

The IVQ regime in Norway: A stable alternative to an ITQ regime?

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Abstract

Since the introduction of quotas and licences as important management tools, Norway has insisted on an individual vessel quota regime (IVQ). The main argument has been to avoid market-based transactions of quotas and vessels and secure stability in regard to a diverse fleet structure and decentralized ownership of scarce cod resources. Thus, an individual transferable quota system (ITQ) with a high degree of transactions and the potential for a heavy concentration of quota ownership and fewer vessels has never been an alternative. However, since the late 80s, the trawler fleet has been trapped within a web of unprofitable overcapacity. Within the frame of a closed management regime and a path-dependent IVQ system, the quota regime has been forced towards a market-orientated system for transactions. In this article, we analyze the Norwegian IVQ system and discuss whether the aggregate effects of the IVQ regime are congruent with the models' profound ideals.

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1. Introduction

In the reconstruction of the Norwegian post-World War II economy, the trawler fleet was seen as a panacea for the economic development along the coast. The trawler fleet's capability to convey a stable fish supply was a mainstay in the political strategies of modernization of the fishing industry. Towards the end of the century, the fleet became trapped in a complex web of capacity-reducing initiatives with dubious effects. Institutional rigor, malfunctioning incentive systems, and destructive competition for dwindling resources produced allocation conflicts, excess capacity, and lack of profitability. Consequently, the government implemented a series of initiatives to remove capacity. Such initiatives were launched on the assumption that a considerable proportion of the resource rent was tied to excess capacity, rather than contributing to the profits of the fleet. In some cases capacity has proved to be hard to

remove, and in others the aggregate side effects have been substantial [1].

The main goal of the individual vessel quota system (IVQ) in Norway may be linked to two main pillars: to secure a decentralized ownership and to avoid unprofitable overcapacity as means to provide an economic viable fleet. There are two important arguments for the regulation of economic activities. First, neoclassical economists claim that market failure leads to non-optimal use of accessible resources, and regulations must be implemented to remedy the failure [2]. Secondly, a political–institutional argument that rests on organization theory claims that political systems are based on values and norms, and that such systems will raise political objectives that are not necessarily achievable by the use of the market mechanism [3,4]. The economic argument is based on the neoclassical assumption that perfect competition provides the most efficient allocation of a society's resources, and that political decision systems cannot provide solutions that match the efficiency of the market [5]. In reality, however, different forms of market failures will occur that reduce the economic profitability of the system. Examples of such failures are imperfect information (e.g., that the actors

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lack information about new technology or markets), absence of necessary input factors (e.g., capital), damaging competition (e.g., extra social costs related to recurrent bankruptcies and start-ups), imperfect competition (actors act as monopolists and operate with artificially high prices), and negative externalities in the form of pollution without compensation and over-consumption of common resources (e.g., the “tragedy of the commons”).

The assumption behind a Keynes-inspired regime is that the market mechanism contributes to a constant or increased inequality between the groups and regions, and regulations are imperative to realize the ideological objectives of increased equality. The political–institutional basis for regulations in the Norwegian context is particularly justified by obtaining specific resource allocations and the reassurance of a balanced development between the urban and rural areas. It has thus been imperative for all industrial policies to support industries in the rural areas and create a more even geographic distribution of the economic growth [6]. In later years, there has been an increasing confidence in the market as the allocation mechanism in western countries and the prevailing management ideology is changing. Politics based on liberal ideologies (e.g., neoclassic economics), has received significant momentum [7]. The government seeks to contribute to growth processes by stimulating the supply side. The objective is to develop a self-regulating market, where the resources are automatically channelled into the areas where they provide the best profit. A (so-called) free market requires strong and reliable regulations, enforced by a legitimate body.

The Norwegian quota regime constitutes elements of both the market mechanism and strong public governance. In this context, Norway has insisted on an IVQ regime to avoid market-based transactions of bundled quotas and vessels, and to secure diversity regarding the fleet structure and decentralized ownership of scarce cod quotas in business weak areas. Thus, an individual transferable quota system (ITQ) with a high degree of transactions and the potential for a heavy concentration of quotas has never been regarded as a viable alternative. However, since the 80s, the original model of the IVQ system has been forced to move from a rigid system with no flexibility, towards a market-oriented system for increased transactions of the quotas and vessels. Strong critics of the market orientation have opposed the recent development of moving the regime towards an ITQ system, and concentrating the quota rights on “the privileged few”.

In this article, we try to examine the impact of the IVQ system on its own premises. Does the IVQ system actually work as a guarantor for long-term stability with respect to a diverse fleet structure and ownership of quotas? Is an IVQ system a real alternative to a market-based ITQ system to prevent concentration of quotas on the “privileged few”, or does it unavoidably end up with the same result as within an ITQ system? Such an approach may function as an input to discuss important aspects between the profound ideas of the IVQ regime and alternative management systems like an ITQ regime.

2. Phases in the expansion of the trawler fisheries

According to the institutional theory, there always remains a residual of past arrangements in the current regulations and practices [8]. Modern trawl fishing has been a controversial matter in Norwegian fisheries policy since its inception in the early 1950s. Trawling has been hailed as the symbol of modernity and efficiency [9], but also demonized as a capital-intensive engine that demolishes the fish resources and ruins the livelihood of traditional rural districts [10]. The conflict encompasses the allocation of limited fish resources between the coastal and the high-seas fleet, as well as the allocation between geographical regions. The trawler fleet’s place in the Norwegian fisheries has been a continuous area of conflict, with an indisputable dividing function in the modernization of the fisheries [11].

Nevertheless, optimism for the trawler fleet prevailed in the 1960s. A strong belief in the new technology and planning aimed at creating predictable and increased profitability. The extent of onshore processors and trawlers increased under both private and semi-governmental management. This development continued throughout the 1970s. The abundant recruitment of the 1963–64 age-group cod contributed to a considerable increase in the catch rates. At the end of the 1970s, the Norwegian trawler fleet comprised 130 vessels with trawler licences for cod in the North East Atlantic [12]. In addition, the international fleet demonstrated an increasing interest for fishing in this area. The expansion of the trawler fisheries continued throughout 1970s with annual cod catches of approximately 1 million tons. However, the growth in catch rates stagnated at the end of the decade. Despite this stagnation, the high catches continued and resulted in a reduction in the cod stock. The trawler fleet experienced a loss in catch income and the need for subsidies became urgent.

In 1977, Norway implemented the EEZ. Fishing with floating trawls was forbidden the same year. Licences, total allowable quotas (TAC), vessel quotas and technical restrictions like mesh size were introduced over a short period of time. The government’s long-term plan for the fisheries reflected for the first time the relation between the catch capacity and resource abundance [13]. In practice, this constituted a freezing of the number of trawlers in operation. An era lasting from World War II in which technical/economical rationale had guided the fishing policy had thus come to an end.

Following the closure of the cod trawl fisheries, TAC quota is set by the Joint Norwegian–Russian Fishing Committee; the total quotas of cod and haddock are divided on a 50–50 basis between Norway and Russia. In addition, “third countries” are allocated approximately 10% of the TAC.¹ In Norway, the TAC quota for cod and haddock is shared between the trawlers and coastal vessels that fish with passive gears such as gill net, long line,

¹Third countries are EU, Iceland, the Faroe Islands, and Greenland.

Danish seine, and hand line. The TAC quotas are allocated in accordance with a dividing key (the “trawl ladder”), where the size of the TAC quota determines the share to the trawlers; when the Norwegian TAC is less than 100,000 tons, the trawlers’ share is 20%, but increases to 35% when the Norwegian TAC exceeds 300,000 tons. The trawler fleets’ total quotas for cod and haddock are divided into 90 quota factors (QFs).

The trawler fleet is divided into three groups: factory trawlers produce fillet on board; fresh fish and whole fish freezing trawlers (fresh/freeze trawlers) supply unprocessed fresh and frozen fish to onshore processors; and the small trawlers supply fresh whole fish. The small trawlers have at their disposal a QF between 0.35 and 0.75 of a full trawl quota (QF 1.0), the fresh/freeze trawlers and factory trawlers have a quota basis that corresponds to a 1.0 QF.

At the end of 1980s (1985–1988) there was a short revival of “trawler optimism”. The Marine Research Institute in Norway reported positive prognoses for the Norwegian arctic cod, and ICES proposed total TAC quotas of about 800,000 tons for 1986–1988, with a possible extension into the 1990s [14]. The government opened for a renewal of the trawler fleet and banks were positive towards financing the next generation of cod trawlers. In the course of a few years, 20 new factory trawlers, with a total value of 1.5–2 billion NOK, were contracted. In 1989, the trawler fleet consisted of a total of 129 vessels. Of these, 25 vessels processed fillet onboard, 53 vessels supplied fresh and frozen fish to onshore processors, and 51 smaller trawlers fished on a lower quota basis than the two other groups. Shortly after, the cod stocks in the Barents Sea collapsed. The TAC for 1990 was set to 160,000 and 215,000 tons for 1991. This was the lowest TAC awarded since the introduction of the EEZ in 1977. A series of bankruptcies in the trawler fleet followed, with extensive change of ownership and sale of vessels overseas [15]. The questions of excess capacity and loss of profitability were once again put on the agenda, and a considerable excess capacity existed in the trawler fleet [14]. For the period 1977–1992, the annual TAC quota for Norwegian Arctic cod varied between 113,000 and 380,000 tons, with an average quota of 230,000 tons. In only four of those years were the quota above 300,000 tons, while it has been below 200,000 tons in eight of the years. The Department of Fisheries calculated the degree of excess capacity with different options for the quota level and concluded that the trawler fleet’s excess capacity was approximately 70%, with a Norwegian quota of 230,000 tons, approximately 60% at 300,000 tons, and barely 40% with a Norwegian total quota of 400,000 tons [14].

Traditional methods such as licences and quotas were apparently inadequate to control the capacity development. The public reports [14,16] also pointed out basic weaknesses in the regulation system itself as an explanation for excess capacity. Limited flexibility in the licensing system made it difficult to take into account the vessels’ varying operating pattern and changes in the stock basis

and the markets. Thus, an important aspect of the Norwegian regulation system is that there is a direct link between the vessel and fishing rights, a relation that leaves no room for flexibility with natural variations in the resource basis. Therefore, throughout the 1990s, the Ministry of Fisheries introduced new structural measures intended to reduce unprofitable excess capacity.

3. Capacity reduction within the frame of an IVQ regime

Following the reduction in the resources and the economic deficit in the trawler fleet, the Directorate of Fisheries introduced the unit quota (UQ) system for the fresh/freeze trawlers in 1984. In a UQ regime, licenses and quotas can be transferred from one vessel to another. The precondition is that the vessel that loses its quota is actively removed from the fleet, while the quota itself is returned to the resource base after a fixed period (originally 13 years, but extended to 18 years when the vessel was condemned). In addition, an upper limit was set for how many QFs each vessel could hold (1.5 QFs for small trawlers and 2.0 QFs for a factory trawlers or fresh/freeze trawlers).

The intention of the UQ regime is to adjust the catch capacity to the available resources and thus obtain an improved operating basis for the remaining vessels. However, weaknesses in the incentive structure soon occurred and the system by-and-large failed to reach its objectives of capacity reduction. By the year 2000, the system permitted license holders to accumulate up to 3.0 QFs for factory trawlers or fresh/freeze trawlers and 2.5 QFs for small trawlers. The use of the UQ opportunity turned out to be next to nothing for the fresh/freeze trawlers and factory trawlers group, and, if anything, the catch capacity increased even though the number of vessels was reduced. This increase in catch capacity is attributed to the technical upgrading of older vessels, as well as a substantial renewal of a number of combined cod and shrimp trawlers. In this process, contracted vessels are constructed with far greater technical catch capacity than the previous generations of vessels. The most noticeable change is that the double and triple trawls are applied in shrimp trawling, and that this technology is adopted for cod trawling as well [17]. The increase in capacity through use of new or improved technology, justified by necessary technical upgrading of older vessels, has far overshadowed the impact of a reduced number of vessels.

For the vessel owners, the incentives were not attractive enough. The license holders are particularly dissatisfied with the limited duration of the UQ system and they hesitated to make use of the system.

Since 1988 to 2004, the number of vessels was only reduced from 109 to 94 units. Several years after the introduction of these structural measures, there is a general agreement that considerable excess capacity remained in the trawler fleet [18]. The structural measures have not functioned as intended and the weak economy in the fleet was prolonged throughout the 90s.

4. Making markets and transactions

In 2004, the problem of unprofitable excess capacity is on the agenda again [19]. The limited lifespan of the UQ has been abandoned and changed to a permanent ownership of quotas. The maximum limit of 3.0 QFs per factory trawler or fresh/freeze trawler has continued, and the QF for small trawlers has increased from 2.5 to 3.0 [27]. The separate quota markets for factory trawlers and fresh/freeze trawlers are converted to a joint quota market. Compared to the UQ system, the new system involves several changes. First, it provides the license holders with long-term perspectives in the consideration of investment opportunities. Secondly, uncertain demands to returns are removed with the cancellation of the limited duration. Thirdly, homogenization of the trawler fleet was accomplished through the removal of the separation between the different groups. Last, but not the least, the long-term effects of the license holders' investments in additional quotas is that they are no longer dependent upon other license holders' choices [19]. The dependence upon other participants' strategic evaluations of when it pays to be a free rider in collective actions in relation to the use of the UQ system has thus been removed [20]. The effect of the new structure program can be measured by how many vessels are taken out of fishing and to what extent the quotas are concentrated to the remaining vessels (Table 1).

The new quota regime from 2004 and onwards caused a tremendous effect on the entire fleet structure. The number of transactions increased heavily and surplus vessels were either scrapped or sold in the second hand market. The number of vessels are down from 120 vessels in 1991 to 51

vessels in 2006. However, the strongest reduction occurred in 2004–2006, resulting in almost a halving of the entire fleet. Correspondingly, the average number of quota factors per vessel has increased from 0.8 QFs in 1991 to 1.8 QFs in 2006.

5. Discussion

The first UQ program failed for two reasons. First, the incentive structure was too weak, because the license holders were expected to pay for the removal of capacity, while the benefits of this removal was divided among all participants. Secondly, capacity was perceived as a linear measure and equivalent to the number of vessels. This perception is shallow and, consequently, the “force of innovation” undermined the effect of removal of few vessels and the technical capacity they represented.

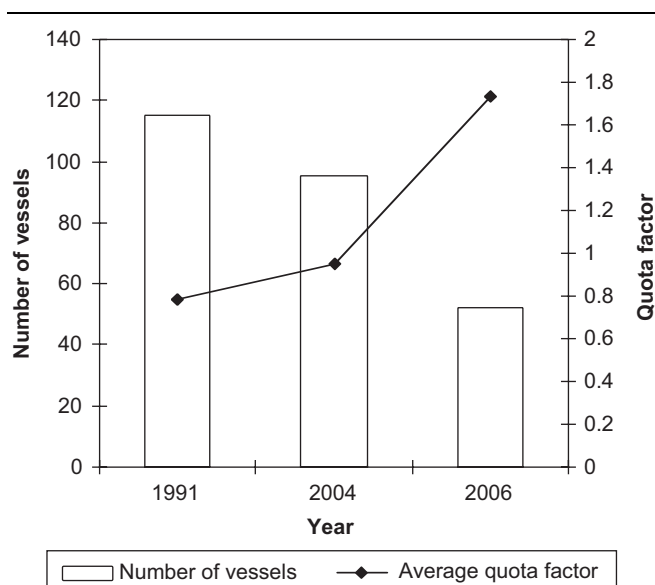
Even though the former UQ program did not contribute to any significant reduction in the number of trawlers, there have been tremendous changes with regard to the ownership of the vessels. Within the old UQ regime lasting from 1988 to 2004, many companies, holding an outdated trawler fleet, were not able to see any viable future with respect to sufficient profit in renewal of their own fleet. Thus, two major companies have taken over the vast majority of the trawler fleet in Northern Norway. One of the two companies are now controlling 29 licences which correspond to 9% of Norway's entire TAC of cod in the Barents Sea, or 30% of the Norwegian trawlers fleets' entire quota base. In 2006, the company's quotas corresponded to 50,000 tons of cod, haddock and saithe [21].

Thus, an important effect of the former UQ program was that it did not contribute to any major changes in the fleet structure or reduced catch capacity, but caused a tremendous redistribution and concentration of quota and vessel ownership. It is also clear that the massive concentration of bundled vessels and quotas in Northern Norway, a strongly fisheries dependent region, gave the two companies a very strong bargaining power for the establishment of the new quota regime with built in eternal ownership of purchased quotas.²

According to the Department of Fisheries and the vessel owners, the massive removal of unprofitable overcapacity and the realization of the potential resource rent, were also supposed to be perceived as a stabilizing project in regard to the future fleet structure and ownership [22]. However, in the new regime there are built in a significant degree of dynamics, which refers to huge differences in the vessels quota base and technical status of the fleet.

Table 2 illustrates the variety in the vessel's quota-base within the new regime. While a vessel that has integrated a maximum of 3.0 QFs corresponds to 6026 tons round weight quota, a vessel holding only 1.0 QF, has a quota base which corresponds to 2802 tons round weight fish.

Table 1
Number of cod trawlers and average quota factor (QF) per vessel, 1991–2006



²Eternal ownership of purchased quotas from 2004 onwards.

Table 2

Quotas (tons) in regard to the vessels quota factors (QF) for cod trawlers, 2006^a

Quota factor (QF)	1.0	1.8	3.0
Cod	639	1166	1917
Haddock	340	621	1020
Saithe (Barent Sea)	633	1858	1899
Saithe (North Sea)	1190	1190	1190
Total (tons)	2802	4835	6026

Source: (nn).

^aThe quota regime does not refer to saithe in the North Sea basin. The three examples of vessels holding different quota factors, refer to concrete trawlers' quota base.

A statistical analysis of the Fisheries Directorate's quota base for the entire cod trawler fleet, confirm the big variations among the vessels locked in the new regime.

The figure in Table 3 shows that more than 20 vessels are holding a QF in the range 0.35–1.01, while 15 vessels are holding QF's in the range 1.01–1.68. Only 13 vessels are holding a QF in the range 1.68–2.34, while 3 vessels are fully structured with the maximum of 3.0 QFs each. At the same time, 50% of the entire trawler fleet are more than 20 years old and need replacement (Table 4).

According to the estimated investment cost for building the next generation of a state of the art cod trawler, there will be no viable future for companies holding a quota base lower than a minimum of 2.0–3.0 QFs. Approximately half of the remaining vessels do not hold such a quota base. By selling to companies holding a stronger quota base they might leave trawling as a future arena. Thus, it is not likely that the new regime will stabilize the present fleet structure and ownership, but rather contribute to further quota transactions and concentration of the quota base on even fewer hands.

In the debate about different management regimes pro et cons, an IVQ regime versus an ITQ regime are core elements [23,24]. While a fully ITQ regime with no boundaries aims to maximize the economic profit from a given resource base, a bundled IVQ system also takes into consideration the value of a decentralized distribution of quotas and a diverse fleet structure among legitimate stakeholders.

During the severe cod crisis in the early 90s in Norway, the sitting Fisheries Ministers proposed an ITQ regime to solve the problems related to unprofitable overcapacity. However, the initiative was strongly opposed by the entire fisheries segment [25]. The oppositions' main argument was that an ITQ regime would concentrate the cod quotas on the "privileged few", and that the existing IVQ regime would secure a decentralized distribution of quotas and vessels. In this context, the existing fleet structure was congruent with the existing structure in regard to ownership of bundled vessels and quotas. However, the enemies of the ITQ regime did not realize that the cod trawlers had been kept on the rack for too long time. Their focus was aimed at keeping the existing fleet structure without a

Table 3

Distribution of quota factors (QF) by groups and number of vessels, 2006

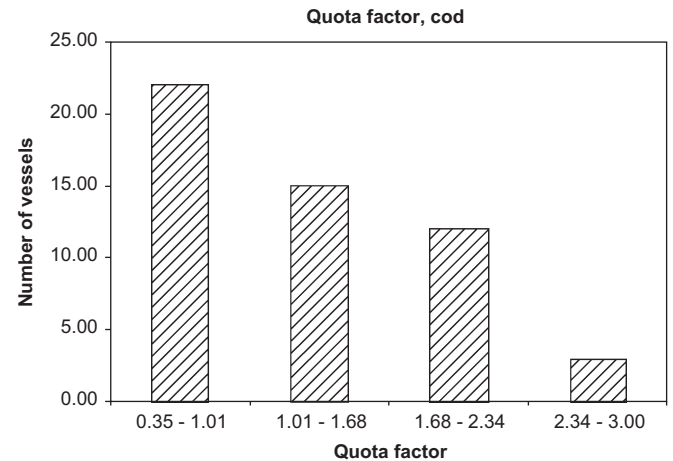


Table 4

Number of trawlers by groups and year of building, 2006

Building year	1970–1978	1979–1987	1988–1996	1997–2005	Total
Number of vessels	13	12	7	17	49

thought for the vessels' poor economy and the potential for changes in ownership; in fact a decision that warmly invited big institutional investors to take over the vast majority of the trawler fleet in Northern Norway. Thus, an IVQ regime is not a guarantee for a decentralized ownership of the quota base, nor is it a guarantee against concentrating the quotas into fewer vessels. The Norwegian IVQ system only represents a long way around towards an unavoidable version of an ITQ regime. In fact, the experience from Norway shows that a bundled IVQ regime has a much higher proportion of transaction costs than an ordinary ITQ regime. The final result of an IVQ system unavoidably ends up with the same concentration of quotas and fleet structure as the experience from ITQ regimes like New Zealand and Iceland [26]. In this way, the Norwegian management regime appears to be best suited for the strongest actors and not for the smallest companies in rural fisheries dependent areas—paradoxically the opposite of what the Norwegian egalitarian IVQ model originally intended to be.

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