Petroleum fiscal terms: Old and new challenges

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Potential for transformative new projects in the upstream petroleum sector (crude oil and natural gas) remains – notably in Africa, and also in Brazil. The last few years have also seen dramatic development in exploitation of shale gas. Despite concerns about "peak oil" and difficulties of access for international oil companies (IOCs) to new reserves, countries are emerging – new to the petroleum industry –where projects massive in relation to the size of the existing economy are in prospect. In Africa, these are reality in Ghana, Niger and Uganda, and possibility in Liberia, Mozambique, Sierra Leone, and Tanzania. Design and implementation of fiscal regimes for future petroleum exploration and extraction is a vital interest for these countries.

This article outlines these challenges from the perspective of countries seeking international investment, using tax and royalty schemes, or production-sharing contracts, or risk service contracts, under which companies take risks and share in rewards.[1] More than half of world output, however, comes from wholly or substantially state-owned systems, where private companies participate, if at all only on fee for service terms, and different issues arise.

What's special about petroleum?

Relative to most host economies, the sheer size of the petroleum sector, and of individual projects, distinguishes it. Government revenue is most often the central benefit, and stimulating ancillary economic development is a continuing challenge. The industry has high sunk costs prior to production, and long production periods, creating what economists term the "time-consistency" problem: terms that seem welfare-maximising when a project is negotiated are tempting for governments to change once investment is sunk and production started. Petroleum production has potential to generate substantial rents – in the sense of a surplus over all necessary costs of production including a minimum required return on capital. This is the public finance ideal of a non-distorting, immobile tax base. At the same time, however, international tax considerations loom large: not only the interaction of host country and corporate home systems, but also tax competition in attracting investment.

Uncertainty faces both governments and companies: uncertainty over geology, technology, price volatility, and – for companies – sovereign actions. Volatility in oil prices is well-known; less well-known is the enormous difficulty of making useful forecasts. Attempts to design fiscal terms on the basis of price forecasts will founder. Uncertainty faces the parties differently, however, under the problem of "asymmetric information" – typified by the likelihood that government will know less about a prospect at the time of award of a contract than a company does. Asymmetric information compounds the time-consistency problem – introducing potential for instability into fiscal terms.

Few of these features are unique to petroleum, though they often have bigger impact than in other sectors. Exhaustibility is unique to petroleum and minerals. What is extracted today cannot be extracted tomorrow (the opportunity cost of extraction includes future extraction foregone). Views differ on how important this is in practice, but the fiscal terms will probably affect the pace of extraction. Wise government regards petroleum revenues as transformation of a finite asset in the ground into financial, physical and social assets with enduring benefit.

Fiscal terms for private investment

Suitable fiscal terms will differ with prospectivity, cost conditions, or other factors – no one size is likely to fit all. Nevertheless, some principles can widely apply. Because of uncertainty, and price volatility, terms that are robust and flexible in the face of changing circumstances are likely to be more durable. A stream of revenue should accrue to government whenever extraction occurs – whether the rationale is the opportunity cost of extraction, or simply the political unacceptability of extraction without revenue. Terms also need to be progressive, in the sense that as project profitability increases the government's share of it also increases.

Transparency calls for fiscal terms to be set in legislation or in published contracts; both can be combined with bidding over an initial bonus payment as a means of allocating rights. Sound tax policy requires avoidance of special incentives where possible, though cases where import duties or poorly-administered value-added tax systems bear heavily on investment costs may justify exceptions. The balance struck between companies and governments should be stable and credible.

Tax and royalty, production sharing, or state participation can all be made fiscally equivalent. A participation share assigned to the state without payment, for example, approximates a tax on profit distributions at the same rate. Different contract structures, however, apportion risks differently between the parties and thus affect stability and credibility. Whatever the scheme, the data for key assessments of fiscal instruments →

→ must be observable or verifiable, and opportunities for aggressive tax planning minimised.

The fiscal design should take account of the relative capacity of companies and governments to bear risk. A poor country with a limited portfolio of projects may be less able to tolerate deferral of revenue than a major company. The combination of requirements suggests that the fiscal scheme should have multiple instruments: the combination of a royalty, or its equivalent under production sharing, normal corporate income tax, and some form of additional rent taxation (or production sharing, or state participation) is thus common.

Issues for the future

How far should petroleum taxes be progressive? The question is the degree to which the government share should be rise, or fall, with prices or profits or lifetime project return. Progressive systems yield more volatile revenues and can therefore create problems for countries not able to bear that risk. Political pressures, however, may make progressive systems more robust and credible. The issue is how far to go. Angola or Azerbaijan, for example, introduced multi-tiered systems, while Norway operates a single rate of special petroleum tax.

What type of rent tax? Production sharing schemes geared to the daily rate of production have historically been popular, but the rate of production is an inadequate proxy for overall profitability. A matrix of production rates and prices is possible, though specifying the values is a challenge. In either case, costs must still be assessed, opening the way to consider more efficient forms of tax (sometimes implemented through production sharing). All rent taxes in cash flow form involve some "refund" of the tax value of losses – most clearly seen in the abandoned Australian proposal of 2010 for a Resource Super Profits Tax. In Norway, exploration losses are refunded and overall losses on one project offset against another. Perhaps the simplest scheme is the UK surcharge on corporate income tax, where no interest is deductible but capital expenditure is immediately deducted in full, The resource rent tax (RRT), where losses are uplifted at an accumulation rate until recovered, features in Australia, Angola, and other places. But setting that accumulation rate does not prove straightforward.

Capital gains on sales of rights

Taxation of gains became a big issue in Ghana, Uganda, and elsewhere, when large premiums were paid on transfers of rights or on indirect sales through shares of companies with interests in petroleum rights. The presence of large gains suggests the fiscal regime is not expected to tax rents sufficiently. One solution, therefore, is better fiscal regime design, but that does not solve an existing problem. The first question is whether domestic law and tax treaties permit taxation of gains on direct or indirect sales of petroleum rights (usually treated as immovable property). Secondly, what tax (income tax or capital gains tax) applies, and against what income or gains can the premium paid be deducted? Thirdly, how is the tax authority to learn about an indirect sale? Probably the only means will be a provision in a petroleum license that triggers default if a sale is not notified – but then, what size of sale qualifies?

International taxation and treaties

Border withholding is the main way to tax flows to non-residents (dividends, interest, service or management fees, royalties), which are significant in petroleum projects. Tax treaties have often eroded permissible rates – sometimes to zero. This phenomenon raises questions about the value of treaties to capital-importing countries, while at minimum it requires governments to have a strategy for negotiation of treaties that avoids erosion of the domestic tax base. An alternative answer is to focus on the domestic taxation of the underlying rents from petroleum extraction.

Pricing of infrastructure

Many petroleum projects (especially for gas) cannot develop without large ancillary investment in infrastructure. The fiscal regime usually deals with upstream production, valued at the field export point (or some similar concept). Where transport and processing infrastructure (midstream and downstream) requires establishment of a non-arm's length transfer price, there is risk of diversion of rent to lower-taxed segments of the operation. New petroleum producers may need to invest as much effort in dealing with this issue as with the basic design of a fiscal regime.

This article has sketched principles and raised questions about design of petroleum fiscal regimes. Accelerating the pace of exploration and extraction requires mutually beneficial (to investors and governments) application of the principles, and answers to these outstanding questions. ■

Views expressed in this article are those of the author and should not be attributed to the International Monetary Fund, its Executive Board, or its management.
1. These ideas are distilled from The Taxation of Petroleum and Minerals: Principles, Problems and Practice, edited by Philip Daniel, Michael Keen, and Charles McPherson, Routledge/IMF, 2010, and from recent experience of IMF Fiscal Affairs Department technical assistance projects in member countries.