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ANALYSIS

State participation and taxation in Norwegian petroleum: Lessons for others?

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ABSTRACT

Starting around 1970, Norway's system of state participation and taxation in petroleum had important asymmetries, known as distortionary in tax theory. Moreover, tax rates were tailored to oil price changes. From 1986 onwards this has been reformed gradually into a stable and symmetric system, recognized as close to neutral, inducing companies to maximize pre-tax values. But the system is costly and risky for the state. If countries are unable or unwilling to bear costs and risks, they cannot implement the neutral system. Neither did Norway from the beginning. In that case a country faces important trade-offs between risk and the maximization of pre-tax value or state revenue. This may be partly circumvented by slowing the pace of licensing.

1. Introduction

A number of authors (e.g., [1–6]) have identified a "Norwegian model" of petroleum sector management, and discussed its possible role as an example for other countries rich in oil or other nonrenewable resources. The lessons to learn typically include the introduction of sector legislation and taxation, transparency, the savings of state revenue in a fund, the establishment of a national oil (or other resource) company and government institutions, and, in particular, the division of tasks between that company and those institutions. A related literature (e.g., [7–9]) has a macroeconomic focus, and asks whether there are lessons to learn from Norway's avoiding the resource curse.

The present case study will discuss the petroleum sector in Norway, but with a somewhat different perspective. I ask whether there are lessons to learn for other nations from the system of state participation and taxation. Particular problems for low-income resource-rich countries will be pointed out, as an application of perspectives found in Ref. [10]. Whether there is anything to learn from Norway's taxation of petroleum is disputed. The International Monetary Fund (IMF) [11] writes that "Norway has perhaps the closest to a pure rent tax [...] coupled with [corporate income tax], for its North Sea oil and gas under a system also noted for its stability" (p. 24). On the other hand, Al-Kasim [1] writes that "The Norwegian fiscal regime does not offer any feature that could be of particular interest to other host countries" (p. 249). The conclusion below will be more nuanced: Norway should not be copied unconditionally. But the neutrality principle represents a useful benchmark. Other nations should consider carefully what is gained and what is lost by deviating from this principle. Perhaps there is also something to learn from the non-neutrality of the Norwegian system during its first thirty years.

Regarding state participation, I concentrate on the State's Direct Financial Interest (SDFI), and claim that it may be seen as a form of taxation. However, the huge cash flows to and from taxation and state participation have consequences also for other parts of the governance of the sector. In effect, a form of partnership is facilitated.

Section 2 gives a brief historical overview from this perspective. Section 3 relates the history to the concept of neutrality known from economic theory of taxation. Section 4 asks what lessons can be learned on revenue collection, taking into consideration what costs and risks are carried by the state. Section 5 draws lessons from other aspects of Norwegian petroleum, in particular the system for licensing and participation. Section 6 concludes.

2. Historical development

In 2012, Norway was the world's 14th largest oil producer and 6th largest producer of natural gas [12]. With a small population of about 5 million, most production goes to export. Briefly, the history of state participation and taxation in the Norwegian petroleum sector is as

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Table 1
Historical development of some main features of state participation and taxation.

Decade	State participation	Taxes incl. royalties
1960s	1965: State minority holding in Norsk Hydro, with shares in licenses	1965: Corporate income tax (CIT) (41.8%) and Royalty (10%, deductible in other taxes)
1970s	1972: Statoil established, 100% state owned, strongly favored in licensing	1972: Progressive royalty for oil (8–16%) 1975: Special petroleum tax (SPT) (25%) on top of CIT (50.8%) (totaling 75.8%)
1980s	1984: State's Direct Financial Interest (SDFI) (state as non-operating partner) split out from Statoil's license shares	1980: SPT rate increase to 35% (total 85.8%) 1986: SPT rate decrease to 30% (total 80.8%) 1986: Gradual phasing out of royalty started, negative royalty for new fields (15%)
1990s	1992: Statoil's carried interest during exploration abolished 1993: Statoil's sliding scale arrangement abolished in new licenses	1992: CIT reform, reduced to 28%, SPT increased to 50%, totaling 78%, negative royalty abolished
2000s	2001: Statoil partly privatized, Petoro established to take care of SDFI	2002: Loss carry-forward w/interest accumulation, possible sale of final loss position 2005: Direct refund of loss from exploration and of final loss, if any
2010s		2013: Uplift in SPT reduced somewhat

follows. After rejecting an enquiry by Phillips Petroleum in 1962 for exclusive rights to petroleum in the offshore sector of Norway, the government quickly negotiated sector borders with neighboring Denmark and Britain, concluded in 1965. A system for licensing was developed. The development of the system of taxation[1] and state participation is shown in Table 1. Many details are left out. The table concentrates on features that are important for this article.

Throughout the period there has been discretionary licensing based on a set of criteria ("beauty contest"), no auctions, i.e., no cash-bonus bidding. Since the early nineties, these criteria are officially non-discriminatory between foreign and domestic companies, also including Statoil. Almost all licenses have been awarded to groups of companies, typically composed by the authorities, with one as operator. Cooperation in such a partnership is a requirement for participation.

Statoil had a privileged position in Norway in many ways for twenty years after being established in 1972. It received shares in licenses as a deliberate means of developing the company, not based on previous merits. In a specific case, the company Mobil (later ExxonMobil) was required to cooperate and ultimately hand over operatorship to Statoil at the Statfjord field. Then, in the early nineties, two privileges were removed: Statoil had enjoyed carried interest during exploration, meaning that the other licensees paid for exploration, also "Statoil's share." In some licenses Statoil's ownership share had been increased according to a "sliding scale" based on the amount extracted. The removal of these privileges was part of a process to put Statoil on equal footing with other companies, required by Norway's entering into the European Economic Area agreement with the EU.

In the early eighties, Statoil had so large revenues that the state decided it did not want it all to pass through the company. This was agreed as a 1984 compromise between the largest political parties, which ensured a stable arrangement for years thereafter. More than half of Statoil's ownership in licenses and pipelines were taken from Statoil and put under direct state ownership, the SDFI. SDFI acts as a non-operating partner, paying its share of costs, taking its share of revenues. In 2001 Statoil was partly privatized, i.e., listed on the Oslo and New York stock exchanges with 33 percent of shares no longer state owned. At that time the company Petoro was established to take care of the SDFI. This is wholly state owned.

The petroleum tax system has had three main elements, the Corporate income tax (CIT), the Special petroleum tax (SPT), and the Royalty, which is being phased out. The purpose of the SPT is to channel as large a fraction as possible of the resource rent to the state. This rent is defined as the net value of the resource, which must be understood in a risk-adjusted net present value sense. While the first decades saw tax rate movements correlated with oil price movements, the rates have been quite stable since 1986. Neither the CIT nor the SPT have had ring fencing of fields. Exploration, development, and operating costs are deductible in income from other fields.

3. Move towards neutrality: how and why?

Starting in 1986 there has been a deliberate move towards a neutral system of state participation and taxation. This section will explain what is meant by neutrality, and how and why the system has approached the ideal of neutrality over time.

In economic theory of taxation (e.g., [13–15]), a tax is considered to be neutral if it does not affect companies' decisions as compared with a situation without that tax.[2] Based on the standard neoclassical theory of the firm, the basic requirement for neutrality is symmetry. The marginal tax rate on income should be the same as the marginal tax reduction rate on all sorts of costs. This gives a neutral tax system because firms' valuation of projects has the property known as value additivity. There are no income effects.

A neutral tax could be implemented as state participation or as a proportional tax on real cash flows,[3] with immediate payout in years with negative net cash flow, suggested by Brown [16]. If deductions for investments and other costs are instead postponed (as depreciation and uplift deductions and loss carry-forwards), their values for the firms must be maintained by accumulation of interest. For neutrality this interest accumulation, possibly with guarantees that the deductions will eventually be earned, must be sufficient for the firm to be indifferent between immediate and postponed deductions.

In most systems of taxation and state participation in resource extraction, non-neutrality is the consequence of various forms of

[1] In this article, "royalty" denotes a tax (ad valorem or per unit) on gross revenue, with no or very limited deductions for production and transportation costs. This is regarded as a type of tax.

[2] The comparison here could be with a situation without any taxes in Norway, or without any taxes anywhere, or with only the Norwegian CIT applying to the sector. This last comparison has been the explicit aim of Norwegian authorities. Since the CIT with a 28 percent rate supposedly drives a 28 percent wedge between nominal before- and after-tax required rates of return (or more under uncertainty), the aim has been that taxes in the petroleum sector should result in the same wedge. This can, e.g., be achieved if SPT-cum-state-participation is neutral in comparison with a no-tax situation, and then the CIT is applied to cash flows after these.

[3] The cash flow consequences of these two are the same, except, perhaps, if an international oil company also faces taxes at home, see below.

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