figure 2.19 Overoptimism of Citizens about Macroeconomic Conditions and Living Standards after Hydrocarbon Discoveries

Source: Cust and Mensah 2020.
Note: Each point estimate shows the effect of discoveries on expectations (for economic conditions or living standards) estimated separately for the respective time window on the horizontal axis, where expectations equal 1 when survey respondents expect at least better economic or living conditions and 0 otherwise. Vertical bars depict 95 percent confidence intervals.
Community Expectations
Research shows that giant oil discoveries have a positive impact on fertility decisions, while subgiant discoveries do not affect fertility decisions. Cust and Mensah (2020) show that finding a giant oil discovery is associated with a 1.6 percentage point increase in the probability of a woman giving birth within one year after the discovery, a statistically and economically significant effect. Relative to the sample mean, the effects correspond to an 8 percent increase in childbirth. This provides evidence of a short-run baby boom after giant discoveries, which could be brought on by an increase in citizen expectations of better economic and welfare conditions from the resource extraction. They find evidence of impatience among citizens within two to three years after discoveries, before exploitation even begins. Institutional quality, however, plays a key role in managing expectations. Thus, building strong institutions is crucial to managing citizen expectations about the windfalls from resource exploitation.

Perceptions of Governance
Evidence shows that perceptions of governance are affected by proximity to the mine. Konte and Vincent (2020) find that geographic closeness to a mine affects individuals’ expectations of their future living standards. The results from the baseline suggest that residents living within a 50-kilometer radius of an active mine are less likely to approve of government performance in improving living standards (−1.8 percent), water and sanitation (−2.3 percent), job creation (−2.9 percent), health services (−1.8 percent), and public services delivery (−1.9 percent). In addition, they are also less likely to be optimistic about their future living standards (−4.2 percent). While the results are more muted for proximity to an inactive mine, Konte and Vincent (2020) point to the dissatisfaction of nearby residents with the government’s handling of water and sanitation (−1.1 percent) and a decrease in optimism about the future (−2.6 percent). Compared with nonactive mines, active mining reduces the probability of approving of the government’s performance with regard to improving living standards by 2.3 percentage points, on job creation by 2.7 percentage points, on health services by 1.2 percentage points, and on public services as a whole by 1.8 percentage points. In addition, the active status of a nearby mine also decreases optimism about the future by 1.6 percentage points.

Managing Macroeconomic Risks
Although the bust phase, following a period of higher sustained commodity prices, has obvious downsides for resource-rich countries, even the boom period can introduce serious macroeconomic risks into the economy if not managed carefully. For example, during a boom, government and private sector
economic choices can be distorted, leading to misallocation or worse. Examples of distortions include the effect of the Dutch disease, where resource exports can cause a contraction in the traded sectors, such as manufacturing. Booms can also lead to an increase in government revenues, resulting in spending that might crowd out the private sector or distort the labor market, such as through increased salaries to government officials (Balde 2020; Devarajan et al. 2013). Resource exuberance can also drive increased borrowing and spending that can lead to growth disappointments and, in some cases, macro-fiscal crises.

Commodity cycles can also drive procyclical fiscal policy, which can create challenges due to increasing macroeconomic volatility, depress investment in real and human capital, hamper growth, and harm the poor (Manasse 2006; Servén 1998; World Bank 2001). In extreme cases, procyclicality can encourage additional government borrowing and indebtedness during the boom-bust cycle. Some governments borrow during the boom, on top of the windfall revenues they are receiving. Also, countries may choose to collateralize debt against their resources, either in the form of guarantees of future revenue streams or in-kind deals in which the creditor is repaid in barrels of oil or tons of minerals.

Evidence suggests that in resource-rich countries, optimal fiscal policy depends on the exchange rate regime, where an optimal fiscal policy would be procyclical if the country has a floating exchange rate. Mendes and Pennings (2020) suggest that, contrary to the standard policy advice of saving during price windfalls and spending during price busts, the optimal fiscal policy will depend on whether a country has a floating or fixed exchange rate regime. They argue that countries with fixed exchange rates should follow countercyclical fiscal rules to smooth the business cycle. Countries with floating exchange rates, however, should spend more according to the permanent income hypothesis, given that commodity price shocks are highly persistent. However, the previous boom demonstrated the importance that such spending should be invested in sustainable assets, consistent with Hartwick’s rule, but also that countries should not face fiscal overextension when commodity prices fall.

During the 2004–14 boom period, governments enjoyed large increases in their fiscal space, derived in part from the receipts from resource taxation, alongside debt relief for some countries after 2000. For example, at least eight Sub-Saharan African countries obtained revenues from natural resources representing, on average, more than 10 percent of their GDP during the boom, a significant fraction by both regional and global standards. Many chose to use this time to undertake significant expansions of public service provision, such as educational enrollment, as well as increased infrastructure investment. For example, according to the IMF’s Investment and Capital Stock Dataset, public investment in physical assets, including economic infrastructure such as roads and airports and social infrastructure such as hospitals and schools, rose from an average of roughly US$200 per capita during the preboom period
(1998–2003) to more than US$435 per capita during the boom, and US$270 after the boom period in resource-rich countries in Africa (Cust, Rivera-Ballesteros, and Zeufack 2022). Similarly, annual spending on health services rose from 4.6 percent of GDP to 4.9 percent, on average, and expenditure on education rose from an average of 2.8 percent of GDP before the boom to 3.5 percent of GDP after the boom.

Calderon and Zeufack (2020) highlight that public debt for Sub-Saharan Africa in general and Sub-Saharan African resource-rich countries in particular was, in 2018, still below the preforgiveness period, although some countries borrowed significant amounts during the boom period (2004–14) and were subsequently overexposed to risks of public debt crises that can undermine structural transformation (figure 2.20).

More significantly, Calderon and Zeufack (2020) provide evidence that the risk profile of public debt has significantly increased since 2012 for Sub-Saharan Africa in general and Sub-Saharan African resource-rich countries in particular, as the share of concessional public debt has been declining while the share of Eurobonds owed to private creditors and non–Paris Club bilateral creditors has been rising. The higher risks of debt profiles is a particular problem for all the Sub-Saharan African resource-rich countries that engaged in resource-backed loans, that is, ex ante collateralization.

Figure 2.20 General Government Gross Debt in Sub-Saharan Africa, by Type of Resource Endowment, 2007, 2013, and 2018

Source: Calderon and Zeufack 2020.
Resource-Backed Loans Carry Hidden Risks

Rising debt and record-high commodity prices are tempting many developing countries to pledge their natural resources to secure the financing they so urgently need. However, new evidence on resource-backed loans calls for caution and points to hidden risks (Rivetti 2021).

Such loans are not inherently bad; under specific circumstances, they can be beneficial to poor countries with a wealth of natural resources. But they require a careful cost-risk and debt-sustainability analysis—and transparency about their contractual terms. That seldom occurs. As a result, resource-backed loans have been more likely to exacerbate debt vulnerabilities than to ease them; see, for example, Mihalyi, Adam, and Hwang (2020).

Mihalyi et al. (2022) analyze a sample of 30 resource-backed loans extended to central governments and state-owned enterprises (SOEs) in Sub-Saharan Africa from 2004 to 2018—totaling $46.5 billion, or nearly a tenth of the continent’s new borrowing during this period. Despite the size of the loans, little information was available on their terms (Mihalyi et al. 2022).

There are several reasons for this lack of data. First, countries that rely on such borrowing methods usually have weaker debt-reporting practices. Second, such loans are often contracted by SOEs or special-purpose vehicles that either do not publish audited financial statements or do not provide the data to the national debt office. Third, contracts often include stringent confidentiality clauses (Estevão 2022).

Resource-backed loans are not necessarily cheaper than unsecured loans. Chad, for example, restructured its loan with Glencore in 2015, but was still paying an all-in cost of more than 8 percent on its fully collateralized loan before restructuring it again in 2018 (Payne 2018). First, the borrower taking on a resource-backed loan usually has limited market access or limited funding sources. Second, given the complexity of these transactions, borrowers may not fully understand the implications of contract terms when negotiating them. These risks are compounded by the lack of transparency and government accountability.

Several African country cases underscore these challenges. South Sudan is paying the price for a poorly designed oil-backed loan it took on when its production capacity was still strong (Reuters 2022). Chad is struggling to restructure its debt—because the commercial lenders behind its oil-backed loans have little incentive to cut the government any slack (Savage and Prentice 2022). Zimbabwe recently entered into discussions with a commodity trader to hand over revenues from its lucrative gold and nickel mines to pay off its debts to the company (Njini and Sguazzin 2022).

Resource-backed loans involve large government borrowing—usually for infrastructure—and are collateralized by future income streams from
countries’ natural resource wealth. Such loans are often opaque; little is disclosed about their contractual terms, which means public accountability can be hard to ensure. Such loans are not new—they go back at least a century. But they became widely used across resource-rich developing countries during the commodity boom of the early 2000s. In Sub-Saharan Africa, for example, such loans represented nearly 10 percent of total new borrowing between 2004 and 2018.

Increased deal disclosure will improve value for money and protect countries. It is imperative that the details of these loans be made public. Some governments have begun to take important steps in that direction (Maslen and Aslan 2022). The Democratic Republic of Congo, for example, has published contracts involving resource-backed loans between its state-owned mining companies and a consortium of Chinese companies and with a large commodity trader. To encourage more progress, countries should put in place legal requirements for disclosure of loan contracts.

Alternative resource-leveraged instruments are also being explored, such as the proposed securitization of Ghana’s gold royalties. Although the proposal design is under development and has met with some controversy because of the speed of its passage through parliament, such financial innovations may yet open up new—as well as potentially more transparent and competitive—means of mobilizing new financing streams. For now, however, developing economies with rising revenue needs should remain wary of resource-backed loans and carefully consider the risk-reward calculus.

Conclusions: Insights from the Boom-and-Bust Cycle

The conclusions of this chapter are stark. The 2004–14 commodity boom offered a huge opportunity for resource-rich Sub-Saharan African countries to outperform their non-resource-rich neighbors. However, the boom instead created a series of vulnerabilities in resource-rich countries that now depict a bitter legacy of a golden era. At the beginning, the boom created high expectations of growth in resource-rich countries, which induced them to engage in risky behaviors, generating phenomena such as the presource curse. During the boom, higher rents and attractive windfalls were not sufficiently channeled into diversifying the economy or into efforts to reduce poverty and inequality. Instead, poverty and inequality increased in many resource-rich countries during the boom. Additionally, the dependence on these resources introduced these countries to serious macroeconomic risks.

Resource-rich countries failed to take the opportunity to diversify their economies and use these additional revenues to invest in other assets or to better prepare for becoming more resilient. At the end of the boom,
resource-rich countries ended up with unsustainable growth paths and with greater vulnerability to commodity price shocks. The boom also did not help resource-rich African countries alleviate poverty; in fact, these countries are expected to house the largest share of poor in the world and with persistent inequality. The legacy of the boom has shown the critical role of policy choices and institutions in determining whether resource-rich African countries harnessed this bonanza. The outcomes from the next boom remain for African governments and the people of resource-rich Africa to shape.

**Notes**

1. These various challenges faced by governments are described in documents such as the Natural Resource Charter, which highlights the various public policy choices that must be made along the decision chain, from exploration for resources to how to invest revenues from resources for sustainable and diversified development (NRGI 2014).

2. Based on projections from Lakner et al. (2021), by 2030 there will be about 616 million poor in the world, 500 million poor in Africa (80 percent), 448 million in resource-rich countries (75 percent), and 379 million of them will be living in Sub-Saharan Africa (62 percent of the world’s poor, or 85 percent of poor people living in resource-rich countries).

3. Poverty projection estimates included in this report are based on the poverty projection methodology designed and published by Lakner et al. (2021), which incorporates the impact of COVID-19 on global poverty. These projections are based on the growth forecasts from the June 2021 version of Global Economic Prospects and take the Sustainable Development Goals’ definition of extreme poverty, which groups people living below the poverty line of US$1.90 a day, measured in 2011 purchasing power parity prices.

4. There were 23 countries with sectoral GDP data.

5. Grabber-friendly institutions’ typical features include weak rule of law, high risk of expropriation, malfunctioning bureaucracy, and corruption. Grabber-friendly institutions incentivize competition between rent-seeking and production, contrasting with producer-friendly institutions, where rent-seeking and production are complementary activities (Mehlum, Moene, and Torvik 2006).

**References**


