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# THEORY AND PRACTICE OF ITQ'S IN ICELAND;

*PRIVATIZATION OF COMMON FISHERIES RESOURCES*

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**Summary**

Fisheries management by individual transferable quotas (ITQ's) is being advocated by several fisheries economists as a solution to «tragedy of commons» situations in the fisheries. Until lately, the studies of ITQ's have been purely theoretical, but now it is possible to study how the system works in real settings. Two countries, New Zealand and Iceland, have adopted ITQ's as an overall fisheries management system on a national level. In Iceland, fish quotas were made transferable within a set of limitations in 1984, but since 1991, quotas have been freely transferable. The gradual transformation of *common property rights* into *private property rights* under the ITQ regime, is basically consistent with the economic theory of ITQ's, though this part of the theory is often undercommunicated in the political rethorics. In the Icelandic case, the theoretical assumption that a ITQ-regime will discourage overinvestment in the fishing fleet seems questionable. The transferability of fishing rights (that is quotas), transforms them into a sort of *currency*. Thus, the ITQ-regime as such seems to represent a major input of «new» capital into the fisheries, which in turn generates an incentive for investment . The economic theory of ITQ's also assumes that quota market prices will reflect the *resource rent* generated by the fisheries under an ITQ-regime. In Iceland the demand for quotas is influenced by unemployment and lack of alternative sources of income for fishermen. The interdependency between the quota market and the labor market is gradually creating a market price of fishermen's labor. This process, along with a rapid concentration of quota ownership is causing an increase in social differences and social conflict.

Transferability of fishing quotas is being strongly advocated by many fisheries economists, including Scott (1955,1989), Pearse (1992) Hannesson (1990) and Árnason (1991,1992). The system of individual transferable quotas (ITQ's) is offered to fisheries managers worldwide, as an ideal solution to «tragedy of commons» situations in the fisheries. In practice, ITQ's means turning catch quotas into a market commodity and development of private property rights to the resources. Recently, *The Economist* (march 19th 1994) and *Newsweek* (April 25th 1994) brought cover reports on the global fisheries crisis, advocating privatization as a possible solution. Newsweek reporter Tony Emerson comments:

> *Already, though, nations hit by stock collapse are turning to radical solutions- most notably controversial schemes to «privatize the ocean». The idea is to give or sell to individual fishermen a permanent share of fishing quotas, which the fisherman is then free to use or sell. New Zealand and Iceland have already privatized many of their fish stocks this way, and there is even talk of an international fish-quota stock exchange. Several American fisheries have been turned over to such «individual quota» systems, and the*

*Alaska halibut derby will go private in 1995. The hope is that the market will shake out the enormous excess in boats and fishermen, give fishermen a personal stake in conservation and restore order to the race for fish.» (Newsweek, April 1994, p.33)*

Individual transferable quotas, or ITQ's, have been a highly controversial issue in debates on resource management during the last decade. They are now applied in several fisheries in the USA, Canada and Australia, but so far only New Zealand and Iceland have put ITQ's into practice as an overall management system at the national level, New Zealand since 1986 and Iceland since 1991 (after having practiced some degree of transferability since 1984).
Though there is an abundant literature, especially in economics on what will probably happen with the implementation of ITQ's, the literature on the effects of ITQ's in real settings is rather sparse (Pálsson and Helgason,1994, Boyd and Dewees 1992, McCay and Creed 1990, Arnason 1995, Lindner, Campbell and Bevin 1992 and Gauvin, Ward and Burgess 1994). The aim of this paper is to examine some traits of the recent development of the Icelandic fisheries and try to isolate some of the effects of ITQ's as a management system.

**Some basic assumptions in the theory of ITQ´s**

As a theoretical model, ITQ´s are a fascinating solution to the situation referred to as the "tragedy of commons" (Hardin 1968). The model, as put forward by Scott (1955, 1979,1989) and Árnason (1989,1992, 1995) assumes that:

1) Establishing **private property rights** to fish resources will create an incentive to harvest the resources in a way which provides long time sustainability. The fisherman will no longer be a *hunter*, but a "*fish farmer*". Or as the editors of *The Economist* (march 19th.1994) put it:

*»Only when fishermen believe that they are assured a long-term and exclusive right to a fishery are they likely to manage it in the same farsighted way as good farmers manage their land.»*

2) Transferability will eventually lead to a state of **equilibrium**, when the most efficient fishermen/vessels have acquired sufficient quota to utilize their fishing capacity optimally by buying the less efficient ones out of business. This process can theoretically generate "full economic efficiency in the fishery" (Árnason 1989:224), as there will be no excess capacity left.

3) The increased efficiency makes it possible to collect a potentially enormous ***resource rent*** from the fisheries, once the stocks have been built up to an optimal size and the fishing effort reduced to an optimal level.
The concept of resource rent, is similar to the concept of *land rent* used by Ricardo. Land rent refers to the market rent landowners are able to collect from different quality of land. While marginal agricultural areas hardly generated any resource rent, high rent could be collected from productive land. The same should apply to fisheries, marginal or poorly managed fisheries yield no resource rent, while productive fish stocks and efficient harvesting should have a great potential for generating resource rent.

4) Once the resource rent is generated, there are different options for its distribution. One is a build-up of private capital in the fishing industry, which in turn will be invested in other profitable industries, thus creating economic growth in the private sector. Another is collecting fees (resource charges) from the (now profitable) fisheries. The resource charges can be used to compensate potential losers and improve economic conditions for everyone (Neher et.al. 1989:3).

5) Market prices paid for quotas, (both in buying and selling of permanent quota shares and leasing prices paid for fishing rights for one year only), will reflect the resource rent generated in the fisheries and expectations of future resource rent. Growing stocks and optimal fishing effort are thus expected to generate high qouta prices, while declining stocks and excess fishing capacity are expected to generate low quota prices (Árnason 1990).

6) Since the fisheries are more profitable with ITQs, the bargaining position of fishing crews will improve, resulting in higher wages (Árnason 1992).

**Privatization or just another management measure?**

*Property*, in the economic sense, can be defined as a set of rights to use, sell, lease and inherit an asset, assigned to particular individuals or groups. As pointed out by Ciriacy-Wantrup and Bishop (1975) and Hanna (1990), the concept of property rights, as used by most economists, is rather one-dimensional, with only three options, private property which involves particular individuals having unrestricted rights to use, earn income from and to sell an asset, public or state property, and common property which is everybody's (and therefore nobody's) property.
With only these narrow categories to define property rights within, economic theory is immune against a variety of other types of use rights, both formal and informal, which are rather well documented in anthropological literature. (Durrenberger and Palsson 1987).

For fisheries economists as Scott (1955,1989) and Árnason (1990, 1991,1992) the privatization of common fisheries resources is not a side-effect of ITQ's, but rather the most important object of the system. They actually see privatization as a great vision:

> *"ITQ´s are a part of one of the great institutional changes of our times; the enclosure and privatization of the common resources of the ocean. These are now mostly the exclusive property of the coastal states of the world. Will we see continued development of property to the individual or firm level, with harvesting rights becoming indisputably and irrevocably private property?"* (Neher, Arnason and Mollett (ed) 1989:3).

Scott (1989:33) also sees individual quotas as a basis for a grand historical privatization scheme:

> *"individual permanent catch quotas of a regulator determined TAC are only a stage in the development of management from licensing to private rights. This evolution can be expected to continue until the owner has a share in management decisions regarding the catch; and further still until he has a an owner's share in management of the biomass and its environment"*

Despite these very clear statements, the privatization aspect of ITQ´s has not been focused on when the policy has been promoted to government and organizations in Iceland. In the political discourse in Iceland, the pro-ITQ politicians are still trying to convince people that ITQ's mean **no privatization whatsoever.** (Macinko (1994) describes a similar kind of confusion about the privatization aspect of ITQ´s in the Alaska debate). The Icelandic fisheries legislation of 1990, implementing full scale ITQ´s, rejects that there is any privatization taking place, by its opening statement that the fish resources are *"national property"*. This statement apparently involves a contradictory definition of property, and it has caused serious problems in relation to the Icelandic tax legislation. Since quotas could not defined as private property, investment in quotas could be treated as *expenditure*. Moreover, quotas could not be taxed as property, even though, according to the law, they can be sold, leased and inherited

and thus have the same characteristics as private property (Pálsson and Helgason 1995).
In November 1993 a high court decision eventually made it clear that buying of permanent quota shares should be treated as capital investment and quotas should be taxed as property. Still, the Icelandic fisheries minister tried to calm critics by stating that the court decision was only a technical matter for the tax authorities, the fish resources still being a national property.

**The process of privatization**

The ITQ-system was promoted to political parties, the fishing industry and the fishermen's unions, not as a privatization scheme, but as the «best resource management system in the world». By making the fisheries more efficient, the system would boost the national economy and provide higher and more secure income for fishermen (Árnason 1992). Besides, Iceland would become the worlds's leading nation in fisheries management, or as fisheries economist Ragnar Árnason (1990) puts it in one of his promotive publications:

> *In fisheries management, the Icelanders are among the leaders. It is however an exaggeration that we are the world leaders here. Without doubt, the New Zealanders occupy that place of honor.» (a.t.)*

In 1984, fishing quotas for cod and other demersal species were allocated to fishing vessels according to catch records for the three previous years. Quotas were not devisable, nor could they be removed from the vessels, except in cases when the vessel was wrecked or sold abroad. Concentration of quota holdings was only possible by buying vessels, and some companies bought old boats for wrecking, in order to add the quota to their own vessels. However, *quota leasing* was allowed from 1984 on. Since January 1991, the system was liberalized, and quotas are now divisible, they can be separated from vessels and transferred as an independent commodity to other vessel owners,

either by permanent transfer of quota shares or by leasing for one year only.
I will not describe the details in the development of the fisheries throughout the period of 1984 to 1993, but there are some clear tendencies that can be identified:

1. *A growing number of market transactions* in the quota market, both as
   a) transfer of permanent quota shares, and
   b) quota leasing for one year only.
2. Until the end of 1992, an ever *increasing market value* of quotas.
3. A growing *concentration of quota ownership* with the bigger companies (Pálsson and Helgason 1995).
4. A gradual *formalization of private property rights* over quotas.

**The evolution of quota market transactions**

The evolution of quota market transactions in 1990-93, shows approximately a doubling of the quota volume transferred from 1991 to 1993, both for permanent quota shares and quota leasing. The volume transferred yearly by leasing appears to be twice as big as the volume transferred as quota shares.

**Table 1** shows these transactions as percentage of TAC for each fishing year. As the transactions are complicated, and an unknown portion of them may be pro forma transactions and transactions involving the same units of quota more than once during a year, these figures show little more than the *tendency* towards a growing activity in the quota market.
The figures show the increase in quota market transactions since 1990 for the principal demersal species. For shrimp and herring the situation was that a volume matching more than half of TAC for these species was transferred in the leasing market in the fishing years of 1991/92 and 1992/93.

Table 1

**Percentage of TAC transferred in the quota market 1990-93**

(A pool of cod, haddock, saith, redfish and Greenland halibut)

| | *Quota shares** | *Quota leasing*** |
|---|---|---|
| 1990 | 0,9% | 15% |
| 1991*** | 7,0% | 17%**** |
| 1991/92*** | 9,7% | 24% |
| 1992/93 | 13,7% | 35% |

* The statistics contain all transactions of quota shares between vessels. Approximately 20-30% may be transactions between vessels owned by the same company. Exact figures are not available.

** The figure is from adding up all "leasing transactions" except those between vessels owned by the same company. (It is however, difficult to estimate how much quota may be transferred twice within the same year, thus adding to the %-figures).

***Because of changes in the "fishing year", statistics from 1990 cover the calendar year, 1991 covers Jan.-august only, and the following years are September- august. The figures are comparable, since they are percentages of TAC for each period, though the periods differ in length.

****An estimated figure.

The quota share market is comparable to a stock market where quotas for different species can be compared with shares in different companies. The prices available in the quota-leasing market reflect the capital return from investment in each species. As in other stock markets, the prices of quota shares for one species vary according to the current capital return from the shares, that is market prices available in the quota leasing market.

For the major demersal species, the capital return has been close to 20% for the last tree years (1991-93), the price of quota shares thus being approximately 5 times the leasing

price. The only major exception from this rule is with shrimp, which offered only 10% annual return in 1993.

**The quota leasing prices**

According to the ITQ-theory, quota prices reflect the *resource rent*, which is supposed to grow along with increased efficiency in the fisheries. Low product prices, decreasing stocks and excess fishing capacity should indicate a low resource rent, while high prices, growing stocks and optimal fishing capacity should indicate a high resource rent.
A comparison of quota leasing prices and product prices, that is raw fish landing prices, should then indicate the size of the resource rent for each species. The comparison shows an interesting price development in the six-year period of 1988-1993.

Table 2.

**Quota leasing prices** as % of average landing prices for raw fish 1988-93** (Figures in brackets show % of average prices on Icelandic auction markets).

| | COD | HADDOCK | SAITH | REDFISH | GREENLAND .HALIBUT | PLAICE | SHRIMP |
|---|---|---|---|---|---|---|---|
| 1988 | 17(17) | 15(16) | 17(19) | 9(15) | 8(13) | * | * |
| 1989 | 33(32) | 25(26) | 30(32) | 16(24) | 20(25) | * | * |
| 1990 | 35(31) | 30(33) | 33(35) | 20(31) | 23(29) | * | * |
| 1991 | 62(55) | 28(30) | 40(39) | 25(42) | 29(39) | 33(51) | * |
| 1992 | 61(56) | 34(34) | 54(61) | 30(53) | 38(50) | 36(49) | 6(9) |
| 1993 | 58(45) | 18(13) | 27(27) | 26(40) | 26(38) | 18(22) | 10(*) |

***Figures not available**

**** There is no official registration of these prices in Iceland. The figures are drawn from four companies who act as mediators in quota transactions.**

These figures show that leasing prices have been rising for all species, to a peak in 1992, when cod and saith quotas were *leased for more than half of the average landing prices of*

*these species*. (In early 1994, the rental price of cod quota was even higher, or 70-80% of average cod price). In 1993 there was a tendency towards lower prices, except for shrimp quotas, but cod and redfish quotas were only slightly cheaper than in 1992. Cod quotas are remarkably expensive throughout the period, especially after 1990, when restrictions on quota transfers were lifted. At the other end, shrimp quotas appear to be remarkably inexpensive compared to other species.

**The valuation of quota capital**

Though there is no official registration of quota prices, it is possible to calculate the approximate value of the quota capital from prices actually paid for quota shares, provided by quota traders. It is difficult to extract reliable figures for the years 1984-87, since quota transfers were in most cases not separated from vessel transactions. The tendency towards a higher capital value of quota shares is however clear. But, as mentioned above, since the Icelandic fisheries legislation did not define quotas as private property, this capital was, until the end of 1993, tax-free and officially non-existing. The status as non-capital was not only a problem for the tax authorities, but for the banks as well, since legally, quota capital cannot be treated as a security for bank loans. In practice, this is solved by agreements where the banks have to be consulted in case of any transfer of quota shares from indebted boat owners.

The *new capital* generated by the ITQ-system is probably the most interesting feature of this form of resource management. Boat owners who received big quota shares in the initial allocation of quotas or were farsighted enough to buy quota shares while the price was still low, have experienced a nice increase of their capital assets. The benefits of quota ownership can be harvested by offering quota for lease, thus receiving 10-25% annual return. And since quota capital is, in

practice, an important security for bank loans, quota owners are now in a better position to make new investments.
In some cases, it seems that the generation of quota capital has provided an incentive to new investment in fishing vessels, especially modern factory trawlers, thus adding to the problem of excess capacity in the fisheries. As the TAC for cod in Icelandic waters is decreasing, there is a growing tendency that Iceland's new fleet of factory trawlers operates outside the 200-mile limit, in the «Loophole» in the Barents Sea, the «Flemish Cap» east of Newfoundland and the Irminger Sea, south-east of Iceland. Meanwhile, the owners of these vessels can lease their quotas to the coastal fleet.

**Table 3**

**The development of capital value for cod quota shares 1988-1993**

| | TAC (Metric tons) | Estimated quota value of TAC* (USD) | Approximate quota value pr. Metric ton (USD |
|---|---|---|---|
| 1988 | 243.260 | 19.100.000 | 740 |
| 1989 | 219.510 | 320.800.000 | 1.500 |
| 1990 | 198.469 | 380.597.000 | 1.900 |
| 1991 | 196.518 | 514.925.000 | 2.600 |
| 1992 | 200.812 | 559.701.000 | 2.800 |
| 1993 | 143.337 | 402.985.000 | 2.800 |

* In 1988-89, less than half of TAC was subject to the ITQ-system, and in 1990; 68%.Since 1991 approximately 90%.

**The prices are indexed to the price level in Iceland by march 1994, and an exchange rate: 1 USD = 67 IKR.

**Reduction of fishermen's' share of the catch**

If we look at the fisheries as just another industry, for whom the fish resources in the ocean are the *raw material*, we can see that new recruits (or those who were not among the lucky ones during the privatization process), now have to pay to the owner a market price for the raw material. The price of this raw material is likely to reflect *supply and demand*, as market

prices usually do. High leasing prices of cod quotas, in spite of falling market price of cod in the same period, must then result from high demand and short supply. The demand for leased quotas stems from boats which have lost up to half of their former quotas due to the severe reduction of TAC for cod. Some of these boats have been stripped of most of their quotas before they have been sold cheaply to new owners who try to make a living from fishing as an alternative to unemployment.

The high demand for cod quotas can probably be explained by several other factors. Because cod is the most abundant (and most valuable) species in the coastal waters, it is the most important species for the coastal fleet which consists of small and medium sized boats. These boats try hard to catch other species, but there is always a problem of a substantial bycatch of cod. If they lack cod quota to match this bycatch, they have two options: either to buy additional quota on leasing basis, or to dump the cod. The extreme rise in cod-quota prices in the beginning of 1994, when leasing prices rose to 70-80% of landing prices, was explained by this situation.

Another factor, which helps boost cod-quota prices the "quota-doubling" of longliners from November to February. Quota doubling means that longliners are allowed to fish twice their cod quotas during these months, as a measure to increase supply of high quality fish in the winter season.
As a growing portion of TAC is being transferred through the leasing market (see table 1), a growing number of fishermen involved in quota leasing are getting lower income. *Fishing crews get a fixed share of the catch value, but in case of quota leasing, the catch value is what is left when the quota leasing price has been subtracted from the landing price.*

It is evident that growing unemployment rates in Iceland, along with a weak support for the unemployed, are important reasons for the high demand for leased cod quota. The fishing crews accept (or are forced to accept) lower income, facing the grim

alternative of unemployment. Boat owners with little or no quota of their own, often chose to continue fishing with leased quotas, as the alternative may be losing their boats, and perhaps their homes.

According to the fishermen's organizations, some leasing transactions were arranged with the sole purpose of reducing the income of fishing crews. Such practices, often referred to as quota-mongering ("kvótabrask") (Pálsson and Helgason 1994), were the most provocating cause of the fishermen's' strike in January 1994.
Contrary to the predictions of the fisheries economists, it seems that an increase in excess catch capacity, due to reduced TAC which has not been followed by a reduction of the fishing fleet, has generated a growing demand for quotas and *high prices*. High leasing prices for quotas, means high capital return for the quota owners, or in the language of fisheries economists, a high resource rent. As the leasing prices are subtracted from the catch value, it is evident that the fishermen's' share of that value is being reduced. *The «efficiency» which generates a high resource rent thus not being a result of optimal fleet/stock ratio, but of fishermen's labor becoming cheaper*. This is of course contrary to the predictions of Árnason (1992), whose idea was that the higher profitability of fishing with ITQ's would improve the bargaining position of fishing crews, resulting in higher wages.

**A market price of labor**

It seems clear, that the ITQ system In Iceland is generating a *market price for labor in the fisheries*. There are two reasons for the speed of this process:
a) Fishermen do not receive fixed salaries, but a certain share of the catch value, and

b) Iceland has recently abandoned the practice of centrally negotiated minimum landing prices.
It seems that a market price is not only created in cases where quota-leasing is involved, since the market price of leased quotas sets the standard for what rate of capital return can be calculated by quota owners in general. And since a high percentage of the bigger quota owners are vertically integrated companies, the landing price for fish (that is, the price which is used as a basis for calculating fishermen's income in the share-system) is in principle an internal company matter. The prices paid to the companies own vessels are now calculated with a clear reference to *alternative allocation* of the quotas, that is the prices available in the leasing market. This means that a capital return by a rate of 10-25% is calculated for all quota, regardless of if it is available for leasing or if it is catched by the owners vessels.

The new situation in the Icelandic fisheries is among fishermen often referred to as a "feudal" system. The new group of low-income fishermen which is in the making, is referred to as the "tenants" *(leiguliðar)*, while quota owners are referred to as "lords of the sea" *(sægreifar)*.
There is a geographical dimension to this, as the southern and western regions which are closest to the cod spawning sites, have, like Northern Norway, been the most cod-dependent and having a large coastal fleet. Following the severe cuts in cod TAC, the fishermen in these regions are now dependent on leasing cod quota from trawler companies in Northern Iceland and in the Reykjavik area.

The fishermen's' strike in January 1994 was a response to the diminishing shares of Icelandic fishermen in the new "feudal system". The strike was supported by fishermen in the whole industry, not only those who were getting reductions in income because of the new practices. It was clear that the fishermen were very frustrated, and their organizations (there are three labor organizations involved, two of whom were initially in

favor of ITQ´s), are withdrawing their former support to the ITQ-system. The strike was stopped by government action after two weeks, but the problems that caused it are hard to resolve within the system. In may 1994, the government decided on temporary restrictions on quota leasing transactions, in order to avoid a new strike in the autumn.

The strike is only one of many signs of growing conflicts related to the ITQ-system in Iceland. Since 1991, the politics of consensus and corporatism in the fisheries have come to an halt, and the parliament seems hardly able come to a decision on matters related to fisheries management, as all political parties have internal disagreements about the ITQ-system.

**An irreversible experiment**

The privatization of the fisheries resources in Iceland is a social experiment involving high stakes. So far, it seems that the most significant result from the reform is a massive redistribution of wealth and income. The winners are the big quota owners, who can calculate about 20% annual return from their new capital, a capital which also can be depreciated by 20% annually. The losers are the fishermen, or *the fishing crews*, who have been thrown into a market where only the lowest bidder gets the chance to catch the fish. Losers are also those fishing communities who are losing quota shares, since a fishing community without quota shares is bound to be a *tenant* community, where fishermen have to pay their «*sea-rent*» to *sealords* in other parts of the country. The «new» quota capital cannot have come out of nowhere, the high value of quota shares is only possible as long as they are in high demand. The high demand is to large degree created by fishermen with poor employment alternatives and coastal municipalities trying to prevent collapses of fishing communities by helping indebted local companies to keep their quota shares. The *resource rent* created by this system is very much like the land rent

collected by the landlords in Ricardo's time, a tapping of rural communities and tenants, to provide for a class of resource owners.

Most likely, the implementation of ITQ's is an irreversible social experiment. The Icelandic state is in no position to buy back the quota shares in order to deprivatize the fish resources. The quota capital is already invested, some of it in new factory trawlers or in fisheries enterprises abroad. The political influence of the quota owners in the Icelandic society should also not be underestimated, as the fisheries account for about 80% of Iceland's exports. With private ownership of the resource, the owners are in a rather strong position to influence the national policies. It will be interesting to follow the further development of the Icelandic ITQ experiment, but so far the Icelandic experience with the system seems to indicate that there are good reasons for a skeptical approach towards the visions and predictions of the ITQ-promoters.

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