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Efficient Fisheries Management – Fishing Rights and Flexibility

Fisheries rent creation and distribution – the imaginary case of Codland

by

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Abstract

This paper discusses actual and possible achievements and failures of Codland and examines it from the point of view of efficiency and in terms of distribution. It is argued in favour of the joint analysis of the two approaches when contemplating fisheries management reforms, since such reforms may create both winners and losers. The analysis demonstrates how rent drain from fishing communities and countries may occur despite significant resource rent creation. The change of the Codland economy is illustrated and compared to that of actual countries and to resource economic theory. It is concluded that if distributional and equity objectives matter, other instruments than ITQs, such as <u>conditional</u> tradable fish quotas and vessel licenses, resource taxes, co-management, public ownership, auctions, leases, time limited rights, time and area regulations, territorial user rights (TURFs) and marine protected areas (MPAs), should also be used.

Key words:

Resource rent, rent distribution, rent drain, ITQ, license, transitional gain

Introduction

Once upon a time there was a fish-resource-rich island nation in the midst of the ocean that wanted to improve its fisheries management system. We will name this imaginary nation, with its remote location and surrounded by water, Codland, so-called after the large, dominant and valuable fish in its seas. This paper discusses actual and possible achievements and failures of Codland and examines it from the point of view of efficiency and in terms of distribution. We will argue in favour of the joint analysis of the two approaches when contemplating fisheries management reform. Such reforms may create both winners and losers and the danger of rent drain from fishing communities and countries should not be ignored.

Historically, like its distant neighbours, the Codland fisheries offered open access to both domestic and foreign fishing vessels. However, based on the United Nations Convention on the Law of the Sea (UNCLOS), signed in 1982 and enacted in 1994, a 200 nautical mile Exclusive Economic Zone (EEZ) was established some years ahead of the new fisheries management discussion. The ecosystem in this part of the ocean was dominated by one species of fish, which had commercial importance. Of course, there were other living creatures on lower tropical levels, serving as prey for the commercial fish stock, but these were not technically or commercially viable so they are left out of this analysis.

Shortly after the establishment of the EEZ and as the foreign fleets withdrew, the Codland fishing industry experienced a gradual improvement in the fish stock and in the economic performance of vessels and the associated processing industry. Since nature varies somewhat from year to year, this also affects the economic performance of the fishing industry; in leaner times, less fishing effort is attracted to the sea than in better times. As long as the entry into, and the exit from, fish harvesting is free, the opportunity costs of labour and capital in other parts of the economy is determined partly by the earnings in the fishing industry. However, even within such fisheries, some highliner fisheries are more effective than others and make a better living than the marginal fisheries. The Codland people wanted to increase their average earnings as well as their resource base – the fish stock. For this purpose it was necessary to discuss management objectives and instruments and their environmental, economic and social effects.

Policy objectives and instruments

The fisheries management scientists and economists of Codland were aware that management objectives, discussed globally, comprised economic, environmental and social sustainability. There were several sub-objectives, such as healthy fish stocks, high yields of fish, minimal discards, an economically-viable fishing industry, high resource rent, employment, good working conditions and fair/equal distribution of resource rents. They also knew that Pigouvian taxes, limited entry licensing and individual quota allocations, were among the main types of management instruments discussed in the literature, in addition to technical regulations of vessels and fishing-gear, as well as seasonal and area closures of fishing activities. Globally, all these types of instruments are in use in fisheries management, though it seems that resource rentals and resource taxes are used less than technical regulations, vessel licenses and fish harvest quotas (OECD, 2006). However, in recreational fisheries, both public and private resource owners seem to prefer monetary instruments to quantitative restrictions (Aas, 2008).

Individual Transferable Quota (ITQ) rules

Having discussed these alternatives, the Parliament of Codland stated in the Constitution, paragraph ten, that “The fish resources within the country’s EEZ belong to the people of Codland in common” and it appointed the Institute of Fisheries Research to recommend the annual total allowable catch (TAC) to be shared among the fishing agents. But how to share? There were many proposals, including the following three. First, The Union of Coastal Fishermen suggested that the annual TAC should be dived into equal shares – one for each fisherman – and be made to be transferable within the quota year. Second, the Association of Pensioners recommended that TACs should be initially allocated equally to all people between the ages of 65 and 75 years. Through sales, this money would be added to their pensions. However, the Government preferred a proposal from the Union of Vessel Owners (UVO), and decided to allocate free, permanent shares to UVO members, in proportion to their track records. Only the biggest fishing companies were members of the UVO.

The permanent shares were made divisible and tradable and were named ITQs, which could be used as collateral and could be mortgaged. The UVO was proud and thrilled about their achievements, especially as they got the ITQs for free[1]. To monitor the development in the value of the ITQs, they were introduced and traded on the Capital Stock Exchange (CSE). The Parliamentary opposition were partly sceptical about these arrangements but some additional Members of Parliament (MPs) decided to support the New Fisheries Management Law, provided vessel- and ITQ-ownership were strictly confined to nationals of Codland. The few people who feared the creation of a new upper class of sea lords in this egalitarian nation were considered ridiculous. Aristocracy living from rich agriculture land was unknown in Codland's fisheries based economy and few MPs and other people could imagine the rise of a fisheries based lordly class. Most of the MPs had attended a course in fisheries economics at the highly respected University College of Fisheries Economics (UCFE) and learned that the initial allocation of individual quotas would not matter for the efficiency of the system, as long as quotas were clearly defined and tradable – this is based on the ideas of the 1991 Nobel Laureate in economics; see Coase, 1960. However, more critical literature, such as Copes, 1986, was not on the reading list at this college. Critical issues such as quota busting, discard, data fouling and equitable distribution were not on the agenda.

At the outset, the initial allocation was limited to a few big fishing companies, the UVO members, all traded on the Stock Exchange, to avoid creating a governmental office to handle quota distribution; these companies were enabled to sell or lease quotas to other companies and fishermen. This was accepted; thus there was a Parliamentary majority for enacting the new and revolutionary ITQ management scheme. However, at the last minute, it was decided that quota holders should not acquire more quotas than they could catch with their own (or leased) vessels nor could each of them acquire more than ten per cent of the TAC. This maximum TAC share rule was an idea put forward by economists from the UCFE, who claimed that competition was better for the economy than monopoly. Of course, this idea had been known in the field of economics since the days of Adam Smith, but here, it was proudly presented by them in an article in the reputable *Global Review of Fisheries Economics*. No one understood why the economists concluded with a ten per cent maximum TAC share instead of, say, eight or twelve, but most were happy with the conclusion.

[1] Vessel owners seem to be attracted by ITQ arrangements when they get the quotas for free and not through a public auction or purchased from the Government. For this reason, the system could have been called IFQ – individual free quotas, since it is the F they really seem to prefer.

ITQ efficiency and crew remuneration

The ITQ system effectively reduced the vessel capacity, especially in the small fishing villages, where the small scale vessels neither got ITQs for free nor had the capital to buy quotas. However, some people with low opportunity cost of vessel capital and family labour were able to lease annual quotas for some time. Fishermen that were out of work did their best to find jobs elsewhere, but few of them succeeded. If they were successful, some of them found that their earnings were not as good as those they had enjoyed while fishing. Other commercial and public services in the fishing villages were also negatively affected and property values fell. With an increase in unemployment, average earnings stagnated and even reduced, in real terms. This also affected the earnings of the crew members, who, according to custom, were paid a share of the gross or net value of the catch. Increased average catch per vessel, through quota purchases and increased catch per unit of effort (CPUE), due to higher stock level, increased the earnings for crew members. However, the UVO did not think this was fair as long as there were an increasing number of surplus workers who wanted to join their fishing crews. After some fishing-fleet labour disputes, which for weeks had kept vessels idle at shore, the UVO took their case to the Government Committee for Labour Dispute Settlement. This Committee, comprising leading economists who understood the meaning of the word opportunity cost of labour, found the arguments of the UVO persuasive and ruled for lower percentage shares to crew members to meet the needs of the national economy and the labour market. Thus, after a transitional gain[2] for crew members from the ITQ system, their percentage shares, and thereby the annual incomes, were reduced to become comparable with that of other semi-skilled workers in Codland. The ruling that costs of leasing quotas should be deducted from vessel gross revenue before the calculation of the crew's income contributed to equalising labour income at sea and land.[3]

Wealth creation

Some of the initial quota holders, and a few entrepreneurial-minded newcomers, grew richer and richer through their initial, free quota allocation from the Government and from wise

[2] The concept of the Transitional Gains Trap originates from Tullock, 1975 and has been discussed in the fisheries economics literature, including in Flaaten et al., 1995.
[3] This in contrast to the Republic of Iceland where the politically strong Fishermen's Union has managed to keep the quota lease as a vessel owner cost, not to be shared by the crew members (Matthiasson, 2009b).

investments in quotas and vessels. The latter was important, especially in the early phase of the new management before everyone understood the real, long term value of fish quotas. Also, the remaining few skipper owners did well, as fish stocks recovered and they could take advantage of reduced labour costs. Traditionally, under the open-access regime, skipper owners tended not to be much wealthier than experienced crew members, since the latter had the opportunity of investing in their own boats if they were not content with the work and remuneration conditions. Since quota and vessel ownership were historically confined to Codlander nationals, they avoided foreign competition on the Stock Exchange. The wealth that was created was partly invested and partly spent on conspicuous consumption, mainly abroad. The biggest quota holders had a clear preference for investment and living in the City of Europe, where the economy and the stock exchange were booming and lavish consumption was not so easily observed by their fellow countrymen, at home in Codland.

Economy of scale existed to some extent in fish harvesting, at least in the offshore trawler fleet, but even more so in quota management. For this reason, the biggest quota holders believed it would be to their advantage to abolish the maximum TAC share rule. The economists at the University College of Fisheries Economics supported them, since they had recently investigated and proved the existence of economy of scale in quota holding and trade, and had presented their findings at an international fisheries economics conference. The biggest quota holders presented their approach to the Codland Parliament, which demanded a change in the Fisheries Law in order to remove the ten percent maximum share TAC rule. It was easy to convince the general public of this argument – at least, there was hardly any opposition in the media, probably because two of the richest quota holders had invested in the biggest newspaper and in the only commercial television station in Codland. The Parliament was in favour of wealth creation and the majority voted to abolish the ten percent maximum TAC share rule and the formal bindings between quotas and vessel ownership. Thus Codland now got the most modern Fisheries Law among the industrialised countries and its fishing industry, including the financial branch, was ready to reap the benefits. The greatest optimists expected the benefits to exceed even those of the North Atlantic fishing nation, Iceland, which had performed so well with its ITQ system (Arnason, 2008). The reader should know, however, that Iceland has not yet abolished the maximum rule even if it has been discussed from time to time (Matthiasson, 2009b) and that its cod stock declined by 24% from 1978 to 2003 (Eggert, 2009).

The following year, the fisheries-based financial sector had the highest growth rate ever experienced for any industry in Codland. Quotas were traded on the Stock Exchange and could only be traded by wealthy banks that could meet the demand for credit from those who wanted to buy and lease quotas for fishing. In addition to the proper quota market, where a vessel owner could buy a quota to meet the expected catch in the coming year, more sophisticated financial instruments were developed. Future markets for quotas and fish developed. Skipper owners and fishermen were encouraged by the financial institutions to participate in this part of the economy and encouraged to participate in other trades, not only in fishing – and many did. Surplus capital and earnings were invested in the financial sector, such as in shares and bonds, as well as in more sophisticated future debt obligations. ITQs were used as guaranty for loans and mortgaged. The financial consultants argued that the latter should transfer risk from the present to the future; but how this worked was difficult to comprehend for ordinary people. Even though fishermen were traditionally considered risk-neutral or even risk loving, their prudent attitude told them to be careful about what the future might bring for the fish stock, quota prices, market prices of fish, fuel prices and exchange rates. Thus the markets for risk-reducing financial instruments continued to grow and this marginally increased the market value of the financial institutions.

Natural crisis

Nature often varies in richness across time; for some years the TACs had to be reduced significantly due the decline in the growth of the fish stock. At the same time, there was an international financial crisis coupled with an economic recession, with a reduction in the demand and price of fish. This setback created great problems for those skipper owners who, encouraged by the then-wealthy banks, had borrowed money to buy vessel licenses and ITQs. Most skippers had attended two-day courses in corporate finance, organised by their banks and they had learned about the present value of ITQs and capital, in general. They clearly remembered that the present value of an annual, constant profit of 100 Euros for infinity amounted to 100 divided by the interest rate. Thus, 100 Euros per year was really worth as much as 2000 Euros now, if the interest rate stayed at five per cent per year. In previous years, with high fish prices, low interest rates and banks almost pushing loans on companies, skipper owners and fishermen, like many other Codlanders, had borrowed heavily for both investment and consumption. Like in the neighbouring country of Iceland the quota holders had invested and consumed from credits using the quotas as collateral (see e.g. Matthiasson, 2009).

So there was a backlash. It started with a modest decline in the world market fish price. The fish quota price on the CSE fell dramatically, inflicting problems on ITQ holders, in particular on those that had borrowed heavily and mortgaged their quota holdings and houses for up to 100 per cent. The lending banks demanded foreclosures of both fish quotas and houses belonging to skippers and fishermen and soon this spread to other home-owners and small businesses. With the reduction in quota holdings, most of the remaining skipper owners had to try and sell their fishing boats. Soon the economic crisis spread throughout the Codland economy, resulting in a dramatic increase in unemployment. However, hardly anyone understood what was going on[4]. Some people emigrated to countries that had not been badly hit by the general economic downturn. Others wanted to leave, but found it difficult because they owned mortgaged houses, which they would have to sell at a huge loss. Unemployment rose despite the emigration, resulting in a downward pressure on wages and other earnings.

Sea Lords Ltd.

The fishing industry was almost transformed into a monopoly with a holding company for ITQs called Sea Lords Ltd. And, through the purchase of quotas, many small- and medium-sized holders were forced to sell. The three men owning the vast majority of this valuable company grew richer and richer and they still anticipated further growth. The only remaining restriction on quota ownership was that ITQ-holders had to be Codland citizens. It should be noted that the previous two restrictive rules, the limit on quota holdings related to vessel capacity and the ten percent maximum TAC share rule, had both been abolished to promote productivity and growth in the fishing industry. Sea Lords Ltd. fulfilled the citizenship requirement, since foreigners could hold a maximum of twenty per cent of the company shares[5]. This was according to the company's own bylaws, introduced to demonstrate to the Government and the people of Codland that they clearly complied with paragraph ten of the Constitution, "The fish resources within the country's EEZ belong to the people of Codland in common".

[4] One of the exceptions was a part-time fisherman who was also a teacher in the local language, Codlandic. He had read *The Grapes of Wrath* by John Steinbeck (published by Viking Press Inc. in 1939) and could see some parallels between the recent developments in the fishing industry in Codland and the US farming industry during the Great Depression in the 1930s.

[5] This was inspired by the New Zealand Fisheries Act 1996 that allowed maximum 25 % foreign ownership – though with some exceptions if the foreigners could contribute to the national economy (Wallis, 2009).

The three men, who owned 90 per cent of Sea Lords Ltd., also strengthened their business interests in other companies and showed a particular interest in the media industry. They considered it of great importance that Codland had newspapers and television stations, which promoted free business and markets. In the main, they preferred to diversify their investments to other markets, in particular via their subsidiary companies in the City of Europe. This, of course, required that they mainly lived in this metropole and only visited Codland for necessary meetings. Their families enjoyed this lifestyle, since the living conditions in the City of Europe were now much better than in Codland where the market and fisheries crises had hit people hard. Nevertheless, modern technology allowed regular contact with their homeland. Everyday, on the Internet, they could read in the *Star News*, gossip about old friends and neighbours. The entertainment value of this newspaper had improved significantly after the change of editor the previous year, a change, which the owner of Sea Lords Ltd. had deemed necessary to meet business needs.

Holding nearly 96 per cent of the permanent ITQs, the Sea Lords Ltd. Chief Executive Officer and Board of Governors were fully aware of their responsibility for the Codland fishing industry. One of the most profitable parts of their business – the leasing of ITQs to fish harvesters – could be accomplished easily through the Internet and other modern communication systems. For this purpose, they had established a subsidiary company, Fair Trade Ltd., which mainly leased annual ITQs to vessel companies, skipper owners and small scale fishermen who, at that time, owned very few permanent quotas. Some processing companies also leased quotas, which they used on a share basis for their own vessels and were operated by fishermen who could not afford to buy their own boats. These were the poorest of fishermen, but a few young men dreamed about buying their own boats and, to this end, were willing to take risks and work hard. The trio of lords (as the three company owners once were called by the previous editor of *Star News*) agreed that they should not sell any permanent quotas unless they needed liquidity for other, better investments[6]. Thus, through Fair Trade Ltd., all quotas, owned by Sea Lords Ltd., were offered to the market and the competition for leasing among harvesters was fierce. Since very few people had the opportunity to go fishing without leasing ITQs from Sea Lords Ltd., this company had a monopoly to collect nearly all resource rents, including some intra-marginal rent from the highliners.

[6] This way the permanent ITQs acted as a Sarephta's pot (see The Bible, 1 King, 17: 8-14, e.g. at http://www.newadvent.org/bible/1ki017.htm#vrs8).

Even though the total rent, in profitable years, amounted to nearly 50 per cent of the first hand market value of fish, the annual accounts of Sea Lords Ltd. did not reveal this. The owners did not like boasting of their wealth, so the net gain from the ITQ leasing business was, in reality, transferred to other companies within the lordship group. In addition, operating the private jet, Dassault Falcon lux900 Spirit, and owning company mansions just outside the City of Europe (as well as in France and Spain, on the Côte d'Azur and the Costa del Sol, respectively) were not enjoyed for free. All of these capital items were considered crucial to the business of Sea Lords Ltd. by the trio of lords themselves and they had established subsidiary companies that each owned one of these capital items. The deposed editor, who had been fired from *Star News*, had not quite understood the business needs of a Codland company in a globalised world when he had printed some pictures from these company facilities and called them "perks". However, the present editor, as well as editors of other newspapers and television stations affiliated to Sea Lords Ltd., had a much better understanding of the needs of such a globalised company.

Conclusion

Several countries have introduced some kind of rights management rules for their fisheries, be they ITQs or vessel licenses, and these rights are more or less transferable (see e.g. OECD, 2006). However, to the best of this author's knowledge, no country has made them fully transferable and divisible, and no-one has fully untied harvest quotas from vessel capacity, with no restriction on ownership. This is an indication of the existence of sound preferences that include both resource rent and its distribution, partly to avoid rent drain. The discussion above has focused on what might happen if restrictions, aimed at targeting rent distribution, are gradually removed. The probability that this would happen in any society depends on general economic and social conditions in the society, including on the empowerment distribution among citizens and social classes. The focus of this paper has been on a fisheries-dependent country, where the country's Parliament makes the laws. However, in the case of fisheries-dependent regions in bigger countries, the likelihood of rent drain from these regions into central areas, is probably even more likely than in Codland.

Is not the creation of resource rent in the fisheries of Codland, described above, a Pareto improvement? No, it is not. The Pareto improvement criterion asks for the reallocation of productive resources, which makes at least one person better off, while making no-one worse off. In Codland, a few gained a lot, but many lost income and wealth, so it is not a Pareto improvement. However, this is clearly a Kaldor-Hicks improvement. The following test was suggested in 1939 in *The Economic Journal*. State A is preferred to state B if those who gain from the former could compensate those who loose and can still be better off. This compensation is hypothetical and the Kaldor-Hicks criterion tells us that A is preferable to B even if compensation does not really take place. But why would any of the likely losers agree on such a policy if they are not actually compensated? The answer is – they probably do not agree. However, in a democracy, the majority rules and it all boils down to who can persuade the majority vote, the likely winners or the likely losers of fisheries reforms? Free initial fishing rights may be very valuable and strengthen the bargaining power of the recipients, at the expense of other fisheries businesses. The seeds of the company, Sea Lords Ltd., may even be wasted on direct, unproductive rent-seeking activities. Thus, from an equity and from an efficiency point of view, the fisheries' windfall gains should not be allocated to just a few citizens for free. Rather, we should look into the possibility of distributing the gains more widely among people and across generations. For this purpose, other instruments, such as conditional tradable fish quotas and vessel licenses, resource taxes, co-management, public ownership, auctions, leases, time limited rights, time and area regulations, territorial user rights (TURFs) and marine protected areas (MPAs), should also be used[7].

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[7] The need for restrictions on the tradability of rights was proposed in Flaaten, 1983.

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