

# FISCAL MANAGEMENT OF MINING AND PETROLEUM IN WEST AFRICA

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## Macro-fiscal Policy Frameworks: An Overview of Issues

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# Overview

1. Stylized Facts
2. Fiscal Policy Challenge and Response
3. Macro-Fiscal Policy Frameworks
4. Fiscal Rules in West Africa

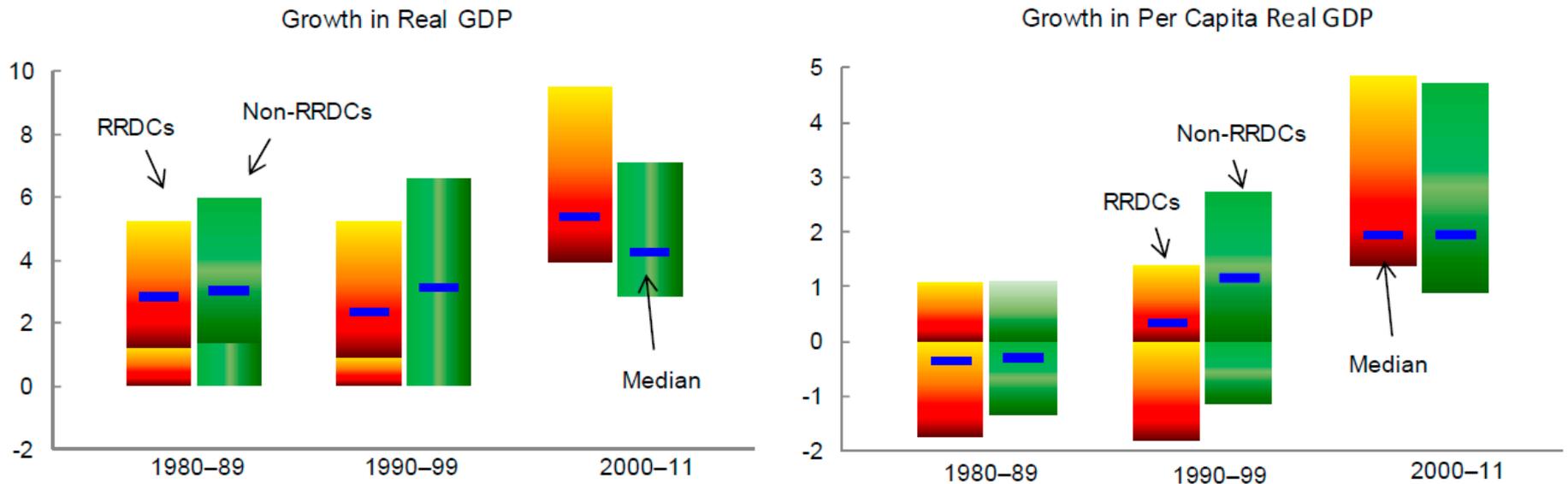
# Mining and Petroleum Revenue: Key Characteristics

- Revenue flow can be **large**...
- ...**volatile**...
- ...and **uncertain**
- And since resources are **finite**, will ultimately come to an end.

Resource revenue should provide additional fiscal space, but impact is often mixed

# Stylized Fact 1: Disappointing impact of natural resources on growth

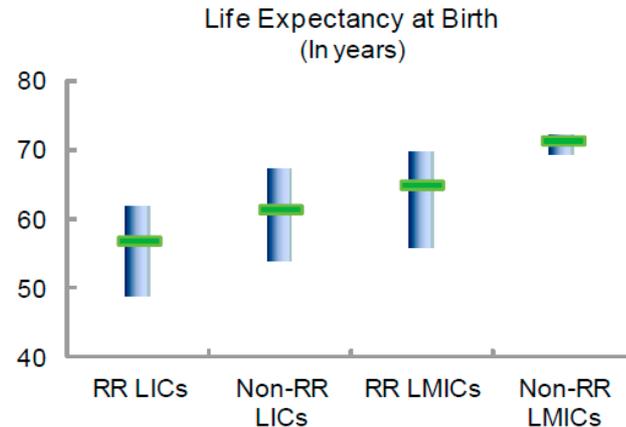
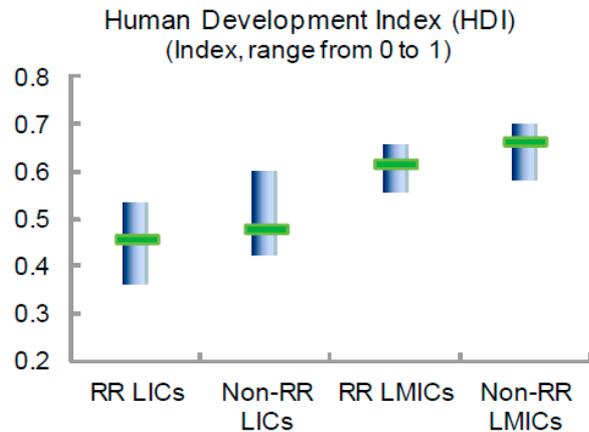
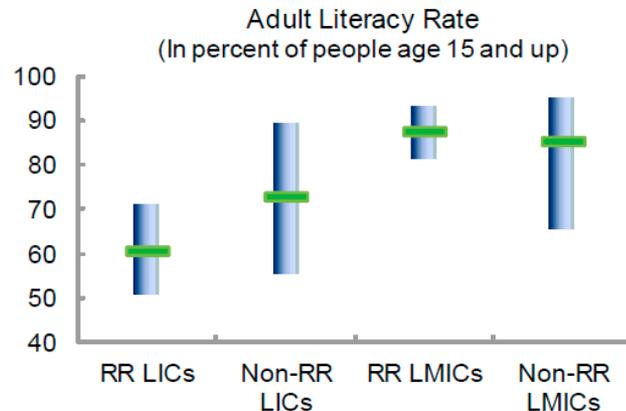
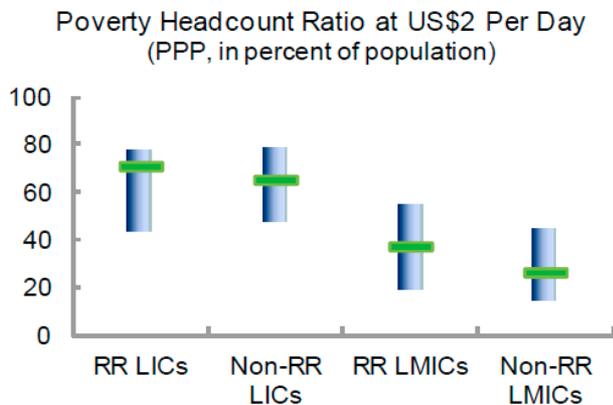
**Growth in Real GDP and Per Capita Real GDP for RRDCs and Non-RRDCs: 1980-2011**  
(Median and interquartile range, in percent)



Sources: World Economic Outlook; and IMF staff estimates.

# Stylized Fact 2: Disappointing poverty and human development outcomes

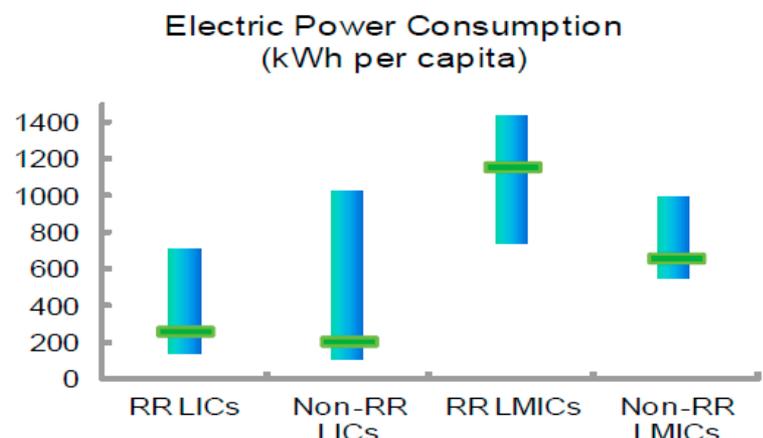
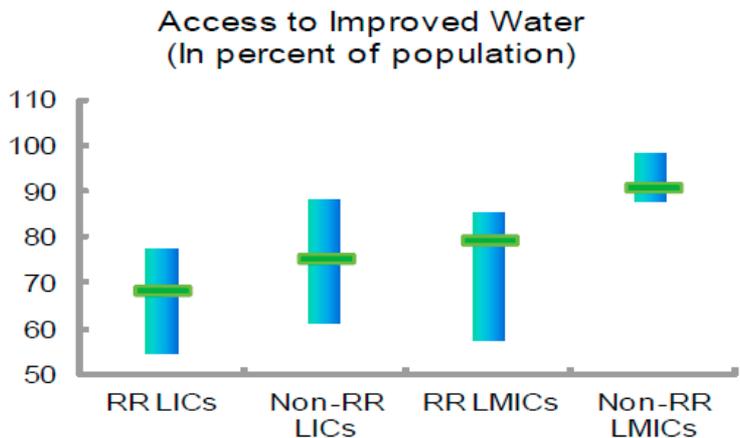
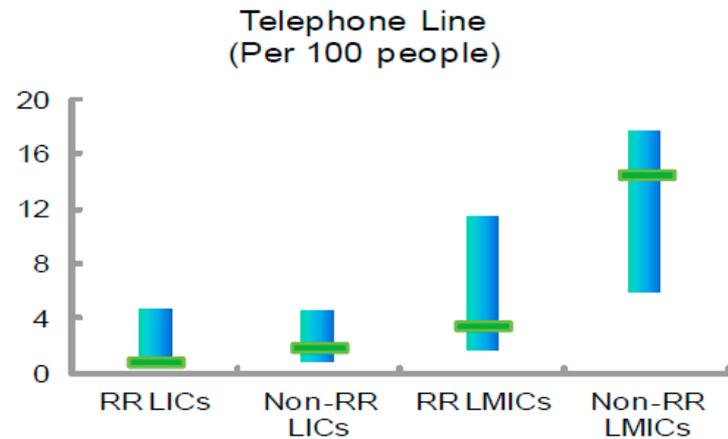
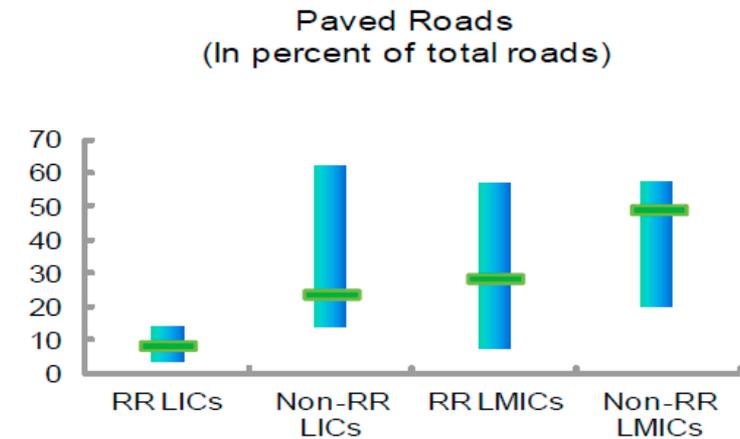
**Development Indicators for Resource-Rich and Non-Resource-Rich Developing Countries**  
(Median and interquartile range)<sup>1</sup>



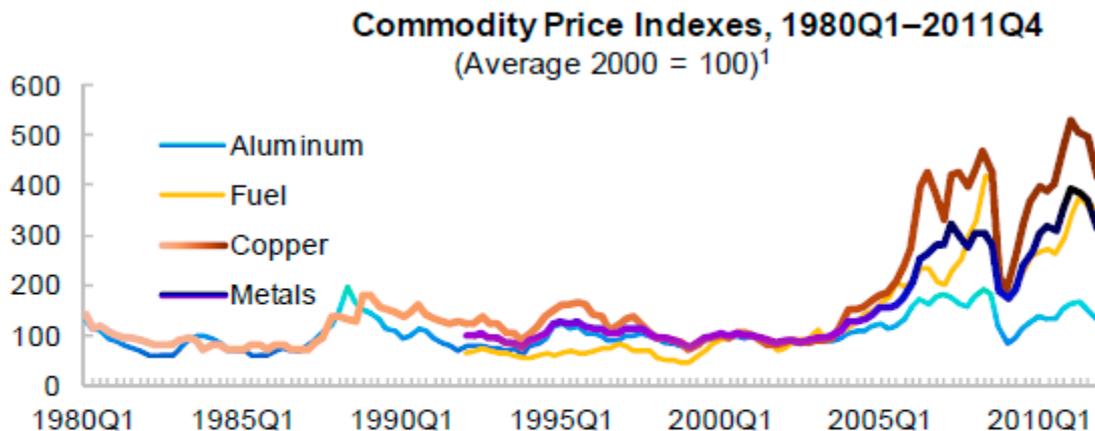
Sources: World Bank; UNDP; and IMF staff estimates.

# Stylized Fact 3: Remaining large infrastructure gaps

Infrastructure Indicators for Resource-Rich and Non-Resource-Rich Developing Countries  
(Median and interquartile range)<sup>1</sup>

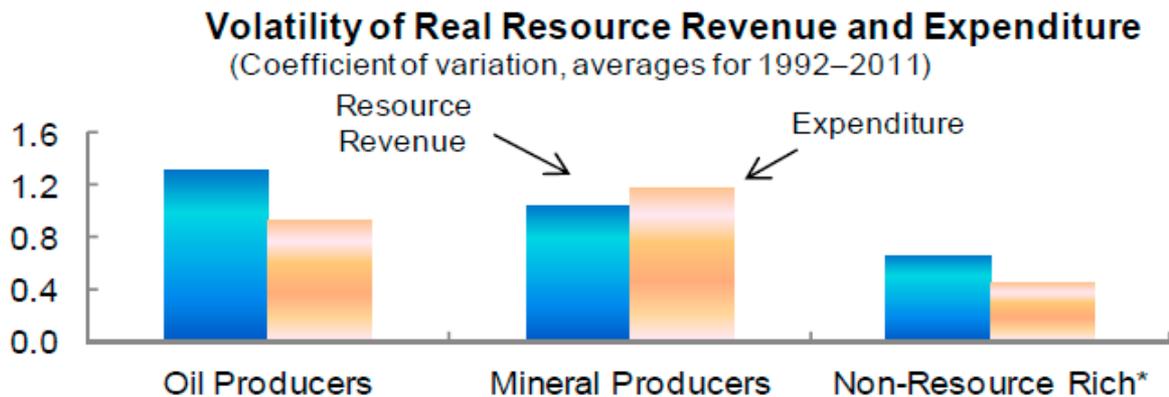


# Stylized Fact 4: Resource revenue volatility affects the budget



Source: World Economic Outlook.

<sup>1</sup>Fuel: composite of crude oil, natural gas, and coal prices; Metals: composite of prices for copper, aluminum, iron ore, nickel, zinc, lead, and uranium.



Sources: WEO and IMF staff estimates.

\* Real total revenue.

## 2. The Fiscal Policy Challenge...

- Transform **sub-soil assets** into **financial, physical and human capital assets**
- Natural resources *can* support economic development and transformation...but often the potential is not realized → “resource curse”
- Key objectives for the **macro-fiscal framework**:
  - **Stability** – Precautionary savings
  - **Sustainability** – Inter-generational savings
  - **Development needs** – Scaling up investment

# ...and Response

- Macro-fiscal policy needs to address:
  - Demand management (short term)
  - Inter-temporal solvency (long term)
- The fiscal policy framework should be ***country-specific***:
  - Resource horizon (temporary vs long-lasting)
  - Sensitivity to revenue volatility (high or low)
  - Domestic capital scarcity/development needs
  - Absorption capacity and public investment efficiency
- ***Rules of thumb***:
  - A high proportion of resource revenue should go to savings and domestic investment;
  - Delink spending from resource revenue dynamics

# Savings-Investment Decision

- The fundamental policy question: **how much** and **where** to save part of the resource revenue
- Optimal savings rates higher when the resource revenue flow is relatively short-lived or volatile/uncertain
- The relative return to domestic investment may be higher in developing countries
- Expenditure smoothing desirable, but some front-loading may be welfare-improving in developing countries

# Implementation Risks

- **Absorption constraints: reducing benefits from investment**
  - Target investment at reducing supply bottlenecks
  - Strengthen public investment management capacity
  - Scale up investment gradually
  - Strengthen quality of investment
- **Political economy** (“capture” of resource windfall)
  - Codify policy framework in legislation
  - Build political and national consensus
  - Fiscal transparency

# Uncertainty and Volatility

- Revenue uncertainty and volatility complicate macroeconomic management
  - Usually focus on price volatility, but production and cost are also uncertain
  - If revenue volatility is high and persistent – build up savings in good times and draw on them in bad times
- *Reduce the transmission of revenue volatility by delinking expenditure from revenue dynamics*
- *Target for stabilization savings (counter cyclical buffer)*

# Debt and Borrowing

- Natural resource revenue may increase the capacity to borrow...which needs to be managed wisely
- Borrowing against future revenue, will reduce fiscal flexibility later
- Borrowing plans should be integrated into a comprehensive debt management strategy
- There may also be scope to use resource revenue to reduce existing debt or other liabilities
- For new producers, resource revenue should only be integrated into the DSA base case when the revenue is expected with sufficient certainty

# 3. Macro-Fiscal Policy Frameworks

Key components of **macro-fiscal policy framework**:

- i. Fiscal policy indicators
- ii. Long term fiscal sustainability benchmark
- iii. Medium Term fiscal policy anchor/rule
- iv. Supportive fiscal institutions

The policy framework will be country-specific reflecting whether resource revenue is ***temporary or long-lasting*** and whether the economy is ***capital-constrained***

# (i) Fiscal Policy Indicators

- Overall fiscal balance
  - =total revenue minus expenditure*
  - Indicates net financial position (measure of **financing needs**)
- Non-resource primary balance
  - =overall fiscal balance excluding resource revenue (and directly related payments, e.g., cash calls) and interest payments*
  - Measures the underlying **fiscal policy stance** and *domestic demand impact*
  - Can be compared against a sustainability benchmark

## (ii) Long-term Fiscal Sustainability

- ***Fiscal sustainability criteria***: government spending, tax and other policies can be sustained in the long run without defaulting on liabilities or expenditure commitments
- Fiscal policy must respect the ***intertemporal budget constraint***, incorporating resource revenue
- Use sustainability benchmark to assess non-resource primary deficit

*Inter-temporal Budget Constraint: [Net financial assets] + [natural resource wealth] = - [NPV of cumulative non-resource primary balances] ,  
where [natural resource wealth] = [NPV of cumulative future resource revenue]*

# Permanent Income Hypothesis (PIH) applied to the natural resource sector

- PIH provides a sustainability benchmark for countries with natural resource revenue
- Definition: intertemporal budget constraint satisfied when annual spending is limited to the perpetuity value of resource wealth
- Benchmark for the non-resource primary fiscal deficit that can be financed indefinitely from finite natural resource revenue
- Shortcomings of the PIH: sensitive to future revenue uncertainty and volatility (price, cost, production); ignores the fiscal impact of growth-enhancing scaling-up of investment

# Illustrative Fiscal Sustainability Benchmarks

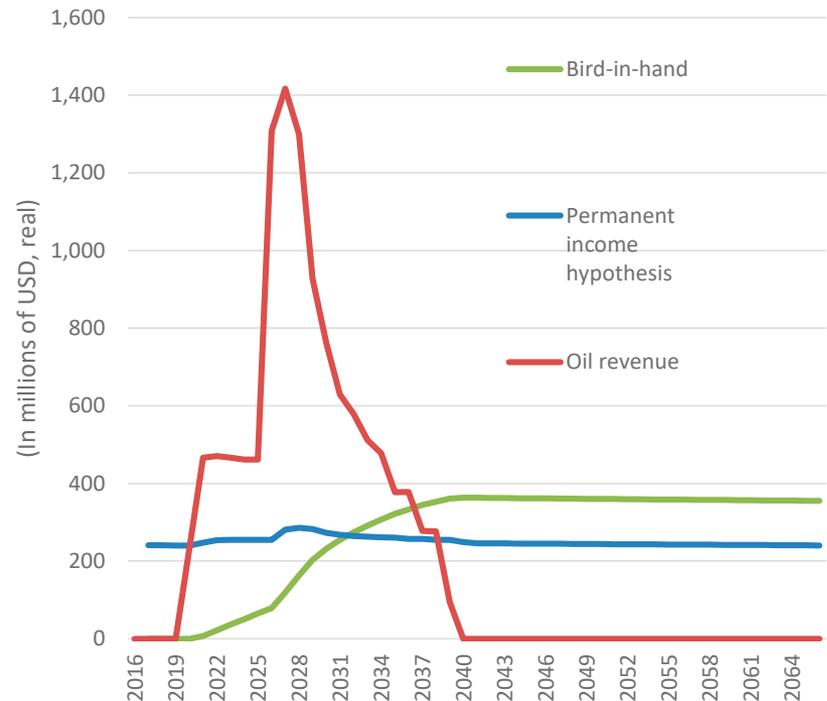
## Permanent income Hypothesis (PIH):

1. Total govt wealth = net financial assets + discounted future oil revenue
2. “Notional return” on wealth (e.g., 3% of govt wealth) is benchmark for sustainable use of oil revenue

## Bird in Hand (BIH):

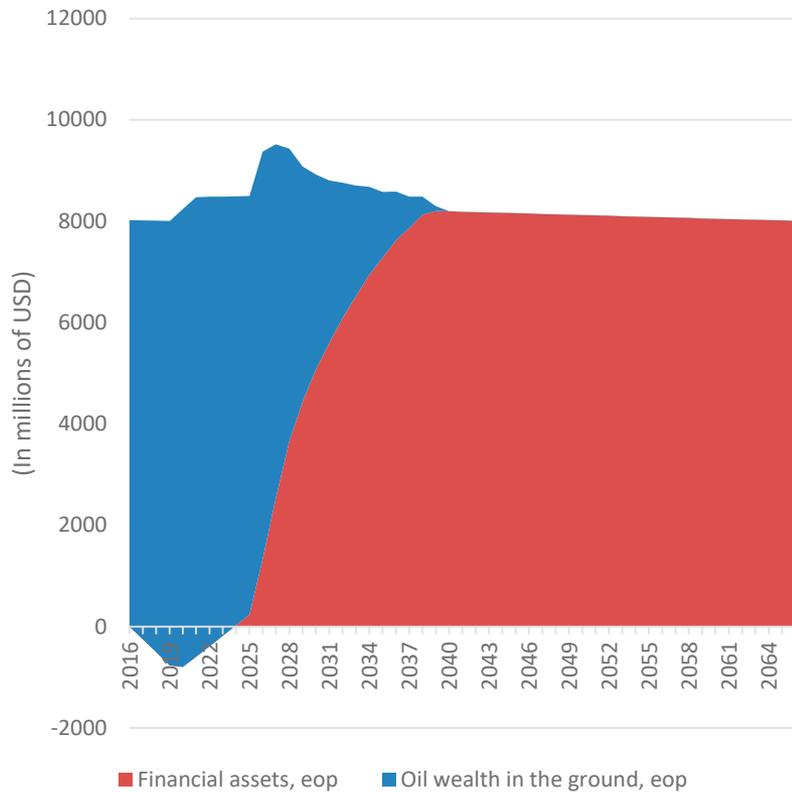
1. Actual return on financial savings is benchmark for sustainable use of oil revenue

Fiscal Sustainability Benchmarks  
Illustrative Oil Project

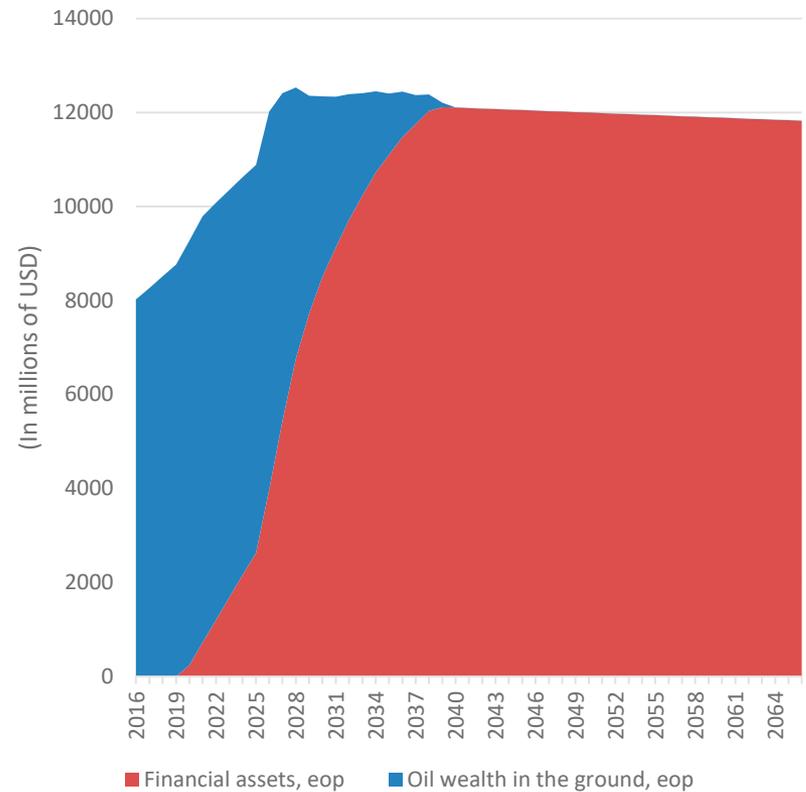


# Balance Sheet View of Fiscal Sustainability Benchmarks

Government Wealth, PIH Benchmark  
Illustrative Oil Project



Government Wealth, BIH Benchmark  
Illustrative Oil Project

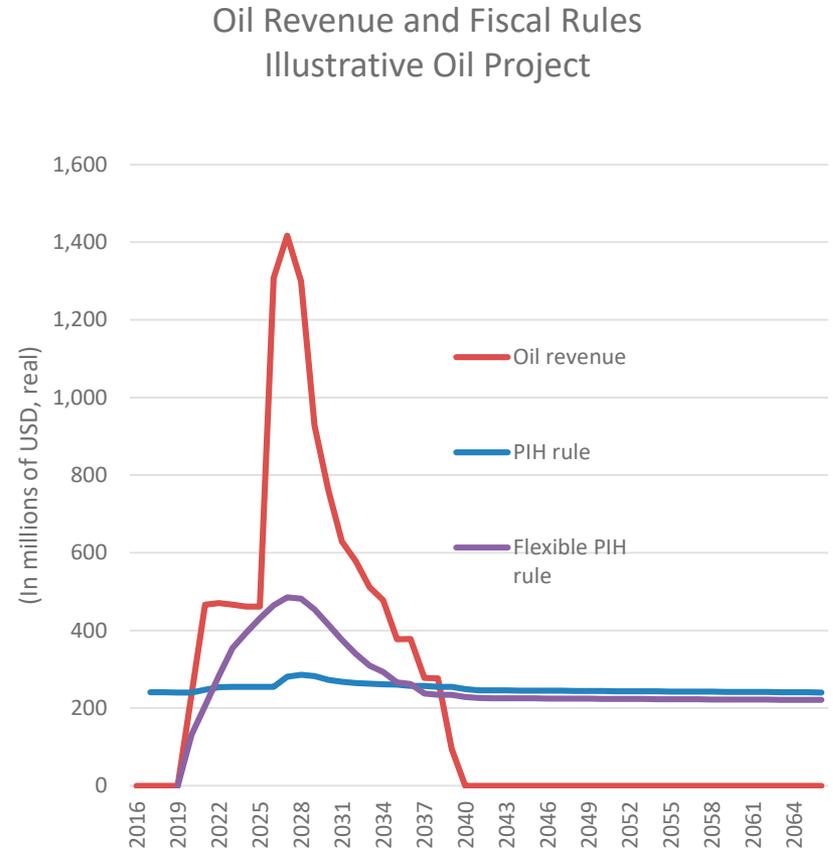


## (iii) Fiscal Policy Anchor/Rule

- ***Non-resource primary balance rule*** (e.g., Timor Leste)
  - Set the non-resource primary deficit in line with the long run sustainability benchmark
  - Particularly relevant for countries with temporary resource flows (e.g., less than one generation)
- ***Structural balance rule*** (price-rules) (e.g., Chile, Nigeria)
  - Set the fiscal balance with structural resource revenue (e.g., calculated at “long-run” price) to zero
  - Can be useful to insulate spending from price volatility
  - Particularly relevant for countries with long resource horizon
- ***Other rules***: Price-based or fixed proportion rules (e.g., Ghana); non-resource current balance rule (“golden rule”) (e.g., Botswana)

# Illustrative Fiscal Policy Rules

- **PIH rule:** ‘Permanent’ level of spending that can be sustained – implies initial borrowing
- **Flexible PIH rule:** gradual scaling up from the start of revenue, offset by lower future level of spending



## (iv) Supportive Fiscal Institutions

- Strengthen **public financial management** systems:
  - Develop credible medium-term orientation to the budget...and long-term revenue forecasts
  - Improve public investment management process
  - Bolster fiscal transparency
- Possible use of **resource funds** should reinforce the fiscal policy framework, not be a separate policy tool
  - Integrate petroleum revenue and funds into the budget process and PFM framework
  - No parallel spending program

# Recap of Macro-Fiscal Framework

FISCAL POLICY INDICATORS		
<b>Fiscal balances</b>	Non-resource primary fiscal balance Overall fiscal balance	
FISCAL SUSTAINABILITY BENCHMARKS		
<b>Long-term fiscal sustainability benchmark</b>	PIH perpetuity/annuity Net wealth stabilization/convergence	
FISCAL POLICY ANCHOR/RULE (Short to medium term)		
	Capital scarce	No scarcity of capital
<b>Long-lasting resources</b>	Flexible non-resource primary balance rule (PIH) plus expenditure growth cap  Price-based rule (overall balance) plus expenditure growth cap	Non-resource primary balance rule (PIH)  Price-based rule (overall balance) plus expenditure growth cap
<b>Short-lasting resources</b>	Flexible non-resource primary balance rule (PIH) plus expenditure growth cap	Non-resource primary balance rule (PIH)

# 4. Macro-Fiscal Rules in West Africa

- West African Economic and Monetary Union (WAEMU).
  - Overall fiscal deficit (including grants) should remain below 3% of GDP and the nominal debt-to-GDP ratio below 70 percent of GDP.
  - There are no specific rules taking into account natural resource revenue management.
- Ghana.
  - Benchmark oil revenue at 7-year moving average price, with 70 percent used to finance the budget; 30 percent allocated between stabilization and heritage funds.
  - No explicit fiscal anchor limiting the budget deficit.
  - Challenges were encountered with the moving average price as adjustments to the moving average were lagging behind the falling oil price during the commodity price slump.

# Macro-Fiscal Rules in West Africa (ii)

- Nigeria.
  - Overall deficit for the federal government budget at 3 percent of GDP at budget oil price.
  - The budget price at times adjusted through negotiations during budget formulations and there is no independent mechanism to determine the sustainable level of the price.
  - It has been challenging to adhere to the fiscal rule following the oil price decline.
- Liberia.
  - The Public Financial Management Act of 2009 and regulations to the 2009 PFM Act introduced a debt ceiling rule limiting public debt to 60 percent of GDP and requiring that any borrowing be used to finance capital spending only.
- Sierra Leone: Fiscal rules considered under new Public Financial Management legislation

# If you want to learn more:



INTERNATIONAL MONETARY FUND

**MACROECONOMIC POLICY FRAMEWORKS FOR RESOURCE-RICH DEVELOPING COUNTRIES**

August 24, 2012

- **Challenges and objective.** Resource-rich developing countries (RRDCs) face the challenges of transforming resource wealth into other assets that support sustained development, while also maintaining mechanisms to avoid the boom-bust cycles that stem from volatility in natural resource revenues. Their distinct characteristics—low per capita incomes, scarcity of domestic capital, and limited access to international capital markets—make advice based on traditional consumption-savings/investment theories inadequate. The objective of this paper is to develop new macrofiscal frameworks and policy analysis tools for RRDCs that could enhance Fund policy advice.
- **Optimal macroeconomic management of resources.** While some frontloading of consumption may be desirable given pressing development needs, a high proportion of resource revenue should go to savings and domestic investment to generate lasting development gains. RRDCs need to avoid boom-bust cycles by working to delink spending from the volatility dynamics of resource revenues.
- **Key innovations.** The paper puts forward five key innovations:
  - A fiscal sustainability framework that accounts for the growth- and revenue-enhancing impact of public investment;
  - A sustainable investment tool for RRDCs to assess macroeconomic implications of saving/investment;
  - A set of proposed fiscal indicators for RRDCs to assess savings from and use (consumption or investment);
  - A new toolkit for designing fiscal rules that assess long-term fiscal sustainability; and
  - A framework that generates current account sustainability analysis in RRDCs.
- **Next steps.** The next phase of the work includes further developing and piloting the proposed framework, as well as proceeding on ways to better analyze and gauge the impact of a cross-country database of variables relevant to the short-run macroeconomic challenges and their implications for the macroeconomic policy mix.



IMF STAFF DISCUSSION NOTE

May 16, 2012  
SDN/12/04

**Fiscal Frameworks for Resource Rich Developing Countries**

Thomas Baunsgaard, Mauricio Villafuerte, Marcos Poplawski-Ribeiro, and Christine Richmond

World Economic and Financial Surveys

**Fiscal Monitor**

**The Commodities Roller Coaster**  
A Fiscal Framework for Uncertain Times

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**Boom, Bust, or Prosperity?**  
Managing Sub-Saharan Africa's Natural Resource Wealth



Charlotte J. Lundgren, Alun H. Thomas, and Robert C. York

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Questions?