

# Evaluation for the Common Fishery Policy: the case of the measure “stopping fishing vessels’ activity” for reducing the Italian fleet overcapacity under the Regulation (EC) No 2792/99

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## Abstract

Recently, the Green Paper on the “Future of Common Fisheries Policy has highlighted the ineffectiveness of the policy to deliver sustainable exploitation of fisheries resources as well as the lack of the main structural policy objective aimed to reduce fleet overcapacity by means of scrapping vessels, with fishermen deciding whether to accept and scrap their own vessel, or not. For those who accept, public premiums are given to indemnify fishermen. Based on the above, the aim of this paper is to analyse the reasons which have led to the common structural fishery policies using a Principal-Agent (P/A) theoretical framework. It is assumed that public choice formulated by policy-makers are ineffective because of asymmetric information in the P/A relationship. Moreover, the paper proposes a methodological instrument able to reduce the asymmetric information and improve policy ineffectiveness in reducing fleet overcapacity. The proposed tool, Attribute Based Stated Choice Method, could contribute to better decision making by the relevant authorities by providing policy-makers with those explanatory variables which describe the preferences of those who make the decision whether to accept and scrap their vessel, or not. For those who accept, the level of the public premiums or incentives depends on the size and age of the vessels scrapped. In order to be more effective, the criteria to calculate premiums should be changed to allow other criteria, not just physical elements, but also socio-economic and ethical ones to be included.

## Résumé

Récemment, le "Livre Vert sur l'avenir de la Politique Commune de la Pêche" a mis en évidence deux imperfections principales dans la Politique Commune de la Pêche (PCP): son inefficacité d'achever une exploitation durable des ressources de pêche, et l'absence d'un objectif principal dans la politique structurelle qui adresse de façon spécifique la réduction de la surcapacité de la flotte avec la démolition des navires. Selon la PCP, les pêcheurs peuvent décider d'accepter et démolir leur propre navire ou de ne pas le faire. Pour ceux qui acceptent, des primes publiques sont disponibles. Le but de cet article est d'analyser les raisons qui ont mené à l'adoption d'un modèle "Principal Agent" (P/A) pour les politiques structurelles communes de la pêche. On peut supposer que les choix publics formulés par des décideurs sont inefficaces à cause de l'asymétrie de l'information présente dans le rapport de P/A. Par rapport à ceci, l'article propose un instrument méthodologique qui est conçu pour réduire l'asymétrie de l'information et pour améliorer l'efficacité de la politique en réduisant la surcapacité de la flotte. L'outil nommé "Attribute Based Stated Choice Method" pourrait contribuer à une meilleure prise de décision par les autorités compétentes. Cette prise de décision serait réalisée en fournissant aux décideurs les variables explicatives qui décrivent les préférences de ceux qui décident pour ou contre la démolition de leur navire. Actuellement, le niveau des primes publiques ou des incitations dépend de la taille et de l'âge des navires démolis. Afin d'être plus efficaces, les critères employés pour calculer les primes devraient être prolongés pour inclure les paramètres socio-économiques et éthiques outre les caractéristiques physiques des bateaux.

## 1. Introduction

Recently, the Green Paper on the “Future of the Common Fishery Policy” (CFP) has highlighted the ineffectiveness to deliver sustainable exploitation of fisheries resources<sup>1</sup>: “many stocks are at present outside or almost outside safe biological limits. They are too heavily exploited or have low quantities of mature fish or both. At pre-

sent, the situation for most stocks is not catastrophic. If current trends continue, however, many stocks will collapse [...]. The total collapse of stocks is a phenomenon that some areas of the world have occasionally witnessed” (European Commission, 2001a).

In particular, the EU document has stressed the failure

<sup>2</sup> The structural interventions implemented within the last MAPG are in accordance with the Community policy for fisheries. In particular, these are subjected to specific provisions indicated in Regulation (EC) No 1263/1999 and in Regulation (EC) No 2792/99, even if, exceptionally, they have been financed by a Structural Fund different from the FIFG. Interventions that concern the fleet renewal and the modernisation of the vessels are subjected to the decisions taken from the Council in application of Article 11 of Regulation (EC) No 3760/92, of the multi-annual guidance programmes for the fishing fleets described in Article 4 of Regulation (EC) No 2792/99 and, finally, of the dispositions considered in Title II of Regulation (EC) No 2792/99. To this aim, the application of the measure for the permanent dismissal of fishing capacity represents a priority intervention in this sector.

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<sup>1</sup> At an international level, the first systematisation of this subject dates back to the 1997 report by UNEP, also known as “Brundtland report”, where sustainable development is defined as “the development that meets the needs of present without compromising the ability of future generations to meet their own needs” and implies “the maintenance, rational use and enhancement of the natural resources base, that underpins reliance and economic growth” (World Commission on Environment and Development, 1987).

of the main structural policy<sup>2</sup> objective addressed to balance the fleet capacity to the available fishery resources<sup>3</sup>. For such purpose, public actions have been undertaken to modernise and restructure the national fleet as well as to reduce fishing capacity: "actually both the fishing fleet and fishing effort are too large in relation to the quantities of fish that can be caught without depleting fish stocks. Too many fishing vessels generate too much fishing effort which, inevitably, leads to ever decreasing fish stocks as too few fish are left to reproduce and restore them. In addition, as technological progress continually boosts the fishing capacity of new vessels, every new vessel which replaces an old one of the same size and engine power increases fishing capacity" (Franz Fischler, 2000a).

Under the common structural policy, public choices addressed to reduce fishing overcapacity imply to take decisions compatible with the resources conservation policy, in which the main objective is to balance fish captures to the available stocks by means of fleet overcapacity reduction measures. The achievement of such objectives implies the granting of monetary aids which induce fishers to scrap their vessels<sup>4</sup>. In application of the multi-annual guidance programmes (MAPG)<sup>5</sup>, granting public incentives should have higher priority in the case of vessels belonging to those fleet segments responsible for an excessive resource exploitation. The measure "permanent stopping of fishing vessels' activity" belongs to the group of "contractual" policies, that is policies based on the principle that enterprises shall be encouraged to take responsibilities. In other words, fishers can accept or not accept restrictions envisaged by the public authority.

Recently, the Commission reviewed the fleet management programmes<sup>6</sup> and realised their ineffectiveness in dealing with the chronic overcapacity and in establishing a better balance between fleet capacity and available resources. After the implementation of the first two MAPGs, an EU report presented by the Commission to the Council of Ministers and the European Parliament stated that "...it is essential, given the present imbalance between resources and fishing effort, to act promptly and

swiftly in order to: reduce fishing effort, including fishing capacity, by a more constraining policy of structural planning, taking account of the various segments of the fleet". As it emerges from the speech of the European Commissioner for Fisheries Franz Fischler (2000b), also the implementation of the last two programmes did not show the expected results. With regard to the second-last MAPG, he affirms that "*this modest overall result disguises that some Member States have not achieved their objectives*", whereas regarding the last one he states that "*the effectiveness of the MAGP IV is further undermined by the less than satisfactory effort regimes employed in some of the Member States that have opted to reduce activity rather than capacity*". The overall result is that the MAGP IV has had no significant impact on the degree of overcapacity in the Community fleet". Finally, an intermediate valuation of the fourth MAPG's effects, the Commission declared that the situation for many species was still worrying and the fishing effort was still too high. From this valuation, it also resulted that MAPG IV played a merely marginal role in dealing with the common fleet overcapacity.

## 2. Principal-Agent model and the ineffectiveness of public actions

It is assumed that the ineffectiveness of common public choices is due to the existence of asymmetric information in the relations between the policy-maker and fishers. In the literature, these two economic actors, known as "Principal" and "Agent", respectively, interact in a process in which the Principal tries to control Agents' behaviour in order to induce them to a rational use of fishing resources.

According to the economy theory, the Agents' opportunistic behaviours aimed at maximising their profit is the cause of asymmetric information<sup>8</sup>. Instead, in the present article it is assumed that it is the bounded rationality of policy-makers that leads to asymmetric information. According to the theory of bounded rationality as applied to policy-making, in a decision making process politicians guided by bounded rationality may not choose the best alternatives in a way that properly accords with preferences reflecting social desirability. The reason that decision makers simplify, misunderstand, have incomplete information about alternatives, and make evaluations of alternatives whose results depend upon seemingly irrelevant details to do with how the problem is framed. Furthermore,

<sup>3</sup> Fleet capacity has been estimated by means of physic characteristics of the fleet, such as the number of vessels, the gross tonnage and the engine power (IREPA, 1999).

<sup>4</sup> In application of Regulation (EEC) No 2792/99 concerning modalities for the measure "permanent stopping", the premium for scrapping, calculated on the basis of the vessel's size and tonnage, shall be conceded only for boats 10 years old or more, that are operational and registered in the fishing vessel register of the Community.

<sup>5</sup> For the implementation of the Common Fisheries Policies, drafting the Multi-Annual Guidance Programmes (MAGPs) represents a key element for achieving the objectives of the CFP. In each member State the MAPGs ensure the entry into force of actions decided at the Community level; in addition, they indicate the means and modalities for reducing both fishing capacity and fishing effort (the latter consists in the fishing capacity of a boat times the number of days at sea), on the basis of a global and lasting perspective. In this sense, they are aimed at reducing the Community fleet size, in order to adequate the fishing effort to the available resources' volume.

<sup>6</sup> To date, four multiannual guidance programmes have been implemented: MAPG I (1983-1986), MAPG II (1987-1991), MAPG III (1992-1996) and MAPG IV (1997-2002).

<sup>7</sup> Member States may decide to attain their objectives in full or in part, by reducing activity (number of days at sea) instead of capacity. Six Member States opted for this solution: Germany, France, Ireland, the Netherlands, Sweden and United Kingdom (EEC Commission, 2000).

<sup>8</sup> Agents' behaviour get an opportunistic behaviour essentially because they fear that giving information the public choices formulated could modify the own economic and social status quo.

the complexity of the environment is assumed to prevent the Principal from calculating the best course of actions, with policy-makers unable to get and elaborate all the necessary information (Simon H.A., 1982).

According to Simon, "any actor is not provided with an absolute rationality and cannot obtain complete information on the problem to be solved. He cannot find only satisfying solutions by exploring and using, at every stage of the research, further information contained in the environment. The core of the decisional process consists of an interaction between the research process, continuously carried out by the individual, and the differentiated complex structure of the environment" (in Lanzara G.F., 1995).

Given these limitations, the environment that policy-makers are aware of is only a fraction of the real environment within which decisions are made. The number of possible alternatives is so wide that they cannot all be examined in order to implement optimal decision procedure and formulate optimal actions.

The bounded behaviour of the policy-maker increases an existing problem which generally characterises public actions. Such a problem is known as "first best's delusion": in acquiring information useful to politicians in making those decisions which lead economy to the first best, Agents provide false or distorted information (Hammond P.J., 1990). As already said, agents get an opportunistic behaviour because they fear that giving information public authorities formulated could modify their own economic and social status quo.

To overcome the problem of bounded rationality of policy-makers, Lucas suggests searching for methodological instruments able to give more information for evaluating alternative public choices which describe agent's reaction to the environmental changes as well as offering variables that could guide politicians' understanding of the agents' behavioural diversity (Lucas R.E. Jr, in Marzetti dell'Aste Brandolini S., 1998).

### 3. A methodological instrument for policy evaluation

The policy evaluation is the description and explanation of public actions' consequences that is addressed to increase politicians' knowledge (descriptive activity) and help policy-makers to improve policies quality (prescriptive activity) (Dye T.R., 1976). From Wildavsky's point of view (1979), valuation activity should not play a merely informative role concerning the public choices, but should also influence political decisions. In other words,

<sup>9</sup> A researcher involved in public decisions evaluation studies is considered as an academic that works in bureaucracy (Meltsner A.J., 1976).

<sup>10</sup> Within the topic of policies valuation, Lasswell emphasises the development of a "policy orientation" in the social disciplines that implies an increasing knowledge of the political process and the improvement of information available to policy makers (Lasswell H., 1951).

economists should not cling to the academic work, since it is necessary both to find a way of implementing ideas that spring from research and contribute to improving the decision-making process<sup>9</sup>. Since in public economics and political science, policy evaluation<sup>10</sup> can be done either to estimate the benefits of measures already implemented, or to improve public choices and solve social problems, the twofold role is termed evaluation of the policies, and evaluation for the policies (Gordon I., et al, 1977).

The proposed tool, Attribute Based Stated Choice Method (ABSCM), could contribute to better decision-making by the relevant authorities by providing policy-makers with those explanatory variables which describe the preferences of those who make the decision whether to accept and scrap their vessel, or not. Although ABSCM has been applied to the evaluation of the environmental policies (Adoamowicz W. et al, 1998), the method is innovative since there is no literature in which the ABSCM has been used for the policies evaluation. It is important to emphasise that using ABSCM could also be useful to catch the hidden information of agents and, consequently, to overcome their opportunistic behaviour and reticence problems in revealing information.

It will be demonstrated that the explanatory variables identified can help decision-makers optimise the financial transfers of public aid given to those who agree to withdraw vessels from fishery. While until now scrapping premiums which indemnify fishermen have been calculated only on the basis of vessel size and engine power; to be more effective, this should be changed to allow other criteria, not just physical elements, but also socio-economic and ethical ones, to be included.

Briefly, the term ABSCM refers to a flexible approach to collecting preference data from subjects in hypothetical situations (Boxall P.C. et al, 1996). While this is generally done with paper-and-pencil tasks, the elicitation scenario can be quite elaborate.

The objective is to place agents in a realistic frame of mind to compare a number of alternatives, each described in terms of a number of attributes. It is suggested that ABSCM focus on attributes associated with the conjoint analysis paradigm long associated with marketing research (Adoamowicz W. et al, 1998). Early applications of the method were developed by Louviere and Hensher (1982) and Louviere and Woodworth (1983) for design and analysis of simulated choice, or allocation experiments in travel choice modelling and simulated consumer choice.

In ABSCM, the decision context descriptions are the stimuli, and the individual's decision is the elicited response. The decision scenario descriptions are most commonly generated using experimental design techniques, with the objective of minimising the number of combinations that must be given to respondents to enable statistical identification of the underlying preference functions. After-

wards, the preferences determined are analysed using Random Utility Theory<sup>11</sup> by means of regression models.

Finally, ABSCM is employed to evaluate how vessel decommissioning measures included under MAGP IV and specified by EU Regulations 1263/99 (Financial Instrument for Fisheries Guidance) and 2792/99 (Laying down the detailed rules and arrangements regarding Community structural assistance in the fisheries sector) were implemented in Italy. As a consequence of the latter regulation, measures to stop vessels fishing may be applied only to vessels over than 10 years, and member States have to ensure that the fishing licenses of all vessels withdrawn are cancelled with the withdrawal of vessels communicated to the fishing vessel register of the Community. Therefore, the aim will be to qualify variables that could explain the policy failure given uncertain environmental conditions.

#### 4. The management of fishing capacity under the current regulation

Integrating the concept of sustainability, according to which "we do not inherit Earth from our parents, but we borrow it from our children" (Welford R., 1995), in public choices leads to an approach to the management of fishing capacity which should guarantee the availability of fisheries resources for present and future generations.

In the Nineties, the international effort for a better and sustainable fishery resources management led to the adoption of the International Code of Conduct for Responsible Fisheries, in which are defined the principles to conservation, management and development of all fisheries (FAO, 1995). In particular, in Article 7 of the Code it is declared that "*wherever there is excessive fishing capacity, mechanisms should be adopted to reduce such capacity to levels compatible with the sustainable use of fishery resources, so to ensure that fishers operate under economical conditions that promote a responsible fishery. Such mechanisms should include control of fishing fleets capacity*" (FAO, 1995). In applying Code of Conduct's article 3d (aimed at "representing a guide to be used, when required, in the formulation and accomplishment of international agreements and other legal tools, both obligatory and voluntary"), in 1997 the International Committee on Fishery (COFI)<sup>12</sup> indicated to FAO the need of a greater and prompt inter-

national effort towards managing fishery capacity. A year later, FAO adopted a document that further commits Countries to the implementation of the Code of Conduct: the International Plan of Action (IPOA) for the Management of Fishing Capacity. The main purpose is "to achieve world-wide, preferably by 2003 but not later than 2005, an efficient, equitable and transparent management of fishing capacity" (FAO, 1999). In other words, Countries that have an overcapacity problem should initially contain their fishing capacity at present levels, that is avoiding further expansion, and then reduce it by strategic measures that will be indicated by Countries in national action programmes.

In line with the international objectives, the EU aimed at strengthening its structural fisheries policy – as an instrument for adjusting capacity to the capture potential of present resources – by implementing Regulation 2792.

This regulation describes modalities and conditions for structural interventions in the fisheries sector. Its priority objective defines the achievement of equilibrium between fishing capacity and available resources and it provides for money contributions for the withdrawal of fishing boats from activity, for the scrapping or the reassignment of boats.

The Regulation indicates as a milestone for the common structural policy the approval of the Multi-Annual Guidance Programmes (MAPG) by each Member State, for implementing actions provided for at the Community level.

Similarly to other Member States, also Italy's MAPGs have not yet achieved equilibrium between fishing capacity and stocks availability that would represent an adequate contribution to the supranational efforts objective for the conservation of fisheries resources. An analysis of the variations of GT, kW and number of registered vessels under the last guidance programme shows that the MAPG has almost reached the capacity reduction objectives set at the Community level.

Nevertheless, empirical evidence suggests that such reduction has not yet adjusted capacity to the availability of fish stocks. In finding solutions for making such a tool more effective, it has been proposed at the Community level to use a different approach in the fleet reduction policy.

This different approach includes (Fischler F., 2000c): a better management of fishery, by promoting participation of "stake-holders", so that people feel more responsible and involved in the management process; more attention to the socio-economic aspects of fisheries in every future decision concerning the fishing capacity reduction policy (this is important because the fishing sector is fundamental to the economy of some coastal areas, where alternative occupation opportunities are rather scarce); a better management of the fishery resources, also by means of a larger and more efficient use of public subsidies.

<sup>11</sup> Random Utility Choice models already have a long tradition. They have been extensively studied and are routinely applied in many contexts. The main strands of research can be classified into i) models using parametric families of real (utility) random variables, ii) models using parametric distributions on (binary preference) relations, iii) non parametric models. The three methods to model and measure preferences and choices are interrelated.

<sup>12</sup> COFI is a FAO body established in 1965. Presently, it is the only intergovernmental forum tackling the most relevant fishery and aquaculture global issues. During its biennial sessions, the Committee examines the issues on agenda requested by members and formulates recommendations for the international community (governments, ORP, ONG, unions' representatives and FAO).

## 5. Valuation for the structural fisheries policy in Italy: some conclusions

Based on what has been said and taking into account the modalities to indemnify those who accept public aids to "leave" the fishery, the research aim was to identify those explanatory variables which describe the preferences of those who make the decision to accept and scrap their vessels, or not. In other words, the research aim was to evaluate if the current criteria "induced" a conspicuous number of fishers to accept to scrap their vessels.

Applying ABSCM, it resulted that most of the fishers interviewed (approximately 75%) did not accept the measure of permanent fishing vessels' stopping (Santise A., 2002). As already mentioned until now scrapping premiums which indemnify fishers have been calculated only on the basis of vessels size and age of the ships. The survey revealed also that the percentage of those that are willing to accept the Community "invitation" to leave the sector increases in the case of elderly operators who have carried out the fishing activity for a small number of years<sup>13</sup> and who have a small number of karats<sup>14</sup>.

Estimating the variables just described (karats, years of work, age of the fisher), it can be concluded that those who would be willing to leave the sector operate in small enterprises, that are economically weak and that have started activity recently. Nevertheless, even if these enterprises are not efficient and competitive, they continue fishing and to exert globally – that is, if we consider the total number of boats – a strong pressure on the fishery resources, thanks to the low costs required for maintaining the fixed capital.

Based on that, re-designing the criteria for granting public aid would be important for starting a fast reduction of the capital owned by those enterprises in which operators have a small number of karats or have been carrying out fishing activity for a small number of years. A new system for granting monetary aids might lead these fishers to leave the sector and therefore accelerate the withdrawal of those boats, that is, of those capitals that are not competitive. In these cases, indemnities would become a sort of social contribution which would compensate for the "precariousness" and the "weakness" of small investments, that is, of the small and numerous enterprises present in the sector.

<sup>13</sup> Which is, for fishery operators, the total number of working years, i.e., the period of time (in years) elapsed since when the fisher has invested the capital for starting the enterprise.

<sup>14</sup> The karats represent the m capital quotas invested in the activity of each operator. These m quotas are subdivided among fishers that are partners in an enterprise, on the basis of the capital M invested. Usually, they are not owned by a single operator. Such "fragmentation" of M among the so-called karatists implies that the repartition of the revenues obtained from the captures is proportional to the number of karats owned. Therefore, those who possess a small number of karats receive a minimal share of revenues.

Consequently, re-designing such criteria by parameterising the incentive in ways that take into account, not the size and age of the vessel, but the number of karats, the years of work, and the age of the fisher, might motivate the "small" fishers to accept the public aid and to contribute to the conservation of resources, respecting at the same time the intergenerational equity. Addressing economic incentive towards the new and small vessels or towards those who do not possess the whole amount of karats, would increase the efficiency of the public action, because it would concentrate financial resources on the correct target of fishers.

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