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CRIME, ENFORCEMENT AND COMPLIANCE: GUIDELINES FOR THE REFORM OF THE COMMON FISHERIES POLICY

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Resumo

A fiscalização das leis é um tópico de óbvia importância teórica e prática para as Ciências Sociais. A primeira literatura vem do séc. XVIII: Montesquieu, Beccaria e Bentham. Curiosamente, depois da análise extensiva de Bentham este tema ficou adormecido nas escolas de Economia, até ressurgir com o artigo de Becker (1968) “Crime and Punishment: An Economic Approach”.

No contexto da Análise Sócio-Económica das Pescas o problema pode ser entendido como um problema de direitos de propriedade e da dificuldade de os definir e fiscalizar face à tradição de livre acesso. Este artigo explora esta problemática com um modelo formal que explica os efeitos, sobre o comportamento dos agentes e sobre a política de gestão dos recursos, da consideração dos custos da fiscalização e controle. Este modelo incorpora e conjuga um modelo básico de gestão de uma pescaria (na tradição de Gordon-Schaefer) com a análise do “Crime e Castigo” de Becker. As conclusões da análise são utilizadas para avaliar o actual processo de reforma da Política Comum de Pescas e as alterações propostas para o regime de monitorização e controle das pescas europeias.

Abstract

Public enforcement of law is an important theoretical and empirical subject for Social Sciences. First economic literature dates from eighteen century: Montesquieu, Beccaria and Bentham. Curiously, after the analysis of Bentham, the subject “lay essentially dormant” in socio-economics scholarship, until the article of Becker, 1968, “Crime and Punishment: An Economic Approach”. In the context of Fisheries Socio-Economics, the problem can be seen as an externality arising when exclusive property rights are absent. Monitoring and enforcement considerations have been largely ignored in the study of fishery management. This paper explores this issue with a formal model to show how fishing firms behave and fisheries policies are affected by enforcement of law. Theoretical analysis combines a standard bio-socio-economic model of fisheries with Becker’s theory of Crime and Punishment. Model conclusions are used to discuss the design of the control regime of the Common Fisheries Policy and the guidelines for next CFP reform (2012)..

Palavras-chave: Fiscalização, Política Comum de Pescas, Becker

Keywords: Enforcement, Common Fisheries Policy, Becker

INTRODUCTION

E. U. fisheries failed to reduce fleet capacity thus exerting fishing pressure on stocks. Overcapacity and overcapitalisation of the sector have been identified as the principal failure of the Common Fisheries Policy (CFP). This conclusion may be well important in the CFP Reform, 2012, and put again the discussion about the tools that can be used to get sustainable management and better cohesion. With the publication of the “Green Paper” on the Reform, the European Commission is launching a wide consultation to the national administrations, stakeholders, researchers and other interested people. The objectives are to discuss the problems of the actual CFP and to explore the alternatives and the ways forward the new reform of fisheries policy. A special dominion of CFP that is under discussion is the control regime of fisheries regulation.

Public enforcement of law, that is, the use of public agents to detect and sanction violators of legal rules, is an obvious important theoretical and empirical subject for Social Sciences. First literature on the subject of law enforcement dates from eighteen century: Montesquieu, Beccaria and Bentham. Curiously, after the sophisticated analysis of Bentham, the subject of enforcement “lay essentially dormant in economic scholarship” (Polinsky and Shavell, 2000), until the influential article of Becker, 1968, “Crime and Punishment: An Economic Approach”.

In the context of Fisheries Economics, the problem can be seen as an externality arising when exclusive property rights are absent (Cheung (1970), and that absence, among other things, depends on the costs of defining and enforcing exclusivity.

Efficiency considerations, only by themselves, don't dictate the choice of a certain property rights regime. In some systems of property rights (as it is the case of “common property”) the re-alignment of the property rights can have a very high or even prohibitive cost. The establishment and enforcement of a system of rights depends, of course, on economic efficiency considerations, but also on the individual preferences and the ethical, political and social realities in a community. These include the lack of means (or other insufficiencies) of the administration to control and enforce the execution of legal rules.

Most of the literature on fisheries management implicitly assumes law can be perfectly and costless enforced. Even when such costs and imperfections are recognised, they are not incorporated in the analysis to show how management and regulatory policies are affected by their presence. This paper explores this issue with a formal model of fisheries law enforcement to show how fishing firms behave and fisheries policies are affected by costly, imperfect enforcement of fisheries law. This model combines standard Economics of Fisheries analysis with the Theory of “Crime and Punishment” of Becker. The conclusions of the model are used to discuss the design and reform of the control and monitoring regime of the Common Fisheries Policy.

1. FISHING: LEGAL VERSUS ILLEGAL

By definition, anything that is an infringement of the law is illegal. Illegal fishing, therefore, covers a wide range of behaviours, which can take place at three levels for members of the European Union: national, Community and international. Any violation of national laws or EU regulations, or failure to comply with the recommendations of international bodies, especially those of Regional Fisheries Organisations, constitutes an infringement.

Illegal fishing has always existed. In recent decades, there has been a sharp rise in violating activities, due to technical progress: motorization, freezing techniques, improved gear, new forms of stocks detection and information. This process was majored by the evolution of the Law of the Sea. The “creeping jurisdiction” process that underlies all the international Maritime Law evolution is putting an end to the principle of open access that, for a long time, was the rule in the fisheries worldwide. The creation of the so-called Economic Exclusive Zones gave the coastal states exclusive property rights to fisheries up to 200 miles but, at the same time, brought new necessities in terms of monitoring and controlling of fleets' activities in these areas.

Obviously it is impossible to quantify or qualify infringements. They are known to take place at all levels and take different forms at different times; some violations are detected but many remain unnoticed. Infringements take the traditional forms of fishing over the quota or using non-permitted mesh-size, but are also in situations of non-permitted by-catches or transshipment; even in the “theatre” of convenience flags. Illegal fishing occurs at all stages of fishing activity. A large number of offenders are fishermen motivated by various interests, the fundamental being the lure of short term profit. But fishermen are not the only ones involved. Fraud can take place along the entire channel. Note that the possibilities after landing are tremendous.

National administrations sometimes bear part of the blame. Every state is responsible for enforcing the existing rules and monitoring activities (policing its territory, conducting controls and penalising offenders). Its inefficacy in controlling activities is the reason of a lot of enforcement problems. This is the case for the proliferation of *flags of convenience*, a frequent occurrence on the High Seas, which may be seen as the most pernicious element of illegal, unregulated and unreported fisheries (IUU). The globalisation of the economy, by liberalising markets and capital movements, has multiplied the number of ship owners registering their vessels in a country other than their own. Increasingly binding regulations and the burden of social charges on employers are contributing to the development of this phenomenon. Fishermen are interested in this new game rules: it enables them to side-step the constraints imposed in their countries, gain free access to resources, avoid controls and improve competitiveness. For the state, there are, also, advantages: tax revenues and creation of jobs. The states involved are usually developing countries lacking the will and the means to set effective controls (even less if the action take place in areas and resources that are not theirs). Greenpeace estimates the number of these vessels at over 1300, worldwide, in the year 2000.

2. THE CONTROL REGIME OF THE COMMON FISHERIES POLICY

The main objective of the Common Fisheries Policy (CFP) is to provide sustainable exploitation of fish resources. In order to ensure the achievement of this objective, Community rules shall be applied, in an effective and uniform manner. In this context, the effectiveness of the Common Fisheries Policy depends on the compliance of the various operators concerned with the CFP rules.

Member states are responsible for ensuring the correct application of the CFP rules on their territory and in the waters under their jurisdiction. They must also ensure that all vessels flying their flags comply with these rules wherever they operate.

To ensure the equity and fairness of control and monitoring through the Community, Commission inspectors oversee the activities of the national enforcement services and report to the Commission. In addition, periodically, the member states must transmit information to the Commission on various aspects of their enforcement activities.

It is up to the member states to ensure the effective implementation of regulation. But, of course, inspection and surveillance of fisheries and related activities implicate establishing administrative and technical structures. So, it is of Community interest that the member states have structures (human and technical resources) that are adequate for the control purposes and allow them to meet the requirements of European Union regulation. In this context, the Commission has implemented, since 1978, a series of provisions for financial support towards member states expenditure. The objective was to promote the development on the monitoring and control system capacity within specific areas of control and surveillance.

In the 90s, the Community introduced a more complete aid scheme to provide financial support to the member states for the establishment of control structures, and, in particular, to promote certain forms of control which are particularly effective, such as systems to monitor fishing activities at a distance.

Considering the evaluation of the two first decades of CFP made in 2002, the Reform of 2003 has brought an important evolution in the control regime of the European Fisheries. The fundamental guidelines of this reform were the following:

A new framework and a more complete body of regulation were introduced. This new Regulation stressed the need to further improve control of fishing activities in order to fight, by any means, against illegal and undeclared fishing. It identified remote control technologies as a tool to better achieve the control objectives under CFP and extended the obligation for remote monitoring by means of vessel monitoring system - VMS.

With ten new countries joining the Community, the monitoring structures of some of these countries needed upgrading rapidly. For these reasons, and for the sake of greater clarity, it was proposed to redefine the measures eligible for financial support. Commission's contribution and procedural provisions on applying for aid and payment/ reimbursement have been amended to make them clearer and more precise. The fundamental objective of CFP reform was to enable the Commission and Member states to tackle weaknesses in enforcement. Augmenting the expenditure in enforcement was the central element of the new regime.

At the same time, the Council decided to step up cooperation among the Member states and coordination of their inspection activities by establishing a common inspection structure, using the structures, equipment and communications networks provided by the Member states. The coordination of these actions should rest on a European supra-national Agency with important powers in terms of enforcement. This European Control Agency was created in 2005 in Vigo, Spain.

In the context of the reform, the Commission was committed to increase transparency in the information related to the compliance of Member states with their enforcement obligations. This is why it has presented a Communication on compliance with the CFP rules that included, for the very first time, a scoreboard that should be updated on an annual basis. The "scoreboard of compliance" is a pure example of this new environment of transparency and trust. This scoreboard represents a clear and easily accessible source of information about Member states compliance. Among other things, it reports on catches taken by their fleets, the capacity and fishing effort of these fleets, and national monitoring and inspection activities. In addition, it sets out the infringement procedures initiated by the Commission, in respect of Member states that have failed to comply with certain CFP rules. The scoreboard seeks also to serve as a tool for comparing data about regulation enforcement by Member states.

3. THE NECESSITY OF A NEW REFORM

As we said, some elements of the CFP were reviewed in 2002. Now, the Commission decided to seize the opportunity of passing another decade to evaluate the results and undertake a new reform of this Policy.

Two fundamental causes explain the current state of European fisheries: the internal systemic weakness of the conservation regime and some external challenges.

CFP has not delivered sustainable exploitation of the resources. Conservation policy fails. Many stocks are outside safe biological limits. Fishing capacity went on growing. Illegal fishing and the lack of effective enforcement are also responsible for this result. This situation isn't specific to the Community. Worldwide concern about overfishing and overcapacity in the fisheries sector is well documented. The economic fragility of the sector, reflected in poor profitability and declining employment, is the result of a special conjunction of over-investment, rising costs and diminishing resource stocks.

At the political level, the difficulties, associated with the design and implementation of a regulatory system, are substantial: many social constraints, the diversity of socio-economic structural conditions of the fisheries sector in the member states, the lack of involvement of the stakeholders in the management policy, and so on.

External challenges contribute, also, for this situation. The enlargement of European Union and the globalisation of the economy, the emergence of new players in world fisheries (especially coastal developing countries) and the increased focus on the environment are, perhaps, the most visible.

This picture is not entirely negative. CFP had positive results. It has managed the resources and contained conflicts at sea, provided some degree of stocks stability and assured the availability of supplies to the

Europeans. However, according to the Commission, these results have been achieved at a high price in terms of the long-term viability of the sector and with inefficiencies in the allocation of resources that, perhaps, could have been more profitable if they were addicted to other sectors in the global European economy. The critical problem is that the fleet profitability is jeopardised by the under-utilisation of investments. The excess capacity and a more-or-less constant value of landings shared between large numbers of actors, reduces the capacity of each vessel to earn an adequate income. In this context, the subsidy policy, artificially reducing the costs and risks of investment, promoted over-supply of capital in an already over-capitalised industry.

These conclusions were reflected in a study commissioned by the Pew Environment Group (Report of Poseidon Aquatic Management Ltd, 2010), to assess the economic, environmental and social impacts of the Financial Instrument for Fisheries Guidance, from 2000 to 2006. The study finds that E. U. fisheries have failed to reduce fleet capacity. The key objective of the policy, that was to bring the fishing capacity of the European fleet into the line with the available biological resources, was not attended. Overcapacity and overcapitalization of the sector was identified as the principal failure of the CFP.

So, a new reform is needed. The necessity of a corrective intervention of public policy in order to approach the socially efficient solution in resource use is undeniable and, after a long process of discussion, the Commission published a draft that contains the fundamental guidelines for the next reform of 2012 (COM, 2011, 417 final). It is this proposal, and its implications in terms of control, that this study tries to critically review in the following sections.

4. “CRIME AND PUNISHMENT” – THEORETICAL ANALYSIS

Despite the enormous volume of literature on Fisheries Economics, the issue of enforcement has always been “the neglected element in fishery management” (Sutinen and Hennessey, 1986).

In this point we explore this issue with a formal model of fisheries law enforcement showing how fishing firms behave and fisheries policies are affected by costly enforcement of fisheries regulation. This model combines standard Gordon /Schaefer fisheries model with the theory of crime and punishment of Becker.

The fundamental problem in fisheries management is to obviate the tendency towards overexploitation of the resources under open access. Regulation methods used to curb this tendency of overexploitation and overcapacity includes gear restrictions, area and seasonal closures, TACs (Total Authorized Capture), ITQs (Individual Transferable Quotas), limiting entry and other forms of reducing fishing effort.

Let’s assume that, whatever means are applied to reduce catch rates, any catch level above the level of the permitted quota for a certain fishing, q^* , is illegal. If we suppose a system of individual non-transferable quotas, the amount of the individual firm catch above its quota ($q_i - q_i^*$) is illegal.

If detected and convicted, a penalty fee is imposed on the firm in an amount given by f ,

$$f = f(q_i - q_i^*),$$

where $f > 0$, if $q_i > q_i^*$; and $f = 0$, otherwise;

with $\frac{\partial f}{\partial q} \geq 0$; $\frac{\partial^2 f}{\partial q^2} \geq 0$; $\forall q_i > q_i^*$.

For hypothesis, the function $f(\cdot)$ is continuous and differentiable. The penalty fee has a finite upper bound and each firm is assumed to face the same penalty fee schedule.

An individual firm’s profit before penalty is given by

$$\Pi^i(q_i, x) = pq_i - c^i(q_i, x),$$

where p denotes the price of fish, x is the size of fish stock and $c(\cdot)$ is the cost function. Let’s assume that firms are price takers.

In an imperfect law enforcement regime not every violator is detected and convicted. Let the probability of detection and conviction to be given by θ , and, to simplify, let's assume that all firms face the same probability.

If detected and convicted of a violation, a firm's profit will be $\Pi^i(q_i, x) - f(q_i - q_i^*)$;

if not, $\Pi^i(q_i, x)$.

So, expected profits are

$$\theta[\Pi^i(q_i, x) - f(q_i - q_i^*)] + (1-\theta)\Pi^i(q_i, x)$$

Assuming that firms are risk neutral and maximising expected profits, each q_i is determined by the first order condition (subscripts other than i denote partial derivatives)

$$\Pi_q^i(q_i, x) \geq \theta f_q(q_i - q_i^*).$$

The solution to this equation, for one form of the marginal penalty schedule, f_q , has a clear economic meaning. The model sustains a rule of optimal behaviour for a rational ("homo economicus") operator:

For a given stock size (x), the firm sets its catch rate at a level in excess of its quota, where marginal profits equal the expected marginal penalty. If there were no penalty for fishing beyond legal quota, or if there were no probability of being detected and convicted ($f = 0$ or $\theta = 0$) the firm would set its catch at the open access catch rate. Firms with no quota have an expected net gain for entering, illegally, in the fishery, if their expected marginal penalty schedule begins below their marginal profit schedule.

This approach reveals the importance of empirical studies (Sutinen and Gauvin, 1989) trying to estimate the factors that ensure compliance with the regulation. These studies give important basis for public authority decision about the actions to be implemented.

Stigler (1970) argues that public authorities have four basic means to improve compliance:

- minimise the chances that violations will go undetected,
- maximise the probability that sanctions will follow the detection of violations,
- speed up the process from time to detection to assignment of sanction,
- make the sanctions large.

There is dispute among experts about the best alternatives. Some scholars have argued that the probability of being detected is more important than the size or magnitude of the sanction, while others argue that making the charging time follow as closely as possible to the detection of illegal behaviour is the most important factor in enhancing compliance. Others, also, put in evidence the level of expenditure oriented to monitoring activities (Tietenberg, 2003). For an extensive review of the literature on fisheries regulation enforcement, see Sutinen and Andersen (1985), Nostbakken (2008) and Sumaila *et al* (2006).

5. TRUST, ENFORCEMENT AND COMPLIANCE

Applying theoretical analysis to the proposed guidelines of CFP reform, in the domain of fisheries control it is suggested the following remarks:

Implementing Community policies in Member States is never easy, especially when myopic individual interests do not match long term collective interests. This is the case of fisheries. According to the European Commission, fishermen do not have a greater propensity to altruism than the rest of the society; so, they are little inclined to refrain catches for the sake of a clear conscience, if they think their competitors are less scrupulous. That is, without a clear and effective policy of control and enforcement, the Commission is certain that the "Tragedy of the Commons" will result and that overfishing and overcapacity will occur (Hardin, 1968), Filipe *et al*, 2008).

The reform of CFP insists in the philosophy of intervention of its early days, when the Commission put the problem of control in terms of ethical reasons: “It’s the only way to assure that the sacrifices of some member states in the recovery of the stocks are not in vain because of the irresponsible action of others” (European Commission, 1976).

According to Becker, individuals rationally decide whether or not engage in criminal activities by comparing the expected returns to crime with the legitimate business. His main thesis is that crime is less attractive if the government increases the probability and severity of punishment (Garoupa, 2000).

The analysis of the Commission proposals seems to give a special attention to the increase of the probability of detection as a means to deter criminal behaviour and increase compliance with regulation. The introduction of severe penalties is not a priority (Coelho *et al* (2008)). Of course they are considered and an important effort is made to define and make clear the legal procedures to penalise the violators. However, the severity of penalties is not in the centre of the European Fisheries Policy. The Commission believes that the financial support will guarantee the indispensable means of surveillance and control to the member states and this will increase the deterrence capacity of control in member states, in a uniform way, and, also, the transparency and trust between partners.

But the Commission also knows that legal administrations, in the member states, have significant differences and that justice administration has a great inertia. The capacity and efficiency of member states application and control of legislation is not just a question of financial means devoted to his mission. It has also cultural and historical roots. It’s virtually impossible to put all the member states in a uniform position in terms of speed and severity in the application of penalties.

FINAL REMARK

Last Reform of 2002 pretended to mark a new beginning for the CFP. The main changes implicated a long term approach in fisheries management, a simpler policy of fleet capacity, putting on the Member states the responsibility of reduction of the fishing effort and of adapting it to the existing resources, the stakeholders’ involvement and *a better application and enforcement of common rules*.

Besides the efforts made in the sequence of last Reform, several problems associated with the control and monitoring regime of CFP still remain. Especially, when the problem of a greater uncertainty in stocks’ recovery is amplified and the introduction of new management instruments, as ITQs, brings additionally difficulties to the enforcement of regulation. This implies a more trustable framework and put the issue of the fisheries control also in an ethical sense. In fact this policy must equate the development of sustainable fisheries with a fair distribution of costs and benefits among member states, including, of course, the control regime.

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