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Using individual transferable quotas (ITQs) to achieve social policy objectives: A proposed intervention

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ABSTRACT

ITQs offer environmental and economic benefits, including better conservation of a fish stock and greater profitability for fishers. With some limitations, they achieve fairly good alignment between the profit incentive and stewardship objectives. Nevertheless, critics have objected to ITQ schemes because of such factors as the "armchair fishing" phenomenon, unfairness to the public (the owner of the fish), economic and social damage to remote communities, and increased concentration within the fishery. Economists generally dismiss these as distributional issues rather than matters of efficiency or economics, but economic principles are clearly not the only factors that may require attention or action from a government or regulator. This paper proposes an intervention that addresses these concerns within the context of an ITQ scheme. The intervention does not reduce the permanence or values of ITQs, and therefore retains the benefits that ITQs are designed to deliver. Nevertheless, the intervention addresses the criticisms identified above. Modifications of the intervention may enable additional goals and benefits to be achieved as well.

1. Introduction

Around the world, many fish stocks have declined dramatically because of overfishing. To overcome this problem, some governments have implemented individual transferable quotas (ITQs). In many fisheries, ITQ regimes have been credited with reducing overcapacity and helping to preserve the fish stock [1,2].

Nevertheless, some experts have criticized ITQs for causing negative social policy impacts, such as the disappearance of small scale fisheries (SSF), the economic failure of remote fishing communities, and concentration and monopolization in the fishing industry [3,4]. In most of the world's fisheries, preventing these impacts is an important policy objective. Consequently, there is often strong opposition to ITQs [5].

This situation raises an important policy question: is it possible to design an ITQ regime that can avoid or prevent these negative social impacts, while maintaining the known benefits of ITQs? The fact that ITQs have been associated with these impacts in some fisheries does not necessarily mean that ITQs are the root cause, or that the effects must always accompany ITQs. It may be possible to design an ITQ regime that minimizes or avoids these effects [6].

This paper proposes a specific policy intervention that could be undertaken within the context of a particular ITQ fishery in order to achieve certain social objectives. The suggested intervention would be likely to achieve those objectives, but would nevertheless maintain the fundamental structures and incentives of an ITQ regime. The proposal will be assessed using a set of metrics developed by the Organization for Economic Cooperation and Development (OECD) for agri-environmental policy actions [7].

2. The economic and environmental effects of ITQs

Under an ITQ regime, the regulator sets a total allowable catch (TAC), then allocates quotas (percentage shares of the TAC) to a limited number of fishers. Each quota is an ongoing right to catch that percentage of the total TAC, year after year [6]. The size of the catch that is allowed under a quota changes as the TAC changes, but the percentage remains constant [8]. In theory, the semi-permanence and tradability of ITQs create an economic incentive for the ITQ holder to conserve rather than exhaust the resource, because the ITQ guarantees him a stream of future profits from that resource [9].

The most obvious benefit of ITQs is economic: they usually eliminate the pernicious practice of "racing to fish" [1]. In the absence of ITQs, many fisheries were (and are) regulated by setting a TAC for each season; not setting any individual catch limits; opening the fishing season; and then closing the season as soon as the TAC has been reached in aggregate [10]. Under this system, economic rationality drives individual fishers not only to overinvest so as to catch as many fish as possible before other fishers do, but even to damage other fishers' equipment [11]. Thus, rational behavior at the individual level results in waste at the industry level, consisting of both overcapitalization and deliberate destruction of productive assets.

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This both makes fishing unprofitable and misallocates resources from the viewpoint of the total economy [12].

The ability of ITQs to eliminate the "race to fish" was clearly demonstrated by (among other cases) the Canadian sablefish fishery. By 1989, before ITQs were introduced, overcapacity in the sablefish fleet had driven the length of the season down to 14 days. 47 vessels were actively fishing. ITQs were introduced in 1990, and by 1993, the season had expanded to a full 365 days, and 21 vessels were actively fishing [13].

ITQs have had mixed results with respect to conservation. Munro et al. showed that the incidence of TAC overages declined significantly in the Canadian sablefish fishery after the introduction of ITQs [1]. For the 15 fisheries they studied, Grimm et al. show that many measures of environmental responsibility also improved. Discards decreased by 20%, and the incidence of significant TAC overages declined from 54% of fisheries to none [14]. The authors also suggest that "ghost fishing" caused by abandoned gear virtually disappeared, and show that biological stock assessments (which are necessary for setting sustainable TACs) became more precise thanks to better data provided by fishers [14].

On the other hand, many researchers have argued that ITQs may not reduce, and may even increase, the problem of bycatch. Some commonly used fishing methods are not selective, such as the use of large nets that capture multiple species [15]. Regardless of the form of regulation, non-selective fishing results in bycatch, defined as the harvesting of non-targeted species. In an ITQ system, harvested fish for which no quota is held are likely to be discarded. For many species, these discards die rather than recover [16]. Pinkerton and Edwards argue that ITQs that concentrate on a single species can promote specialized fishing methods, and that these methods are likely to damage marine environments and negatively affect other fisheries [17].

Empirical studies reveal no clear pattern with respect to how ITQs affect bycatch [18,19]. Munro et al. are optimistic, claiming that the introduction of a multi-species ITQ scheme reduced bycatch in Canada's pacific groundfish fishery [1]. Less positively, a study conducted in Norway by the Center for Fisheries Economics concluded that ITQs would help to reduce dolphin mortality in the Eastern Pacific tuna fishery, but would not be a primary factor [20]. Instead, the authors argued that the skill of the captain was more important. Finally, a French study determined that the introduction of ITQs had no significant impact on bycatch in the North Sea herring fishery [21].

To sum up: ITQ regulation has been reasonably successful from the points of view of economics and conservation of some fish stocks [1], but may or may not contribute to reducing bycatch. ITQ regulation achieves the basic goal of policy intervention, as defined by the OECD: "The fundamental purpose of agri-environmental policy instruments is to achieve environmental policy objectives that would otherwise not be achieved given the absence or poor functioning of markets." [7].

3. Social policy objections to ITQs

Although the economic success of ITQs is well recognized, many critics have faulted ITQ regimes on the grounds that they do not serve certain important societal objectives [3,5,13]. Four of these criticisms are described in this section. All four can be applied to the North Pacific halibut fishery in the US and Canada.

3.1. Compensation for the public

In almost all countries, the public is regarded as the owner of all fish stocks [22]. In almost all countries which have implemented ITQs, the quotas were initially granted to existing fishers at no charge, even though an ITQ holder can sell that ITQ at a market price after it has been granted [23]. According to many critics, the fisher who initially gets the quota should pay for it, so that the public is compensated for giving the fisher rights over the publicly owned resource [3].

3.2. Armchair fishing

More properly called "tenant fishing", "armchair fishing" occurs when ITQ holders do not fish themselves, but lease their quota on an annual basis to active fishers [24]. Some critics consider this unfair on the grounds that only those who actively fish should profit from a fishery, or on the grounds that this practice concentrates the rents from the fishery into too few hands [24]. This criticism is based primarily on the desire to achieve social or distributional objectives, rather than on considerations of pure economic efficiency [25].

3.3. External economic impacts on remote communities

As already noted, ITQs tend to make a fishery more efficient and concentrated. This efficiency has a drawback, however: larger vessels generally take their catch directly to processors in major centers, rather than obtaining services or processing their catch in remote communities [4]. This can remove the economic foundation from remote communities [26]. The consequences for these communities are profound: loss of employment, emigration, loss of traditional fishing culture and a wide income gap between quota holders and non-holders. These effects threaten fishing communities' life-style, traditions and even existence [24, 17]. Such socioeconomic effects are usually not taken in consideration by proponents of ITQs [27].

3.4. Industry concentration and distribution of benefits

Generally, the introduction of ITQs to a fishery reduces the number of fishers and vessels, thereby increasing concentration [4]. "For example, the introduction of IQs into the US surf clam fishery led to the immediate withdrawal of 54 vessels involving around 140 people." [28] In the Canadian sablefish fishery, the number of vessels fishing decreased from 47 to 30 when ITQs were introduced, and has fluctuated between 21 and 35 since then [13]. This is not surprising: The tradeability of ITQs enables fishers to accumulate quota and achieve economies of scale. Fishers who own larger, more efficient boats are able to pay more for quota, and so tend to accumulate it.

Many economists dismiss concerns about concentration as distributional issues rather than matters of efficiency or economics [29], but concentration is usually viewed as undesirable from the broader social perspective. This view is based on at least three arguments. First, it is possible that unacceptable social and economic costs will result if less efficient fishers are forced out of fishing, because they may have no opportunity or skills suitable for other work. It is not certain that an increase in efficiency for a particular fishery would increase overall utility from the perspective of the entire economy [30]. For example, if consolidation in an ITQ fishery causes a few hundred people in a remote community to lose their jobs, then the costs of retraining these people for other jobs, possibly moving them to other locations, and supporting them until they obtain those jobs could offset or outweigh the increased efficiency of the fishery.

Second, some perceive a moral obligation to enable certain types of fishers to continue fishing, regardless of any economic inefficiency [30]. This implied moral judgment is unmistakable in such comments as Bromley's: "Are individual fishing firms—many