

# Lecture 7

## "Underdevelopment": Contributing Factors Resource Curse

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*Are natural resources a "curse" or a "blessing"?*

*Why has it proven so difficult to use natural resources for development?*

## Resource curse

is the underperformance of resource-rich economies.

Brief video on Resource Curse

## Resource-rich country

is a country deriving at least 20% of exports or 20% of fiscal revenue from nonrenewable natural resources (based on 2006-2010 averages) (IMF).

- There are 51 resource-rich countries, home to 1.4 billion people.
- In 25 of these countries, resources make up more than three-quarters of exports.
- In 20 of these countries, resources provide more than half of government revenues.
- 29 of these countries are low- and lower-middle-income economies.

## Diverse experiences of illustrative resource-rich countries:

### *Nigeria:*

- Oil revenues per capita increased from US\$33 in 1965 to US\$325 in 2000.
- Income per capita has stagnated at around US\$1,100 in PPP terms since its independence in 1960 putting Nigeria among the 15 poorest countries in the world.

### *Botswana:*

- 40% of GDP stems from diamonds, but the country has managed to beat the resource curse.
- It has the second highest public expenditure on education as a fraction of GNP.
- It enjoys the world's highest growth rate since 1965.

Diverse experiences of illustrative resource-rich countries:

## *Nigeria:*

- Between 1970 and 2000, the part of the population that has to survive on less than US\$1 per day shot up from 26 to almost 70%.
- Oil wealth has fundamentally altered politics and governance.

## *Botswana:*

- GDP per capita is at least 10 times that of Nigeria.



## Diverse experiences of illustrative resource-rich countries:

### *Nigeria:*

- In 1970, the top 2% had the same share of income as the bottom 17%.
- In 2000, the top 2% had the same share of income as the bottom 55%.

### *Norway:*

- Remarkable growth of manufacturing and the rest of the economy compared with its neighbors despite phenomenal growth in oil exports since 1971.
- One of the least corrupt countries in the world.
- Enjoys well developed institutions, far sighted management and market friendly policies.

Other examples from history:

- **XVII century:** resource-poor Netherlands eclipsed Spain, despite the overflow of gold and silver from the Spanish colonies in the New World.
- **XIX and XX centuries:** resource-poor countries such as Switzerland and Japan surged ahead of resource-abundant economies such as Russia.
- **Late XX century:** the world's star performers have been the resource-poor Newly Industrializing Economies (NIEs) of East Asia - Korea, Taiwan, Hong Kong, Singapore - while many resource-rich economies such as the oil-rich countries of Mexico, Nigeria, Venezuela, have gone bankrupt.

## Cross-country correlations:

- Resource dependence is associated with less nonresource exports and foreign direct investment.
- Resource wealth is associated with less openness to foreign trade and less openness to gross foreign direct investment.
- The share of natural resource wealth in national capital is negatively correlated with both gross domestic investment as percentage of GDP and financial development.

## Cross-country correlations:

- There is an inverse correlation between resource dependence and school enrollment at all levels, expected years of schooling, and public spending on education.
- There is a positive correlation between natural resource dependence and macroeconomic volatility.
- Resource dependence crowds out foreign, social, human, real, and financial capital, each effect tending to depress growth.

# Facts

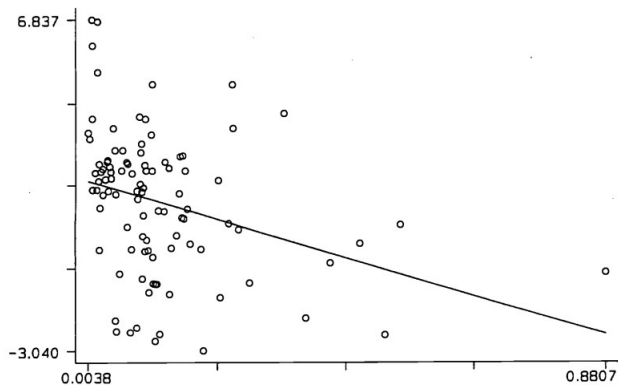


Figure 1. The simple association between growth per-capita between 1970 and 1989 (vertical axis) and the share of natural resource exports in GDP in 1971 (horizontal axis). The regression line has a slope of -5.2 and a t-ratio of -3.3.

# Facts

## Natural capital

consists of subsoil assets, timber resources, nontimber forest resources, protected areas, cropland, and pastureland.

## Intangible capital

reflects the contribution of raw labor, human capital, R&D, social capital, and other factors such as institutions and rule of law.

TABLE 1  
TOTAL, NATURAL, PRODUCED AND INTANGIBLE CAPITAL, 2000  
(*\$ per Capita and Percentage Shares*)

Income group	Natural capital	Produced capital	Intangible capital	Total wealth	Natural capital share	Produced capital share	Intangible capital share
Low-income countries	1,925	1,174	4,434	7,532	26%	16%	59%
Middle-income countries	3,496	5,347	18,773	27,616	13%	19%	68%
High-income OECD countries	9,531	76,193	353,339	439,063	2%	17%	80%
World	4,011	16,850	74,998	95,860	4%	18%	78%

*Note:* All dollars at nominal exchange rates. Oil states excluded.

*Source:* World Bank 2006, table 2.1.

- The share of natural capital in total wealth is much higher in poorer countries.
- The share of intangible capital in total wealth is substantially higher in richer economies.
- Richer countries focus relatively more on dynamic sectors such as manufacturing and services.
- Poorer countries specialize in the more static primary sectors.



TABLE 3  
INTANGIBLE CAPITAL AND WEALTH COMPOSITION IN HIGHLY RESOURCE-RICH COUNTRIES

Country	Intangible capital per capita (\$)	Percentage share of total wealth		
		Natural capital	Produced capital	Intangible capital
Russian Federation	6,029	44	40	16
Guyana	2,176	65	21	14
Moldova	1,173	37	49	13
Venezuela	4,360	60	30	10
Gabon	-3,215	66	41	-7
Syrian Arab Republic	-1,598	84	32	-15
Algeria	-3,418	71	47	-18
Nigeria	-1,959	147	24	-71
Congo	-12,158	265	180	-346

Source: World Bank 2006, p. 29.

- Highly resource rich economies, such as the oil exporters Nigeria, Venezuela, and Algeria, sometimes even have negative shares of intangible capital in total wealth.
- This suggests that these countries have extremely low levels of GNI as their returns on productive and intangible capital are very low and possibly even negative.
- Consequently, they have very low total wealth and can sustain only very low levels of consumption per capita.

Table 1

## Resource Dependent Low- and Lower-Middle-Income Countries

Country	Type of natural resource	GNI per capita (2010 US\$)	Natural resource exports as % of total exports (2006–2010 average)	Natural resource fiscal revenue as % of fiscal revenue (2006–1000) average)
Congo, Dem. Rep.	Minerals & Oil	180	94	30
Liberia	Gold & Iron Ore	210	—	16
Niger	Uranium	360	—	—
Guinea	Mining Products	390	93	23
Mali	Gold	600	75	13
Chad	Oil	710	89	67
Mauritania	Iron Ore	1,000	24	22
Lao PDR	Copper & Gold	1,010	57	19
Zambia	Copper	1,070	72	4
Vietnam	Oil	1,160	14	22
Yemen	Oil	1,160	82	68
Nigeria	Oil	1,170	97	76
Cameroon	Oil	1,200	47	27
Papua New Guinea	Oil/Copper/Gold	1,300	77	21
Sudan	Oil	1,300	97	55
Uzbekistan	Gold & Gas	1,300	—	—
Côte d'Ivoire	Oil & Gas	1,650	—	—
Bolivia	Gas	1,810	74	32
Mongolia	Copper	1,870	81	29
Congo, Rep. of	Oil	2,240	90	82
Iraq	Oil	2,380	99	84
Indonesia	Oil	2,500	10	23
Timor Leste	Oil	2,730	99	—
Syrian Arab Rep.	Oil	2,750	36	25
Guyana	Gold & Bauxite	2,900	42	27
Turkmenistan	Oil & Gas	3,790	91	54
Angola	Oil	3,960	95	78
Gabon	Oil	7,680	83	60
Equatorial Guinea	Oil	13,720	99	91

Source: World Development Indicators, World Bank; and IMF staff estimates.

# Facts

For the group of resource-rich low- and lower-middle-income countries there are four key facts:

## FACT 1.

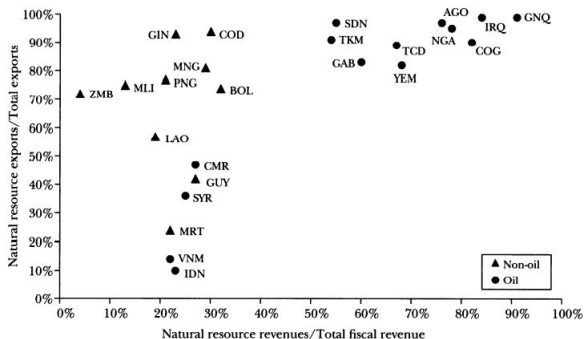
For many of these countries, there is extreme dependence on natural resources for fiscal revenues, export sales, or both.

- Out of the 24 countries (for which reliable data are available), 10 receive more than half of fiscal revenue from resources.
- Out of the 24 countries (for which reliable data are available), in 17, resources constitute more than two-thirds of their exports.
- Fiscal dependency is particularly acute for oil producers.

Figure 1

## Share of Exports and Fiscal Revenue from Natural Resources

(average 2006–2010)



Sources: World Development Indicators, World Bank; and IMF staff estimates.

Notes: AGO = Angola; BOL = Bolivia; CMR = Cameroon; COD = The Democratic Republic of Congo; COG = Republic of the Congo; GAB = Gabon; GIN = Guinea; GNQ = Equatorial Guinea; GUY = Guyana; IDN = Indonesia; IRQ = Iraq; LAO = Laos; MNG = Mongolia; NGA = Nigeria; MLI = Mali; MRT = Mauritania; PNG = Papua New Guinea; SDN = Sudan; SYR = Syria; TCD = Chad; TKM = Turkmenistan; VNM = Vietnam; YEM = Yemen; ZMB = Zambia.

## Resource rents

are measured by the World Bank in its World Development Indicators as gross revenues from oil, natural gas, coal, minerals, and forests minus their estimated extraction costs.

## Adjusted net savings

are national savings plus education expenditure and minus depletion of natural resources.

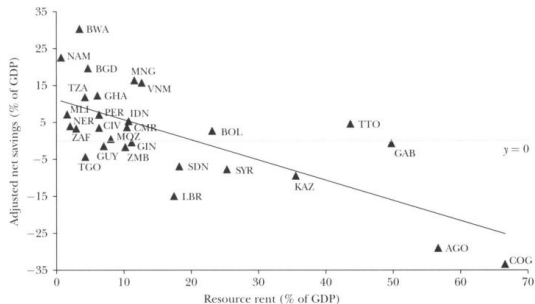
For the group of resource-rich low- and lower-middle-income countries there are four key facts:

## FACT 2.

Saving in these countries has generally been low.

- Adjusted net saving is strongly negative for a large number of countries.
- There is a negative correlation between resource rents and the saving rate.

**Figure 2**  
**Adjusted Net Savings and Exhaustible Resource Rent**  
*(average 2000–2009)*



*Sources:* World Development Indicators, World Bank; and IMF staff estimates.

*Notes:* AGO = Angola; BGD = Bangladesh; BOL = Bolivia; BWA = Botswana; CMR = Cameroon; COG = Republic of the Congo; CIV = Côte d'Ivoire; GAB = Gabon; GHA = Ghana; GIN = Guinea; GUY = Guyana; IDN = Indonesia; KAZ = Kazakhstan; LBR = Liberia; MNG = Mongolia; NAM = Namibia; NER = Niger; MLI = Mali; MOZ = Mozambique; PER = Peru; SDN = Sudan; SYR = Syria; TGO = Togo; TTO = Trinidad and Tobago; TZA = Tanzania; VNM = Vietnam; ZAF = South Africa; ZMB = Zambia. Resource rents are measured by the World Bank in its World Development Indicators as gross revenues from oil, natural gas, coal, minerals, and forests minus their estimated extraction costs. Adjusted net savings are national savings plus education expenditure and minus depletion of natural resources.



Two hypotheses to explain low saving by resource-rich developing countries:

- 1 The "**anticipation of better times**" hypothesis suggests that resource rich countries should borrow in anticipation of higher world prices for resources and improvements in extraction technology in the future.
- 2 The "**rapacious extraction**" hypothesis argues that, in absence of effective government intervention, conflict among rival factions induces excessive resource extraction and investment and negative genuine saving when there is wasteful rent seeking, investment in "white elephants" and short-sighted politicians.

## Genuine saving

is the traditional concept of net saving, namely public and private saving minus depreciation of public and private investment plus current spending on education to capture the change in intangible (human) wealth minus the value of net depletion of exhaustible natural resources and renewable resources (forests) minus damages of stock pollutants (carbon dioxide and particulate matter).

# Facts

- With positive genuine saving, a nation becomes richer and social welfare increases.
- With negative genuine saving, a nation loses wealth and social welfare falls.
- Countries with a large percentage of mineral and energy rents of GNI typically have lower genuine saving rates.
  - This means that many resource rich countries become poorer each year despite the presence of large natural resources.
  - They do not fully reinvest their resources at the expense of future generations by not investing in intangible or productive wealth.
    - *Example:* Botswana, Ghana, and China with positive genuine rates enjoy substantial growth in the year 2003.
    - *Example:* Nigeria and Angola have genuine saving rates of minus 30%, which impoverishes future generations despite some GDP growth.
    - *Example:* The oil/gas states of Azerbaijan, Kazakhstan, Uzbekistan, Turkmenistan, and the Russian Federation all have negative genuine saving rates; they seem to be consuming or wasting rather than reinvesting their natural resource rents.

# Facts

For the group of resource-rich low- and lower-middle-income countries there are four key facts:

## FACT 3.

The growth performance of all the resource-rich economies as a group has been generally poor, although a few countries have done well - for example, Botswana, Malaysia, and Chile.

- Natural resource dependence has a significant negative effect on the growth of GDP per capita, with a 10 percentage point increase in the ratio of resource exports to GDP depressing average growth by 0.77-1.1 percentage points per annum (Sachs and Warner 1995; 1997) .

# Facts

For the group of resource-rich low- and lower-middle-income countries there are four key facts:

## FACT 4.

Resource revenues can be highly volatile.

- Some variability is predictable - due to opening of new deposits of natural resources and closure of depleted ones.
- But much of the variability is unpredictable and due to the volatility of commodity prices, particularly that of oil.
- The World Bank's measure of resource rents, for the world as a whole, has fluctuated between 1.5 % (1998) and 7% (2008) of world GDP over 20 years.
- Measures of volatility typically exceed those of nonresource-rich countries by 50% for mineral-rich countries and more than 100% for oil-rich countries.

Stages of use of nonrenewable natural resources:

- 1 Discovery, development, and rent capture;
- 2 Managing revenues
  - Principles
  - Outcomes
  - Causes

## Stages:

# Discovery, Development, and Rent Capture

Initial discovery and development of a natural resource deposit requires investment by firms with considerable technical expertise.

- In developing countries, these firms are generally foreign-owned.
- Economic principles suggest that the host country - owner of the resource - should put in place a regulatory and fiscal regime in which:
  - the investor can make a normal rate of return;
  - rents over and above this rate can then be captured by the resource owner, the state.
    - Exploration and development licenses generally carry a fee, often determined by auctioning of the rights.
    - Subsequent resource extraction is taxed through a combination of royalties on output, production-sharing agreements in which a certain fraction of production is taken by the government directly and through corporate income tax, possibly at a rate specific to the extractive sector.

# Stages:

## Discovery, Development, and Rent Capture

Complicating factors that can deter investors and depress the revenues that can be captured by the state:

- The process through which licenses are allocated can raise difficulties.
  - ① *What could go wrong in this stage?*
  - ② *What kind of procedure could be used to ensure the highest revenue for the state in allocating the licenses?*



# Stages:

## Discovery, Development, and Rent Capture

Complicating factors that can deter investors and depress the revenues that can be captured by the state:

- The process through which licenses are allocated can raise difficulties.
  - ① *What could go wrong in this stage?*
    - Ideally, this process is transparent, competitive, and can secure a high fraction of the rent for the state.
    - In practice, there are many instances of rights having been awarded in ways that are nontransparent and possibly corrupt, and thus not ending up with the best-qualified investor.
      - *Example:* the Simandou iron-ore project in Guinea.
  - ② *What kind of procedure could be used to ensure the highest revenue for the state in allocating the licenses?*
    - Auctions will often be useful.

## Stages:

# Discovery, Development, and Rent Capture

Complicating factors that can deter investors and depress the revenues that can be captured by the state:

- Investments in discovery and extraction of nonrenewable resources are inherently risky due to geological and price uncertainty.
  - Investors are further deterred by uncertainty surrounding the local economic, institutional, and political environment.
  - The regulatory environment may be cumbersome and unpredictable.
  - Weak infrastructure may increase extraction costs.
  - Security may be a concern, and the resource itself may be subject to theft.
    - *Example:* In Nigeria, theft of crude oil is estimated to run at 10-15% of total production.
    - *Example:* Theft also occurs through corruption in award of contracts, as in the Petrobras scandal in Brazil.

# Stages:

## Discovery, Development, and Rent Capture

Complicating factors that can deter investors and depress the revenues that can be captured by the state:

- Investors may be deterred by risk of hold-up.
  - Investments are sunk and long-lived, and governments, present and future, will have an incentive to change contractual and fiscal terms once the investment is in place.
  - At the extreme, there is expropriation risk, but there is a broader risk of changes in rates of taxation and tax allowances.
- ③ *What could be done to ensure that investors are protected from these risks?*

# Stages:

## Discovery, Development, and Rent Capture

Complicating factors that can deter investors and depress the revenues that can be captured by the state:

- Investors may be deterred by risk of hold-up.
- ③ *What could be done to ensure that investors are protected from these risks?*
  - A variety of legal mechanisms can be used:
    - Bilateral investment treaties offer investors protection against breach of contract.
    - Where such treaties do not exist, countries can offer contract-specific stabilization agreements that guarantee terms (or equivalent value).
    - Credibility of agreements can be reinforced by offering international arbitration and waiving sovereign immunity.

# Stages:

## Discovery, Development, and Rent Capture

Complicating factors that can deter investors and depress the revenues that can be captured by the state:

- Other inefficiencies arise in the regime for taxing output.
  - Ideally, the regime should tax rents, leaving marginal extraction decisions unaffected.
  - However, investors can disguise profits by accounting practices.
  - A response is to tax observable outputs, which in practice means to use royalties and production sharing agreements, even though these methods are inefficient since they distort investment and extraction decisions.

# Stages:

## Discovery, Development, and Rent Capture

Implications of these complicating factors:

- Government "take" (the share of revenues) has been exceptionally low.
  - *Example:* The Zambian copper industry was resold with a fiscal regime that was equivalent to an effective royalty rate of 0.6%, one-tenth that of comparable mining projects.
- "Resource nationalism": the development of national resource companies to work with, or in some cases to take over, foreign investors.
  - *Example:* Some of them have attained world-class efficiency levels, like Saudi Aramco and Petronas of Malaysia.
  - *Example:* Others have failed to provide effective management, in some cases leading to dramatic declines in output, like the Nigerian National Petroleum Corporation and Zambian Consolidated Copper Mines.

# Stages: Managing Revenues

## Principles

There are three key questions about the use of rents from extraction of nonrenewable resources:

- 1 Should the use of these resources be focused on current consumption or on investment?
- 2 For the investment component, what financial, physical capital, and human capital assets should be acquired?
- 3 Should the rents be handled by the government directly or handed to citizens?

# Stages: Managing Revenues

## Principles

- 1 Should the use of these resources be focused on current consumption or on investment?
  - One approach is custodianship:
    - The current generation should pass assets on intact to future generations.
  - Another approach is utilitarian:
    - The benefits should be spread across present and future generations.
    - However, this rule needs modification in a developing economy that is capital-scarce and accumulating capital as it converges to a higher income path.
    - Less should go to future generations (who will have higher incomes in the future anyway) and more to current poverty reduction.



# Stages: Managing Revenues

## Principles

- ② For the investment component, what financial, physical capital, and human capital assets should be acquired?
  - At the aggregate level this is a choice between domestic and foreign assets.
    - For a capital-abundant country, the answer is to accumulate foreign assets in a sovereign wealth fund, such as Norway's Pension Fund.
    - For a capital-scarce country, the priority is to build domestic assets - including human as well as physical capital.

# Stages: Managing Revenues

## Principles

- 2 For the investment component, what financial, physical capital, and human capital assets should be acquired?
  - For a capital-scarce country, the priority is to build domestic assets - including human as well as physical capital.
  - While the priority is domestic investment, there are several reasons for supporting this with some accumulation of foreign assets:
    - There is a need for a "parking fund" - a way of placing revenues offshore until they can be used efficiently in the domestic economy.
    - There is a need to self-insure against price uncertainty by building a "stabilization fund".
    - Some insurance against price fluctuations can be provided by financial instruments: **options** and **forwards**.

# Stages: Managing Revenues

## Principles

- ③ Should the rents be handled by the government directly or handed to citizens?
  - The government, while distributing some revenues through current spending, can retain ownership of assets that are acquired.
    - These may be public investments, or assets associated with lending to the private sector, perhaps through a development bank or by having lower government (domestic) debt than would otherwise have been the case.
  - The alternative is that funds are given to the private sector by tax reductions or a program of citizen dividends.
    - *Example:* the US state of Alaska, where fossil fuel revenues are placed in a fund, income from which is paid directly to citizens through the Permanent Dividend Program.

# Stages: Managing Revenues

## Principles

- ③ Should the rents be handled by the government directly or handed to citizens?
  - In developing countries with scarcity of public funds and the need to increase public investment in human and infrastructure capital, government control may be desirable.
    - Resource revenues can fund such investments without imposing taxes that will be distortionary and can be hard to administer.
    - Government can smooth spending, both across generations and also in response to short-run business cycle fluctuations, mitigating the risk of resource-induced macroeconomic instability.

# Stages: Managing Revenues

## Principles

- ③ Should the rents be handled by the government directly or handed to citizens?
  - In contrast, the private sector control may be desirable in developing countries by following considerations:
    - Direct distribution to citizens may reduce the risk of corruption and improve the quality of investments undertaken.  
**BUT!**
    - Citizen dividend schemes may create political risks, as they may become highly politicized and subject to electoral bidding wars by populist politicians.

# Stages: Managing Revenues

*How and why do actual outcomes differ from these principles?*

# Stages: Managing Revenues

## Outcomes

- 1 Should the use of these resources be focused on current consumption or on investment?
  - Saving rates (in any form, whether domestic investment or foreign funds) have generally been low for low-income resource-rich countries.
  - Public investment as a share of GDP has been (until the 2000s) lower in resource-rich low-income countries than in other low-income countries.
  - Higher resource rents are actually associated with lower public capital stocks, particularly in countries with weak institutions.
  - When governments have sought to invest savings from resource revenues, the results have often been inefficient in both design and implementation.

# Stages: Managing Revenues

## Outcomes

- 2 For the investment component, what financial, physical capital, and human capital assets should be acquired?
  - Some countries have established sovereign wealth funds in which the state invests resource revenues offshore.
    - *Example:* Botswana's Pula Fund has been successful in managing both long-run investments and stabilization.
    - *Example:* Nigeria's Excess Crude Account has played some role in stabilizing the economy, but its effectiveness has been undermined by failure of many state governments to ratify the federal Fiscal Responsibility Act that set up the fund; by absence of sound legal foundation; and by "ad hoc disbursements".
    - *Example:* Cameroon was initially praised for setting up an offshore (and extra-budgetary) account to manage oil revenues, but from which about half of Cameroon's total oil revenue subsequently disappeared.



# Stages: Managing Revenues

## Outcomes

- ③ Should the rents be handled by the government directly or handed to citizens?

Transfers of funds from the public sector to the private have been achieved to varying extents and by different means.

- Some of the transfer comes from lower taxes.
- Citizen dividend schemes are rare in developing countries.
  - *Example:* Mongolia established a scheme, but it was scaled back dramatically in 2012 after exaggerated election promises led to transfers that exceeded resource earnings.
- Highly inefficient mechanisms of the transfer have been used, such as fuel subsidies.
  - *Example:* The price of gasoline in Venezuela has been less than \$0.10 per gallon and Iran's energy subsidies peaked at 10% of GDP in 2010, shortly before a subsidy reform program was launched.

# Stages: Managing Revenues

*Why have matters so often gone so wrong?*

# Stages: Managing Revenues

## Causes

- 1 Many resource-rich countries have found it difficult to maintain **fiscal discipline** in the face of competing claims for a share of resource revenues.
  - The problem is exacerbated by weak government capacity.
    - The larger are revenues, the greater the proportion of bad projects that get accepted.
    - As revenues increase, corruption increases more than proportionately.
    - Resource revenues enable government to postpone economic reforms.

# Stages: Managing Revenues

## Causes

How might these failures of **fiscal discipline** be countered?

- Managing expectations can help.
  - There is usually little public or even official knowledge of the actual scale of resource revenues.
  - There is a tendency to overestimate wealth and ignore trade-offs.
  - So transparency is important, so that revenue flows and spending are visible to parliament and civil society.

# Stages: Managing Revenues

## Causes

How might these failures of **fiscal discipline** be countered?

- A centralized system of financial control and authority can help with fiscal discipline, too.
  - A central finance ministry can balance the competing demands of spending ministries, regional authorities, or other lobby groups.
  - To play this role effectively the finance ministry must have control of incoming revenues, along with sufficient political will and power to resist competing demands.
    - *Example:* Botswana has had a powerful Ministry of Finance and Development Planning that has controlled and prioritized spending.

# Stages: Managing Revenues

## Causes

How might these failures of **fiscal discipline** be countered?

- The hand of the finance ministry can be strengthened by a "*fiscal constitution*" that imposes ceilings on public spending from resource revenues or public funds more generally.
  - *Example:* Chile's fiscal constitution has been largely successful.

# Stages: Managing Revenues

## Causes

- 2 Spending pressures are magnified by the prevalence of **patronage politics**, which distorts public spending to favor partisan groups.
  - This distortion can have an intertemporal dimension, with the current government spending heavily on its favored group and passing on too little capital (or too high levels of debt) to the next government.
  - Revenues can be used by the incumbent government to increase the probability of staying in power.
    - *Example:* The government can initiate spending which it can credibly commit to continue if it wins the election but which the opposition party would cancel.
    - *Example:* Public sector employment in which the government hires its supporters.

# Stages: Managing Revenues

## Causes

- ③ Wealth from natural resources can also increase **conflict risk**.
  - It can provide both the motive and the means for insurgency, while also providing funds for the government (or those with access to government funds) to equip itself to retain power.
    - An increase in commodity prices significantly increases the incidence of conflict.
    - A price increase of the commodities that a country exports significantly reduces the chance that a war will be settled.



# Resource Curse: Explanations

## ① Dutch Disease: Natural Resource Windfalls Cause Deindustrialization

### Dutch Disease

the extra wealth generated by the sale of natural resources induces appreciation of the real exchange rate and an ensuing contraction of the traded sector.

- Countries in which the resource sector accounts for more than 30% of GDP have a nonresource tradable sector 15 percentage points lower than the norm.
- A 10% increase in oil revenues is associated with an average 3.4% fall in value added across manufacturing.
- *Example:* collapse of Nigerian agriculture.

## ① Dutch Disease: Natural Resource Windfalls Cause Deindustrialization

Ways to avoid the Dutch disease:

- Mitigation.
  - Fiscal policies that smooth spending (and thus involve parking revenues offshore);
  - Microeconomic policies to increase the flexibility of the economy and anticipate bottlenecks;
  - Monetary or exchange rate policies that control appreciation of the currency.

## ① Dutch Disease: Natural Resource Windfalls Cause Deindustrialization

Ways to avoid the Dutch disease:

- Diversification
  - Using revenues to support investment sectors not directly linked to resources, either through development banks or direct government industrial policy.
  - *Example:* In Malaysia, within agriculture, investment programs raised productivity and implemented a transition from rubber to palm oil production. Industrial policy succeeded in developing a range of labor-intensive activities, including the electronics sector.

- ② **Temporary Loss in Learning by Doing Curbs Economic Growth**
  - The traded sector is the engine of growth and benefits most from learning by doing and other positive externalities, hence nonresource export sectors temporarily hit by worsening competitiveness are unable to fully recover when resources run out.

## 3 Turning the Resource Curse into a Blessing: Good Institutions and No Corruption

- Increased corruption hampers economic growth.
- Mineral wealth may prevent redistribution of political power toward the middle classes and thus prevent adoption of growth-promoting policies.
- Resource wealth worsens quality of institutions since it allows governments to pacify dissent, avoid accountability, and resist modernization.
  - *Example:* Corruption and granting of import licenses and other privileges to cronies seem to be why oil riches have ruined long-run performance of the Nigerian economy.

## ③ Turning the Resource Curse into a Blessing: Good Institutions and No Corruption

- Resource wealth makes it easier for dictators to buy off political challengers.
  - *Example:* President Mobutu in Congo with its wealth in copper, diamonds, zinc, gold, silver, and oil.
- Resource riches raise the value of being in power and induce politicians to expand public sectors, bribe voters by offering them well paid but unproductive jobs and inefficient subsidies and tax handouts, especially if accountability and state competence are lacking.

## ③ Turning the Resource Curse into a Blessing: Good Institutions and No Corruption

There are two outcomes following a resource bonanza.

- If institutions are strong and encourage productive entrepreneurship, profits of entrepreneurs increase.
  - In equilibrium, less people engage in rent seeking and more in productive activities.
  - *Example:* resource-rich countries with strong institutions are Australia, Canada, the United States, New Zealand, Iceland, Norway, and Botswana.

# Resource Curse: Explanations

## ③ Turning the Resource Curse into a Blessing: Good Institutions and No Corruption

There are two outcomes following a resource bonanza.

- If institutions are weak, the legal system dysfunctions and transparency is low, rent seeking has a higher return and unfair takeovers, shady dealings, corruption, crime, etc. pay off.
  - There will be more rent seekers and there will be less productive entrepreneurs.
  - In equilibrium, profits fall and as a result the economy is worse off.
  - *Example:* Weak institutions may explain poor performance of oil-rich states such as Angola, Nigeria, Sudan, and Venezuela, diamond-rich Sierra Leone, Liberia, and Congo, and drug states Colombia and Afghanistan.



## ④ **Natural Resource Curse Stronger in Presidential Democracies**

- The resource curse occurs in presidential, not parliamentary democracies.
  - Presidential systems are less accountable and less representative and thus offer more scope for resource rent extraction.
  - In contrast, parliamentary systems seem better able at using resource revenues to promote growth.

## 5 Resource Windfalls Increase Corruption, Especially in Nondemocratic Regimes

- Resource dependence elicits corruption and rent seeking via protection, exclusive licenses to exploit and export resources by the political elite, oligarchs and their cronies to capture wealth and political power.
- Panel evidence covering 99 countries during 1980-2004 suggests that natural resources only induce corruption in countries that have endured a nondemocratic regime for more than 60% of the years since 1956.

## 6 Volatility of World Resource Prices Harms Exports and Output Growth

- Changes in natural resource wealth are triggered by sudden changes in commodity prices or resource discoveries, which can lead to boom and bust cycles.
- Volatility is bad for growth but also for investment, income distribution, poverty, and educational attainment.

*What can be done about it?*

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- Changes in natural resource wealth are triggered by sudden changes in commodity prices or resource discoveries, which can lead to boom and bust cycles.
- Volatility is bad for growth but also for investment, income distribution, poverty, and educational attainment.

*What can be done about it?*

- One could resort to stabilization and saving policies and improve efficiency of financial markets.
- It also helps to have a fully diversified economy since then shocks to nontraded demand can be accommodated through changes in structure of production rather than expenditure switching.

## 7 Natural Resource Wealth Induces Voracious Rent Seeking and Armed Conflict

- The political economy of massive resource rents combined with badly defined property rights, imperfect markets, and poorly functioning legal systems provide ideal opportunities for rent seeking behavior of producers, thus diverting resources away from more productive assets.
- Production and resource income have differential impact on armed conflict.
  - Higher production income makes warfare less attractive and conflict less likely to occur.
  - Higher resource income makes warfare more attractive as there is more to fight over.

# Resource Curse: Explanations

## ⑦ Natural Resource Wealth Induces Voracious Rent Seeking and Armed Conflict

- *Example:* A country with no resources has a probability of civil conflict of merely 0.5%.
- *Example:* A country with a share of natural resources in GDP of a quarter has a probability of civil conflict of 23%.
- Rents on resources and primary commodities, especially oil, increase chances of civil conflicts and wars especially in sub-Saharan Africa through weakening of the state or financing of rebels, sometimes by corporations.

## 8 Natural Resource Wealth Leads to Unsustainable Government Policies

- Natural resource wealth may encourage countries to engage in "excessive" borrowing, which harms the economy in the short and long run.
- Heavy borrowing on the world market induces depreciation of the real exchange rate in the long run.
- In general, a sudden resource bonanza tends to erode critical faculties of politicians and induce a false sense of security.
  - This encourages them to invest in projects that are unnecessary, keep bad policies in force, and dress up the welfare state so that it is impossible to finance once natural resource revenues dry up.
  - Politicians are likely to lose sight of growth-promoting policies, free trade, and "value for money" management.

# Conclusion

While there is heterogeneity in country experience, underlying these symptoms are two common causes:

- Technical difficulty of handling resource revenues that are risky, volatile, and time-limited;
- Governance has been unable to resist short-run spending pressures and commit to long-run investment and growth strategies.



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