

# 1 Introduction and summary

## 1.1 Introduction

Norway offers natural advantages for salmon and trout farming in the sea. Norwegian waters are characterised by benevolent sea currents and oxygen-rich water of favourable temperature, which are also adequately sheltered against inclement weather.

Aquaculture production has increased steadily for several decades. The industry has seen considerable technological development since the farmed salmon production breakthrough in the 1970s. Improved production technique and technology, breeding programmes and vaccine development are examples of fields marked by major progress. Technological development in the industry has served to significantly increase production volumes.

The aquaculture industry has from the early 1970s to the present been transformed from a «sideline business» with many small owners to become one of Norway's key export industries, supplying products to a global market. Both ownership and company structures in the industry are much more concentrated than before.

Aquaculture industry profitability has been very high in recent years. It has, however, varied over time, reflecting that aquaculture, like other natural resource-based industries, is a cyclical industry. The significant increase in profitability in recent years must be seen in connection with demand growth, biological conditions and regulations that have inhibited global supply growth, reduced costs due to improved regulation and other market conditions, such as for example exchange rate developments.

Natural advantages as well as regulations have given rise to pure profit in the aquaculture industry. Pure profit or supernormal profit is the profit a business is left with after all factors of production, including capital and labour, have received their market-based remuneration. Pure profit may arise due to scarcity of a factor of production. Pure profit may arise for several reasons. It may for example be related to location-specific natural resources, government-imposed regulations, market power or enterprise-specific knowledge and technology. The term resource rent is used as a joint term for all sources of pure profit.

Salmon farming licences, trout and rainbow trout are limited in number and are awarded in perpetuity. Each licence is limited to a certain number of tonnes of fish (maximum permitted biomass). The licences, which are issued by central government, confer a protected right to conduct business operations and have thus far predominantly been awarded free of charge or well below market value. This implies that the resource rent from aquaculture has predominantly accrued to the holders of aquaculture licences. Aquaculture licence ownership has over time become concentrated in the hands of fewer and larger companies.

For natural resource-based industries such as the petroleum sector and the hydropower sector, there has over time been a broad consensus that a large proportion of the resource rent shall accrue to the public. The reasons for this are, inter alia, that:

- Capturing resource rent in the petroleum sector and the hydropower sector has high legitimacy because the high returns have their origin in resources which belong to Norwegian society.
- Resource rent is a supernormal profit which allows for the raising of tax revenues without efficiency loss. Revenues from neutral taxes, such as resource rent taxes, reduce, when taken in isolation, the need for taxes that entail suboptimal resource use.

- International capital markets and mobile tax bases mean that a greater share of the tax burden must be carried by the more immobile factors, with natural resources representing a completely immobile factor.

The principle that the public shall have a stake in the return on the exploitation of public resources has served Norway well. There would have been no petroleum fund (Government Pension Fund Global) in the absence of such a principle. The petroleum industry has for several decades contributed significantly to the increase in prosperity in the Norwegian economy. Norway has managed the revenues from its oil and gas resources in a sound manner. High natural resource revenues have in many countries not resulted in a permanent increase in welfare, and only benefited certain groups in society. The petroleum resources belong to Norway, and a major portion of the revenues from petroleum activities are channelled to the public. This has facilitated investment in, inter alia, education and infrastructure, expansion of public welfare schemes and high household income growth.

Hydropower plant taxation has also contributed considerable tax revenues to the central, regional and local governments in recent years. Power values have increased in the wake of the power market deregulation under the Energy Act of 1991. This deregulation constitutes, together with the principles underpinning the general tax reform in 1992, the backdrop to the appointment of a committee (Norwegian Official Report NOU 1992: 34 *Tax on Power Companies*), which resulted in the power taxation reform in 1997. Power plant taxation revenues have increased significantly in the last 20 years.

There has been a broad consensus in Norwegian society that a large proportion of the resource rent from the petroleum sector and the power sector shall accrue to the public. The Confederation of Norwegian Enterprise (NHO) has recently advocated better utilisation of the potential for taxation of resource rent (NHO, 2018). It notes that while produced capital, such as machinery and buildings, may be used in different countries, natural resources have a fixed location and can only be utilised in the countries in which these resources are located. The Government states in its political platform, the Granavolden platform, that it will tax natural resources in such a way that the profit accrues to the public and structure the tax system such as to bring about economically profitable investments.

Location-specific resource rent industries may be subject to a high tax level without displacing investment abroad. The hydropower industry and petroleum industry are good examples of the viability of such an approach. A neutral resource rent tax on the return on location-specific resources, such as hydropower and petroleum, does not prevent profitable investments from being made.

Norway offers natural advantages for salmon and trout farming in the sea. The attractiveness of sites is a matter of, inter alia, climatic conditions, seawater properties and shelter against inclement weather. Like in petroleum operations and hydropower generation, it is use of a limited resource made available by society that gives rise to the resource rent in the aquaculture industry. Production is limited by nature, through limited availability of favourable sites both globally and in Norway, as well as by government-imposed limitations in the number of licences.

The Committee's analyses confirm that there is resource rent in the industry. The resource rent calculations reflect the cyclicity of the aquaculture industry and the resource rent therefore varies considerably over time, but is estimated to have been in excess of NOK 20 billion annually over the period 2016 to 2018 (Greaker and Lindholt, 2019). The high revenues from the auction of new production licences in 2018 is an indication that the industry itself is expecting resource rent to be generated in the years to come.

Thus far, the public sector has captured a marginal portion of the aquaculture industry resource rent. About 80 percent of the aquaculture licences have been awarded free of charge. For the power industry and the petroleum industry, special tax rates have been increased in line with the reductions in the corporate tax rate. Such has not been the case with the aquaculture industry, which has benefitted in full from the corporate tax rate reduction. Furthermore, the industry has received significant public subsidies to innovation and investments.

The aquaculture industry exploits sea resources which belong to the public. Aquaculture licences are issued by central government and confer a perpetual protected right to conduct business operations. It is therefore reasonable that the public obtains a share of the supernormal profit generated by exploiting this resource.

## **1.2 Summary**

### **1.2.1 Developments in the aquaculture industry and the international competition situation**

The aquaculture industry has from its inception in the early 1970s to the present undergone a formidable transformation from a «sideline business» with many small, local owners to become one of Norway's key export industries, supplying products to a global market. Both ownership and company structures in the industry are much more concentrated than before. In recent years, a number of the major companies have become publicly traded, with their ownership thereby becoming diffused across a broad range of both Norwegian and international investors. International funds also hold significant ownership stakes in several companies. However, most of the roughly 100 Norwegian aquaculture companies have Norwegian majority ownership concentrated in the hands of a small number of key shareholders. About 50 percent of total production capacity is held by four companies, which are themselves dominated by four groups of owners. In comparison, the ten largest aquaculture companies accounted for about 8 percent of total production in 1990.

In the salmon farming value chain, it is primarily the sea phase production stage which is subject to a high degree of regulation. This is also the stage which exploits the sea resources and the natural advantage represented by the Norwegian coast. Regulations have evolved since the provisional Aquaculture Act in 1973, and are now focused on how operations are run rather than on who runs them. Growth in the industry has been rationed throughout, by way of licence awards. Licence award rounds have previously taken place at irregular intervals and been based on changing sets of discretionary criteria.

Following the introduction of a new capacity adjustment system in 2017, growth assessments are made every other year and the growth criterion is based on environmental considerations, i.e. the effect of salmon lice on wild salmon stocks. If the environmental effect is acceptable («green light»), the industry may be offered growth. If the environmental effect is moderate («yellow light»), capacity may be frozen, and if the environmental effect is unacceptable («red light»), capacity may be reduced. This system is often referred to as the «traffic light system».

It is also strictly regulated what locations, also termed sites, salmon farming operations may be conducted in. Getting a site approved for aquaculture will as a main rule require the endorsement of both the municipal administration and a number of sectoral bodies. Availability of sites is therefore also a major bottleneck for the industry.

It was only in 2002 that government bodies were authorised to start charging for awarding licences. The licences were awarded free of charge prior to that. This reflected a political desire to develop a new rural industry during a period characterised by high risk and a major development effort. Licences have since 2002 mostly been awarded at a fixed price. About 80 percent of licenced capacity in the industry has been awarded free of charge, with only 3 percent being awarded at market price by auction. The remainder of licenced capacity has been awarded at a fixed price. The authorities have in some licence award rounds made use of auctions in addition to a fixed price. In the 2018 licence award round, two thirds of capacity were awarded by auction. It is likely, based on calculations from various sources, that the market value of current licenced capacity is about NOK 200 billion. In comparison, the total consideration paid by the industry to central government is NOK 6.8 billion at 2019 prices, i.e. about 3 percent of the value of the licences.

In addition to Norway, the countries which currently have the largest farmed salmon production are Chile, Canada, the UK and the Faroes. Although most of these started salmon farming at about the same time, development rates have diverged, as the result of both regulatory differences and biological challenges. Although there have been short-term fluctuations in both costs and prices, the sales price has increased for the last 15 years. Production volumes have also increased considerably over time in the main producer countries.

Global demand for farmed salmonids is on the increase. Production volumes have increased by more than 90 percent since 2005, while the price has increased by close to 50 percent in real terms. However, there is under the current conventional technology only a limited number of locations worldwide where conditions are appropriate for efficient farming of salmon in the sea. Lack of access to suitable areas, biological challenges or regulatory limitations as the result of political preferences for curtailing the scale of the aquaculture industry are examples of factors that limit the scope for establishing increased production with conventional technology in these locations.

High demand and limited scope for growth under conventional production methods have stimulated an increased effort on alternative forms of production. The development of new technology means that more areas may be used for salmon farming, both in Norway and internationally. Both onshore and offshore aquaculture may compete with the system of open pens in the sea which currently dominates, but production costs will determine which technologies and operating methods will be used in future, and to what extent. Conventional aquaculture has turned out to be highly cost effective and competitive. Hence, there is much to suggest that conventional open-pen aquaculture will continue to account for a major portion of Norwegian aquaculture for a long time to come.

### **1.2.2 The tax system, resource rent and resource rent taxation**

Public sector revenues need to be raised in a manner constituting the least obstacle to efficient use of society's resources. In order for resources to be utilised as efficiently as possible, the tax system should be structured in conformity with certain fundamental principles. The tax system has since the tax reform in 1992 been based on the principles of broad tax bases, low rates and equal treatment of various investments, industries, business types and funding methods.

Most taxes affect the behaviour of individuals and businesses. When behaviour is determined by the imposition of tax or the scope for tax savings, taxes are *distortionary*. In practice, this applies to most taxes. Some taxes do not affect the decisions of individuals and businesses, and entail no economic loss. Such taxes are termed *neutral taxes*. When a company is operated such as to maximise the value of its business activities, a tax on that value will not change the

decisions of the company. Investment and operational decisions that are profitable before tax will then also be profitable after tax.

A correctly structured tax on resource rent associated with location-specific resources will for example be neutral. As long as one is able to correctly define the tax base, there are several resource rent tax models that will be neutral. Both an accrued profit-based tax and a cash flow tax would be able to meet these requirements if correctly structured. Norway has predominantly opted for an accrued profit-based method for capturing resource rent in the petroleum sector and the power sector. In the petroleum sector, a significant portion of central government revenues is also captured through the State's Direct Financial Interest (SDFI). SDFI does in practice have the same properties as a field-by-field cash flow tax.

In order for the tax system to have a minimum impact on the decisions of individuals and businesses, it is desirable to use neutral and efficiency-inducing taxes to the extent possible before resorting to distortionary taxes. Revenues from neutral taxes may be used to reduce distortionary taxes, thereby contributing to more efficient use of resources.

Unlike other business activities, the concern that a high Norwegian corporate tax rate may induce businesses to relocate abroad does not apply to resource rent industries that are heavily reliant on natural resources. These resource rent industries are based on natural resources which belong to society, and their activities are location-specific. Correctly structured resource rent taxes do not inhibit investment, and also reduce the need for distortionary taxes. All in all, this can contribute to more efficient use of resources. In an open economy with mobile tax bases it is therefore especially important to capture resource rent tax revenues from location-specific sources.

Pure profit is the profit a business is left with after all factors of production, including capital and labour, have received their market-based remuneration. Pure profit may arise due to scarcity of a factor of production. If such scarcity is caused by limited availability of a natural resource, such as oil, fish or land, the pure profit is normally referred to as resource rent. Ecosystem services such as sheltered fjords and coastal areas, as well as good water circulation and absorption of waste materials, may also give rise to resource rent. If government regulations are what give rise to the resource rent, the pure profit may alternatively be called regulatory rent. Pure profit may also be related to market power or technology. The term resource rent is used as a joint term for all sources of pure profit.

There are several ways of capturing resource rent. A distinction can be made between profit-based models and gross production-based models. Profit-based models are structured such as to depend on the profitability of the operations, while gross production-based models are independent of profitability. However, the various methods will differ greatly in their effects on the investment incentives of companies and also differ greatly in how precisely they capture resource rent. A gross production tax imposed on the quantity or value of specific goods will cause less efficient resource use. Such a tax will result in lower purchase and production volumes for the goods in question than would be optimal from an economic perspective. This will entail lower investment and employment in the production of such goods, as well as suboptimal resource use.

A profit tax on resource rent is normally labelled a resource rent tax, and will be neutral when it is correctly structured. Projects that are profitable before resource rent tax will also be profitable after resource rent tax. Hence, the resource rent tax will not inhibit investment or affect which projects investors would like to carry out. Consequently, a resource rent tax is consistent with an efficient tax system, which is characterised by having a minimum impact on the choices of individuals and businesses.