Fiscal Regimes for Minerals and Petroleum: Issues and Current Trends

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Washington DC

November 5, 2008

- The views in this presentation are those of the author and should not be attributed to the International Monetary Fund, its Executive Board, or its management.

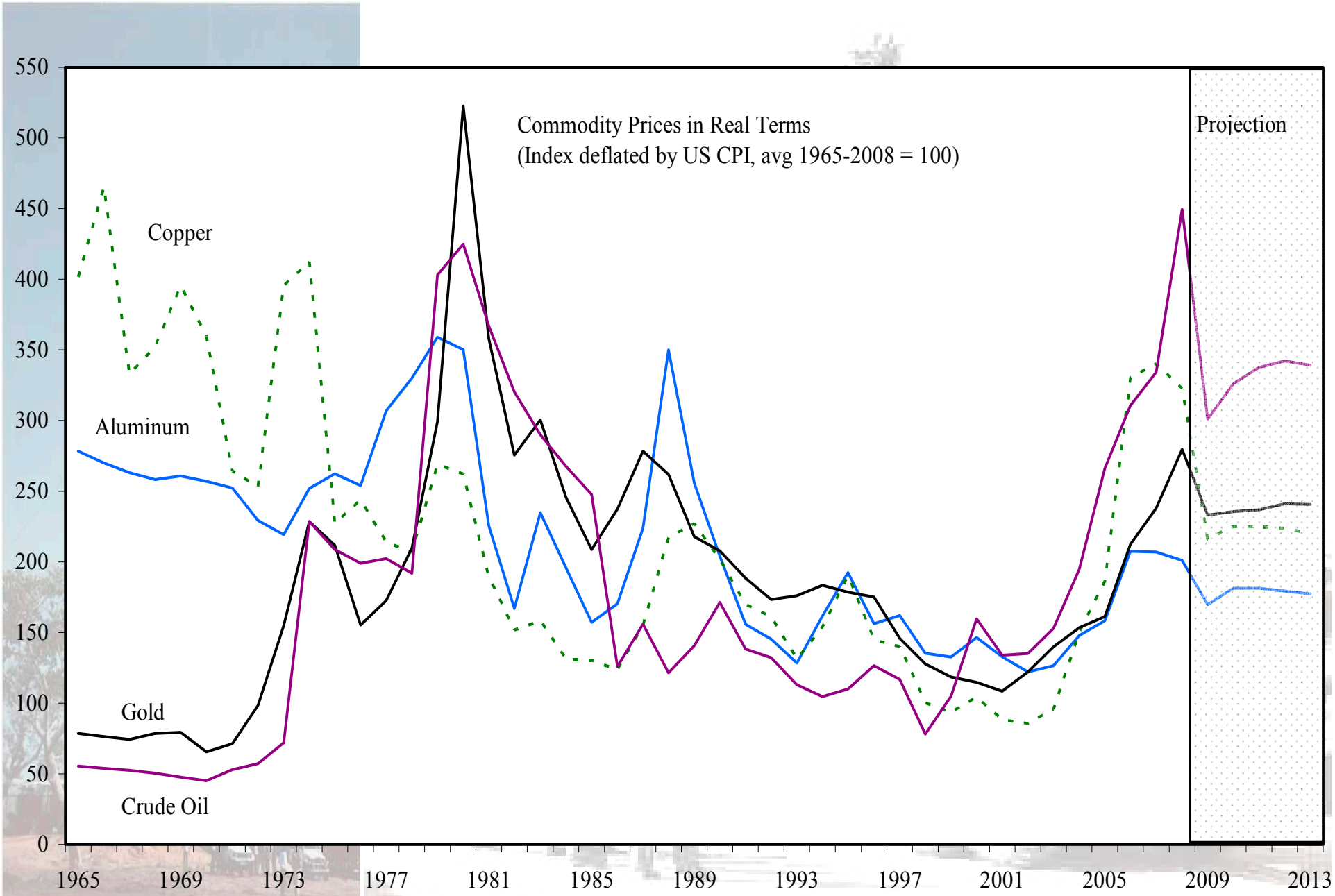
Purpose and Outline

- Challenges for fiscal regime design
- Main fiscal regime types
- Design principles
- Comparisons
- Fiscal regime changes
- Issues in home countries
- Mining issues
- Taxation and transparency

Main focus is on petroleum, with special issues for mining

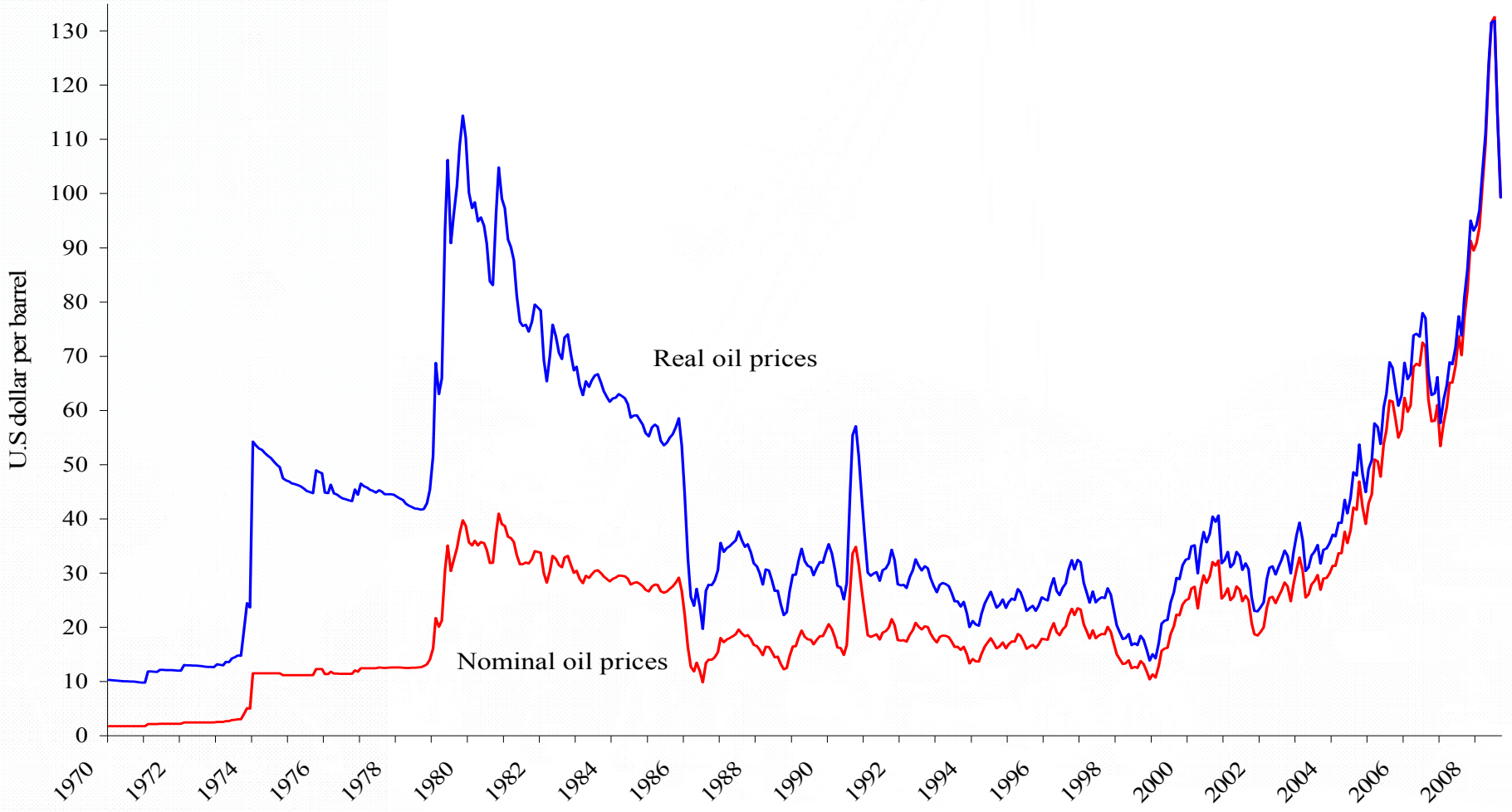
Rent, Uncertainty and Instability

- *Resource Rent:* value minus all necessary costs
- *Uncertainty* about value of resource and timing of revenues
- *Instability* caused by volatility of oil prices
- Fiscal regime should respond robustly to realized outcomes



Source: World Economic Outlook and IMF Staff Estimates

Crude Oil Spot Prices [1]
A Roller Coaster Ride

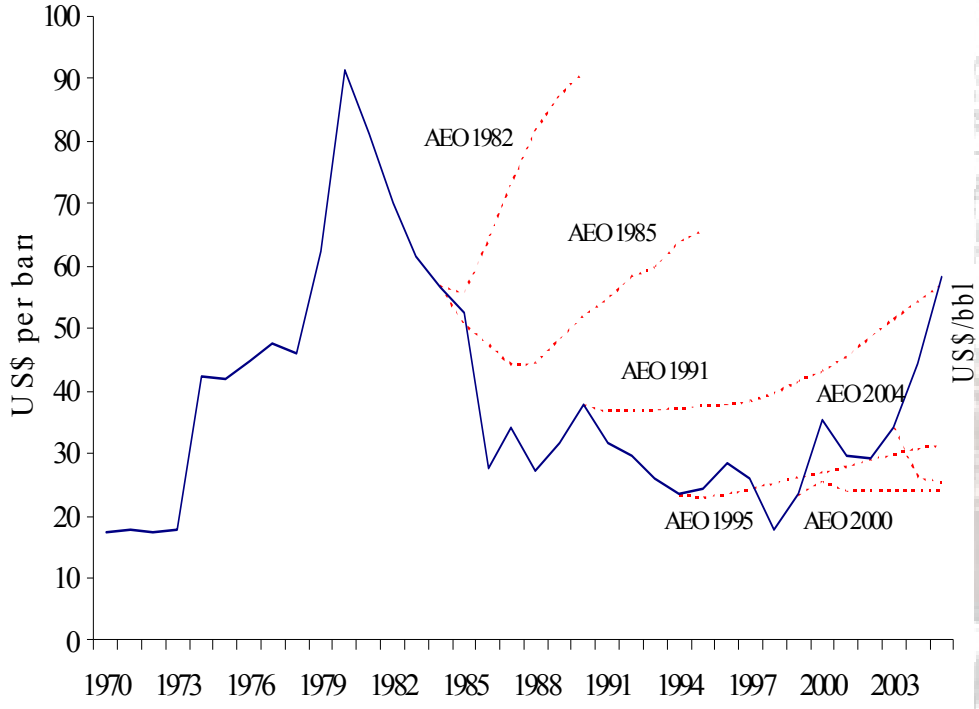


Sources: IMF World Economic Outlook and staff estimates

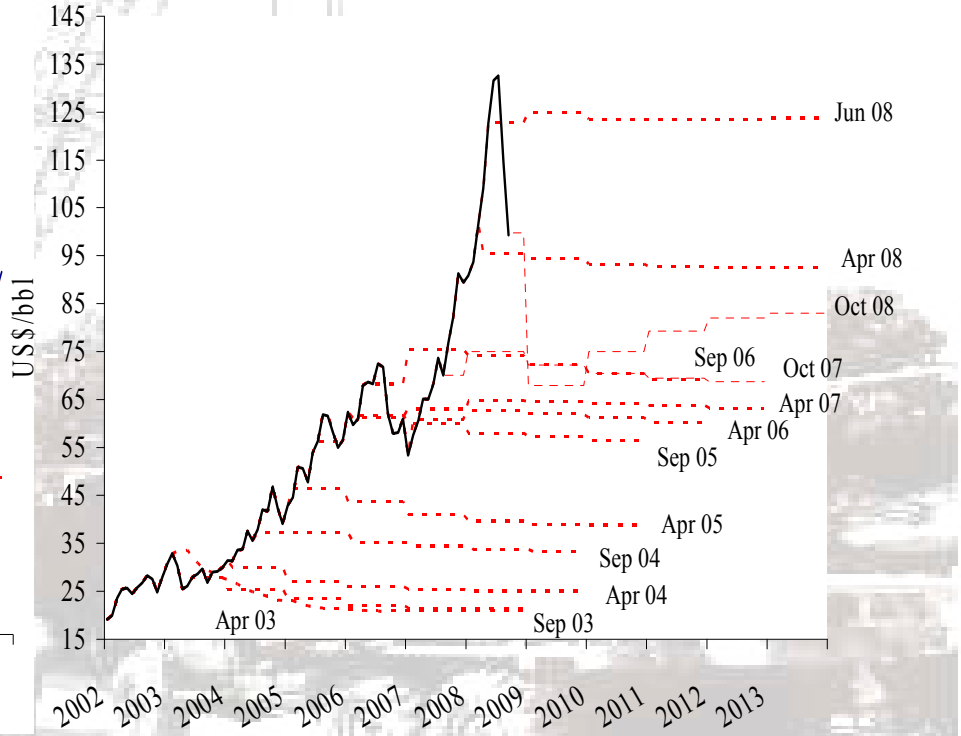
1/ simple average of Dated Brent, West Texas Intermediate, and the Dubai Fateh. Real oil prices deflated by US CPI (September 2008=100)

Two Oil Price Booms
Oil Prices: Spot and Projections

U.S. Department of Energy Annual Energy Outlooks (AEO) 1982-2004
(2006 U.S. Dollar per Barrel) 1/2/



WEO Oil price Forecasts, 2003-2008



Sources: U.S. Department of Energy Outlook (1982,1985,1991, 1995, 2000 and 2004); and IMF World Economic Outlook (2003,2004,2005,2006,2007, and 2008). After Ossowski et. al. (2008)

Note: Solid lines on the left chart are spot WTI oil prices, on the right chart are WEO average of WTI, and Fateh. The dashed lines are price projections.

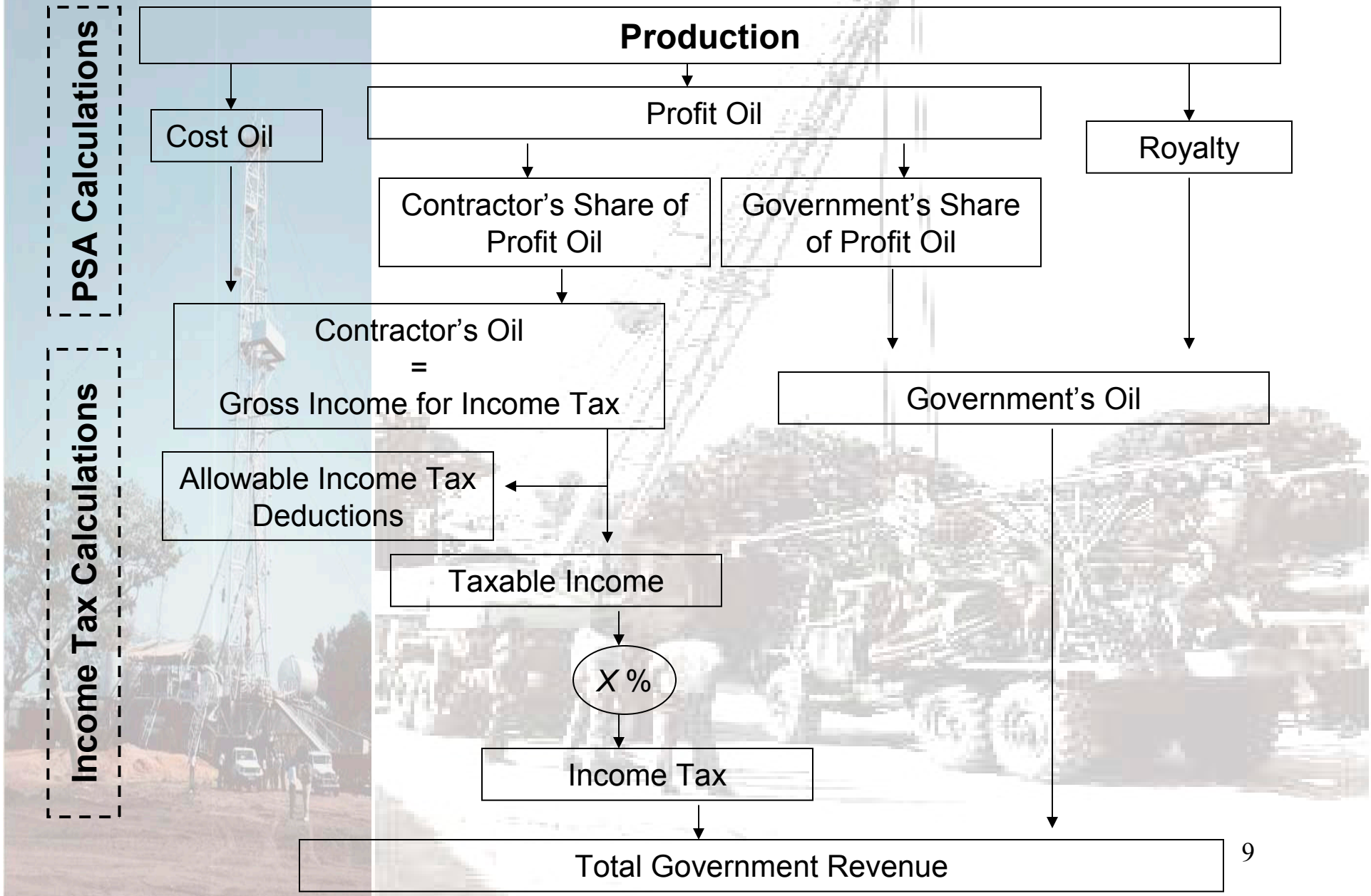
Main Types of Petroleum Fiscal Regime
(*with private investment*)

- ***Tax and royalty*** (with or without state participation)
  - Normal CIT with royalty for rent
  - Normal CIT with RRT or progressive tax
  - Petroleum profits tax
- ***Production Sharing*** (with or without state participation)
  - Proxies for profit (cumulative production, daily production, price cap or matrix)
  - Rate of return or R-Factor
  - Not common in mining

Fiscal Schemes Beyond Tax/Royalty & Production Sharing

- About 40% world oil output (33 mm bpd) is subject to other arrangements
- Mid-East OPEC countries plus China, Libya, Nigeria, Venezuela, Mexico (mixed schemes in some)
- State ownership plus international company involvement through service contracts, risk service contracts, “buy back” schemes
- Need to analyse fiscal equivalence of government take
  - For transparency in-country
  - To promote wider international knowledge of the “price” for international company services

Production Sharing Scheme



Mining: Additional Taxation

Resource rent tax

- Taxes cash flows above a specified rate of return in a life of project calculation
- Efficient especially where costs of failed exploration can also be recouped

Variable income tax or profit-related royalty

- Rate of CIT, or royalty, varies with ratio of taxable income to total revenues
- May be risk-reducing for investors
- Ghana's variable royalty scheme; elective scheme for gold mines in South Africa; mining tax regimes in Botswana and Uganda

Price participation arrangements or "windfall taxes"

- Change the sharing of proceeds when threshold prices for commodities are exceeded;
- Blunt instrument that does not (usually) take account of grades or costs;
- Exists in Zambia and in Mongolia, and "voluntary contributions" in Peru

Profit Sharing Formula (diamonds in Botswana and Namibia)

Fiscal Regime Design (1)

Concept of Rent

- Value minus all necessary costs
- "Tax neutrality"
- Conditional payments

Tax System Design

- Incentive to explore and invest
- Fair share of revenues for public use

Three Principles

- Comparable with countries of similar prospectivity
- Government can tax more if the structure of tax reduces investor risks
- Tax neutrality does not mean tax rates identical to other sectors

Fiscal Regime Design (2)

Tax Share & Tax Structure

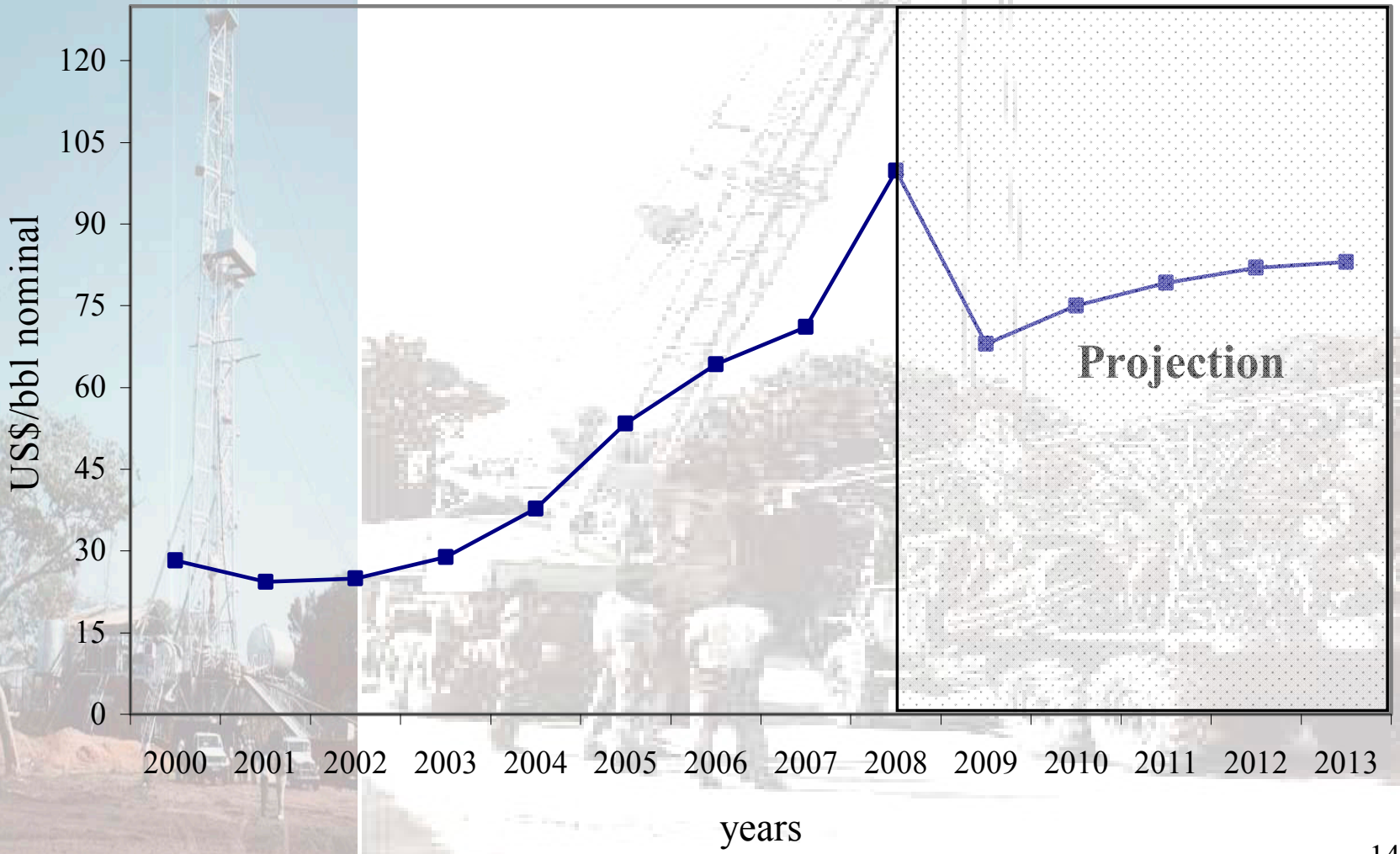
- Overall impact is more important than individual instruments
- *Tax Share* – average state share over the life of resource
- *Tax Structure* – path over time of the tax share

Balancing a Petroleum Tax System

- Minimize investor's risk of loss
- Create stability of fiscal terms
- Sufficient share of high rents for the state

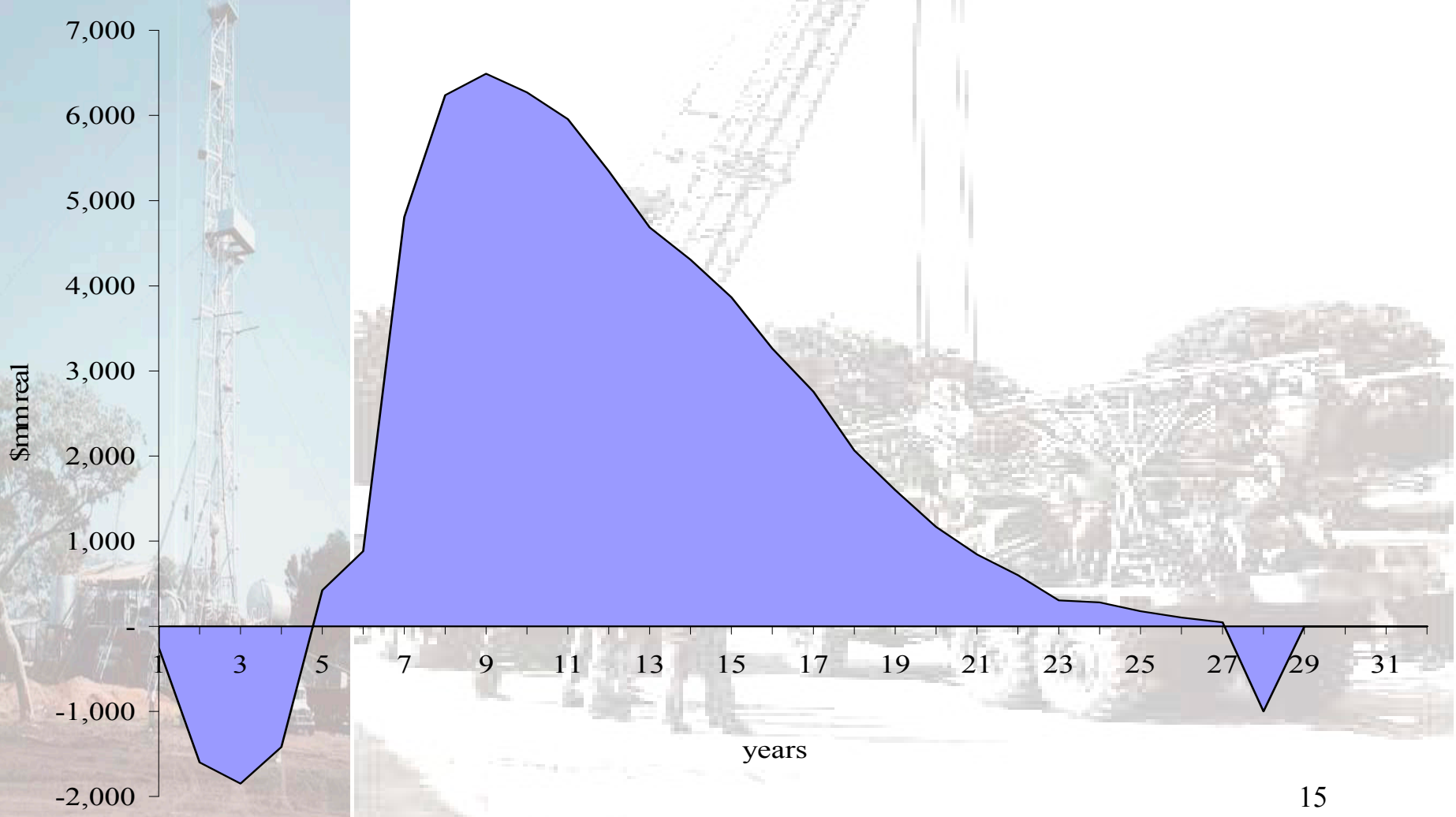
Evaluation Criterion	*Key Indicators*
Neutrality	**AETR (government take in a profitable case)** **METR (wedge between pre and post-tax IRR, as % of pre-tax)** **Breakeven price**
Revenue Raising Capacity	**Time profile of revenue** **Share of rent to government**
Adaptability / Progressivity	**Tax share of total benefits**
Risk to Government	**Variance of NPV of revenues (coefficient of variation)** **Proportion of revenues in first *n* years**
Investor Perceptions of Risk	**Dispersion of expected IRR (Coefficient of variation of IRR)** **Probability of below-target returns** **Value of negative returns** **Cumulative probability distribution of outcomes**
Relating Revenue Yield to Investor Risk	**Compare expected yield index with expected risk index**
"Prospectivity Gap"	**Present value to equalize mean PV to investor** **Present value to equalize PV of negative returns**

WEO Price Forecast, October 08

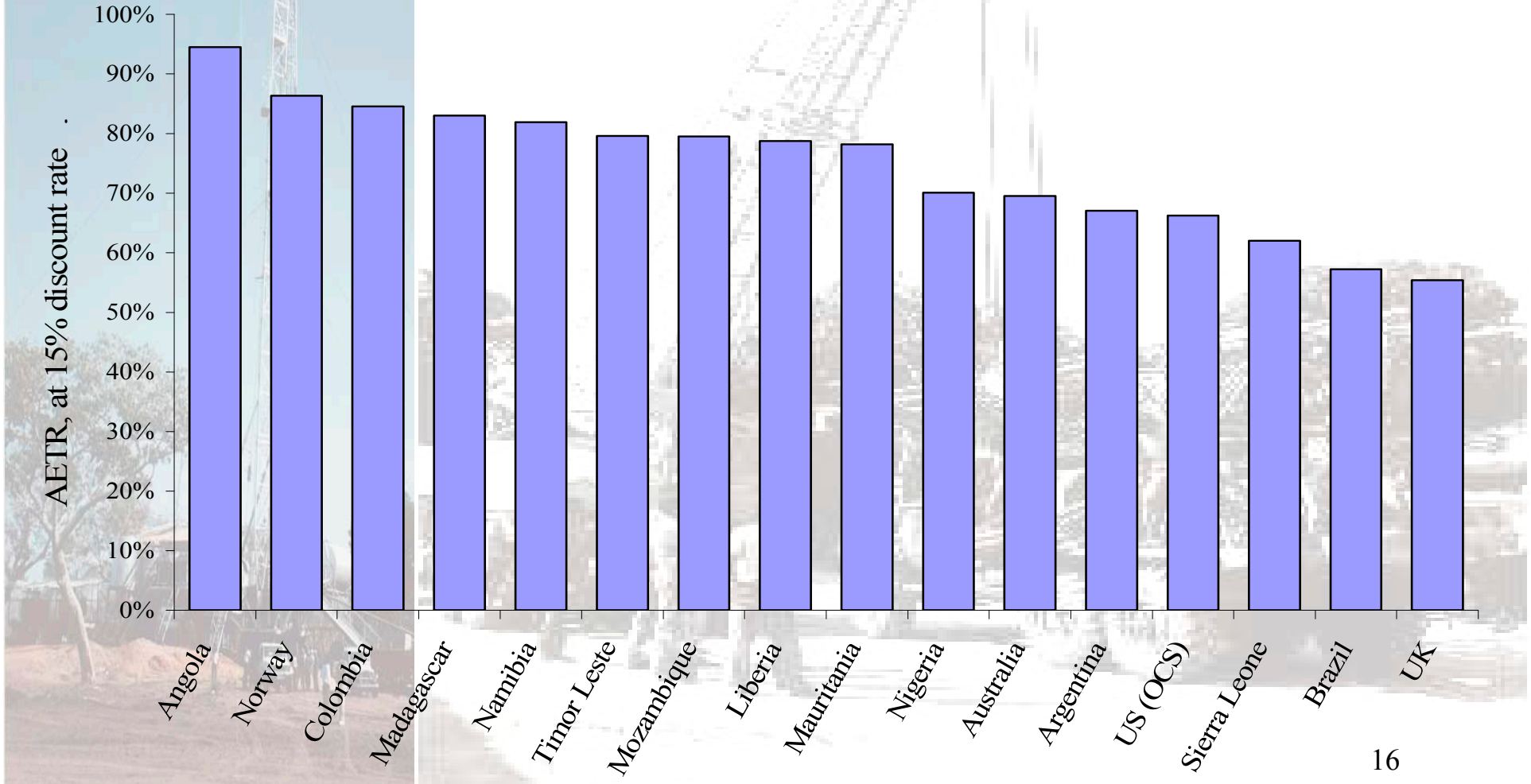


Time Profile of Revenue: Deep Water Project

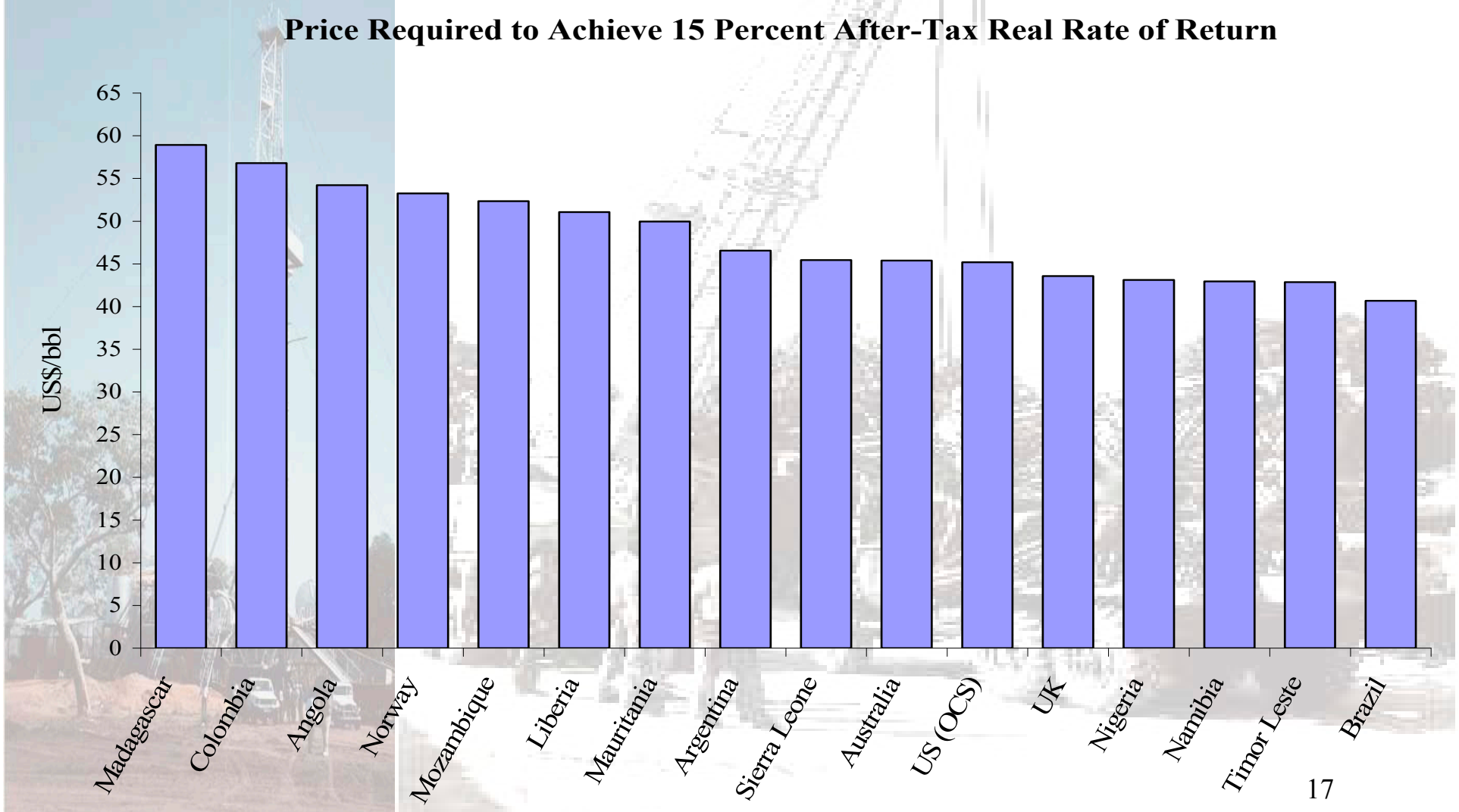
(WEO Prices) *(example from Wood Mackenzie)*



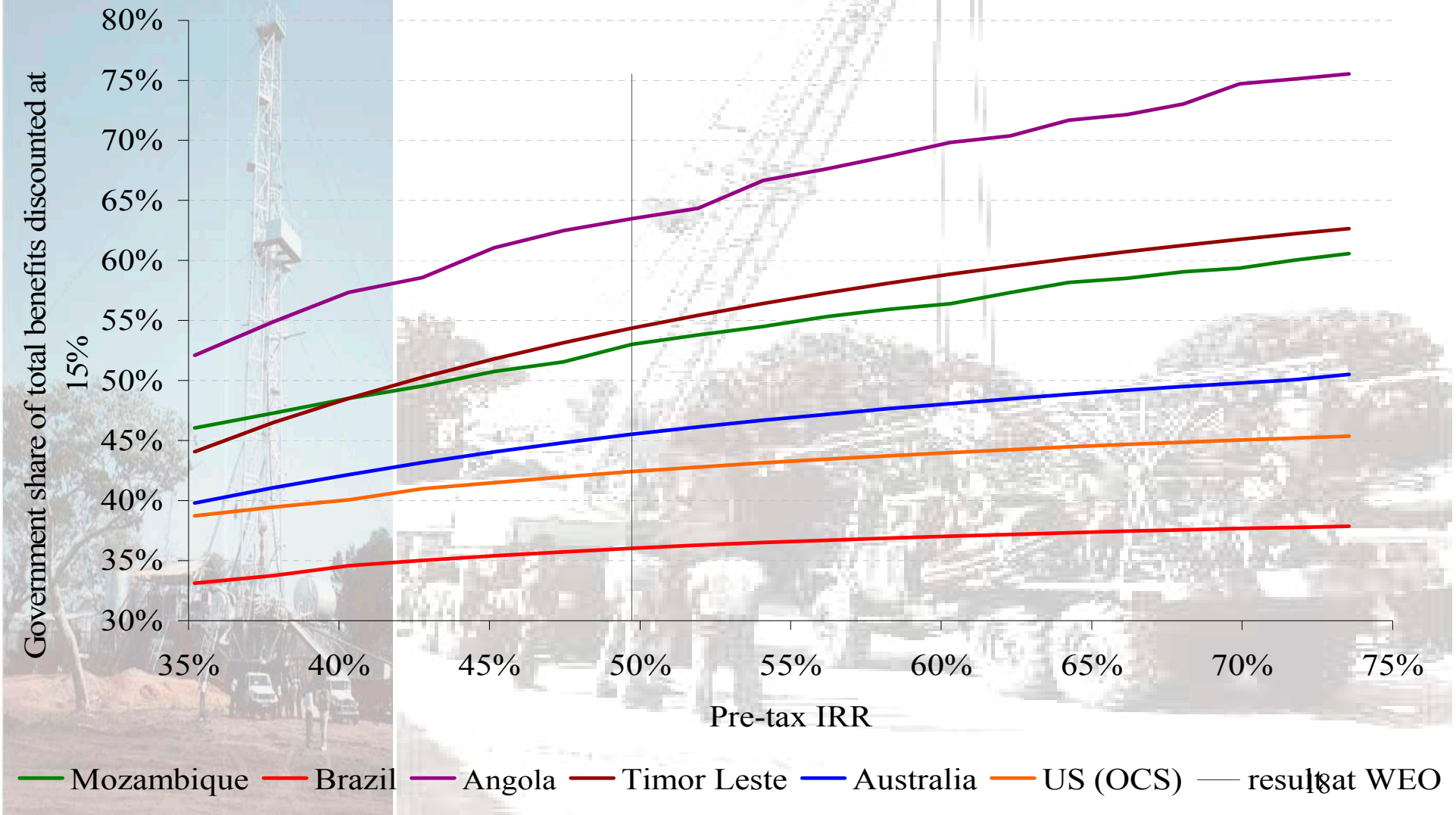
AETR at 15% (WEO Prices)



Breakeven price for 15% Post-Tax IRR



Government Share of Total Benefits for Range of Pre-Tax IRR (Deep Water Project)



Revenue Yield and Investor Risk Indexes

Deep Water Project	Expected government receipts discounted at 15%	Investor expected risk index (at 15% discount rate)	Coefficient of variation of government receipts
	as % of Mozambique	Mozambique =100	%
Brazil	70	83	71
UK	71	65	67
Nigeria	81	45	84
Sierra Leone	80	77	64
US (OCS)	88	132	59
Timor Leste	87	26	92
Australia	83	59	75
Argentina	90	149	56
Namibia	95	50	88
Mauritania	94	75	76
Liberia	98	101	69
Mozambique	100	100	70
Norway	104	95	76
Colombia	109	135	64
Angola	110	82	80
Madagascar	112	174	57

Fiscal Responses by Producers (1)

- More than 30 countries have adjusted terms since 2000. Majority in favor of government, but some have provided incentives (mature, consumers, deep water etc)
- Important distinction among those who acted unilaterally, those who secured more by voluntary means (bidding), and changes for individual projects
- Some achieved more by simple operation of progressive terms (Angola, Australia PRRT, Azerbaijan PSA, Nigeria tax system, Timor-Leste PSA & APT)

Fiscal Responses by Producers (2)

- US (royalty increase) and UK (income tax surcharge) both applied general change
- New fiscal measures: Algeria petroleum windfall tax, also Colombia, Ecuador, Bolivia, Venezuela
- Revised project terms: Kazakhstan (Kashagan), Russia (Sakhalin)
- Libya (EPSA IV – bidding); Angola – deep offshore RoR scheme, bidding

Fiscal Responses by Consumers & Home Countries

- Recent pressures for additional taxes on oil companies in consumer countries, or countries where oil companies are based (e.g.,USA, France, Italy)
- Reflect *ex post* rates of return thought extremely improbable when the investments were made
- Emphasizes governments somewhere will try to tax high rents
- Producers with progressive tax systems (such as rate of return schemes) will get there first.

Current Mineral Tax Issues

- Lack of responsiveness of fiscal systems to changes in commodity price environment
- Special agreements made post conflict, or in “distress” privatizations
- Legislated regimes ignored when under pressure for a desirable investment
- Relationship of fiscal stability assurances to the tax system
- Reliance on CIT system, and thus exposure to excessive debt interest
- Transfer pricing, assessment and audit problems generally
- Use of EPZ schemes to locate processing, or even mining
- Mining tax regimes appear less efficient than most of the petroleum regimes

Taxation and Transparency (1)

- *Extractive Industries Transparency Initiative (EITI)*
  - Starts from reconciliation of payments and revenues
  - 20 + implementing governments
- *IMF Guide on Resource Revenue Transparency*
  - Part of Fiscal ROSC process – a voluntary engagement
  - Full public presentation of legal basis for taxation or production sharing
  - Encourages publication of mineral agreements covering fiscal terms

Taxation and Transparency (2)

- *Contract publication – issues*
  - Production sharing agreement is a taxing instrument
  - Disclosure sometimes difficult where case-by-case negotiations occur
  - Trend to bidding encourages publication of model, and bid criteria for blocks (e.g., Angola)
  - Publication of PSA is compatible with confidentiality of commercial agreements (e.g., gas sales)