Ph. D. Dissertation

CONTESTED COMMONS: POWER RELATIONS AND COLLECTIVE ACTION AT THE ULUABAT LAKE, TURKEY

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ABSTRACT

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Ceren Ilkay Soylu

This dissertation aims at contributing to both the theoretical and empirical literature on the nature and role of power in the discipline of economics. In this respect, the dissertation starts with an empirical case based on a field study conducted in Uluabat Lake, Turkey, consisting of a questionnaire with 611 participants (with error margin of 0.035 at 95% confidence interval), three focus groups and 15 in-depth interviews. The case provides a rich array of manifestations of power. First one is the role of power in operationalisation of participatory decision-making mechanism. A methodological framework is developed for qualitative analysis of different channels through which power interferes with such mechanisms. Based on the data from the questionnaire, an econometric analysis is performed on the determinants of participation.

Another channel through which power operates is revealed by the interaction between the industry and fishermen, which also forms the basis of the game theoretical model developed in the second chapter. The Lake is polluted by the industry, which reduces the income of fishermen hence creates a conflict between the two groups. Industry pollutes the lake, which reduces the income of fishermen and creates conflict between the two groups. The industry is a small group with little or no within-group conflict with respect to the parameters considered in the model, and has a common interest in avoiding any monitoring of their abatement operations so they may refrain from paying additional costs. Fishermen, on the other hand, constitute a larger group facing two types of collective-action problems. The first arises from the well-known tragedy of the commons. The tragedy of the commons problem is not addressed in the model, since it has been broadly analysed in the literature. The second one, which is considered in the model, is how to overcome the free-riding problem and act collectively (through organising political disobedience) to make the state assume an active role and industry pollute less. Accordingly, a "contested commons" problem is considered, where the main focus is on the collective action of fishermen in resisting pressure from the industry and the role power plays in this process. If an action is taken and succeeds, industry will have to pollute less, which implies increased costs due to abatement. To weaken the opposition, industry employs fishermen at wages greater than or equal to their fallback positions, which is increasing as more fishermen are employed in industry. Hence, industry has the power not only to prevent monitoring as long

as fishermen do not successfully mobilise, but more importantly, to change fishermen's incentive structures by employing them. Fishermen, on the other hand, have the power to constrain the choices industry makes by threatening action. However, action in this context is considered a public good, and the credibility of the threat posed by the opposition of fishermen depends on their ability to overcome the collective action problem. While literature on the commons focuses on incentive problems related to collective action, this thesis pays attention to the ways that power operates in shaping those incentives.

The various manifestations of power exemplified by the case study called for a conceptual inquiry on the nature of power. To this end, first, a literature review was conducted, focusing mainly on the theories of power in the realm of economics while providing a general review of the theories from other disciplines as well. The literature review revealed a lack of consensus on the nature of power within different schools of thought in economics. However, it was also seen that providing a taxonomic review by categorising different theories in line with their conceptions of the agency-structure relation (individualist vs. structuralist) and the dimensions through which power is analysed was possible. The review led to the conclusion that power should be analysed at both the individual and the structural level to clearly understand the dynamic relation between the two. It is through this interaction that the structure of power is reproduced or transformed. This leads to the subsequent chapter, where a framework is offered to identify the underlying mechanisms of the reproduction and transformation of the system of power, taking

into account both the individual and structural levels and the interaction between the two. After presenting the framework, an analysis of power within the context of the model is conducted. Finally, the concluding chapter wraps up the research.

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Contents

Introduction

In discussions of the economics versus environment dichotomy as it pertains to natural resource management problems, the established literature points to two problems, which are closely related with each other, as to why people continue to destroy nature. The first is the collective action problem. Hardin coined the phrase "the tragedy of the commons" to explain this concept, which refers to situations where the motivation to free-ride may result in the degradation of nature; while it may be in the interest of all agents to preserve a common resource, if a formal or informal institutional framework is lacking, people may refrain from making personal sacrifices in hopes that others will shoulder the cost. The second reason involves conflicts among stakeholders. Labelled "externalities" by Pigou, this refers to situations where agents engaged in production and consumption activities enjoy a complete lack of liability to third parties, who suffer various unfavourable environmental consequences imposed on them.

What is true for both cases is this: people fail to recognise the otherwise positive worth of environmental goods and services because markets are non-existent. The economics discipline acknowledges that such "market failures" exist, and provides a rich repertoire of policies ranging from the introduction of property rights

à la Coase to environmental taxes à la Pigou, or from marketable permits for pollution to quota setting. It is at this junction that policy-making on environmental issues enters the picture. Which institutional body should be in charge of implementing the tools that economics has provided to date, and which tools should be preferred? Historically, central authorities have been charged with this duty, based on the belief that a centralised body would be best equipped to deal with the question at hand, with the most appropriate tool. However, experiences in recent decades have shown that top-down approaches to governance—where local people are excluded from decision-making processes—have not only failed to resolve conflicts, but also usually created new clashes regarding the use of natural resources. Consequently, the ways environmental policies are formed have shifted toward more decentralised environmental governance mechanisms based on community participation that engage both governmental and non-governmental entities, preferably at the local level.

While the participatory decision-making processes rhetoric sounds a workable policy prima facie, the incentive structures of such non-authoritarian co-management practices—or sharing responsibility in the management of natural resources between national and local governments, civic organizations, and local communities—have been also questioned since the "collective action" problem and/or conflict of interests could easily prevent actors from uniting on sustainable future scenarios. Furthermore, and perhaps more importantly, although on paper

these programs seem fully democratic, their operationalisation may remain problematic, for power structures—mostly neglected at the policy formation stage—may hinder their success. Power relations among local actors or the general power structure (the gender aspect, for instance) may lead to the marginalisation of interests of some and, thus, challenge effective participation by all. Therefore, apart from proper institutional design, the democratisation of power should be considered the first step in the successful implementation of participatory mechanisms.

This thesis focuses on a case study conducted at Lake Uluabat, Turkey, where the failure of the participatory mechanism provides a concrete example that can be analysed in terms of its underlying reasons, and the channels through which power is manifested in the operationalisation of this participatory mechanism.

Lake Uluabat is a large freshwater lake, covering an area of between 135 and 160 square-kilometres near the historic city of Bursa. It not only enjoys a Ramsar and "protected wetland" status due to its natural beauty and rich biodiversity, but is an economically valuable source of fish. However, the lake faces severe environmental damage resulting from human intervention; dam and reservoir constructions interfere with the natural water regime, the lake is used as dumping grounds by households and the industry nearby, overfishing is depleting the fish stock, and farmers not only tap the water feeding the lake, but pollute it by excessive use of pesticide and artificial fertilizer. Even more tragic is that a sustainable management plan was in place here from 2002 to 2007, jointly implemented by the Ministry of the Environment, WWF, and other interested and relevant parties.

A recent evaluation of this period clearly shows that most of the targets derived from the principles of sustainable fishing, efficient and effective natural resource use, and enrichment of natural life, fell short of being achieved.

In an attempt to understand the reasons of this failure, the author conducted a field study in the Lake Uluabat basin, the results of which may be found in the next chapter. For the study, a face-to-face questionnaire was administered to 611 randomly-selected respondents (with an error margin of 0.035 at 95% confidence interval) from the field area, and three focus groups and 15 in-depth interviews were held. In addition to investigating people's perceptions, values and beliefs about the ongoing degradation in the basin, a methodological framework was also developed for the qualitative analysis of different channels through which power interferes with decision-making mechanisms. The study revealed that power operates through not only the operationalisation of the participatory mechanism, but another mechanism as well. The industry, which is the main source of pollution in the lake, employs fishermen to prevent the possible mobilisation of a social movement (similar to the Bergama case, where a decade ago the locals successfully organised social unrest against the activities of a mining company that was planning to operate a gold mining facility near their villages).

Observing that the main conflict in the area occurred between fishermen and the industry, the author developed a game theoretical model motivated by the interaction between these two groups observed in the field study. Industry pollutes the lake, which reduces the income of fishermen and creates conflict between the

two groups. The industry is a small group with little or no within-group conflict with respect to the concerned parameters, and interested in avoiding any monitoring of their abatement operations so they may refrain from paying additional costs. Fishermen, on the other hand, constitute a larger group facing two types of collective-action problems. The first arises from the well-known tragedy of the commons as excessive fishing is both one of the threats to the lake and one of the reasons of decreased level of income from fishing. However, the tragedy of the commons problem is not addressed in the model, since it has been broadly analysed in the literature. The second type of collective-action problem, which is considered in the model, is how to overcome the free-riding problem and act collectively (through organising political disobedience) to make the state assume an active role and industry pollute less. Accordingly, a "contested commons" problem is considered, where the main focus is on the collective action of fishermen in resisting pressure from the industry and the role power plays in this process. If an action is taken and achieves successful results, industry will have to pollute less, which implies increased costs due to abatement. To weaken the opposition, industry employs fishermen at wages greater than or equal to their fallback positions, which is increasing as more fishermen are turning to employment in industry. Hence, industry has the power not only to prevent monitoring as long as fishermen do not successfully mobilise, but more importantly, to change fishermen's incentive structures by employing them. Fishermen, on the other hand, have the power to constrain the choices industry makes by threatening action. However, action in

this context is considered as a public good, and the credibility of the threat posed by the opposition of fishermen depends on their ability to overcome the associated collective action problem. While literature on the commons focuses on incentive problems related to collective action, this thesis pays attention to the ways that power operates in shaping those incentives.

The various manifestations of power exemplified by the case study called for a conceptual inquiry on the nature of power, which guides the rationale of subsequent chapters. To this end, first, a literature review was conducted, focusing mainly on the theories of power in the realm of economics while providing a general review of the theories from other disciplines. The literature review revealed a lack of consensus on the nature of power within different schools of thought in economics—answers to questions such as "Through which channels does power operate?" "Is it a characteristic of the agency or structure or both?" "How is it reproduced or transformed?" "What determines its distribution in society?" et cetera were in disagreement. However, it was also seen that providing a taxonomic review by categorising different theories in line with their take on the agency-structure relation (individualist vs. structuralist) and the dimensions through which power is analysed was possible. The review led to the conclusion that power should be analysed at both the individual and the structural level to clearly understand the dynamic relation between the two. It is through this interaction that the structure of power is reproduced or transformed. This leads to the subsequent chapter, where a framework is offered to identify the underlying mechanisms of

the reproduction and transformation of the system of power. It is proposed that the building blocks of the dynamic interaction between agency and structure are positions and "structural conditions" that are defined as constituent parts of the structure. The framework differs from theories of power that are based on the premise that power necessitates conflict, sanctions, and compliance on part of the subordinate with the wishes of the powerful. The various manifestations of power, as exemplified by the case study and formulated by the game theoretical model, are then analysed from the perspective of the framework of power proposed in the chapter, as well as with references to some other theories of power which are of relevance to the case. Finally, the concluding chapter wraps up the research.

CHAPTER 1

The Case Of The Uluabat Lake, Turkey

1.1. Introduction

This chapter aims at investigating the political economy of a local environmental problem through the case of Uluabat Lake, Turkey. The Lake, despite its Ramsar status for its natural beauty as well as its economic value added as providing fish, has been intesly subject to degradation. The case study is particularly important in terms of the specific way power manifests itself, between local fishermen (who use the Lake to earn their income) and the industry (that pollutes the lake while damping their untreated waste water). By deploying qualitative and quantitative methods (including a face-to-face interviews of a size of 607 with local people), this chapter aims at providing a detailed picture of not only the economic reasons of the ongoing tansions to the Lake but also positions of different stakeholders.

The chapter is structured as the following: First, a brief literature review on environmental decision-making processes is provided mainly focusing on participatory mechanisms. Secondly, environmental policy in Turkey is set out in terms

of the state's willingness and effectiveness in implementing the environmental legislations. Thirdly, the field study is discussed by way of describing the site, in-depth interviews, and focus groups. The results from the questionnaire are then presented. Finally, I provide a methodological framework linking power and operationalisation of participatory mechanisms. Specifically, tracing back from the individual decisions of participations, I analyze the various manifestations of power in the process. To conclude, an econometric study on determinants of participation is presented.

1.2. Environmental Decision-Making Processes

It is a truism that over the last three decades, the issues of conservation and management of natural resources have become increasingly important at worldwide. In order to halt/reverse the degradation of natural resources, site conservation programs—establishment of natural protected areas—and natural resource management plans have been put forward as the main policy instruments. Somehow parallel to this set of actions, there has also been a shift in the ways environmental policies were formed and implemented upon the recognition that centralized conservation/management mechanisms and top-down approaches to governance, excluding local people from decision-making processes, were not only unsuccessful in solving conflicts but also generally creating new ones over the use of natural resources. The failure of such approaches, where natural conservation was simply understood as preventing local people from using the natural resources, ignited a

discussion over the "wise use" principle, as a result of which hierarchical and centralized forms of environmental decision-making that relied on formal sanctions executed by nation-states gradually turned towards decentralized environmental governance mechanisms based on community participation that engage both governmental and non-governmental entities, preferably at the local level (see, e.g., Dryzek, 1997; Doyle, 2000; Jordan et al., 2003; Kasemir et al., 2003).

The idea that effective natural resource management should be built on community participation has been advocated by a number of international agencies and conventions as well. It has been adopted as the centerpiece for efficient and equitable resource management by institutions such as the United Nations (UN) and the World Bank (WB). It was also given prominence in international conventions such as the 1992 Rio Earth Summit, the 1994 UN Convention to Combat Desertification, and the 2002 Johannesburg Summit. More specifically, the Principle 10 of the 1992 Rio Declaration states that:

> Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and

> administrative proceedings, including redress and remedy, shall be provided.

Similarly, the internationally-agreed Local Agenda 21, which was erected during the Rio Summit, emphasizes public involvement in the design and implementation of environmental policy. Specifically, it states that:

> One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. Furthermore, in the more specific context of environment and development, the need for new forms of participation has emerged. This includes the need of individuals, groups and organizations to participate in environmental impact assessment procedures and to know about and participate in decisions, particularly those which potentially affect the communities in which they live and work. Individuals, groups and organizations should have access to information relevant to environment and development held by national authorities, including information on products and activities that have or are likely to have a significant impact on the environment, and information on environmental protection measures.

Likewise, in the 2002 Johannesburg Summit, it is stated that:

> We recognize that sustainable development requires a long-term perspective and broad-based participation in policy formulation, decision-making and implementation at all levels.

Growing attempts to allow for participatory mechanisms in environmental policy making and a widespread shift towards decentralization in control over natural resources can be seen as a response to multiple interrelated factors (Holmes & Scoones, 2000). The main idea that stems from various justifications for supporting and promoting participatory mechanisms is that they create "win-win" situations by providing solutions which are both efficient and equitable to the challenges of effective natural resource management. On the one hand, participatory mechanisms expand the knowledge base via the inclusion of local resource users and lead to improved compliance. Incorporation of broader information is assumed to lead to more effective conservation rules. In addition, since conservation rules will be devised by the participation of all relevant stakeholders, they are expected to ensure higher compliance by resource users. Thus, participatory mechanisms are believed to lead to better quality policy-making and implementation and be efficiency-enhancing in terms of environmental protection (Holmes & Scoones, 2000; Agrawal & Gupta, 2005). By allowing the local resource users to voice their needs and priorities, participatory mechanisms are believed to promote social justice and empowerment of marginalized groups. The underlying assumption is that the mere establishment of such mechanisms would provide all stakeholders with similar opportunities, regardless of pre-existing power assymmetries, to influence

the decisions that affect their lives. The outcomes of participatory mechanisms, therefore, are supposed to bring an equitable solution to the conservation problem at hand.

Yet, such non-authoritarian co-management practices, i.e. sharing of responsibilities for natural resource management among national and local governments, civic organizations, and local communities, have been questioned with regard to their incentive structures as otherwise problems of "collective actions" could easily prevent actors to unite over the sustainable future scenarios (Olson, 1965; Ostrom, 1990; Basili et al., 2006). Furthermore, although on paper these programs seem fully democratic, their operationalisation may well remain problematic, the power structures—mostly neglected at the policy formation stage—hindering their success. The relations of power among local actors or the general power structure (aspect of gender being an example) may lead to the marginalization of interests of some and, thus, challenge effective participation by all. Therefore, it has long ago been concluded that, apart from proper institutional design, the democratisation of power should equally be considered as the first step towards a successful implementation of participatory mechanisms (see, e.g., Boyce, 2002).

However this idea may sound appealing, a thorough investigation would reveal that the democracy on paper may not be effectively implemented for reasons of power inequalities. On the one hand, agenda manipulation may emerge because of power inequalities; and, on the otrher hand, the powerful party can deny the rights of the less powerful one.

Furthermore, it is important to reiterate that different stakeholders are likely to have conflicting interests and needs regarding the type of natural resource management policy to be put in place. The decision-making process (the formulation of the problem and of the feasible set of policies), therefore, will reflect the conflicts among stakeholders. Moreover, the policy output of the decision-making process is likely to create winners and losers due to the diversity of interests stakeholders have in relation to the natural resources. The existence of such conflicts calls for an approach that accounts for the distribution of costs and benefits of natural resource management, as well as for how such costs and benefits shift with different choices of policy (Blaikie, 2008).

The implementation of participatory management mechanisms for a common pool resource where stakeholders are diverse in terms of their interests and relations to the resource is a challenging project. Apart from other institutional and socio-economic factors, which should definitely be taken into account, this diversity of interests and relations to the resource creates power imbalances among the parties involved. This power imbalance is important in determining the outcome of the conflicts, since it shapes both the formulation of the problem and of the feasible set of policies, and the choice of policy. Moreover, it determines how effectively the participatory mechanisms will work.

All in all, there mainly exist two dimensions to participatory decision making mechanisms: the nation-state and the local—the international dimension can easily be seen as influencing these two in most cases. These dimensions are not

independent from each other but it is possible to outline some specific dynamics of the two while accepting the implications of these dynamics on one another. Next section discusses the nation-state dimension in the context of Turkey, which will be followed by the description of the case focusing on the local aspects.

1.3. Environmental Politics in Turkey

Turkey has increasingly been experiencing, in addition to environmental degradation arising from global/regional causes, the heavy burden of demographic expansion, increased urbanisation in general and flooded inhabitants of cities into coastal areas in large numbers in particular, economic development both in industry and agriculture, consumerism-type of stresses on the environment, and increased tourism activities (for general accounts, see, e.g., Markandya, 2003; Adaman & Arsel, 2005; European Commission, 2007).

It is a truism that human activities in Turkey in terms of industrialisation, urbanisation, heavy use of fertilizers and pesticide, construction of dams and reservoirs, fishing activities in her coastal zones and inland lakes, and tourism activities intensified in the post 1950s. Lack of urbanisation plans and abatement facilities, illegal occupations of coastal lands and uncontrolled marine transportation have all put a stress over the nature in Turkey. Yet, this ongoing degradation, at the country level in general and at her natural sites in particular, does not signal a lack of political attention to environmental issues, as there now exist a detailed environmental legislation as well as a set of public environmental institutions, the

totality of which aimed at providing a top-down conservation policy (see, e.g., Adaman & Arsel, 2010f).

According to Adaman & Arsel (2010) and Adaman et al. (2009), this is in fact a very striking observation, given the "strong and paternalistic state" tradition of Turkey: Unlike many developing nations where the formation of a coherent and effective state system remains a central challenge, Turkey has inherited the Ottoman legacy of an omnipresent, if not omnipotent, national system that steers socioeconomic, cultural and political practices (Ahmad, 1993; Keyman, 2005; Arsel, 2005a). Despite a strong state apparatus, which managed to remain at least partially autonomous, together with a well-built bureaucracy, why is it that ineffectiveness on environmental issues has been the general rule, rather than an exception?

In a nutshell, three explanations may be of help in understanding this rather paradoxical situation: The first is that subsequent governments and the bureaucratic tradition in Turkey have by and large been on the "modernist" camp, paying too little attention to (environmental and societal) externalities of growth initiatives, which implies that environmental regulations were erected basically either through the pressure of global institutions or through the need to pay lip service to international community, although in fact they were never thoroughly implemented (Keyder, 1997; Arsel, 2005a).

The second explanation, which is somehow related to the first one, is that the process of top-down modernisation has shaped and configured state power

and state–civil society relations in such a way that "patron-client" type political dynamics became dominant, eroding the public sphere and manipulating state–society relationships towards particularistic and often short-term gains (Adaman & Çarkoğlu, 2003; Green, 2005; Keyman, 2005; Adaman & Arsel, 2010f).

The third explanation is the rather chronic malady of bad legislation and improper institutional incentive design, which was reflected in the chaotic mixture of different conservation regulations, the operationalisation of which may take a very long time, and the lack of initiatives of local executive bodies to take measures against degrading environmental conditions. Another dimension which is relevant for the case of Turkey as well as many other countries is the concept of "bureaucratic politics" (Allison, 1971), which stresses the motivation by the relevant officials in the government bureaucracy to protect or promote their own agency's special interests (in competition with other agencies) as a major motivating factor in shaping the timing and the content of government decisions.

Although the picture outlined is reflective of the country in general, we should take notice that the failure is by no means complete or uniform, as there are, however few, instances of successful policy-making and implementation, suggesting that successes and failures seem to materialize unpredictably.

Now it is time to introduce the site where I have decided to conduct a field-work.

1.4. Overview of the Uluabat Case: Stating out the Objective of Our Research

The Uluabat Lake Basin, despite its Ramsar as well as "protected wetland" status due to its natural beauty and rich biodiversity and despite its fish population that has an economic value, has been facing severe environmental damage as a result of combined failures of policy implementations both at local and national levels. Currently the Lake, and its basin, has continuously been threatened by external factors which are mostly human-related such as the intervention in the natural water regime through dam and reservoir constructions, the use of the Lake as dumping-ground by households and the industry nearby, overfishing by the fishermen living in the region, and farmers both using the incoming water to the Lake and polluting it through excessive use of pesticide and artificial fertilizer.

What makes the case more tragic is the seemingly implemented sustainable management plan, since 2003, which claimed to bring together local and national stakeholders. At 2007, the first management plan developed in 2002, through a participatory mechanism by the Ministry of Environment, WWF and other interested and relevant parties, has been completed. The evaluation of the past five years made it clear that most of the targets derived from principles of sustainable fishing, efficient and effective use of natural resources, and enrichment of the natural life fell short of being accomplished.

The fact that we have a local natural site of importance and that there has been an unseccesful implimantation of a participatory decision-making programme, made me believe that the case is very suitable for my purpose.

Our research aims at shedding light on the political economy of this failure through a study based on quantitative and qualitative research including in-depth interviews, focus groups, and a face-to-face, randomly selected survey. We will first discuss the stakeholder analysis and then move on to the analysis of the case presenting the results of the questionnaire.

The table 1 below provides a taxonomic presentation of the project methodology.

	Method/Source	Questions/Aim	
Historical and Institutional Analysis	Secondary Resources	*Who are the stakeholders?*	Data gathering regarding physical indicators Aanalysis of the institutional structure
Determination of the *Problematique*	Qualitative Research (In-depth interviews, focus groups, workshops), Quantitative Research (Questionnaire)		Dependencies of the stakeholders to the lake? Relations between stakeholders in terms of these dependencies? Externality problem? Collective action problem?
Governance and Perceptions of Stakeholders		Critical review of the existing governance structure. Do the stakeholders participate in decision making? How do the social structure and power relations affect the definition of the problem and determination of who is going to be involved in the decision making process? How do the stakeholders perceive the current situation?	
Alternative Scenarios and Coalition Formations	Institutional Analysis	What kind of alternative scenarios could have been and can be applied? What are the effects of these alternatives on the stakeholders? What are the preferences of the stakeholders regarding these alternatives? What kind of coalition formations would there be under each alternative?	

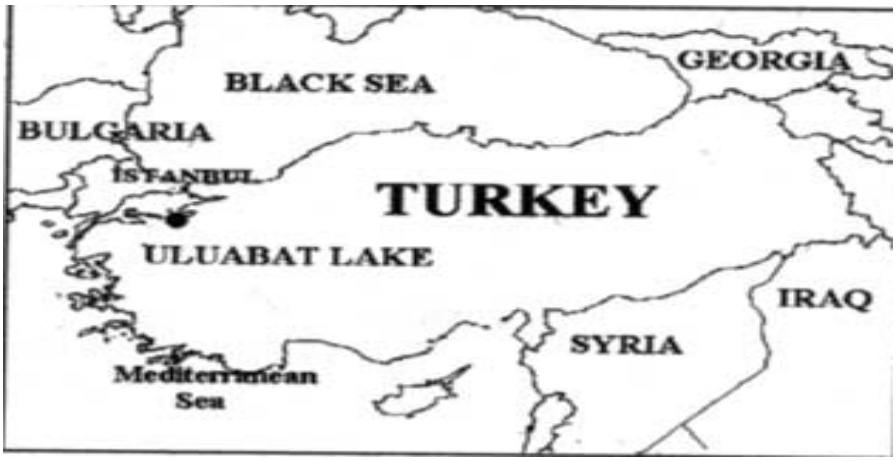
Table 1. Taxanomic presentation of the research methodology

The table above is self-explanatory in the sense that it outlines the research methods that are needed to be employed as well as the sequenciality of my research.

1.4.1. Description of the Research Area

The Uluabat (Apollania) Lake, located in the northwestern part of Turkey, is one of the twelve Ramsar[1] sites in Turkey (since April 1998) as well as belongs to the Living Lakes Network (since 2000). The Lake covers an area of between 135 and 160 km2, depending on its water level (maximum depth of 10m and a mean depth of 3m). The protected wetland area covers the Lake itself and a surrounding band that includes two villages, Eskikaraagac and Golyazi, totalling 199 km2. The Lake, which is an open system, is largely fed by M.Kemalpasa river located on the southeast of the Susurluk basin and the water leaves the lake via Uluabat River, the main outflow, from the west shore, reaching the Marmara Sea. Currently, there are 310 species of waterfowls and 109 species of nesting birds for which the Lake serves as habitation, including the globally-threatened Pelecanus crispus. Furthermore, the Basin is one of Turkey's richest wetlands in terms of aquatic plants. (Living Lakes Official Web Site www.globalnature.org).

[1]The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 152 Contracting Parties to the Convention, with 1609 wetland sites, totalling 145.8 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. See http://www.ramsar.org/profile/profiles_turkey.htm



Map 1. The Uluabat Basin. (Note that the red dotted line denotes the boundaries of the protected area)

The coastal as well as neighbouring villages provide residence to 20,000 inhabitants. Furthermore, the two towns, Mustafakemalpasa and Karacabey, with a total population of 60,000, are indeed affecting the Basin as their sewages go untreated into the Lake.

Local people living in the surrounding villages are mainly farmers, fishermen, industrial workers (working in industries nearby the region), and artisans (serving for local needs and the industry). Fishery has economic importance for two of the villages: Gölyazı (%80 of households) and Eskikaraağaç (%25 of households). There is a Fishery Products Cooperative in Gölyazı, which was formed in 1960 and has 680 members as of now. There are three other, smaller, cooperatives in the surrounding villages as well. Fishing is done all around the year, though legally it is forbidden in some periods—which is not completely respected.

The industry is located nearby the Lake, whose composition is as follows:

Mustafa Kemal Paşa district: 52 tanneries, 27 dairies, 2 tinned food factories (TAT and LEZZO), MERKO food factory, marble plants

Karacabey district: Flour factories, SÜTAŞ (milk products), Vatan Konserve (tinned food), butter factory, NESTLE, small organized industry site

Gölyazı district: TURBEL (food factory), Uysal Süt- Aysüt (milk products)

Akçalar district: Akçalar Butchery, KEREVİTAŞ (food), DONA (food)

Orhaneli-Harmancık district: Hayri Öğelman Mining, Ege Metal-Mining, Toros Mining, Orhaneli Thermal Plant, Kestelek Boron Plant

External Regions: Hisarcık Etibank Kolemanit Plant, Özel Boron Plant, Tunçbilek Thermal Plant, Tunçbilek G.L.İ. Coal Plant

These factories and mining sites by and large discharge their waste into the rivers, thus negatively affecting the Lake's ecological conditions (although most of them do have waste treatment facilities, they do not make them operational properly in order to reduce their costs).

The agricultural sector continues to be of importance in the Basin as most of the land is arable. The sector uses the incoming water to the Lake extensively, thus negatively affecting the water budget of the Lake, as well as pollutes the rivers and the underground water through artificial fertilizers and pesticide.

Animal husbandry, hunting and tourism are the other sources of income, though not as important as others. Tourism is, indeed, a potential source of income yet not utilized. Hunting is done by both visitors from other cities for enjoyment and by local people for food. Animal husbandry has lost its importance compared to the past.

There are several threats to the Lake from a multitude of sources: natural erosion, drought; excessive and unregulated fishing; deterioration in water quality (industrial, mining and domestic wastewater and use of chemical fertilizers and pesticides in agriculture—either directly drained to the Lake or carried through mainly by different streams); human intervention in the natural water regime (use for irrigation , construction of dams, prevention of water outflow by the levee built by the General Directorate of State Hydraulic Works [DSI]); changing the habitat

(transforming natural areas to agricultural areas, coastal filling); miscalculatively adding up of a new fish species that happened to be predator for local species; extraction of sand.

Consequently, both the grand total as well as the number of species of birds and fishes have been decreasing. There were 430 thousands birds in 1996, this number decreased to 290 thousands in 1999 and 43 thousands in 2001. By 2002 the number of birds was 25,000 (Management Plan, 2002). Local fishermen similarly indicated that there has been a decrease both in the total quantity as well as the number of species.

1.4.2. Stakeholders and Focus Group Interviews

The overview above identified six stakeholders: local people (composed mainly of fishermen, farmers, workers), industrialists, human-settlers (including both the villages and districts nearby the lake and the two districts—M.Kemalpasa and Karacabey—which do not have shore to the lake, yet are affecting the lake). Apart from these actors, there are a couple of national NGOs that participate actively in the conservation of the Lake. They mainly act so as to lobby the State for implementation and monitoring of the environmental legislation and making of necessary revisions. Though currently not as active and effective as NGOs, human settlers nearby the Lake (Mustafakemalpasa and Karacabey districts and the villages around the Lake) have the potential to take action as well.

At this background, the complex and heterogeneous relations of local stakeholders (fishermen, farmers, workers, industrialists, human settlement, nature conservationists and the state) to, and their diverse interests and claims over, the Lake can be tentatively summarized by the following table. The state is included as a stakeholder, yet it should be analyzed in a different manner from local stakeholders. Although the local actors must abide by the decisions of the state and thus the state is, potentially, the most important actor at the local level, the decisions of the state should be evaluated at a more general, regional or national, level. Therefore, the actions of the state at the local level cannot be considered in isolation from its overall agenda and position regarding many issues ranging from environmental conservation to the type of economic policy pursued to democracy and so on.

The table 2 provides the existence and if so the extent of dependencies of stakeholders on the six ecosystem functions that are borrowed from de Groot et al. (2005).

	Food Provision	**Water Use**	**Climate Regulation**	**Waste Storage**	**Cultural Usage**	**Bio-diversity**
Fishermen	++	0	+	0	0	+
Farmers	+	++	++	++	0	0
Workers	+	0	+	0	0	0
Industrialists	+	+	0	++	0	0
Human Settlers	+	++	+	++	+	0
Conservationists	0	0	0	0	++	++
State	0	+	0	+	0	+

Table 2. Dependencies of stakeholders on ecosystem functions

0 = no dependency, + = weak dependency, ++ = strong dependency

The dependency relations of local stakeholders shown in the table are constructed by using the secondary information (2002 Report of Ministry of Environment and Forestry and WWF; see also, Özesmi, 2001; Özesmi et al., 2003; Salihoğlu et al., 2004; Gürlük et al., 2006; Kuş Araştırmaları Derneği, 2006), short-term and long-term visits to the site and focus group interviews (see below).

1.4.2.1. Focus Group Interviews. As mentioned above, we identified six stakeholders: fishermen, farmers, industrialists, human settlers (including both the villages and districts nearby the lake and the two districts-M. Kemalpasa and Karacabey-which do not have shore to the lake, yet are affecting the lake), nature conservationists (civil society organisations, bird watchers, environmentalists) and the State. The focus group interviews have been done with fishermen, farmers, state officials, nature conservationists and industry (the list of interviewed people is provided at Appendix 1). The main arguments of these interviews are presented below.

Fishermen

The group which is the most affected by the pollution of the Lake is the fishermen. Fishermen state that, unlike 10 years before, currently, fishing is not enough to earn a living. They were extremely concerned about the fact that most of the economically valuable fish species became extinct and the existing species do not provide enough income. Like the number of species, the number of fishes in the lake has been rapidly decreasing, they added. The old generation state that they

do not have and cannot have any other alternative source of income; however, the young generation usually search for employment in the industry nearby.

The utmost cause of pollution in the Lake, according to fishermen, is the industry. They mention that the factories do not operate their waste treatment facilities.

While the fishermen in Gölyazı village state that they abide by seasonal fishing restrictions and that their fishing level is not high, fishermen in other villages blame the fishermen in Gölyazı for the rapid decrease in the number of fishes in the lake. Nature conservationists and state officials state that the fishing level is too high.

Farmers

Farmers' main complaint is about the high costs of inputs (water, electric energy, fertilizers) and low price of outputs.

There is a water user association, which supplies water to farmers nearby the Lake. As the region is sloped, they need to use electricity to pump water and the cost of electricity used therefore varies (as much as four-holds) from one spot to another.

Both the farmers and the water user associations state the need for restructuring the farming practice and installing drip irrigation system in order to reduce costs and also to increase product diversity. However, they do not have enough financial resources (the water user association is not even able to pay the electricity bill) and even though some made an attempt so far due to red-taping only a few managed to set it out.

Farmers have complaints about the industry as well. They sell their products to factories nearby the lake to save from transportational costs. They complain that the price is set too low. There does not exist a farmers' association, which can satisfactorily bargain with the industry.

Even though farmers state that they do not use excessive fertilizers, nature conservationists and state officials mention that one of the main causes of pollution in the Lake is the excessive use of fertilizers by farmers.

The interviews with fishermen and farmers made it clear that neither farmers nor fishermen have information about the management plan of the Lake, except the ones living in one village where the Uluabat Lake Stork-Friendly Villages Project is launched (Eskikaraağaç village). They all complain about the restrictions that the plan imposes and they think that the plan just serves for protecting the storks at the expense of the needs of the people living in the villages. In some villages, the villagers even started to become hostile against the storks as they see them as the cause of the problems they are facing with.

State

In terms of the role of the state, the Uluabat case is not an exception to the general ineffectiveness of Turkish state in environmental policy implementation. The state officials all mention that they are very willing to conserve the Lake. But, even if we assume that they are really "willing", when it comes to take action, e.g. monitoring the implementation of the legislation, confusion of responsibilities among the state organs and cumbersome bureaucratic process prevent even the

simplest action. This fact has been largely confirmed by state officiers with whom I have interviewed.

Local Agenda 21 of Nilüfer, a district of Bursa, claims to be the leading pro-environment institution in the region. Although it seems there is a truth in it, as they have to legislative power in implementing the environmental regulations, their impact over the industry has been minor.

Nature Conservationists

Nature conservationists (NGOs) state that they do not have enough resources and power to make other stakeholders implement the decisions taken in the meetings and the articles of the legislation. Nature conservationists state that they do not have enough resources and power to make other stakeholders implement the decisions taken in the meetings and the articles of the legislation.

Industry

Officers from the Nestle plant nearby the Lake state that they operate their waste treatment facilities unlike most of the other plants. They underline the importance of being an international company, thus being subject to international scrutiny, for respecting environmental regulations. State officiers with whom we have interviewed admitted that the industry has not been fully respecting the environmental regulations.

1.4.3. Analysis

As pointed out by the focus group interviews, the stakeholders have various relations with and claims over the Lake. The analysis so far is indicative of two sorts of problem. The first one is the externality problem. The industry and the households use the Lake as a dump-side, as a result of which other stakeholders—mainly environmental NGOs and fishermen—are getting worse-off. The second problem is the collective action problem, which manifests itself both within fishermen, farmers, human settlers and NGOs and among these groups. Fishermen fail to sustain a catch size that will be optimal from their perspective, human settlers fail to take action over their own local governments in persuading them to install abatement facilities, nature conservationists fail to act collectively to create public awareness and put pressure. And even though fishermen, farmers and NGOs complain about the industry, they fail to act collectively against the industry.

It goes without saying that the key feature of both the externality and the collective action problems is the interdependence between the choice and/or the outcome of the choice of an actor and choice and/or outcome of the choice of other actors. Interdependence is a general aspect of environmental issues and the conflicts created by interdependence can be resolved in various ways. Hence, the distributional aspect of the problem comes into play. The distributional problem in case of environmental issues has two aspects. The first one is related to the distribution of costs of environmental degradation. The second aspect is related to

the distribution of benefits of environmental degradation (more generally, of using the environment). These two aspects are indeed very much related to another distributional issue, that is, the distribution of power. It is the distribution of power that determines the distribution of costs and benefits, and more generally, the institutional set-up. Power relations, in this respect, also determine the particular way through which conflicts are tried to be resolved and their success. In the case of Uluabat Lake, as mentioned above, a "so-called" participatory mechanism is being implemented. However, as the focus group interviews made clear, local people do not have information about the plan and the implementation has not been successful. Part of this failure was due to the ineffectiveness of the state and part of it was due to the fact that the industry did not operate the waste treatment facilities despite all the restrictions.

Following my qualitative research, I have conducted a survey among the local residents, which is presented in the next section.

1.4.4. Questionnaire

Besides the desktop research, focus group interviews and information about objective data, the analysis of the case requires information about the perceptions of the local people. To this end, a questionnaire was carried out in September 2008 in 6 villages nearby the Lake (Gölyazi, Gölkiyi, Eskikaraağaç, Yenikaraağaç, Uluabat, Fadıllı) with 607 participants. The total population 18 years and above in these 6 villages is 2894 according to latest available data based on 2009 census. The

error margin, given a total population of 2894 and a sample size of 607, is 0.0352 at 95% confidence interval and 0.0463 at 99% confidence interval. The villages are selected such that the general distribution of population around the Lake in terms of occupation is respected. Another important consideration while selecting our universe was to prevent any bias regarding the views about the management plan. Therefore, we have both the villages where the management plan is considered to be more successful both by the local people and by the officials (e.g. Eskikaraağaç) and the ones where people were relatively more pessimist about the management plan (e.g. Gölyazı). The number of questionnaires to be conducted at each village is calculated according to the proportion of the village population to the total population in 6 villages. Therefore, the sample is clustered at the village level. The households were selected randomly within villages. However, in these households, we only interviewed with fishermen, workers, farmers or the ones who do not identify themselves as fishermen or farmers but state that they contribute to fishing or farming practice. Note that, not everyone, especially women, would identify themselves as farmers or fishermen but they might be contributing to the production process. Indeed, 22% of the fishermen (corresponding to 40 respondents) and 30% of the farmers (corresponding to 108 respondents) are categorized in this group (see Table 3). The rejection rate is 10% at Gölyazı and around 40% in other villages, which implies a rate around 30% considering the total number of questionnaires.

The aim of the questionnaire is to gather information regarding:

- the socio-economic structure of the region, e.g. education level, age distribution, sources of income, level of unemployment, migration
- the perceptions of stakeholders regarding the problems of the Lake and the factors/groups responsible from these problems
- the dependencies of stakeholders to the Lake and the dependencies between the stakeholders
- level of information and views about the management plan
- level of participation to the design and implementation processes of the management plan, and reasons for lack of participation
- views of the stakeholders about conservation of the Lake and about alternative conservation strategies.

The questionnaire is provided in Appendix 2.

The general distribution of the respondents in terms of average age, gender, occupation and educational level is shown in Table 3. The average age is 40,56. The respondents are predominantly male, %88,6. One may argue that this imbalance might cause a gender bias; however, this does not constitute a problem for our analysis. First, our aim is not to assess the differential effects of the environmental degradation and the management plan on men and women. Second, neither our observations from the field nor the interviews indicate such a bias. As mentioned before, farming is the main source of income for most of the villages except Gölyazı where fishing has been the source of income for %85 of the households until recently. The distribution of farmers, fishermen and workers in the questionnaire reflect

this fact. Farmers constitute %52,4 of the total population where fishermen and workers are %29,8 and %22,5, respectively. (Note that, there are respondents who are practicing both farming and fishing.)

Majority of the population is primary school graduate (%59,3), followed by high school (%18) and secondary school (%16,6) graduates.

GENERAL DISTRIBUTION (Total 607 respondents)		
AGE (Average)		40,56
FEMALE		69 (11,4%)
MALE		538 (88,6%)
WORKER (22,5%) n=137		137 (22,6%)
FISHERMAN (29,8%) n=188	"I am a fisherman"	132 (21,7%)
	"I contribute to the production process"	24 (4%)
	"I have been a fisherman in the past five years but not anymore"	32 (5,3%)
FARMER (52,4%) n=318	"I am a farmer"	253 (41,7%)
	"I contribute to the production process"	65 (10,7%)
EDUCATION LEVEL	Illiterate	7 (1,2%)
	Literate	5 (0,8%)
	Primary school	360 (59,3%)
	Secondary school	102 (16,6%)
	High school	108 (18,0%)
	College and Graduate school	24 (4,0%)

Table 3. General distribution

An important parameter in such cases of environmental degradation is the perception of the local people about the degradation. The data show that almost all of the respondents perceive the pollution level to be high (Table 4) and there is no significant difference between fishermen, farmers and workers.

Given the current situation, how polluted do you think Lake Uluabat is? (0: Not polluted at all, 10: Very much polluted)			
	Fishermen	Farmers	Workers
Between 0 and 5	3,3%	8,1%	5,1%
Between 6 and 10	96,7%	91,9%	94,9%

Table 4. Pollution perception

Though being important, perception is not enough to conclude that people are concerned about the degradation and are in favor of conservation. For this reason, we had another question to capture how concerned the respondents are about the pollution. Again the shares of those who are highly concerned are very high; 96,7%, 87,4% and 92,6% for fishermen, farmers and workers, respectively (Table 5). Although in terms of perception about the pollution level there is no difference between these groups, when it comes to concern we observe a lower share of high concern among farmers compared to fishermen and workers. This is reasonable since farmers use the Lake only for irrigation purposes, and pollution, unless it is so severe that the water cannot be used, is not so important for their purpose. The fact that the workers are highly concerned can be explained by the fact that they still live in the villages with their family and it is very much likely that fishing or farming is a source of income for their households as well.

Concern about pollution (0: Not concerned at all, 10: Very much concerned)			
	Fishermen	Farmers	Workers
Between 0 and 5	3,3%	12,6%	7,4%
Between 6 and 10	96,7%	87,4%	92,6%

Table 5. Concern about pollution

Another important issue is with regard to the winners and losers of environmental degredation. Tables 6 and 7 show that fishermen are seen as the most affected group, and the industry as the least affected one, by a very significant majority of the population without any considerable intergroup difference between fishermen, farmers, and workers.

The group which is most affected by pollution			
	Fishermen	Farmers	Workers
Fishermen	100,0%	89,9%	97,1%
Farmers	0,0%	9,8%	2,9%
Industry	0,0%	0,3%	0,0%

Table 6. The group which is most affected by pollution

The group which is least affected by pollution			
	Fishermen	Farmers	Workers
Fishermen	0,0%	0,6%	0,0%
Farmers	3,9%	5,9%	6,6%
Industry	96,1%	93,6%	93,4%

Table 7. The group which is most affected by pollution

Table 8 shows the responses about the sources of pollution. 90,7% of the respondents mentioned that industrial wastes are an important source of pollution. The second source which is most commonly stated as being influential is the drainage of the towns nearby the Lake, which is carried to the Lake through the rivers. During the in-depth interviews, the mayors of these towns stated that they were aware of the problem; however, they do not have enough financial resources for abatement.

How influential are the following as source of pollution? (0: Not influential at all, 10: Very much influential)		
	Between 0 and 5	Between 6 and 10
Industrial wastes	9,3%	90,7%
Sewage from nearby settlements	27,9%	72,1%
Sewage from coastal settlements	49,6%	50,4%
Excessive use of fertilizers by farmers	75,5%	24,5%

Table 8. Sources of pollution

As the industry is perceived to be an important source of the pollution that adversely affects local people living around the Lake, and monitoring the industry is the responsibility of the state, a related issue is to what extent the state cares about the interests of these groups. The perceptions of respondents are given in Table 9.

To what extent does the state care about the interests of the following groups? (0: not cares at all, 10: cares a lot)				
		Industrialists	**Fishermen**	**Farmers**
Fishermen	Between 0 and 5	24,4%	96,2%	91,7%
	Between 6 and 10	75,6%	3,8%	8,3%
Workers	Between 0 and 5	16,8%	83,9%	85,4%
	Between 6 and 10	83,2%	16,1%	14,6%
Farmers	Between 0 and 5	15,7%	87,7%	92,5%
	Between 6 and 10	84,3%	12,3%	7,5%

Table 9. The extent that the state cares about the interests of fishermen, farmers and workers

Fishermen, workers and farmers all think that the state cares more about the interests of the industrialists than their interests. A possibly correlated issue is the level of trust for state bodies. Table 10 shows the extent of respondents' trust for two state bodies, the Environment and Forestry Provincial Directorate (EFPD) and the Provincial Directorate of Agriculture and Village Affairs (PDAVA), and other organizations.

To which extent do you trust the organizations I will now read to you? (0: I don't trust them at all, 10: I trust them completely)								
		EFPD	**PDAVA**	**NGOs**	**Local Agenda 21**	**Municipality**	**University**	**Village Headmen**
Fishermen	Between 0 and 5	70,5%	57,7%	69,2%	66,7%	59%	46,8%	55,8%
	Between 6 and 10	29,5%	42,3%	30,8%	33,3%	41%	53,2%	44,2%
Workers	Between 0 and 5	53,3%	54,7%	58,4%	59,9%	51,1%	37,2%	56,2%
	Between 6 and 10	46,7%	45,3%	41,6%	40,1%	48,9%	62,8%	43,8%
Farmers	Between 0 and 5	54,4%	53,5%	58,2%	60,4%	55,3%	30,2%	48,1%
	Between 6 and 10	45,6%	46,5%	41,8%	39,6%	44,7%	69,8%	51,9%

Table 10. Trust

The table shows that there is no organization, including the state bodies, which is trusted by the majority when all the three groups are concerned.

Finally, let us present some results regarding the general level of satisfaction from living in the area and from working as fisherman/farmer/worker. Table 11 shows the average level of satisfaction for each group from living in their viallages.

How satisfied are you to be living here? (0: not at all satisfied, 10: very satisfied)	
Fishermen	8,32
Workers	9
Farmers	8,68

Table 11. The average level of satisfaction from living in the villages

All groups are very satisfied to be living in their villages. This should not be taken as indicating that people are not affected much by the pollution problem

since both the perceived level of pollution and concern about this problem are high (see Tables 4 and 5 above). The local people are mainly those who have been living in the same place for generations. Thus, the high levels of satisfactions shown in Table 11 should be read as an indication of this fact. Also when asked whether they are thinking to migrate, very few (2,8% of farmers, 4,5% of fishermen and 5,8% of workers) responded positively. Yet, when asked how satisfied they are to be working as a fisherman/farmer/worker, the levels are quite low.

How satisfied are you to be working as a fisherman/worker/farmer? (0: not at all satisfied, 10: very satisfied)	
Fishermen	6,89
Workers	6,83
Farmers	3,90

Table 12. The average level of satisfaction from working as a fisherman/worker/farmer

Table 12 shows that farmers are the least satisfied group where fishermen and workers are almost equally satisfied. For the farmers, as mentioned in focus group interviews, the problems are also related to the national agricultural policy. The main reason behind the level of satisfaction reported by the workers is that they have a regular source of income which they cannot have as a fisherman or farmer.[2] Fishermen reported high levels of satisfaction despite all the complaints mentioned

[2]When asked why they started working in industry, 23,4% of workers stated that they had no other choice, 16,1% stated they could not have sufficient income in fishing or farming and 60,6% stated that they wanted to earn a regular income.

during the focus group interviews. One possible explanation is that being a fisherman per se gives some level of satisfaction for them (this is what I observed during the interviews). I will turn to this discussion at the last section.

Next section will present the results regarding the success of the participatory mechanism. Before moving on to the results, the link between power and operationalisation of participatory decision-making mechanisms will be discussed. This case study constitutes an example of failure in terms of participation. The reasons behind this failure and the role of power are analyzed in the next section. We will see that the channels through which power manifests itself regarding the operationalization of the participatory mechanism are based more on the formal and informal institutional set-up.

1.5. Participation and Power

As touched upon above, the main criticism launched against co-management mechanisms is with regard to the collective action problem. There are a number of studies (Bardhan, 1984; Wade, 1987; Ostrom, 1990; Bardhan, 1993; Baland & Platteau, 1995), which tries to understand the conditions under which local co-operation is more likely to happen in the management of the commons, mainly focusing on the collective action aspect. The consensus is that co-operation works better in small groups with similar needs, clear boundaries, and shared norms and patterns of reciprocity. However, in most of the natural resource management problems the group size is not small; indeed, there are many groups with different

size and diverse interests. Accordingly, their interest in and attitudes towards participation in natural resource management are diverse and this diversity of interests creates conflict among the involved parties. The impediment to conflict resolution brought about by such asymmetry of interests is straightforward. Even in cases where there is a shared common purpose, a generic example of which is provision of a public good, such asymmetries can obstruct agreements. In such cases, conflict is manifested in various stages. Indeed, considering participatory mechanisms, one can distinguish three conceptually separable elements to the process of bargaining and reaching agreement: who participates, how the feasible set of policies to be negotiated over, i.e. the agenda, is determined, and what particular policy is chosen within the feasible set.[3] Therefore, democracy on paper, i.e. the fact that less powerful groups are not officially excluded from discussions regarding the choice of the policy, alone does not render the process democratic. First, regarding the first element, less powerful groups may not participate even though they have the right to do so. This might be due to choice of the individuals or due to constraints such as information, time etc. Regarding the second element, namely the agenda setting, more powerful groups may beforehand restrict the agenda of discussion to those issues that are in favor of their interests. Finally, since the discussion process is one of bargaining and negotiation, the relative power of the two groups will be the main determinant of the final choice of policy.

[3]A similar analysis is carried out by Parson and Zeckhauser (1995), focusing on international bargaining over the environment.

It is not reasonable to assume that everyone would want to solve the conflict because of the reason that the existence of the conflict itself, in many situations, creates rents. Therefore, the final choice of policy might be to preserve the status-quo. Even when each party is willing to solve the conflict, it would be too optimistic to assume that they will also agree on the same solution. Each solution will result in winners and losers (including non-solution, i.e. the status-quo) and each party will try to ensure that the solution in which they are winning is implemented. This argument is definitely not new and it might even seem tautological, but this simple observation seems to be the underlying logic of any analysis on conflict resolution and it is the main reason why democratization of power should be considered as the first step towards the successful implementation of such mechanisms. Otherwise, natural resource management mechanisms based on the democratic principle of participation may bring about unintended, unanticipated and undemocratic consequences that, more often than not, further the interests of those who are already powerful.

As the above argument suggests, in this context, power mainly operates through influencing the agenda and the final policy choice. The more the individual/group is able to influence the agenda and the policy choice, the more that individual/group has power. It is important to note that, power is neither solely a property of the individual/group or an aspect of interpersonal relation. Power might be individually (e.g. wealth) and/or structurally (institutional, socio-economic, political) based and it can be exercised through direct interpersonal relations and/or

through the structure itself. Finally, in all these cases, the exercise of power may be explicit (e.g. explicitly excluding some issues/individuals/groups from discussion) or implicit (e.g. exercised through the institutional set-up so that the subjects of power are not aware of its exercise).

In the literature on power, the concept of mobilization of bias (Schattschneider 1960)[4], though not originally directed to the analysis of environmental issues, is a useful tool for my current purposes:

> All forms of political organization have a bias in favour of the exploitation of some kinds of conflict and the suppression of others, because organization is the mobilization of bias. Some issues are organized into politics while others are organized out (Schattschneider, 1960, p. 71, emphasis in the original).

Mobilization of bias may work in three ways, which incorporates the three elements of bargaining characterized above: First of all, it may prevent formulation of grievances. Secondly, even if the grievances are formulated, the less powerful may anticipate the powerful's likely opposition and consequently does not raise an issue. This was proposed long ago by Friedrich (1937) as the "rule of anticipated reaction". Finally, even when an issue is raised, the powerful may not "hear" the demand articulated by the less powerful, a situation also termed as the "negative decision-making" by Parry and Morriss (1974).[5]

[4]Mobilization of bias is the main tenet of the two-dimensional view of power elaborated by Bachrach and Baratz (1962). For a detailed review, see chapter 3.
[5]See Clegg (1990).

Mobilization of bias may be effective at the local socio-economic and institutional (local, regional, national) levels. If it is at the local socio-economic level, then a participatory decision making mechanism may not work unless the existing power relations are addressed. If, on the other hand, mobilization of bias is operative only at the institutional level, a participatory mechanism would provide effective governance as long as the institutional setting is revised in a way that facilitates the implementation of the decisions taken at the local level. Finally, if mobilization of bias is operative at both local and institutional levels, policies directed at addressing both the institutional setting and the power inequalities at the local level are needed.

Departing from the logical framework discussed so far and the case study at hand, *the participatory mechanism tree* (Figure 1) has been developed as a tool for analyzing the operationalization of participatory mechanisms. The tree concerns a participatory decision making mechanism aimed at protecting an environmental resource. It offers a picture, though not exhaustive, of different attitudes towards participation and the relevant policies that would ensure participation corresponding to various reasons of non-participation

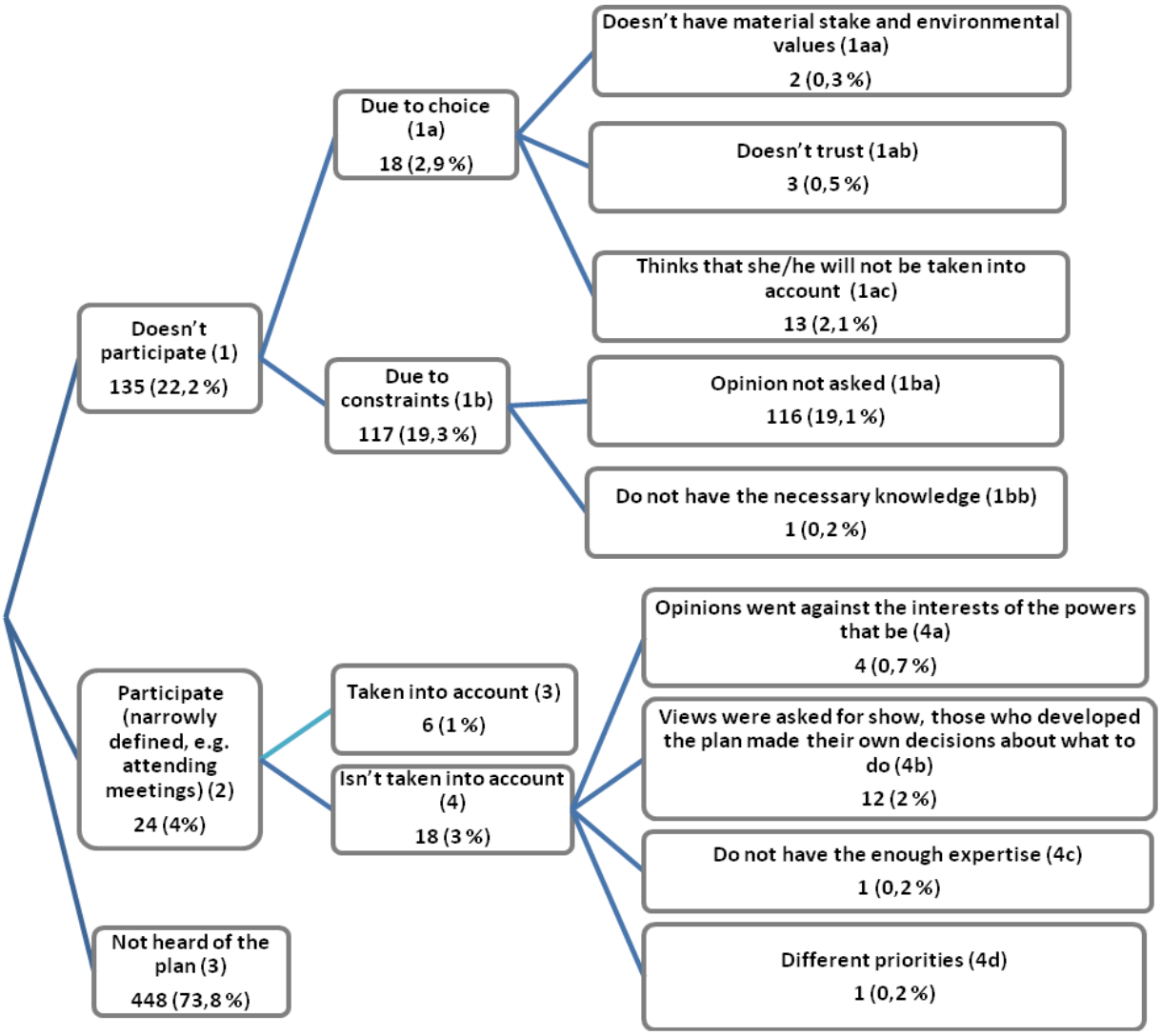


Figure 1. Participatory Mechanism Tree

The first number in each box represents the number of respondents who are positioned in that box and the percentages represent their share in the overall

population of 607 respondents. Before moving on to the discussion in terms of the case study let me give a general description and analysis of the tree. Participation is narrowly defined in the sense of attending the meetings. The tree should be read as the following: The individuals either have information about the plan (in a very narrow sense such as knowing that such a plan exists) or not. The ones who have not heard of the plan are positioned in box 3. The ones who have information about the paln either participate or not. Subgroups of nonparticipation include those who have information about the plan but do not participate—by attending the meetings, if they are held, or voicing their opinions through some channels—due to choice (1a) or constraint (1b). If participates (2), then the individual might participate actively in the discussions (3) or not (4). In this case power is manifested by the prevention of active participation. However, active participation does not ensure that the individual's opinions are taken into account (5 and 6). The boxes 1aa to 1ae serve to further divide the non-participators into subgroups.

The choice subgroups 1aa to 1ae, though presenting individual perceptions, are not totally attributable to individual preferences. In particular, the subgroups can be further categorized: choices, which are attributable to individual preferences (1ab and 1ad) and those which are dependent on, hence can be altered by, the institutional set-up (1aa, 1ac, 1ae). Finally, we are not interested in the reasons for participation for our main focus is to single out the effects of the manifestations of power as impediments to participation. Still, it should be noted that one might participate for various reasons including the motive of sabotaging the mechanism.

The participatory mechanism tree (Figure 1) takes into account all three cases where mobilization of bias operates at different levels, and also the case where there is no mobilization of bias. In the case where stakeholders do not participate in the mechanism, this might be due to choice or constraint. Among the choices, box 1ae represents a case of mobilization of bias, in particular, rule of anticipated reaction. If nonparticipation is due to constraint, e.g. information, time, etc., this is a case of mobilization of bias as either grievances are prevented from being formulated or they are rendered invisible due to factors impeding participation. Examples of informational constraints include lack of information regarding the mechanism, own and others' rights and duties and stake. In the case where stakeholders participate in the mechanism, i.e. attend the meetings, they may either articulate their demands or stay silent due to rule of anticipated reaction. Even if they articulate their demands, they may not be taken into account due to negative decision-making.

We are interested in the question of how to move all stakeholders to box 5– where they articulate their demands and they are taken into account. To answer this question, positions of each stakeholder on the tree and possible factors that might lead to transformation to box 5 should be analyzed for the specific case at hand. We can, however, make two general observations: the factors which drive the move from box 4 to 3 are mainly local socio-economic factors, whereas the ones which drive the move from box 6 to 5 are mainly institutional.

Each respondent interviewed in the questionnaire is positioned to the relevant box in the tree. The respondents were asked whether they stated their opinions during the design and implementation processes of the management plan. As indicated by the numbers in the tree, 448 (73,8%) of the respondents have not heard of the management plan. From those who have information about the plan, only 4% stated that they participated. What is more striking is that, 19,1% of respondents who did not participate stated that they did not participate because their opinion was not asked. The management plan is said to be participatory, however, the data shows that this is not the case on the part of the local people whose views are supposed to be taken into consideration.

The respondents who mentioned that they participated in the discussion were aked whether they think their views are taken into account or not. 3% of the respondents (constituting 75% of the ones who participated) stated that their views were not taken into account. The majority of these respondents mentioned that their opinions were asked for show and those who developed the plan made their own decisions about what to do.

All in all, currently the share of the population who are at box 3 is around 4% (25% of 15%). This is a very low share considering the claim of the plan to implement a participatory mechanism.

At this point our second question pops up. How can we move people to box 3? What are the possible factors which might lead to such transformation? Figure 1 shows that 73,8% of the total population have not heard of about the plan

and 19,3 % was not asked to express their opinions (3 and 1ba). Therefore, the most important problem stands out to be the institutional one. The very design of the management plan and the corresponding institutional set-up is quite far from being participatory even in the narrowest sense of the term. The belief that their views would not be taken into account (box 1ac) constitute the main reason why the nonparticipants chose not to express their opinions. Since this is about perception of the individuals we included it among the choice factors, however, the effect of the institutional set-up on the formation of these perceptions should be taken into account. The institutional set-up in turn is determined by the state, which once again underlines the importance of the state as an actor in such processes. The role of the state in these cases can be described as providing the infrastructure. This infrastructure consists of the institutional set-up both for enabling participation and for implementing the decisions taken. Hence, the first step should be to arrange the institutional set-up so as to induce participation. For example, the meetings might be done more transparently and all related groups might be invited. Once participation is ensured, conflit resolution appears to be the second step. As mentioned before, various stakeholders have different, and often conflicting, interests in and relations to the Lake. In a participatory mechanism, conflict resolution might seem to be a difficult task since all stakeholders would want their interests to be respected. On the other hand, through discussions the parties would better understand each others' concerns, and most importantly, realize the nature of both the general problem and the specific problem facing each

group. This, at the end of the day, would facilitate finding a way to reconcile the interests of different parties. Still, it is important to consider the role of power plays between the actors and between the actors and the state.

The discussion so far has been based on an institutional analysis of participation. Not much has been said at the individual level. To this end, building on the empirical literature (see, for instance, Agrawal & Gupta, 2005; Lise, 2000), an econometric analysis of determinants of individual participation is conducted.[6] The results are shown in Table 13. The dependent variable is having communicated an opinion about the management plan to officials. Independent variables are age, gender, education, household size, household assets, source of livelihood (worker, fisherman, farmer—the last one taken as the reference group), environmental concern, environmental value, and anticipated success of the plan.[7] We observe that, when a set of values and socio-demographic parameters are controlled, being a worker emerges as decreasing the probability of attending a meeting.

[6]Since the sample is not random, i.e. the sample for which participation is relevant is comprised only of those who are informed of the management plan, sample selection becomes an issue. Specifically, if participation is systematically related to being informed of the management plan, then estimates from the participation model would be biased. In order to correct for sample selection bias, Heckmann's sample selection method (1976) is followed. Accordingly, first a probit model of being aware of the management plan is estimated as the selection model (independent variables: age gender education wealth and location dummies). Then the participation model is estimated by including the Inverse Mill's Ratio from the selection.

[7]The last THREE variables are indices formed using corresponding questions.

LR chi2(11) = 16.35
Prob > chi2 = 0.1287
Log likelihood = -59.131837 Pseudo R2 = 0.1215

PARTICIP	dF/dx	Std. Err.	z	P>|z|	x-bar	[95% C.I.]
AGE	.0085643	.0036051	1.72	0.086	105.215	.001499 .01563
GENDER	.2947358	.2268837	1.09	0.274	.044304	-.149948 .73942
EDUCATION	.1513932	.0681184	1.96	0.050	3.58228	.017884 .284903
HE SIZE	.0359546	.037161	0.94	0.348	4.24684	-.03688 .108789
WEALTH	.0963552	.0762311	1.27	0.205	-.041548	-.053055 .245765
WORKERS	-.3649254	.174566	-1.90	0.058	.21519	-.707068 -.022782
FISHERMEN	-.1412376	.1602983	-0.89	0.374	.392405	-.455417 .172941
EN.CONCERN	.0080272	.0577698	0.14	0.889	.161558	-.105199 .121254
EN VALUES	.0517811	.0563018	0.92	0.356	.034569	-.058568 .162131
AN SUCCESS	-.0744905	.0625667	-1.19	0.233	.879747	-.197119 .048138
IMR	-.6696926	.3619031	-1.91	0.057	1.15536	-1.37901 .039624
obs. P	.1518987					
pred. P	.5826008 (at x-bar)					

(*) dF/dx is for discrete change of dummy variable from 0 to 1
z and P>|z| correspond to the test of the underlying coefficient being 0

Table 13. Determinants of Participation, Probit Estimation

A final word needs to be said on the consequences of such failures apart from undemocratic and ineffective governance. From a purely economic point of view, these failures imply waste of resources since the objectives in question could not be achieved. More importantly, as stated before, one of the main reasons of failure is the fact that the mechanisms fall short of maintaining trust and cooperation, in general, ending up with an increased level of mistrust. Hence, compared to the point when the mechanisms were started to be implemented, the maintenance of

trust and cooperation becomes even a more challenging task. Therefore, in such cases, future policy implementations would depend crucially on past experiences. This further underlines the need for cautious operationalization of participatory mechanisms in local environmental governance.

The analysis so far indicated that the main players in the field are fishermen and the industry. Next Section concentrates on this relationship in a more detailed manner.

1.6. Power, Positions and Collective Action: Fishermen and the Industry

Apart from its role in agenda setting and policy choice, the case study also provides an example where power operates through the process where the positions, hence the incentives, of one group are changed by another. I herewith define power as the ability of one group to control/affect the distribution of rights and duties to positions and the distribution of positions to individuals. The relation between fishermen and the industry described above is a concrete example of the process described in this definion of power.[8]

The fact that the industry pollutes the Lake, which in turn reduces the income of fishermen, creates a conflict between the two groups. This conflict cannot be settled through bureaucratic means as the mechanism in place, supposedly implemented by the state officials, has not brought about any improvement in this

[8]This definition will be expanded in Chapter 4.

regard. The fact that the mechanism has not been successful in decreasing the pollution level by the industry can be an indication of the power of the industry in lobbying the state. However, what I want to focus on is the dynamics between fishermen and the industry. In terms of the conflict between the two groups, the industry has the aforementioned power of changing the incentives of fishermen by offering employment to them. Fishermen, on the otherhand, have the power to organize a social/political action (which would of course be costly to the participants), which may result in state's taking a more active role in monitoring the industry. And this is the very reason why the industry would want to employ fishermen in the first place: Once become workers, fishermen's relation to the Lake and, hence, their opposition to the industry will be reversed.

Departing from this observation, the fishermen interviewed in the questionnaire are asked questions regarding their position for or against the industry, whether they would accept employment in the industry and whether they would take part in a collective action organized to make the state take a more active role in monitoring the industry.

Let us start with the questions regarding joining in the action. Fishermen are asked whether they will join in an action organized by other fishermen. The data shows that, 91% of fishermen stated that they would take part in such an action (Table 14). Moreover, 85% of fishermen stated that out of 10 fishermen more than 5 fishermen would join this action (Table 15). This ratio rises up to 90 % if we consider those who mentioned that they would take part in action (Table 16).

Suppose that other fishermen decided to take some action in order to call attention to the pollution of the Lake and the resulting decrease in their income. If the action succeeds, the state plays a more active role so as to monitor the industry ensuring that they operate the waste treatment facilities. Would you take part in such an action?	
I would take part	**91%**
I would take part if the situation of the Lake gets worse	**2%**
I would not take part	**7%**

Table 14. Participation in action

How many out of 10 fishermen would take part in such an action?	
0 to 5	15%
6 to 10	85%

Table 15. How many out of 10 fishermen would take part in the action?

	I would take part	I would take part if the situation of the Lake gets worse	I would not take part
0 to 5 fishermen would take part in action	**10%**	**33%**	**73%**
6 to 10 fishermen would take part in action	**90%**	**67%**	**27%**
	100%	**100%**	**100%**

Table 16. Cross-tab: "Would you take part in action?" and "How many out of 10 fishermen would take part in the action?"

Then, one may ask, why don't we observe an action even though the majority of fishermen stated that they would participate? This is a very clear manifestation

of the collective action problem among fishermen where, given that an action is organized, 91% would join; however, due to a set of reasons to be discussed below, such an organization never took place. The respondents who stated that they would not take part in action are asked to mention two reasons. Table 17 below shows that the reason mostly stated is that the officers would not take the action seriously (43,8%). The second mostly stated reason is regarding the cost of action, that is, the perception that the cost would be too high. The third, and perhaps the most interesting, reason is the opposition to constrain the industry as it is seen as beneficial for the region as a whole. There is no one who mentioned that he/she does not trust other fishermen; therefore, there is no issue of trust among fishermen, which is indeed a sign indicating that the collective action problem arises only due to organizational incompetencies.

Reasons for not taking part in the action	
	"I would not take part"
I'm an industrial worker.	**6,3%**
Some members of my household are industrial workers. I wouldn't want them to be laid off.	**6,3%**
Industry is beneficial to our region, I wouldn't want to see it restricted.	**12,5%**
I plan on working in industry should it prove impossible to generate an income from fishing. I don't want industry to be restricted.	**0,0%**
I don't trust other fishermen.	**0,0%**
I don't believe the authorities would take the action seriously.	**43,8%**
I think an action like that would be extremely costly.	**18,8%**
Other	**12,5%**

Table 17. Reasons for not taking part in the action

As with every action, there is uncertainty involved in the sense that the action might succed in drawing attention of the state and as a result lead to a decrease in pollution level or the action might fail. Table 18 shows that the ones who think that the probability of success is high constitute 60% of fisherme. This ratio decreases dramatically to 8,3% if we consider the ones who asserted that they would not take part in the action (Table 19). This perception of a low probability of success on the part of the respondents who would not take part in action might be considered as one of the reasons of their statement as such.

Would such an action be successful? State a number between 0 and 10. 0: The probaility of success is very low; 10: The probaility of success is very high	
Between 0 and 5	**40%**
Between 6 and 10	**60%**

Table 18. Probability of success of the action

	I would take part	I would take part if the situation of the Lake gets worse	I would not take part
The probability of success would be between 0 and 5	**37%**	**33%**	**92%**
The probability of success would be between 6 and 10	**63%**	**67%**	**8%**
	100%	**100%**	**100%**

Table 19. Cross-tab: "Would you take part in action?" and the probability of success of the action.

Another important issue is the pollution level after a successful action. As the main aim of organizing an action is to make the industry decrease the pollution level, if fishermen believe that the state intervention after the action will not bring about much change incentives for taking part in action are reduced. As seen from Table 20, 80% of fishermen think that the state intervention would be effective and the pollution level would be low. The expected change after a successful action becomes more apparent if we compare this number with 3,3% in Table 4, which is the share of fishermen who state that the current level of pollution is between 0 and 5.

Suppose that the action succeeds and the state plays a more active role. What do you think the level of pollution would be in this case? State a number between 0 and 10. 0: The pollution level would be very low; 10: The pollution level would be very high	
Between 0 and 5	**80%**
Between 6 and 10	**20%**

Table 20. The level of pollution after a successful action

Table 21 shows that the expectations about the effectiveness of state intervention following a successful action are shared by fishermen who stated that they would take part in action and the ones who stated that they would not, but the ones who stated that they would take part if the situation gets worse were not as

optimist as these other groups. All in all, fishermen, by and large, think that the state will be able to decrease the pollution level.

	I would take part	I would take part if the situation of the Lake gets worse	I would not take part
The pollution level would be between 0 and 5	**80%**	**33%**	**82%**
The pollution level would be between 6 and 10	**20%**	**67%**	**18%**
	100%	**100%**	**100%**

Table 21. Cross-tab: "Would you take part in action?" and the level of pollution after a successful action

In order to capture the effect of having a member in the household who is employed in the industry or the expectation of being employed in the industry on the position about whether the industry should be monitored (constrained)—which is also related to the decision regarding participation in action—, fishermen are proposed two hypothetical scenarios and asked to choose one. In the first scenario, aiming at controlling for the expectation to be employed in the industry, the industry is not monitored but some of the fishermen, including the respondent, will be employed in the industry. In the second scenario, aiming at controlling for the case in which there is a member in the household of the respondent who is employed in the industry, the industry will be monitored but some of the workers will be fired.

Data shows that industrial waste is one of the major causes of pollution in the Lake and why the number and species of fish are decreasing. Now, please assume you are offered two options; which would you choose? **(i)** No restrictions will be placed on industry-based pollution, but a group of fishermen, you included, will be given jobs in industry. **(ii)** Industry will regulated more strictly and pollute the lake less, but in this case fishermen won't be hired as industry workers.	
(i)	**24%**
(ii)	**76%**

Table 22. Expectation of and attitudes towards being employed in the industry

Table 22 shows that scenario (i) is chosen by 24% of fishermen. If we consider the response to this question together with the fishermen's position regarding taking part in action, we see that the fishermen who mentioned that they would not take part in action is the group who have chosen scenario (i) more than the other two groups. In Table 17, "I plan on working in industry should it prove impossible to generate an income from fishing. I don't want industry to be restricted" is not mentioned as a reason for not taking part in the action; however, Table 23 shows that this might actually be a reason for 42% of these fishermen.

	I would take part	I would take part if the situation of the Lake gets worse	I would not take part
Scenario (i) is chosen	**22%**	**33%**	**42%**
Scenario (ii) is chosen	**78%**	**67%**	**58%**
	100%	**100%**	**100%**

Table 23. Cross-tab: "Would you take part in action?" and the expectation of and attitudes towards being employed in the industry

In order to control for this last question, fishermen are asked whether they will accept being employed in the industry if they are paid their average income from fishing. There is almost one to one correspondence between Tables 22 and 24, and 23 and 25.

Suppose that the industry offers you to to become a worker and pays the amount of income you earn from fishing. Would you accept such an offer?	
Yes	**27%**
No	**73%**

Table 24. Participation constraint (I)

	I would take part	I would take part if the situation of the Lake gets worse	I would not take part
The offer is accepted	**26%**	**33%**	**40%**
The offer is not accepted	**74%**	**67%**	**60%**
	100%	**100%**	**100%**

Table 25. Cross-tab: "Would you take part in action?" and the participation constraint

If the respondent stated that he would not accept to be employed in the industry if offered the average income from fishing, then he was asked how much more he had to be offered to accept the job.

How much more than your present earnings would you have to be offered to accept the job?	
I would accept it under no circumstances	**63%**
At least half as much more than my current earnings	**5%**
At least twice as much as my current earnings	**29,4%**
Other	**2,6%**

Table 26. Employment decision

As the discussion so far pointed out, fishermen are quite heterogenous in their attitudes both towards their valuation of being a fisherman and their stance against the industry.

Accordingly, I created some indices measuring how much each fisherman enjoys being a fisherman, whether he would prefer some other alternatives to being a fisherman, and whether he would accept employment in the industry (Questions 49-53). I also added information about fishermen's plans about migrating from the villages and how much he enjoys living in his village (Questions 5 and 37). Identity index 1 below is composed of questions 5, 37, 49-53; and, Identity Index 2 is composed of questions 49-53 only. Furthermore, I wanted to check whether there is a significant relation between these indices and the decision of fishermen regarding participation in the political action; in other words, whether there is

any statistically-significant difference between the index means of the group who answered "yes" (coded as 1) to question 40 (to participate into the action) and who gave a different answer (including "no" and "I would not as things stand, but if the situation of the Lake worsens then I would"—coded as 2). Both indices are non-normal (Kolmogorov-Smirnov test statistic is non-significant for both indices). So the differences in the means have to be tested by a non-parametric test. The Mann-Whitney test for two independent samples results are provided in the following tables.

Ranks

	Action decision	N	Mean Rank	Sum of Ranks
Identity index 1	1,00	141	79,24	11173,00
	2,00	12	50,67	608,00
	Total	153		
Identity index 2	1,00	141	79,29	11179,50
	2,00	12	50,13	601,50
	Total	153		

Table 27. Mann-Whitney Test, Ranks

Mann-Whitney test relies on score being ranked from lowest to highest: therefore the group with the lowest mean rank is the group with the greatest number of lowest scores in it. Table 27 tells us that the mean of group 2 is lower. (However, due to the small number of observations in the second group, this conclusion is not very accurate.)

Test Statistics		
	Identity Index 1	Identity Index 2
Mann-Whitney U	530,000	523,500
Wilcoxon W	608,000	601,500
Z	-2,170	-2,238
Asymp. Sig. (2-tailed)	,030	,025
Exact Sig. (2-tailed)	,029	,024
Exact Sig. (1-tailed)	,015	,013
Point Probability	,000	,000

a. Grouping Variable: Action decision

Table 28. Mann-Whitney Test, Test statistics

Table 28 provides the significance value of the test. We use the exact significance due to the small sample size of the second group rather than the asymptotic significance, which is accurate for large samples. The exact significance values indicate that Mann-Whitney test is significant for both one-tailed and two-tailed tests. Hence, the means of the two groups, 1 and 2, are significantly different for the two identity indices. This finding is in line with our hypothesis that there is a significant relation between the identity value index of a fisherman and his decision regarding participating in action: If one's fisherman identity is higher, he is likely to participate into the political action.

1.7. Evaluation

The field-work at Uluabat Basin enabled us to decipher the political economy of the ongoing degradation. Given that the Turkish state is not willing to implement the environmental regulations, the fate of the Basin seems to be left to the interplay of different stakeholders in the area. The policy prescriptions in this case include: increasing the incentives of local stakeholders to conserve the Lake, e.g. by establishing eco-tourism practice and thereby creating a new source of income for local people which is naturally contingent on the lake being conserved; correcting the institutional inefficiencies which prevent the operationalisation of the participatory mechanism, e.g. defining the authorities and responsibilities of the concerned state and public organs clearly, designing a mechanism where the decisions taken at the local level need not pass through all stages of cumbersome bureaucratic process; incorporating local people to the decision-making process and sustain participation. The final point is, indeed, what a participatory mechanism is all about, alas, as discussed throughout the chapter, the "participatory" aspect of the mechanism implemented in the Uluabat case is only on paper.

Our analysis made it clear that the two major players in the area are fihermen, who are dependent on the water quality of the Lake and therefore have a clear state to prevent the pollution, and the industry, that has a clear incentive not to operate their abatement systems and freely discharge their untreated waste into the Lake. This standard example of externalities manifests itself at the area with

an added feature: Fishermen have the option to come together and organise a series of political action, as a result of which the state will have to step in and force the industry to cleap up their discharges; the industry, on the other hand, can offer employment to fishermen, as a result of which it will reduce the number of fishermen that may come together for the action. I come to the conclusion that to better understand this strategic interplay I need to device a game theoretic model, which is the subject matter of the next Chapter.

CHAPTER 2

The Contested Commons Problem at Uluabat Lake, Turkey

2.1. Introduction

The previous chapter presented a case of environmental degradation which had been attempted to be remedied by a participatory decision-making mechanism. The result of this 5-year programme was seen as a failure in terms of both decreasing the pollution level and sustaining participation. The causes and consequences of degradation and the positions of the stakeholders were discussed at length. The analysis showed that all groups, apart from the industry, are bearing the costs of the degradation. Not bearing any costs, though being the main source of pollution, the industry reaps benefits in terms of savings from pollution abatement costs. Regarding the implementation of the mechanism and reducing the pollution level, in addition to all the problems resulting from the inefficiencies at the institutional level, there is also the problem that the industry, being the most powerful group, is not abiding by the existing regulations. The state, due to its modernist position, prioritises economic growth over environmental concerns as a result of which the environmental regulations are not effectively implemented. Hence, the case provides an affirmative example of the argument that '[d]isparities of power and

wealth influence not only how nature's pie is sliced, but also its overall magnitude' (Boyce, 2002, p. 5). Then, once the winner and loser groups are identified, the question becomes why the winners are able to impose costs on the losers. Besides the possibilities that the losers may lack information about the costs imposed on them or the case that the losers do not exist yet, that is the costs to be borne by future generations, another possible explanation is that the losers lack enough power to prevent winners from imposing costs on them.

Following the discussion in the previous chapter, I focus on two groups: fishermen and the industry. Clearly, the industry is the winner in this case and fishermen are the losers. Fishermen are well aware of the costs brought about by the pollution and they are also aware that the main source of pollution is the industry, though they are not able to make the industry reduce the pollution level. However, the survey results revealed that 90% of fishermen stated that they would take part in an action against the industry so as to make the state play a more active role in terms of monitoring and make the industry reduce the pollution level. The problem then turns out to be a collective action problem in organising such an action as being part of such an activity will come with a cost while the benefits, in case it succeeds, are nonexcludable. Accordingly, overcoming the free-rider dilemma, the problem of not being able to make a big enough difference in the outcome to compensate for the costs one bears, becomes essential.

In this chapter, a game theoretical model is formulated based on the observed relation between the industry and fishermen, whereby the industry imposes costs

on fishermen and keeps their opposition in control by offering employment to them in the industry. The set-up is formulated as a contested commons problem where the main focus is on the collective action of fishermen in resisting the pressure of the industry and the role of power in this process; and, it is formalised as an infinitely repeated game which is analysed for the cases of identical and heterogeneous fishermen. Abatement is costly and the state is unwilling to implement the anti-pollution regulations; therefore, the industry pollutes the lake used by fishermen. Pollution reduces the number of fishes, hence, the income of fishermen. As fishing becomes less profitable, fishermen face three options: they can seek employment in the industry or they can remain as fishermen in which case they can either organize a political action and put pressure on the state to implement environmental regulations or they do not take any action and carry on fishing given the pollution level chosen by the industry. Political action refers to some action calling for attention of the state and/or general public such as blocking the highway nearby the lake or initiating a media campaign against the industry so as to make the state play a more active role in monitoring the industry or to change the incentives of the industry through creating a bad public image so that it pollutes less for a better public image. Political action is costly and it is assumed that both the total cost, C, and the per-capita cost is decreasing in the number of fishermen participating in the action. Political action will be successful with some probability, which is increasing in the number of fishermen taking action. After a successful political action, it is assumed that the state—acting as a social planner—sets a pollution

level which maximizes the planner's social welfare function, p^s, and this level acts as an upper-bound for the pollution level chosen by the industry. After each successful action the state sets a lower level of p^s; therefore, a successful action incurs costs on the industry. Hence, offering jobs to fishermen may also be best response for the industry so as to weaken the opposition and, thereby, prevent or at least weaken political action by fishermen.

For the benchmark case where fishermen are identical, if there is any action in equilibrium all fishermen participate, otherwise no fisherman takes action. The action decision of an individual fisherman depends on his belief rearding the number of others participating. The equality of payoffs from action and nonaction, yields two critical values of belief such that if the actual level of belief is in the range defined by these critical levels, all fishermen take action. Accordingly, there are three possible paths regarding action. Depending on the present values of the expected unconstrained profit (the profit level such that the industry does not set the levels of pollution and employment so as to prevent action by fishermen) and of the constrained profit (the industry prevents action), the industry decides whether or not to prevent action in the first period. Accordingly, the first possible path is that action is prevented in all periods and fishermen never take action. The second path is the one in which action is not prevented in the first period, fishermen take action but the action fails and fishermen never take action in the subsequent periods. Alternatively, the action of fishermen in the first period can succeed and the state is called to act. This is repeated until p^s is decreased to a level which

makes it optimal for the industry to prevent action. From this point onwards the first path comes into play. Depending on the parameter values, the game follows one of these paths. The results show that there is a positive relation between the pollution level and the number of fishermen employed in the industry—in order to pollute more the industry needs to employ more fishermen.

In the heterogeneous fishermen case; on the other hand, each fisherman is assigned a type (denoting the subjective valuation of being a fisherman and his position regarding the industry), which is a private information. The value of each fisherman's type enters in his utility function as a multiplier. The main difference between heterogenous and identical fishermen cases is that in the heterogenous case some fishermen may decide to take action while others do not participate, due to the difference in subjective valuations of payoffs. Unlike the identical fishermen and complete information case, under asymmetric information, the industry cannot calculate the payoffs of fishermen from action and nonaction. Individual action decision still depends on the number of others expected to participate in action. As a remedy for asymmetric information, slef-consistent beliefs are considered.

The inspiration for the model was taken from the model by Acemoglu and Robinson (2006) where they analyse a social conflict between different groups–elites and the citizens–over policy choices under democracy and nondemocracy in a game-theoretic framework. Asking why the elites do not always use their power under authoritarianism to repress democracy, they conclude that it is sometimes more costly to repress pressure for democratisation relative to the cost of making

concessions. This is the source of the citizens' power to place constraints on the elites, namely the "revolution constraint ", even though they have no power at the institutional level. Their model and the model presented here resemble in terms of the general underlying idea of having two groups with different kinds of power: one with the power to determine the parameters of the game and the other with the power to impose some constraints on the decision maker's choices. However, the model presented here departs from that of Acemoglu and Robinson, by merging the democracy and nondemocracy in the sense that if the action by fishermen succeeds, the state will then decide the level of pollution; hence, as in the democracy case considered by Acemoglu and Robinson, there is a social planner deciding on the basis of maximising a weighted sum of the payoffs to each group. These weights are considered in their framework as the 'political power' of each group and this is perfectly compatible with the model in this chapter. Another point of departure is with regard to the assumptions made about the groups. Both the elites and citizens are assumed to be identical and also assumed to have solved their collective-action problems and, therefore, each group is taken as a single entity. Here, as mentioned above, I assume that the industry is a single entity but, for fishermen, although initially I assume them identical (considered with their collective-action problem nevertheless), I later regard them as heterogeneous.

2.2. The Model

2.2.1. Structure of the Model and Definitions

There are two groups: fishermen and the industry. There are a finite number of fishermen. Total number of fishermen is denoted by N. I begin with the assumption of identical fishermen and common knowledge, and then consider the model with heterogenous fishermen and informational asymmetries. The industry is assumed to be a single entity since they do not have conflict of interest within themselves with respect to variables under consideration. Both prices, the price of the industrial output and the price of fish, are normalized to 1.

Pollution abatement is costly and as a result of the unwillingness of the state to implement the anti-pollution regulations the industry pollutes the lake used by fishermen. Pollution reduces the number of fish, hence, the income of fishermen. As fishing becomes less rewarding, fishermen face three options: they can seek employment in the industry or they can remain as fishermen in which case they can either organize a political action and put pressure on the state to implement environmental regulations or they do not take any action and carry on fishing given the pollution level chosen by the industry. Political action refers to some action calling for attention of the state and/or general public such as blocking the highway nearby the lake or initiating a media campaign against the industry so as to make the state play a more active role in monitoring the industry or to change the incentives of the industry through creating a bad public image so

that it pollutes less for a better public image. Political action is costly and I assume that both the total cost and the per-capita cost are decreasing in the number of fishermen participating in action. Political action will succeed with some probability which is increasing in the number of fishermen taking action. Those who have given up fishing to work in industry do not participate in the political action. After a successful political action, it is assumed that the state—acting as a social planner—sets a pollution level which maximizes the planner's social welfare function and acts as an upper-bound for the pollution level chosen by the industry. In the repeated setting to be described below, it is assumed that after each successful action the state sets a lower level of pollution, therefore, a successful action incurs costs on the industry. Thus the industry has an incentive to hire fishermen additional to their marginal revenue product so as to prevent or at least weaken political action by fishermen, and thereby reduce the likelihood of more coslty environmental regulations. Accordingly, the industry has two options: either it sets the employment and pollution levels such that fishermen do not take action or it deviates and does not prevent action but reduces the likelihood of success of action by employing fishermen.

The most important aspect of the model is the constraint placed on the industry by fishermen through the threat of political action. However, fishermen have to overcome the collective-action problem that arises since there is a cost associated with action and no one can be excluded from the benefits once action becomes

successful. This implies, in turn, that whatever the outcome is–success or failure– if the individual believes that his participation does not have any significant effect on the success probability of action, payoff from not taking part in action is always greater than payoff from taking part. However, since fishermen are a small group, it is unlikely that the marginal effect of an individual fisherman's participation on the success probability of action will be insignificant. In particular, in the framework considered here, individual decision on participation depends on the belief of the individual on the number of other fishermen who will participate. The individual fisherman does not participate unless he believes that the marginal effect of his participation on the probability of success is sufficient to make the payoff from participating in action greater than the payoff from non participation.

There is an infinitely repeated set-up. The structure of a single period is represented by the following game tree:

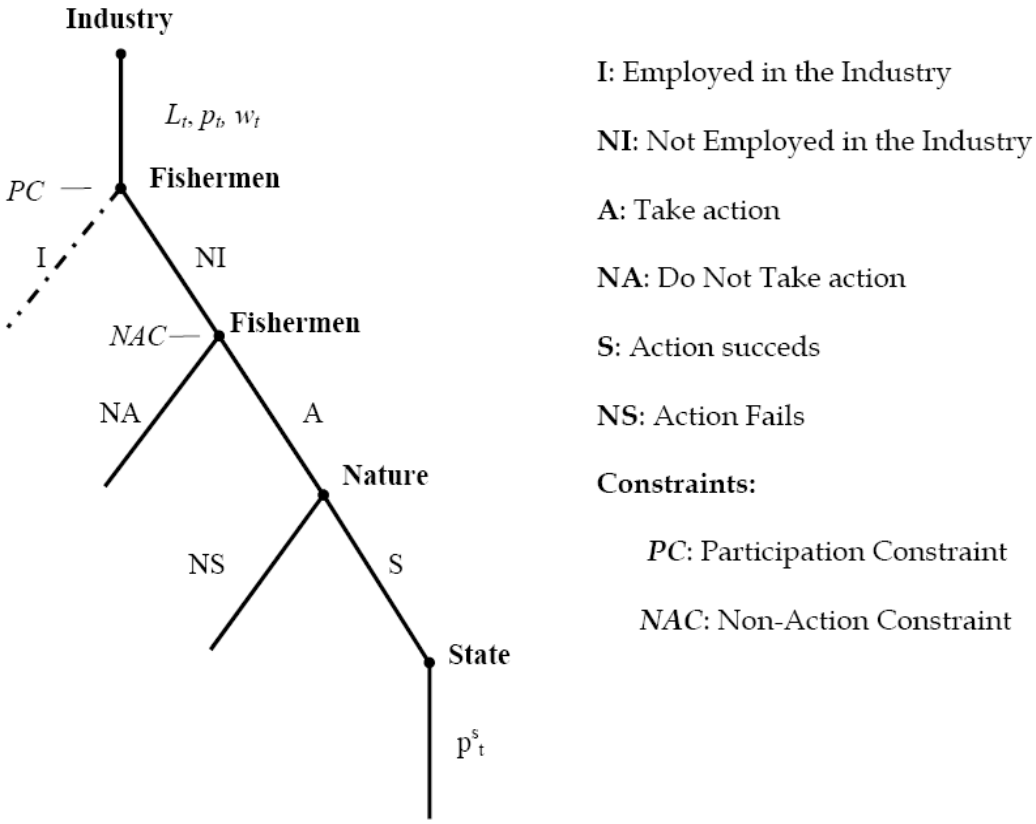


Figure 1. The game tree

In period t, there is a given level of p^s_{t-1}, set in period $t-1$ following a successful action. The industry moves first by announcing the levels of L_t, p_t and w_t such that $p_t \leq p^s_{t-1}$. If the participation constraint (PC), that is the wage paid by the industry should be greater than or equal to the fallback position of fishermen, is satisfied, then L_t fishermen accept employment in the industry, otherwise, they remain as fishermen. Fishermen (a total of N in case the PC is not satisfied and

$n_t = N - L_t$ in case the PC is satisfied) decide whether to take action against the industry or not. If the non-action constraint (NAC), that is the payoff from not taking action should be greater than or equal to the expected payoff from taking action (as described below), is satisfied, fishermen do not take action, otherwise, they take action. If action is taken, nature determines if it is successful, and if so, the state moves and sets the optimal level of pollution (maximising the planner's social welfare function), p_t^s with $p_t^s < p_{t-1}^s$, i.e. it is assumed that the weight of the industry profit at the planner's social welfare function decreases after each successful action.[1] p_t^s acts as an upper-bound for the pollution level in period $t+1$, hence the payoffs of period t are determined by L_t and p_t. On the other hand, if action is taken but it fails, p_{t-1}^s proceeds to period $t+1$. Moreover, it is assumed that following a failed action fishermen are discouraged and their belief regarding the number of fishermen who will participate in action is decreased such that fishermen do not take action in the following periods. However, if the action succeds, then all the following attempts will also be successful. These assumptions imply that a failed action can be observed only in the first period. Now, bearing in mind these assumptions, I will define the possible paths the game can follow starting from the first period.

Consider the first period. The game starts with a given level of p_0^s. Then, there are three possibilities depending on the choices of the industry: i) fishermen do

[1]Decreasing levels of p_s can also be interpreted as increasing levels of monitoring which is not taken as a parameter in the model.

not take action; ii) fishermen take action but the action fails; iii) fishermen take action and the action succeds. Note that, if the first one is the case, the initial optimization problem of the industry will not be changed in the second period and the corresponding choices of the industry will still satisfy the *NAC*. The same argument holds for all the subsequent periods and, therefore, the first period will be repeated forever. In the second case, fishermen will not take action in any of the subsequent periods. Hence, the second period will be repeated forever. In the third case, there will be action in subsequent periods, and the state will set a lower level level of p^s after each successful action, until the level of p^s is decreased to a level, p^{s^*}, such that it becomes optimal for the industry to prevent action. After this period, there is no action and so the period is repeated forever. Given this general structure, it is assumed that if there is a successful action in the first period, the level of p^s jumps to p^{s^*}. Accordingly, the game can be analysed as a two period game, where the second period lasts forever.

The following three cases (as formalised below) summarise the arguments made so far:

Case 1. *NO ACTION (NA): The industry sets the first period levels of L and p such that the NAC is satisfied and fishermen do not take action. This will be the case only if the profit level such that the NAC is satisfied is greater than the expected profit the industry would get otherwise. If it is true for the first period, it will be true for the next period as well since p^s is not changed, and the industry will*

set the same levels of L and p. This is true for all the subsequent periods. Hence, the industry and fishermen receive an infinite stream of their first period payoffs and fishermen never take action.

Case 2. *FAILED ACTION (FA): The levels of L and p set in the first period do not satisfy the NAC and fishermen take action but the action fails. This is the case if the profit level such that the NAC is satisfied is less than the expected profit the industry would get otherwise. It is assumed that once an action fails, fishermen's belief regarding the number of other fishermen who would take part in action decreases such that, in the following periods, fishermen do not take action. In the second period, the optimal levels of L and p are determined by simple profit maximisation rather than the expected profit maximisation of the first period. These levels last forever.*

Case 3. *SUCCESSFUL ACTION (SA): The levels of L and p set in the first period do not satisfy the NAC, fishermen take action and the action succeeds. The state moves in and sets the level of* p^{s^*} *which will be affective in the second period and will ensures that the industry satisfies the NAC. Accordingly, fishermen do not take action in the subsequent periods and the second period is repeated forever. The industry receives the shirking profit in the first period by not satisfying the NAC while from the second period onwards it receives a lower level of profit respecting the two constraints: the NAC and* $p \leq p^{s^*}$*. Fishermen, on the other hand, receive*

a low level of payoff in the first period but an infinite stream of high payoff from second period onwards.

2.2.1.1. Relevant Funtions. The industry production function is denoted by $f(L)$ with $f_L > 0$ and $f_{LL} < 0$.[2] It is assumed that f has continuous derivatives and higher order derivatives are equal to zero. As mentioned above, the source of conflict is the pollution disposed to the lake by the industry. Pollution is formulated as a by-product. More specifically, unabated level of pollution is given by $P = ef(L)$ where $e \geq 0$ is the constant emmission-output ratio.[3] The actual level of pollution, p, might be less than or equal to this total level depending on the abatement decision of the industry. The cost of abatement is a convex function denoted by $h(ef(L)-p)$, where $ef(L)-p$ is the level of abatement, with $h'(0) = 0$. Therefore, the industry has two choice variables: the level of employment, $L \in [0, N]$, and the pollution level, $p \in (0, ef(L)]$.[4] The industry profit function for period t is:

[2]The industry is assumed to have a fixed level of capital therefore it is not considered in the analysis. However, this simplifying assumption does not have any implication for the results. It just enables to focus on the relation between the employment and pollution levels which, as it will be made clear, forms the basic tenet of the model.

[3]In a dynamic setting it would be more plausible to allow for a variable emmission-output ratio since the ratio can be decreased by technological investment. For example, in the *SA* and *NA* cases, as defined above, it might be optimal for the industry to make such an investment. However, the main focus of the model is on the effect of the threat of action, rather than that of the emission-output ratio, on industry's choice of pollution level. Therefore, e is assumed to be constant.

[4]$L = 0$ only in the degenrate case where p_0^s is so low that NAC is satisfied even if the industry does not employ fishermen and, therefore, the industry is not concerned with PC as well and it employs workers from the marginal revenue product wage.

$$\pi_t = f(L_t) - w_t L_t - h(ef(L_t) - p_t) \quad for\ \forall t \tag{2.1}$$

The choices made by the industry determine fishermen's income as well. More specifically, fishermen's production function for period t is denoted by $F(n_t, p_t)$ where $n_t = N - L_t$ is the number of remaining fishermen, i.e. those who are not employed in the industry, and p_t is the level of pollution. F has the following properties:

$$F_n > 0, F_p < 0, \frac{\partial^2 F}{\partial n^2} < 0, \frac{\partial^2 F}{\partial p^2} < 0$$

F is also assumed to have continuous derivatives and higher order derivatives are assumed to be 0. We further assume that the marginal product of a fisherman is less than the average product he receives which implies that the average product from fishing is increasing in L, that is, $\frac{\partial}{\partial L}\left(\frac{F(n,p)}{n}\right) > 0$. Therefore, as the number of fishermen decreases, remaining fishermen will have a smaller total catch but the average product will increase. This is why, given p, the industry has to offer a higher wage to employ more fishermen.

Following Boyd et al. (2010), the per-capita cost of action is defined as:

$$c_i = \frac{C}{(n^A)^\gamma} \tag{2.2}$$

where n^A is the number of fishermen who participates in action with $n^A \in [0, n]$ and $n = N - L$, and C is a constant. The total cost is then defined as $C^T = n^A c_i$. I assume $\gamma > 1$, therefore, both the total cost and the per-capita cost are decreasing in the number of fishermen participating. Note that, while comparing the payoffs from participating and not participating in action, fishermen consider their beliefs regarding the number of others participating. Therefore, in terms of individual participation decision, n^A represents the expected number of participants rather than the final level which is observed only when the action is actually taken.

As mentioned above, after a successful action, the state will move in and set the level of pollution, p^s, by maximising the planner's social welfare function. The planner's social welfare function (SWF) is defined as a weighted sum of the industry profit and the total payoff of the fishermen. Hence, the level of p_t^s, is given by the solution to:

$$(2.3)\quad \max_{p_t} SWF_t = q_t(f(\widehat{L}_t) - \widehat{w}_t\widehat{L}_t - h(ef(\widehat{L}_t) - p_t)) + (1 - q_t)\left[F(\widehat{n}_t, p_t)\right] \quad for\ \forall t$$

where $\widehat{L}_t$ is the industry's best response function for given level of p^s. In the case of a successful action, the level of p_t^s will be lower than p_{t-1}^s since it is assumed that after each successful action q is decreasing by a given amount and that $\frac{d\pi}{dp} > 0$ while $\frac{dF}{dp} < 0$. In particular:

$$q_{t+1} = q_t - d_t\xi \tag{2.4}$$

where $\xi > 0$ and d is a dummy variable with $d_t = 1$ if there has been a successful action in period t and $d_t = 0$ otherwise. If a successful action happens, p^s will continue to decrease until p^{s^*} is reached but I do not model this process explicitly and assume that after the first successful action p^s jumps to the level of p^{s^*} which ensures that the industry satisfies the NAC. Hence, the state solves the planner's social welfare maxmisation only once, in the first period, and only in case of a successful action. Therefore, the only level of q that is to be considered is the level which yields p^{s^*} as the solution the social welfare maximisation.

The probability of success of action depends on the number of participants and the strength of opposition that fishermen will face. As mentioned above, individual participation decision depends on the marginal affect of his participation on success probability given his belief about the number of others participating. Intuitively, the shape of the success probability function should be such that the marginal effect of individual participation on success probability should be very low for both low and high levels of belief regarding the number of others participating, while, for intermediate levels of belief the marginal effect should be high.[5] In other words, the slope of the success probability function should be low for low and high

[5]Individual fisherman will not participate if he believes that very few of others will participate. Similarly, if he believes that most of the others will participate, he will think that his participation will not have any significant effect on the result.

levels of belief and the slope in between should be high. The implied S-shaped function is provided by the class of functions named as contest success functions, which shows how the probability of winning in a conflict depends on the resources invested by the parties involved (Hirschleifer, 1989; Tullock, 1967). The specific functional form used here is denoted by $r(n^A)$ and defined as follows:

$$r(n^A) = \frac{(n^A)^\nu}{(n^A)^\nu + (\varphi)^\nu} \tag{2.5}$$

where φ is a proxy measuring the strength of the opposition that fishermen face, e.g. the number of police forces and whether they are armed or not, ν is a parameter measuring the curvature of $r(n^A)$ with $\nu > 0$. In general, φ can be thought of as a proxy for the state's position regarding the conflict in question. For example, if the state is more concerned with growth and, hence, with the interests of the industry, φ will be high and, as a result, the probability of success will be low. Similarly, the state might choose to ignore the action and, moreover, to suppress the media so that the action is not heard off to the general public. As in the cost function, n^A represent the expected number of participants in the context of individual participation decision whereas it represents the actual number of participants in the context of industry's expected profit maximisation problem.[6] It is important

[6]Note that, expected profit maximisation will be relevant only in case the NAC is not satisfied. The industry knows that, due to the identical fishermen assumption, all fishermen will participate in action. Hence, the relevant argument of success probability function for the industry expected profit maximisation is $N - L$.

to note that, the probability of success of action decreases if more fishermen are employed in the industry, i.e. $\frac{\partial r}{\partial L} < 0$. This is why employing fishermen is in the interest of the industry.

Figure 2 shows the $r(n^A)$ function for $\nu = 5$ and $\varphi = 75$.

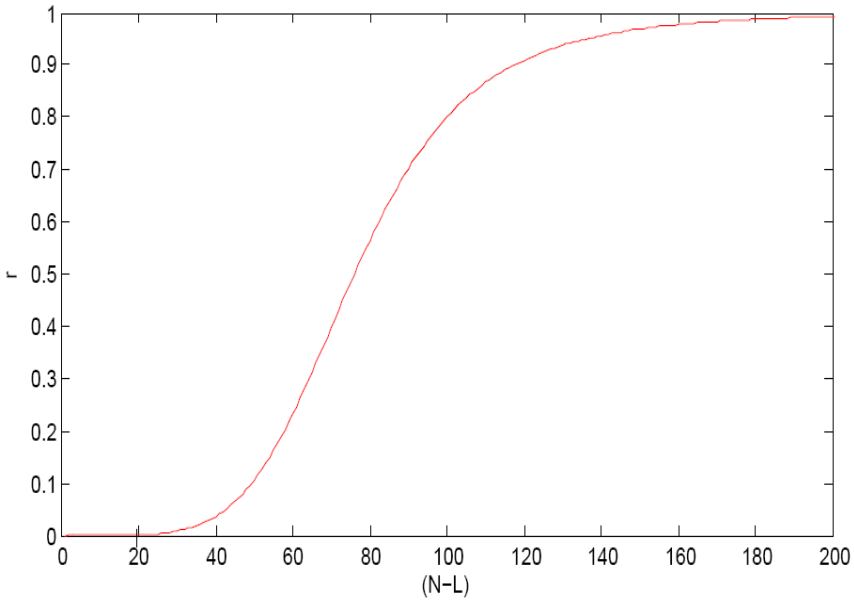


Figure 2. The success probability function for $\nu = 5$ and $x\varphi = 75$.

As suggested by the shape of the $r(n^A)$ function, $\frac{\partial r}{\partial n^A} = 0$ in the lower and upper flat regions implying that the marginal increase in r brought about by a unit increase in the number of participants is close to zero in these regions.

Given this set-up, the analysis of the game will be conducted considering only two periods. The analysis depends on the assumption of fishermen being identical or heterogeneous. The case of identical fishermen will be discussed first. Then I will move on to the discussion of heterogeneous fishermen.

2.2.2. Identical Fishermen

The assumption of identical fishermen has two major implications for the model. First, if fishermen are identical, then the ones who will be employed in the industry, as long as the PC is satisfied, are selected randomly. Second, with respect to the decision regarding whether to take action or not, since fishermen all have the same payoff functions and beliefs, and choose to act or not simultaneously, they will either all take action, as long as the NAC is satisfied, or no action will be taken.

With the relevant functions defined as above, we can now write the two constraints, the PC and the NAC, for the case of identical fishermen.

2.2.2.1. The Non-action Constraint (NAC). The NAC tells that, for an individual fisherman, payoff from non-action should be greater than or equal to the expected payoff from action. What determines the decision of an individual fisherman is the marginal impact of his participation on the success probability of action, given his belief about the number of other fishermen participating. If the marginal effect of an individual fisherman's participation on the success probability of action is sufficient to make action his optimal strategy, he will not prefer to free ride.

The marginal effect of an individual fisherman's participation depends on his belief about how many other fishermen, i.e. what portion of those who remained as fishermen, will take action. Denote the belief of a fisherman about the portion of other fishermen participating as a, hence the belief about the number of other

fishermen who will take action is given by $a(N-L)$. Since fishermen are identical, a is a common prior. It is also assumed that a is common knowledge (hence, also known to the industry) and that it is endogenous. More specifically, following a failed action, a is assumed to decrease to 0 as fishermen are discouraged. It is also assumed that $r'(1) = 0$. These assumptions imply that no fisherman will take action once an attempt has failed. On the other hand, after each successful action, a is assumed to increase by a given amount defined by:

$$a_{t+1} = a_t + \varrho s_t \tag{2.6}$$

where $\varrho > 0$ and s is a dummy variable with $s_t = 1$ if there has been a successful action in period t and and $s_t = 0$ otherwise. Note that, as mentioned above, rather than a series of successful action, the analysis here considers only one such action after which the level of p^s jumps to p^{s^*} which ensures the the industry satisfies the NAC in the subsequent periods. Therefore, as for the formal analysis, only the first period level of a will be relevant. However, the endogeneity of a is still an important aspect of the process which is to be explained below in more detail.

The payoffs from participating in action, $EU(A)$, and free-riding on other fishermen, $EU(NA)$, are given by:

$$(2.7)\quad EU(A) = r(a(N-L)+1)\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}} + (1-r(a(N-L)+1))\frac{F(N-L,p)}{N-L} - \frac{C}{[a(N-L)+1]^{\gamma}}$$

$$(2.8)\quad EU(NA) = r(a(N-L))\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}} + (1-r(a(N-L)))\frac{F(N-L,p)}{N-L}$$

It is assumed that individual fisherman will choose not to take action if he is indifferent. Then, the levels of a which satisfy $EU(A) = EU(NA)$ are the critical levels of belief. Note that, since $\frac{d^2r}{da^2}$ changes sign only once, there are two critical levels due to the assumed shape of the success probability function.[7] These levels, denoted by $\underline{a}$ and $\overline{a}$, define the lower and upper bounds of the range of beliefs for which $EU(A) > EU(NA)$. In other words, if $\underline{a} < a < \overline{a}$ fishermen will take action, otherwise there will be no action.[8] These cutoff levels are given by the solutions to $EU(A) = EU(NA)$:

[7]The S-shaped $r(n^A)$ function implies that fishermen will not take action for both low and high levels of belief (in the lower and upper flat parts of the graph where $r'(n^A)$ is close to zero) while taking action will be optimal for intermediate levels of belief.

[8]It is important to note that, because either all fishermen will take action or there will be no action, the relevant argument of $r(n^A)$ which the industry uses for expected profit calculation is $n^A = n = N - L$.

(2.9)

$$[r(a(N-L)+1)-r(a(N-L))]\left[\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}}-\frac{F(N-L,p)}{N-L}\right]=\frac{C}{[a(N-L)+1]^{\gamma}}$$

NAC requires $EU(NA) \geq EU(A)$:

(NAC)

$$[r(a(N-L)+1)-r(a(N-L))]\left[\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}}-\frac{F(N-L,p)}{N-L}\right]\leq\frac{C}{[a(N-L)+1]^{\gamma}}$$

An individual fisherman does not take action as long as the cost of action is greater than or equal to the marginal increase in the success probability times the differential payoff to be received if action is successful.

Proposition 4. *If there exists a level of n^A such that the NAC is not satisfied, then there exist two levels n_L^A & n_H^A , with $n_L^A < n_H^A$, such that the NAC is satisfied for n^A if $n_L^A > n^A$ and $n_H^A < n^A$.*

Proof. For the values of n^A in the lower and upper flat parts of the $r(n^A)$ function, $\frac{dr(n^A)}{dn^a} = 0$ and, therefore, the NAC is satisfied. Take a level of $n^A \in (0, N-L)$ such that NAC is not satisfied. Then there exists a level, n_L^A, such that for the levels of n^A below n_L^A the NAC is satisfied. Similarly, there exists a level n_H^A such that for levels of n^A above n_H^A, the NAC is satisfied. □

Since, it is coslty to satisfy the NAC for the industry–it requires lower p and higher L compared to the case in which the industry is unconstrained–the NAC will

be satisfied as an equality if it is ever satisfied. Considering the NAC as an equality and totally differentiating, we obtain that $\frac{dL}{dp} > 0$; higher levels of p imply higher levels of L. The industry can increase the level of pollution and still ensure that the NAC is satisfied as long as it increases the level of employment as well. Moreover, since $\frac{\partial^2 NAC}{\partial L \partial p} < 0$ for all levels of L and p, L and p are strategic substitutes. Hence, increasing the level of employment decreases the effect of decreasing the level of pollution on satisfying the NAC.

I now examine how the level of a affect the level of average product that the industry must ensure, due to the choices of L and p, in order to satisfy the NAC. In figure 2 (above), the x-axis can be interpreted, for current purposes, as $a(N - L)$, that is, the expected, rather than the actual, number of participants. For a given level of $(N - L)$, starting from a low level of belief, the level of average product from fishing needed to satisfy the NAC is increasing as the level of belief increases and moves to the steep region of $r(n^A)$, since the RHS of the NAC is decreasing and $r'(n^A)$ is increasing. As it reaches the point on the steep region where $r'(n^A)$ starts to decrease, the LHS of the NAC starts to decrease as a increases. For the whole range of beliefs, the relation between the level of $\frac{F(N-L,p)}{N-L}$ which satisfies the NAC and the level of beliefs is given by $\frac{d\left(\frac{F(N-L,p)}{N-L}\right)}{da}$ and is obtained by totally differentiating (9). Denoting $\frac{F(N-L,p)}{N-L}$ as y^F, $\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}}$ as y^S and using $[r(a(N-L)+1) - r(a(N-L))]$ as an approximation for $r'(n^A)$, the total differentiation yields:

$$\frac{dy^F}{da} = \frac{(y^S - y^F)\frac{d^2r(n^A)}{da^2} + \frac{\gamma(N-L)C}{(a(N-L))^{\gamma-1}}}{\frac{dr(n^A)}{da}} \tag{2.10}$$

The denominator in (10) is always positive, and so are $(y^S - y^F)$ and $\frac{\gamma(N-L)C}{(a(N-L))^{\gamma-1}}$. Then, (10) shows that, as stated above, $\frac{dy^F}{da} > 0$ for $\frac{d^2r(n^A)}{da^2} > 0$. After the point where $r'(n^A)$ starts to decrease, hence, $\frac{d^2r(n^A)}{da^2}$ becomes negative, the sign of $\frac{dy^F}{da}$ depends on whether $(y^S - y^F)\left|\frac{d^2r(n^A)}{da^2}\right|$ is greater or less than $\frac{\gamma(N-L)C}{(a(N-L))^{\gamma-1}}$. Thus, the level of a which makes the numerator zero, a^*, is the level of beliefs for which the level of y^F needed to satisfy the NAC is at its maximum level. For $a > a^*$, $\frac{dy^F}{da}$ becomes negative. a^* is given by:

$$a^* = (N-L)^{\frac{2-\gamma}{\gamma-1}} \left[\frac{\gamma C}{(y^S - y^F)\left|\frac{d^2r(n^A)}{da^2}\right|}\right] \tag{2.11}$$

Figure 3, below, shows the level of y^F which satisfies the NAC for different values of a, for a given level of $N - L$. The NAC is not satisfied below the curve but it is satisfied on the boundary and above the curve. Starting from a point below the curve, such as points x and y, after a successful action, there are two forces in effect: the next period level of a increases–leading to an increase in next period level of y^F if the initial level of a is less than a^* (e.g. point x) or a decrease in y^F if initial level of a is greater than a^*(e.g. point y)–and the next period level of p^s decreases–leading to an increase in the next period level of y^F. Therefore,

starting from a point below the curve, after each successful action we get closer to the curve and when the curve is reached the NAC is satisfied and fishermen do not take action. This is the SA case described in section 2.1.

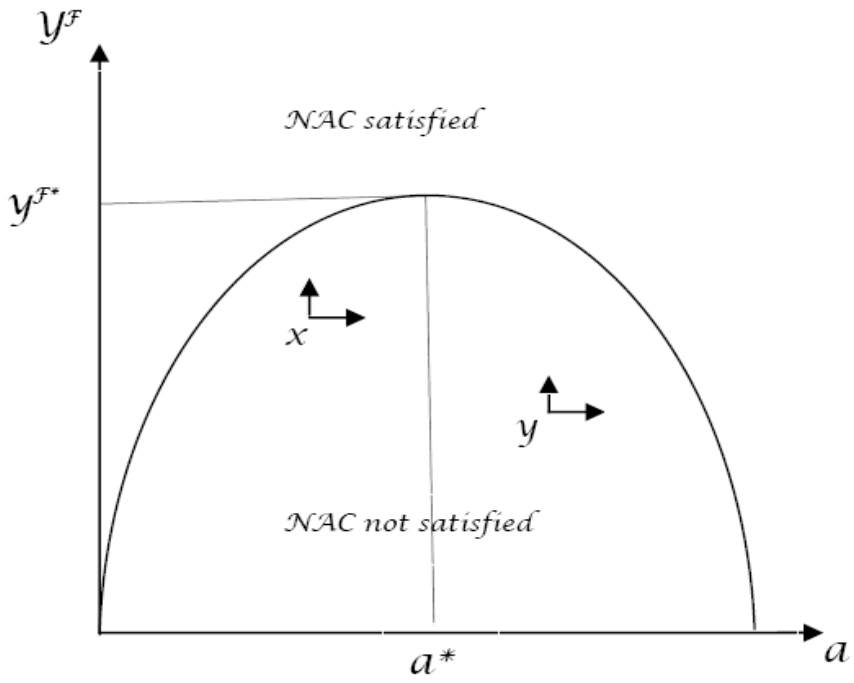


Figure 3. The level of y^F needed to satisfy the NAC for different levels of belief (for a given level of $N - L$). While low and high levels of belief yield a low average income for fishermen, intermediate levels of belief yield higher income.

2.2.2.2. The Participation Constraint (PC). The PC means that the wage offered by the industry should be greater than or equal to fishermen's fall-back positions which is equal to the average product from fishing in case NAC is satisfied and, otherwise, to the expected payoff from action:

(PC)

$$w \geq \max\left\{\frac{F(N-L,p)}{N-L}, (1-r(n^A))\frac{F(N-L,p)}{N-L} + r(n^A)\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}} - \frac{C}{[n^A]^\gamma}\right\}$$

where $n^A = a(N-L)$ since the fallback position refers to the expectation of fishermen prior to the action decision, hence, the success probability is calculated for the expected number of participants.

2.2.2.3. Analysis. The three cases described in section 2.1–*NA*, *SA* and *FA*– imply that the industry compares the payoffs from constrained and unconstrained optimization and accordingly either satisfies *NAC* and prevents action or lets fishermen take action. As explained above, the analysis will be conducted by collapsing the repeated framework into two periods where the second period is repeated forever. In this section, I will move on to the analysis of the unconstrained and constrained optimisation problems of the industry, and the corresponding problems of the state and fishermen, in the aforementioned two periods set-up.

In both constrained and unconstrained cases, to solve the problem of profit maximisation in the first node the industry needs to know the level of p^{s^*}. The level of p^{s^*}, in turn, is given by the solution to the planner's social welfare maximisation and depends on the best response function of the industry with respect to labour. Therefore, the whole game is solved by backward induction in three steps. First, profit maximisation of the industry after a successful action is solved, for a given

level of p, to obtain $\widehat{L}(p)$, the labour best-response function of the industry.[9] Then, given $\widehat{L}(p)$, the planner's social welfare maximisation is solved to determine p^{s^*}. Finally, p^{s^*} and the corresponding level of L^{s^*} (given by $\widehat{L}(p^{s^*})$) is substituted in the *NAC,* and, given p^{s^*}, the industry solves the profit maximisation at the initial node. The solution to this problem gives the initially announced levels of L and p. Note that, the first two steps of backward induction yield the same solutions for constrained and unconstrained problems. Therefore, before moving on to the constrained and unconstrained profit maximisation problems, I will describe these two steps.

The first step of backward induction, the problem of profit maximization, given p, is the following:

$$\max_{L} \pi = f(L) - wL - h(ef(L) - p) \tag{2.12}$$

where $w = \frac{F(n,p)}{n}$ due to *PC*. Denote the abatement level, $ef(L) - p$, by p^{abt}. The FOC is given by:

$$\frac{df}{dL}\left(1 - e\frac{dh}{dp^{abt}}\frac{df}{dL}\right) = \frac{N}{(N-L)^2}F(n,p) - \frac{L}{N-L}\frac{\partial F}{\partial L} \tag{2.13}$$

[9]Note that, the state moves only after a successful action which implies that the *NAC* has not been satisfied , i.e. the relevant case is the *SA* case. Then, while deriving the best response function of the industry, the state considers the unconstrained profit maximisation (as described below) where *NAC* is not considered and p is set to its upper-bound level, that is, the level of p^s.

The solution to (13) gives the labour best response function, $\widehat{L}(p)$. Given this best response function, the problem of social welfare maximization is solved. Substituting w with $\frac{F(n,p)}{n}$, the problem of social welfare maximization can be written as:

$$\max_{p} SWF = q(f(\widehat{L}) - \frac{F(\widehat{n},p)}{(N-\widehat{L})}\widehat{L} - h(ef(\widehat{L}) - p)) + (1-q)\left[F(\widehat{n},p)\right] \tag{2.14}$$

Denote $f(\widehat{L}) - \widehat{w}\widehat{L} - h(ef(\widehat{L}) - p)$ as $\widehat{\pi}(p)$, and $F(\widehat{n},p)$ as $\widehat{y}^F$. Then the FOC for (14) is given by:

$$q(\widehat{\pi}_L\widehat{L}_p + \widehat{\pi}_p) + (1-q)\left(\widehat{y}_p^F + \widehat{y}_L^F\widehat{L}_p\right) = 0 \tag{2.15}$$

The solution to (15) gives p^{s^*}. With $\widehat{L}(p^{s^*})$ as the level of employment given p^{s^*}, the industry profit level after a successful action is calculated.

Unconstrained Optimisation: The industry is not concerned with satisfying the *NAC*, hence it sets the first period pollution level to the upper-bound level given by p_0^s, i.e. $p_1 = p_0^s$. If the action fails (the *FA* case), knowing that fishermen will not take action anymore, the industry solves the following problem:

$$\max_{L} f(L) - wL - h(ef(L) - p_0^s)$$

where $w = \frac{F(n,p_0^s)}{n}$ due to the *PC*. The FOC to this problem is the same as (13), above, with $p = p_0^s$. Denote this level of profit by π^{FA}. On the other hand, if the action suceeds (the *SA* case), then p_1^s will be set to p^{s^*} and the *NAC* will be satisfied in all subsequent periods. Denote this level of profit by π^{SA}. Then, if the industry is not concerned with satisfying the *NAC*, the problem of profit maximisation at the initial node in the first period is given by:

$$\begin{aligned}(2.16)\quad \max_L E\Pi^U &= (1-r(n^A))\left[\begin{array}{c} f(L)-wL-h(ef(L)-p_0^s) \\ +\sum_{t=2}^{\infty}\beta^{t-1}\pi^{FA} \end{array}\right] \\ &\quad +r(n^A)\left[f(L)-wL-h(ef(L)-p_0^s)+\sum_{t=2}^{\infty}\beta^{t-1}\pi^{SA}\right]\end{aligned}$$

where $n^A = N - L$ and $w = (1-r(n^A))\frac{F(N-L,p)}{N-L} + r(n^A)\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}} - \frac{C}{[n^A]^\gamma}$ since the *NAC* is not satisfied, hence, the fallback positions of fishermen is the expected payoff from action. the FOC is given by:

$$(2.17)\qquad \frac{df}{dL} + \frac{dr}{dn^A}\left[\sum_{t=2}^{\infty}\beta^{t-1}\left(\pi^{FA}-\pi^{SA}\right)\right] = L\frac{dw}{dL} + w + \frac{dh}{dp^{abt}}e\frac{df}{dL}$$

Hence, the optimal level of L should be such that the marginal cost of increasing L, the RHS of (17), consisting of the increase in the total wage bill and the cost of abatement, should be equal to the marginal benefit, consisting of the marginal product of labour and the marginal increase in the expected differential payoff to

deviation in the subsequent periods–marginal increase in the probability of obtaining the differential payoff, $\pi^{FA} - \pi^{SA}$, times the discounted sum of the differential payoffs to be received *ad infinitum*.

Figure 3 below shows a graphical representation of (17)[10]:

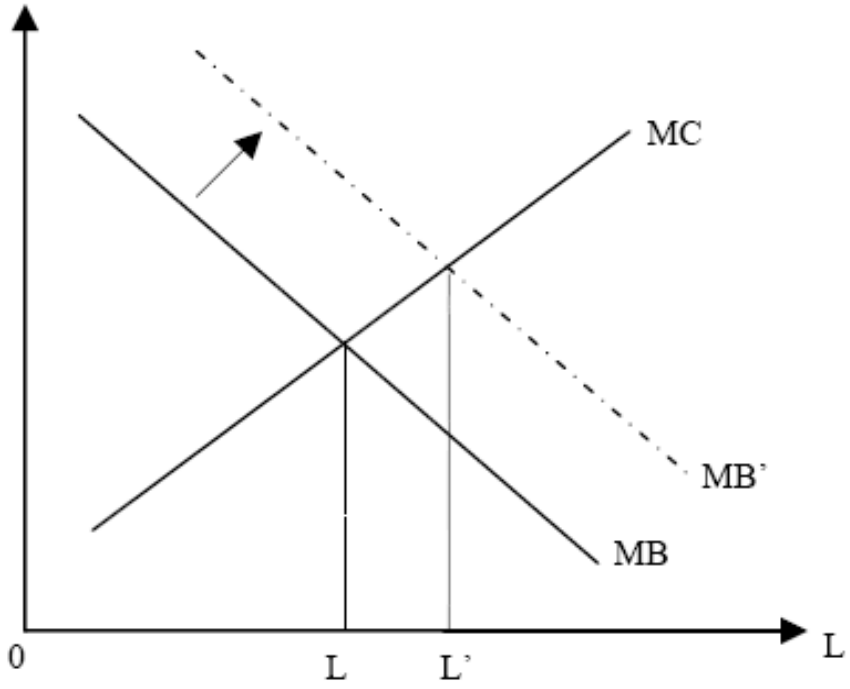


Figure 3. The effect of the threat of action on the FOC of profit maximisation for the unconstrained case.

MB and MC denote the marginal benefit and marginal cost, respectively, of increasing the employment level by one unit for the case where there is no threat of action. Then, MB is given by $\frac{df}{dL}$ and MC is given by $w + e\frac{dh}{dp^{abt}}\frac{df}{dL}$. The effect

[10]Clearly, the marginal benefit and marginal cost are not linear but my aim here is not to depict the functional forms but to point out the effect of the threat of action.

of threat of action and the industry's will to decrease the success probability is shown as an upper shift of both curves where MB' is now given by the LHS, and MC' by the RHS, of (17). Accordingly, the profit maximising level of L shifts to L'.

Constrained Optimisation. The industry solves profit maximization subject to the NAC. This is the path described in the NA case above, that is, the NAC is satisfied in all periods and fishermen never take action. Therefore the industry solves a constrained optimization in the first period and finds the optimal levels of L and p such that the three constraints–the PC, the NAC and that $p \leq p_0^s$–are satisfied. As there will be no action, the level of p_0^s, hence the optimal levels of L and p, will be the same for all the subsequent periods. Therefore, the problem is formulated as a one period constrained optimization, considering only the first period. Also note that, since NAC will be satisfied, expected payoff from participating in action will be less than the average product from fishing, hence, PC implies that the wage offered should be greater than or equal to the average product from fishing.

$$\max_{L,p} \pi = f(L) - wL - h(ef(L) - p) \tag{2.18}$$

$$subject \quad to \qquad w \geq \frac{F(n,p)}{n} \qquad (PC)$$

$$[r(a(N-L)+1)-r(a(N-L))]\left[\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}}-\frac{F(N-L,p)}{N-L}\right]\leq\frac{C}{[a(N-L)]^{\gamma}} \qquad (NAC)$$

$$p \leq p_0^s$$

Note that the PC will be satisfied as an equality. Substituting the PC to the profit function, the Lagrangian of this problem is:

$$\begin{aligned}\pounds &= \left[f(L)-\frac{F(n,p)}{n}L-h(ef(L)-p)\right] \\ &\quad +\lambda_1\left[\frac{C}{[a(N-L)]^{\gamma}}-[r(a(N-L)+1)-r(a(N-L))]\left(\frac{F(N-L^{s^*},p^{s^*})}{N-L^{s^*}}-\frac{F(N-L,p)}{N-L}\right)\right] \\ &\quad +\lambda_2\left(p_0^s-p\right)\end{aligned} \qquad (2.19)$$

The first order conditions are given by:

$$\frac{\partial \pounds}{\partial L}=\frac{\partial \pi}{\partial L}+\lambda_1\frac{\partial NAC}{\partial L}=0 \qquad (2.20)$$

$$\frac{\partial \pounds}{\partial p}=\frac{\partial \pi}{\partial p}-\lambda_2=0 \qquad (2.21)$$

where:

$$\frac{\partial NAC}{\partial L} = \frac{\gamma C}{a^{\gamma}(N-L)^{\gamma-1}} + \frac{d^2 r}{dn^{A^2}}\left(y^S - y^F\right) + \frac{dr}{dn^A}\frac{\partial y^F}{\partial L} \tag{2.22}$$

$$\frac{\partial \pi}{\partial L} = \frac{df}{dL}\left(1 - \frac{dh}{dp^{abt}} e \frac{df}{dL}\right) - y^F - L\frac{\partial y^F}{\partial L} \tag{2.23}$$

$$\frac{\partial \pi}{\partial p} = -L\frac{\partial y^F}{\partial p} + \frac{dh}{dp^{abt}} \tag{2.24}$$

The complementary slackness conditions defined as:

$$\lambda_1 NAC = 0 \tag{2.25}$$

$$\lambda_2 \left(p_0^s - p\right) = 0 \tag{2.26}$$

Note that the Lagrange multipliers, λ_1 and λ_2, are the shadow prices of the two constraints. In particular, λ_1 is the cost of preventing the action by satisfying the NAC and λ_2 is the cost of a marginal variation in the pollution upper bound constraint. It was shown above, in the unconstrained optimisation case, that in

order to reduce the probability of success of action the industry employs more fishermen compared to the case where there is no threat of action. However, even that level of employment is not enough to satisfy the NAC. In the constrained optimisation case, the employment level will even be higher since now the industry satisfies the NAC.

2.2.3. Heterogenous fishermen and the Collective Action Problem

The analysis so far, showed that, if fishermen are assumed to be identical, there are three possible paths that the game can follow. Depending on the present values of the unconstrained and constrained profits, the industry decides whether or not to satisfy the NAC in the first period. Accordingly, one of the three cases is realised: the first one, the NA case, is that the NAC is satisfied in the first period and fishermen never take action; the second one, the FA case, is the one in which the NAC is not satisfied in the first period, fishermen take action but the action fails and fishermen never take action in the subsequent periods. Alternatively, as defined by the SA case, the action of fishermen in the first period can suceed and the state sets the pollution level to p^{s^*} which makes it optimal for the industry to satisfy the NAC for the subsequent periods, hence, the NA case is realised from the second periods onwards. The underlying assumption was that fishermen are identical which implied that they all have identical beliefs and payoff functions, hence, either they all take action or no one takes action. In this section, same analyses will be conducted dropping this assumption.

Fishermen are considered to be heterogeneous with respect to their individual characteristics, i.e. types. Types are determined by a composite parameter, "identity value of fishing", consisting of how much each fisherman values being a fisherman and how much he is opposed to the industry. Each fisherman's type is given by his parameter value and is private information. The random parameter determining types are drawn from a distribution with density function g and cumulative density function G. The distribution of types is common knowledge.

Let the value of a fisherman's parameter value, hence his type, be denoted by δ_i with $\delta_i > 0$. Then, the type space is $\boldsymbol{\delta} = \{\delta_1, ..., \delta_N\}$. It is assumed that $\delta_i \neq \delta_j$ for $i \neq j$, and that fishermen are distributed uniformyl along the type space. The type of each fisherman enters his payoff function as a multiplier–as a weight–, that is, the payoff each fisherman receives is equal to his material payoff times his identity value parameter. Therefore, same material payoff is valued differently by fishermen of different types. In particular, for period t, the payoff to fisherman i from fishing is:

$$u_{it}^F = \frac{F(n_t, p_t)}{n_t}\delta_i$$

where, as before, $n = N - L$ is the number of fishermen and p is the pollution level. The value of δ_i is assumed to be time invariant.

In the identical fishermen case, it was assumed that the fishermen who are to be employed in the industry are selected randomly. In the heterogenous fishermen

case, this assumption can be relaxed. In particular, the L fishermen who are employed in the industry will be the ones with types $\{\delta_1, ..., \delta_L\}$ where the types are put in ascending order.

Remember, in the identical fishermen case, it was shown that if the belief of fishermen regarding the portion of other fishermen who will take action, a, is in the range of the two critical levels, all fishermen take action. In the heterogeneous case, a similar analysis is conducted, with the additional feature of self-consistent beliefs. Since it is no longer the case that either all fishermen will take action or there will be no action, it is possible to define a relation between the level of belief and the number of fishermen who would actually take action given that level of belief. Accordingly, we need to check whether the beliefs are self-consistent, that is whether the belief is equal to the number of fishermen who would actually take action given that level of belief, z (for a given level of average income from fishing, y^F).[11] The intuition behind self-consistency is the following: for given level of y^F, consider some level of belief, K, then for each fisherman calculate the expected payoffs from action and nonaction and find whether he will participate or not. If the number of fishermen who will participate is K, then K is self-consistent. The corresponding expected payoffs for fisherman i is defined as:

[11]Self-consistency assumes some form of communication among fishermen by way of which they share their beliefs and see whether it is consistent with the beliefs of everyone else. At the end of this process, fishermen come up with a self-consistent belief such that they know that exactly this much of fishermen will take action. Considering the empirical case described in the previous chapter, this is a plausible assumption.

$$EU(A)_i = r(K+1)\frac{F(n^{s^*}, p^{s^*})}{n^{s^*}}\delta_i + [1 - r(K+1)]\frac{F(n,p)}{n}\delta_i - \frac{C}{(K+1)^\gamma}\delta_i \tag{2.27}$$

$$EU(NA)_i = r(K)\frac{F(n^{s^*}, p^{s^*})}{n^{s^*}}\delta_i + [1 - r(K)]\frac{F(n,p)}{n}\delta_i \tag{2.28}$$

Equating these payoffs we get:

$$[r(K+1) - r(K)]\left[\frac{F(N - L^{s^*}, p^{s^*})}{N - L^{s^*}} - \frac{F(N-L,p)}{N-L}\right] = \frac{C}{(K+1)^\gamma} \tag{2.29}$$

which is the same as equation (9) except for the levels of beliefs. Hence, as in the identical fishermen case, if the NAC is ever failed to be satisfied for some level of y^F, then there are two critical values of belief, defining the range of beliefs for which the NAC is not satisfied (see proposition 4 above). Denote these lower and upper levels of belief as $\underline{K}$ and $\overline{K}$ such that, for $K > \overline{K}$ and for $K < \underline{K}$ (the upper and lower flat regions of the $r(n^A)$ graph shown in figure 2) the NAC is satisfied. Figure 4 shows these critical levels of beliefs.The $z(K; y^F)$ function is the function of the number of fishermen who would actually take action, z, for each level of belief, K, for a given level of average income from fishing, y^F. Self-consistency of beliefs imply that $K = z(K; y^F)$. Hence, self-consistent beliefs are given by the

intersection of the $z(K; y^F)$ function and the self-consistency constraint–the ray from the origin with a slope of 1.

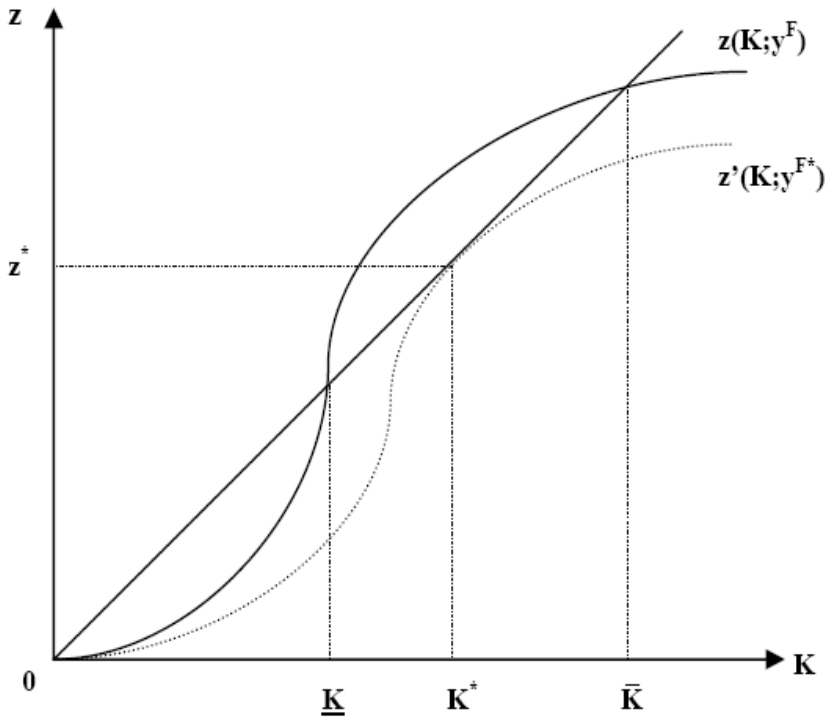


Figure 4. The $z(K; y^F)$ function yields the number of fishermen who would actually participate, z, for different values of beliefs, for a given level of average income from fishing. As y^F increases (decreases), the $z(K; y^F)$ function shifts downward (upward).

The levels of beliefs $K = 0$, $K = \overline{K}$ and $K = \underline{K}$ are self-consistent. Are they self-correcting? Consider the dynamics of beliefs defined previously. Now, modifying the notation, the dynamics is defined as:

$$dK = m(z(K; y^F) - K) \tag{2.30}$$

where m is a positive constant. Hence, for $K < \underline{K}$, $z(K; y^F)$ is less than K and therefore $dK < 0$, i.e. beliefs are revised downwards. Similarly, for $K > \underline{K}$, $z(K; y^F)$ is greater than K and therefore $dK > 0$, i.e. beliefs are revised upwards. Thus, though self-consistent, $\underline{K}$ is not self-correcting. Perturbations around $\underline{K}$, lead to excursions to either $K = 0$ or to $K = \overline{K}$. Therefore, only the values of $K = 0$ and $K = \overline{K}$ (if it exists) are relevant for our analysis. I will not consider $K = 0$ as well since the argument is straightforward: if a fisherman believes that no other fisherman will participate, he will not participate as well since $r'(1)$ is assumed to be 0.

How is the NAC defined in this case? That is, what should be the levels of L and p which prevent action? The industry can prevent action if there is only one self-consistent level of belief and the NAC is satisfied for that level of belief. In figure 4, starting from $z(K; y^F)$ as depicted in the graph, as y^F increases the $z(K; y^F)$ function shifts downward as a result of which $\overline{K}$ decreases. Hence, by offering a higher level of y^F, the industry can reduce participation. In order to prevent action, $z(K; y^F)$ must shift to $z'(K; y^{F*})$ where y^{F*} is such that the NAC is

satisfied given K^*.[12] Since the $z'(K; y^{F*})$ function is tangent to the self-consistency constraint, NAC can now be written as:

$$\frac{dz(K; y^F)}{dK} = 1 \quad \& \quad \frac{z}{K} = 1 \tag{2.31}$$

If a lower level of y^F is offered, such that $y^F < y^{F*}$, then there will be action. The cutoff value of types, that is the lowest type value among the fishermen taking action, is defined as the value corresponding to the level of $\overline{K}$. Denote this cutoff value of types as $\underline{\delta}$. The value of $\underline{\delta}$ is given by:

$$\overline{K} = (1 - G(\underline{\delta}))N \Rightarrow \underline{\delta} = G^{-1}\left(\frac{\overline{K}}{N}\right) \tag{2.32}$$

where G is the cdf of the distribution of types. The argument here follows from the fact that, for given level of a self-consistent (and self-correcting) belief, $\overline{K}$, if the NAC is not satisfied, there will be a fisherman on the margin, i.e. indifferent between action and nonaction, and all fishermen with type values greater than that of the marginal fisherman, i.e. $\delta_i > \underline{\delta}$, will find it optimal to take action. Note that, as $\overline{K}$ is determined by equating the expected payoffs from action and nonaction, it is, indeed, dependent on the levels of L and p. A higher y^F implies

[12]Note that, for any level of $y^F > y^{F*}$, $dK < 0$. However, it will not be the profit maximising solution for the industry to set $y^F > y^{F*}$.

lower $\overline{K}$ and, accordingly, higher $\underline{\delta}$. This is how the industry reduces participation by offering a higher y^F.

How is the PC defined? Depending on his type value, every fisherman has a different participation constraint. Due to the asymmetric information structure, the industry does not know the types of fishermen, hence it cannot determine with certainty the level of wage that would ensure that exactly L fishermen will accept employment. Moreover, in case the NAC is not satisfied, the w function has a kink at the level of L corresponding to the cutoff level of types, $\underline{\delta}$, since the fall-back position for fishermen below the cutoff level is their payoff from fishing while for the ones above the cutoff level it is the expected payoff from action. If the industry knew the types of fishermen, the w function it considers would be:

(2.33)
$$w = \begin{cases} \delta_L \left(r(K^*) \frac{F(n^{s^*}, p^{s^*})}{n^{s^*}} \delta_L + [1 - r(K^*)] \frac{F(n,p)}{n} \delta_L - \frac{C}{K^\gamma} \delta_L \right) & if \quad \delta_L \geq \underline{\delta} \\ \delta_L \frac{F(n,p)}{n} & if \quad \delta_L < \underline{\delta} \end{cases}$$

Note that the industry can still estimate the type of fisherman L:

(2.34)
$$L = NG(\delta_L) \Rightarrow \delta_L = G^{-1}\left(\frac{L}{N}\right)$$

One might think that, given the estimations, the industry could employ only the fishermen above the cutoff level. However, it is not possible due to the selection

problem.[13] The industry might still find the level of w which would ensure that L fishermen accept employment through a process of trial and error, i.e. by increasing the wage offered until the level of employment reaches L.[14]

So, how are the optimal levels of L and p are determined in this case? For the identical fishermen case, three possible paths were discussed. Whichever one of them is realised is said to be dependent on the parameter values that determine whether the industry will find it optimal to satisfy the NAC in the first period or not. In the hetereogeneous case, the same argument applies.

Also, the overall backward induction analysis of the previous section applies here as well. The first step of backward induction, profit maximization of the industry following a successful action, is still given by (12). The second step is the same as the previous section as well since we are assuming that the state considers only the material payoffs while solving the social welfare maximization problem and the social welfare function is the same as the identical fishermen case. Therefore, the planner's problem of social welfare maximization is still given by (14). The final step of the backward induction, profit maximization at the initial node, however, is now different due to heterogeneity and new information structure. However, the

[13]Suppose the industry wants to employ k fishers above the cutoff level and accordingly offers a wage which satisfies the participation constraint of the k^{th} fisherman above the cutoff level. Hence the participation constraint of fishermen below that level are satisfied as well and they will all apply for employment. The industry, however, cannot identify the k fishers above the cutoff level.

[14]As it was assumed that there is no wage discrimination, the indsutry increases the wage also for the fishermen who have already been employed.

underlying logic of comparing the constrained and unconstrained profit levels is still the same.

2.2.3.1. Unconstrained Optimization. The industry does not satisfy the NAC in the first period and fishermen take action. Due to the previous assumptions, if action fails, fishermen will never take action again: and, if it succeeds, the state will move in and set p^{s^*} so that it will be optimal for the industry to satisfy the NAC from the second period onwards. Then the problem of the industry in the first period is to find the level of $\overline{K}$ maximising the profit. Define $\overline{z} = z(\overline{K}; y^F)$.

$$\begin{aligned}(2.35)\quad \max_{L,p} E\Pi^U &= (1 - r(\overline{z}))\left[f(L) - wL - h(ef(L) - p) + \sum_{t=2}^{\infty}\pi_h^{FA}\right] \\ &\quad + r(\overline{z})\left[f(L) - wL - h(ef(L) - p) + \sum_{t=2}^{\infty}\pi_h^{SA}\right]\end{aligned}$$

where, as before, π_h^{FA} is the unconstrained profit level after a failed action where $p = p_0^s$; π_h^{SA} is the profit level after a successful action where L and p are such that the NAC is satisfied. Note that, in contrast to the identical fishermen case, now it might be optimal for the industry to set the level of pollution below its upper bound level even if it is not concerned with satisfying the NAC. In the identical fishermen case, if the industry is not concerned with satisfying the NAC, all fishermen will take action, hence the industry will try to reduce success probability by increasing the level of employment. Since the level of pollution does not affect the success probability, the industry has no incentive to set a pollution level lower than the

upper bound level. On the other hand, in the heterogenous fishermen case, even if the NAC is not satisfied, the industry still has an incentive to set a low level of pollution through its effect on y^F, which in turn affects–through the mechanisms described above–the level of participation. In thsi case, both L and p work through their affect on the level of y^F.

Define $\pi = f(L) - wL - h(ef(L) - p)$. Then, the FOCs with respect to L and p are given by:

$$\frac{d\pi}{dL} = \frac{\partial r}{\partial z}\frac{\partial z}{\partial L}\left[\sum_{t=2}^{\infty}\beta^{t-1}\pi_h^{FA} - \sum_{t=2}^{\infty}\beta^{t-1}\pi_h^{SA}\right] \tag{2.36}$$

$$\frac{d\pi}{dp} = \frac{\partial r}{\partial z}\frac{\partial z}{\partial p}\left[\sum_{t=2}^{\infty}\beta^{t-1}\pi_h^{FA} - \sum_{t=2}^{\infty}\beta^{t-1}\pi_h^{SA}\right] \tag{2.37}$$

where β is the discount factor. These two first order conditions conform to the argument that both L and p act through the sam channels, namely through their effect on y^F. Accordingly, as revealed also by the FOCs, the optimal levels of L and p depend on their relative effect on z (which determines their marginal benefit in terms of increasing the probability of receiving the differential profit between the cases of FA and SA–the RHS of the FOCs) and their net marginal cost to the industry (the LHS of the FOCs).

2.2.3.2. Constrained Optimization. The industry satisfies the NAC in the first period and fishermen never take action. This problem is defined as:

$$\max_{L,p} \pi = f(L) - wL - h(ef(L) - p) \tag{2.38}$$

$$subject\ to:$$

$$w = \begin{cases} \delta_L \left(r(K^*) \frac{F(n^{s^*}, p^{s^*})}{n^{s^*}} \delta_i + [1 - r(K^*)] \frac{F(n,p)}{n} \delta_i - \frac{C}{K^\gamma} \delta_i \right) & if \quad \delta_L \geq \delta^* \\ \delta_L \frac{F(n,p)}{n} & if \quad \delta_L < \delta^* \end{cases} \qquad (PC)$$

$$\frac{dz(K; y^F)}{dK} = 1 \quad \& \quad \frac{z}{K} = 1 \quad (NAC)$$

$$p \leq p_0^s$$

The interpretation of this constrained problem, in terms of Lagrange multipliers, is the same as the corresponding problme in the identical fishermen case.

2.3. Possible Extensions

The model developed here can be extended by relaxing the simplifying assumptions made in the above analysis. For example, the industry is assumed to be a single entitiy. In case there are more than one firms, and they are heterogenous in the amount of pollution they produce, they will face a collective action problem as well. The ones who pollute the most will be the ones who will want to prevent action by fishermen the most. The ones who pollute less, on the other hand, will prefer to free-ride by employing workers (rather than fishermen) from a lower wage, compared to the wage which satisfies the *PC*. This problem can be formulated by an analysis akin to the heterogenous fishermen case. Each firm can be assigned a type value denoting how much they pollute the lake. Note that, the number of firms is likely to be small, compared to the number of fishermen; hence, the ones which pollute the most might provide the public good–preventing the action by fishermen–for the group as a whole.

Another assumption made in the analysis above is that fishermen are distributed uniformly along the type space. An alternative distribution might be one where the distances between the high levels of types are low and the distance is increasing as we mode to lower type values. This is due to the accumulating externality effect in the sense that as the cutoff level of types (determined by the cutoff level of beliefs in the above analysis) is moved to the lower type values, the number of fishermen participating in action will increase. Hence, even though

the difference between the adjacent type values is high the effect of a high level of participants might lead to a jump from one individual to the other. However, this argument is valid for the types in the nonflat region of the success probability function.

As discussed through the analysis of the case study and as further underlined by the model, the case study exemplifies various manifestations of power. Therefore, I will now turn to a conceptual analysis of power. I will start with a critical literature review which is presented in the next chapter.

CHAPTER 3

The Political Economy of Power: Critical Literature Review

3.1. Introduction

Theorizing power has long been a contested move in economics. Different schools of economic thought have produced different conceptualizations of power. However, even at the very basic level, these conceptualizations have always been far from sharing a common ground, concerning themselves with different aspects of the concept of power, more often than not, ignoring other aspects of that phrase. In fact the nature of the phrase itself differs both within and between these schools of thought. There is little benefit, however, in exploring all these differences, as confusion abounds in their various articulations. Such an inquisition has practical difficulties as well. Bartlett, for example, writes at the opening pages of his book Economics and Power (1989), that such a review would not lead to any useful conclusions.

> Any attempt at a quick survey of the literature on power in economics would thus fail. It could not simply recount extensions, refinements, and applications of a shared vision. It would have to

> present scores of conflicting concepts and critically evaluate each. That would be a volume or two in itself and would only support a definitive conclusion that "it is an interesting topic and lots of people have thought about it, some more than others. (p. 4)

Agreeing with Bartlett on the practical implications and difficulties of such an endeavour, the aim here is not to present all theories of power in economics. Instead, I shall focus on a taxonomical presentation of different theories via focusing on the representative conceptions in each school of thought as they approach the issue of power in economics. The main thesis is that seemingly different schools of thought come up with similar theories of power; however, this similarity cannot be highlighted without a multidimensional analysis which I opt for in this review.

Though the main focus will be on the theories of power of different schools of thoughts in economics, I will also refer to theories from other disciplines—sociology and political science—which are most relevant to the debate in economics. It is important to note that as I will offer a general presentation of each school, and focus on the representative theories within them, there will be the problem of bypassing the diversions in each economic school of thought; but it is beyond the scope of this review to include every single theory of power. Moreover, the demarcation line between the schools of thought may at times get blurred. Yet, in order to be able to present different ontological and epistemic positions of different economic approaches on power in a clear way, I opted to consider a taxonomical presentation.

The chapter is structured as follows: In the first part, the debate between Dahl, Bachrach and Baratz, and Lukes over the nature of power will be discussed. This debate has been catalogued along the "dimensions" of power in Lukes' highly-influential work, Power: A Radical View (1974)—the view of Dahl being labelled as the one-dimensional view, that of Bachrach and Baratz as the two-dimensional view, and Lukes' own view as the three-dimensional ("radical") one. The reason why I am starting the review with this debate is that it can be seen as a cornerstone in the literature on power. Most of the theories of power which are developed posterior either explicitly position themselves taking this debate as the main reference point or they can be positioned as such even if there is no explicit reference in the theory. On the other hand, some prior theories—such as that of Weber—are very much parallel to the views presented in the three-dimensional debate and I will refer to them in this part as well. Referring to theories of power in neighbouring social sciences, I am interested in how these theoretical frameworks' addressing of the nature of power informs and illuminates the subsequent discussion of power in economics.

In the second part, I will move on to economic schools of thought and investigate their understanding of power—with reference to the theories discussed in the first part. I will first review the mainstream, Austrian, (traditional) Marxist, (old) institutionalist[1] and new institutionalist approaches. It will be argued that, unlike the mainstream and Austrian approaches, the Marxist and institutionalist

[1]I will refer to the old institutionalists as institutionalists.

approaches go beyond the individualistic approach of the mainstream and Austrian approaches, and incorporate structural elements into their analysis, which are not reducible to and explicable in individualistic terms. New Institutionalism, as we shall see, is somewhere in between institutionalism and the mainstream approach.

My strategy while presenting these theories will be as follows. First, the general framework of each approach in terms of its fundamental assumptions, the underlying conception of the agency-structure relation and the questions that constitute its research agenda will be briefly presented. Though the two former aspects are self explanatory, what I mean by the conception of agency-structure relation needs further clarification. The conception of agency-structure relation of a theory refers to the way it explains how the social structure endures or changes and what the role of the human agency is in this process.[2] The dominant conceptions in economics, as well as in other social sciences, veer towards one or the other or both of the two poles where either the structure or the agency is rendered epiphenomenal. That is to say, either the social structure is reduced to, is conceptualized as the mere creation of, human agency (individualism), or human agency is reduced to, is conceived of as being totally determined by, as the bearers of external, coercive structure (structuralism). I argue that both individualism and structuralism are flawed. Because human agency presupposes already existing social structure, the

[2]The debates variously named as "individual and society", "individualism and determinism", "agency and structure" and "micro and macro" are fundamentally identical. In this chapter, I will be using the "agency and structure" terminology with the two poles defined as individualism and structuralism.

latter cannot be regarded as the mere creation of individuals. Therefore, individualism should be rejected. Once it is accepted that human beings are able to act intentionally, structure cannot be regarded as fixed and its dependence on human beings can hardly be ignored. This implies that structuralism should be rejected as well. I will turn to the discussion of the problem of how to conceptualize agency and structure so as to explain the endurance and change of the power structure, without facing the problems of individualism and structuralism, in the next chapter. However, as of now, suffice it to say that, different theories of power suffer from one or the other of these two poles.

After the presentation of the general framework, a taxonomical presentation of the theory's position vis-à-vis power will follow. The taxonomical presentation will be based on a set of dimensions that are related to the theory's understanding of the nature of power. Here I am interested in addressing the following interrelated questions:

- What are the indicators of power – what are the necessary conditions that have to be satisfied for a relation to qualify as one of power?
- What are the subjects of power – who and what are seen as subject to power?
- Who and what are the objects of power?
- What are the sources of power?
- What are the means or instruments of power; through which means is power exercised?

- Is it possible to measure the amount or extent of power? If so, how is the amount of power the object of power has is measured?
- What are the ends of power; what is intended to be achieved by the exercise of power?

Note that these dimensions are all interrelated and they should be investigated so. I will, therefore, try to demonstrate the links between these dimensions as well. That is to say, the theory's position vis-à-vis a set of dimensions is likely to imply its position in another one. It is significant to note also that not all of these dimensions are relevant for all the theories that are going to be presented; however, the fact that a dimension is relevant for some theories and not for others constitutes one of the main streams of comparison. Which dimensions will be relevant will be apparent from the general theoretical framework of each theory; to give an example, a theory conceiving power as a structural characteristic of the overall system would not attempt to calculate the amount of power.

3.2. Theoretical Conceptualization of Power: A Tour d'Horizon

In most cases economists have turned to political science or sociology for the explanation of power, at best for the sake of a multidimensional approach and at worst because they have seen power as the concern of other disciplines. I will elaborate more on this in the second part.

In this part, I will review the three-dimensional debate as summarized and catalogued by Lukes. The reader may find this review too much detailed. However,

I will refer to this debate extensively in the second part and, as it will be clear later; most of the criticisms raised in this part will be relevant for most of the theories that are to be discussed afterwards.

3.2.1. Lukes and the Three-dimensions of Power

A key contribution to debates in social sciences about the conceptualization of power is Steven Lukes' 1974 book, Power: A Radical View (PRV). Constructed as a critique of the contemporary views on the issue, the "radical" view developed in PRV has itself spawn many critiques and academic commentary during the last three decades. To give an example, the blue-ribbon journal of Political Science Review dedicated one volume in 2006 to a "Review symposium on Steven Lukes' Power: A Radical View", following the publishing of a revised version of PRV in 2005.

Lukes (1974) overviews the two main preceding views of power in the political science, those of Dahl (1957, 1961) and Bachrach and Baratz (1962, 1963, and 1970), as conceptual dimensions for the understanding and analysis of power, and attempts to construct a further conceptual dimension which would incorporate these two dimensions and a new aspect of power that was neglected by them.

3.2.1.1. Dahl and the One-dimensional View[3]. Dahl's (1957) view is catalogued as the one-dimensional view by Lukes (1974). Power, in Dahl's view, is defined as "something like this: A has power over B to the extent that he can get B to do something that B would not otherwise do" (1957, pp. 202-3). Actors, the objects in the relationship of power and hence the objects and subjects of power, may be individuals, groups, roles, offices, governments, nation-states, or other human aggregates. Dahl argues that for a complete statement of power, the specification of the actors in a power relation—A has power over B—is not enough. What is further needed is references to (a) the source, domain, or base of power; (b) the means or instruments used by A to exert power over B; (c) the amount or extent of the power of A over B; and (d) the range or scope of the power of A over B. The base of an actor's power consists of all the resources—opportunities, acts, objects, etc.—that he can exploit in order to affect the behaviour of another, so it is inert as it must be exploited if the behaviour of others is to be altered. The means or instruments of such exploitation involve threats or promises to employ the base in some way, and they may involve the actual use of the base. The scope consists of B's responses. Finally, the amount of an actor's power can be represented by a probability statement: e.g. "the chances are 9 out of 10 that if the President promises a judgeship to five key Senators, the Senate will not override his veto"

[3]Although there are other, probably more influential, works of Dahl—such as Democracy and Its Critics (1989) and Who Governs?: Democracy and Power in an American City (1961)—the discussion here will be based on the three-dimensional debate (as catalogued by Lukes [1974]) and Dahl's contribution to this debate.

(1957, p.203). It is actually the difference between two probabilities: the probability that B does x, given that A does w; and the probability that B does x given that A does not do w. Such quantitative characterization of power offers him an opportunity to compare the power of two individuals by looking at the differences between the amount of power, the basis of power, and the means of employing the basis, the scope of power, and the number of comparable respondents.

As the above paragraph makes clear, some of the dimensions that are the basis of the taxonomy used in this chapter had already been spelled out by Dahl—that is, the source, the domain or the base of power; the means or instruments used by A to exert power over B; the amount or extent of power; and the range or scope of power (which corresponds to the "ends of power" in my terminology). The subjects and the objects of power in this model might be, as stated by Dahl, individuals, groups, roles, offices, governments, nation-states, or other human aggregates. As for the indicators of power, the theory considers open conflict as the only acceptable data regarding the existence of power. Therefore, the analysis of power is carried out at the empirical level as the exercise of power is supposed to be reflected in the actual behaviours of actors. This approach has been criticised on the grounds that it rests on the causal relation between the behaviours of A and B, conceiving A's behaviour as the only cause of B's behaviour. Clegg (1990), in that regard, points out the analogy between Dahl's conception of power and the classical mechanics that is characterized by the conditions that bodies are independent, that there is a relation between them—i.e. they are not acting at a distance, as Dahl puts it—and

that they will remain as they are for as long as they are subject to no extrinsic interference. These conditions are all satisfied in Dahl's conception of power as As and Bs are independent, As and Bs are not acting at a distance—As exert a cause and Bs register an effect—and the situation remains the same unless As causal attempts succeed in getting Bs to be the objects of an exercise of power in which case Bs will do something that they would not otherwise do. The analysis, therefore, can be said to be conducted at a one-dimensional level.

As for the ends of power, the definition of power provided by Dahl suggests an episodic conceptualization: A getting B to do something that B would not otherwise do. As the whole analysis rests on the regularity of such observation, we have the repetition of the same episode. The only final purpose of the exercise of power that can be extracted from Dahl's analysis is As' achieving their goals whatever these goals might be.

Before moving on to the discussion of the agency-structure relation underlying Dahl's approach, it is important to note the parallel with Dahl's (1957) conception of power and the Weberian conceptions. Weber (1954) defines power as "the possibility of imposing one's will upon the behaviour of other persons" (p. 323), and elsewhere as "the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests" (1947, p. 152). The two definitions are obviously different wordings of the same basic idea of power as a property of actors and as a relation of conflict and antagonism.

Other definitions which may be labelled as Weberian, as they share this basic idea with Weber, are those of French and Raven (1960) and Blau (1967):

> power is the potential ability of one group or person to influence another within a given system (French and Raven, 1960, p. 609, emphasis added).

> the ability of persons or groups to impose their will on others despite resistance through the deterrence either in the form of withholding regularly supplied rewards or in the form of punishment, in as much as the former, as well as the latter, constitute, in effect, a negative sanction (Blau, 1967, p.117).

These definitions make it clear that power is conceptualized only at the individual level within a given system, ignoring the systemic reproduction and transformation of power at the structural level. This is even more apparent in Dahl's definition as it makes no reference to the social environment in which the actors are interacting. Although the actors, i.e. the subjects and objects of power, in Dahl's conception include groups, roles, offices, governments, nation-states and other human aggregates, taking into account these "aggregates" does not make his analysis less individualistic as whatever units are considered their interaction is viewed in isolation from the social context. This follows from the absence of any reference to the context in which actors do interact with each other. Therefore, it is not possible to position this theory in terms of the agency-structure relation, as it is

not clear whether the determinants of power, such as the source, means etc., are determined by the social structure or by the individuals. Why does that specific actor have power but not the other? One may argue, for example, that the person has more wealth (or more of whatever the base of power is taken to be). Nevertheless, the very reason that the base—whatever it is—endows the owner with power remains as a question that cannot be answered at the individual level, hence within the bounds of the one-dimensional view of power. Equivalently significant is the distributional issue. Even if we accept that it is the endowment of some base that determines how powerful one is, the distribution of that base remains unexplainable at the individual level. Hence, the lack of reference to the role of the structure and its interaction with the agency, might lead to a conclusion in favour of individualism, if one considers it as an implication of the irrelevance of the social structure; however, the static characteristic of the analysis might lead to a conclusion in favour of structuralism, such that individuals are not able to affect the context within which they are interacting, the resources each has etc.

All in all, even if the one-dimensional definition might be relevant at the empirical level and explain some manifestations of power, it falls short of explaining the dynamics of the structure of power.

3.2.1.2. Bachrach and Baratz and the Two-dimensional View. Bahcrach and Baratz's (1962, 1963 and 1970) view is catalogued as the two-dimensional

view of power by Lukes (1974).[4] Bachrach and Baratz argue that attention should be concentrated upon the sources of power rather than its exercise, as otherwise the reputedly powerful is ignored, and it becomes impossible to take into account the fact that power may be, and often is, "exercised by confining the scope of decision-making to relatively 'safe' issues" (1962, p. 948). Therefore, this second face of power is mainly concerned with situations where one party is able to limit the political scope only to the issues that are of his/her interest:

> Of course power is exercised when A participates in the making of decisions that affect B. But power is also exercised when A devotes his energies to creating or reinforcing social and political values and institutional practices that limit the scope of the political process to public consideration of only those issues which are comparatively innocuous to A. To the extent that A succeeds in doing this, B is prevented, for all practical purposes, from bringing to the fore any issues that might in their resolution be seriously detrimental to A's set of preferences (1962, p. 948).

Their "central point" is this: "to the extent that a person or group—consciously or unconsciously—creates or reinforces barriers to the public airing of policy conflicts, that person or group has power" (Bahcrach and Baratz, 1962, p. 8).

[4]As Bachrach and Baratz have subsequently modified their positions, I will refer also to their 1973 paper which is not discussed by Lukes.

A closer look reveals that, in order to capture this aspect of power, the analysis should involve the examination of both decision-making and nondecision-making: A decision is "a choice among alternative modes of action"; and a nondecision is "a means by which demands for change in the existing allocation of benefits and privileges in the community can be suffocated before they are even voiced; or kept covert; or killed before they gain access to the relevant decision-making arena; or, failing all these things, maimed or destroyed in the decision-implementing stage of the policy process" (1970, pp. 39, 44). As clarified later by Clegg (1990), nondecision-making may work in three ways. First, the powerful may not "hear" the demand articulated by the less powerful, a situation also termed as the "negative decision-making" by Parry and Morriss (1974). Secondly, B may anticipate A's likely opposition and consequently does not raise an issue, which was indeed proposed long ago by Friedrich (1937) as the "rule of anticipated reaction". Finally, nondecision-making may operate through Schattschneider's "mobilization of bias". Bachrach and Baratz cite Schattschneider's famous and much-quoted words:

> All forms of political organization have a bias in favor of the exploitation of some kinds of conflict and the suppression of others, because organization is the mobilization of bias. Some issues are organized into politics while others are organized out (Schattschneider, 1960, p. 71, emphasis in the original).

The links between these three ways can be set out as follows: the mobilization of bias prevents B from formulating grievance. If grievance is ever formulated, then B may not articulate a demand due to the rule of anticipated reactions. If a demand is articulated by B, A may resolve the issue by making a decision either in the form of acceptance or refusal of B's demand, or the issue may not be resolved due to negative-decision making.[5]

For Bachrach and Baratz, conflict is a necessary condition of any power relation. They write that if "there is no conflict, overt or covert, the presumption must be that there is consensus on the prevailing allocation of values, in which case nondecision-making is impossible" (1970, p. 49). Moreover, in the absence of conflict "there is no way accurately to judge whether the thrust of a decision really is to thwart or prevent serious consideration of a demand for change that is potentially threatening to the decision-maker" (1970, p. 50). If there is consensus with the status quo, then it will not be possible "to determine empirically whether the consensus is genuine or instead has been enforced through nondecision-making"—and the "analysis of this problem is beyond the reach of a political analyst and perhaps can only be fruitfully analyzed by a philosopher" (1970, p. 49). The conflict, according to them, is between the interests of those engaged in nondecision-making and the interests of those who are excluded from a hearing within the political system.

[5]This is the framework used in the first chapter while analysing the role of power in operationalisation of participatory decision-making mechanisms.

At this point attention should be paid to the fracture that may lead to an inconsistency within their own arguments: on one hand, power is creating or reinforcing barriers to the public airing of policy conflicts; on the other hand, one cannot talk of power if there is no conflict. That is to say, if people are prevented from showing their grievances through the political system, Bachrach and Baratz, who take the expressed policy preferences and grievances (let them be actually taken into political agenda or not) as the only data, are not able to observe any conflict and would conclude in favour of the absence of power. It is, according to Bachrach and Baratz, the task of a philosopher to analyze the special cases of absence of conflict where nondecision-making enforces consensus. However, as the most common type of consensus we observe in real world is such type of consensus, social sciences cannot just step aside.

A further question, which is at the core of a considerably important part of the literature on power, begs for attention as well: How are the interests to be identified? Bachrach and Baratz deal with this question not in terms of interests but of grievances, arguing that if there is a conflict between interests, then those persons and groups apparently disfavoured by the mobilization of bias would have grievances, overt—those grievances that have already been expressed and have generated an issue within the political system—or covert—those grievances that are still outside the system. The existence or the absence of grievances is left to the decision of an external observer. Hence, it is assumed that if people feel no grievances, then they have no interests that are harmed by the use of power and

there is a genuine consensus on the prevailing allocation of values. The criticism raised above for the insistence on existence of conflict, mutadis mutandis, applies here as well.

Somehow contrary to the typology of power in 1970 paper, especially with respect to the concept of influence which is regarded as one of the typologies, in Decisions and Nondecisions: An analytical framework (1963), Bachrach and Baratz make a distinction between power and influence and, to this end, they stress the role of sanctions as a necessary but not sufficient aspect of power, an aspect which differentiates power from influence.[6] The conditions under which the fact that A can sanction B will be a case of power are fourfold: i) "the person threatened is aware of what is expected of him"; ii) "the threatened sanction is actually regarded as a deprivation by the person who is so threatened"; iii) "the person threatened has a greater esteem for the value which would be sacrificed should he disobey than for another value which would be foregone should he comply"; iv) "the person threatened is persuaded that ... his antagonist would not hesitate in fine actually to impose sanctions" (p. 634, emphasis in the original). It is important to note the implication of the first condition: "power has a rational attribute: for it to exist, the person threatened must comprehend the alternatives which face him in choosing between compliance and noncompliance" (p. 634). Drawing these

[6]The other necessary conditions for power relation to exist are "conflict of interests or values between two or more persons or groups" and that "B actually bows to A's wishes" (1963, p. 634).

elements together they state their conception of power in a more explicit manner compared to their preceding paper.

> A power relationship exists when (a) there is a conflict over values or course of action between A and B; (b) B complies with A's wishes; and (c) he does so because he is fearful that A will deprive him of a value or values which he, B, regards more highly than those which would have been achieved by noncompliance (p. 635).

Hence, to be the subject of power, i.e. to comply with the wishes of the powerful, is a rational choice which is done according to the standard cost-benefit analysis.

Let us summarize the two-dimensional view in terms of the dimensions mentioned in the introduction. The subjects and objects of power are individuals or human aggregates such as groups, organizations etc. Power is explained in terms of decisions or nondecisions of these units. The inclusion of nondecision-making and, hence, covert and, to some extent, latent conflict, among the indicators of power allows them to go beyond the entirely behaviouralist approach of the one-dimensional view as the analysis of nondecision-making aims to highlight the cases where there is little or no behaviourally-admissible evidence of power being exercised, but in which, power is pervasively present. However, their position is a modified behaviouralism, and, as stated by Baratz (1977), rather than being a

trenchant critique of decisionism as the hallmark of power, their modified position only extends the boundaries of a decision. Lukes (1974) also considers this approach as a qualified critique of the behavioural focus as nondecision-making remains a form of decision making; yet this criticism, though it has a point, is not totally correct as Bachrach and Baratz's (1973) distinction between nondecisions and decisions shows that the former is not reducible to the latter.[7] The point of Lukes' criticism is that, as one can always argue, preventing some issues from becoming a question for decision counts itself as a decision; however, in terms of the analysis of Bachrach and Baratz this case is in the realm of nondecisions. All in all, the problématique of the analysis of nondecisions remains unsolved in the analysis of Bachrach and Baratz.

The amount or the extent of power is not relevant for this view of power as they do not go for a quantitative analysis of power. The aim of power is to have control over the political agenda. The means or instruments of power are the threat or exercise of sanctions. The source of power is not mentioned explicitly, As somehow have the potential to exercise power over Bs. An important source in this conception, though not thoroughly argued by Bachrach and Baratz, is the

[7]In the 1973 article, they also give a more accurate account of nondecision-making in order to distinguish it from the negative aspect of decision making that is deciding not to act or deciding not to decide: "When the dominant values, the accepted rules of the game, the existing power relations among groups, and the instruments of force, singly or in combination, effectively prevent certain grievances from developing into full-fledged issues which call for decisions, it can be said that nondecision-making situation exists" (p. 641). Therefore, some issues are prevented from becoming a question for decision due to the mobilization of bias, and when a latent issue emerges as a public issue, the decision-making process pre-empts the nondecision-making field, jeopardizing the previously established the mobilization of bias.

perceptions of Bs. There is a reference to Bs perceptions in their definition (in the 1973 paper) as B's fear that A will impose sanctions on him is a necessary condition for the existence of power. But they do not go far enough to say that this perception alone might be enough for the (perceived) sanction to be effective regardless of A's actual ability or intention to impose sanctions. Once this is accepted, A is left out of the picture and, therefore, the analysis which focuses on the interaction between A and B loses its point. What is needed is a more systematic analysis that focuses on the ways these perceptions are formed, reproduced and transformed. Another point which seems odd is with regard to the valuation of compliance and noncompliance on the part of B and the link between these valuations and the existence of power. Apparently, this approach hardly escapes from the criticisms launched against the standard cost-benefit analysis. The drawbacks of such an approach are very well known to repeat here. Suffice it to say, however, that leaving aside all the criticisms of assigning monetary values to nonmonetary values—a criticism which I agree as well—, the discount rate that is to be chosen in such calculations is an issue that has been disputed by many scholars (see e.g. Sagoff, 1988).

Moreover, concluding the absence of power is not so straightforward in all cases where one values noncompliance more than compliance and therefore chooses noncompliance. For example, consider the conflict between owners of a factory (capitalists) and the workers, which arises due to the demand of workers to join the trade union.[8] In case of noncompliance, i.e. in case workers join the trade union;

[8]Call this case simply as 'joining the union' for further reference.

assume that, all workers who join the trade union will be fired. If they comply, then they will not be fired but will not be allowed to join the trade union. If the workers choose noncompliance, say because they value their collective interests as the working class more than the wage they get, and they are all fired due to this choice, the case ceases to be a case of power for Bachrach and Baratz as, even though there is conflict and there are sanctions, "B" does not comply with "A"s wishes. Might it really not be said that the capitalists exercise power over the workers?

The costs and benefits, in this context, depend on how sanctions are defined. The conception of sanctions, which is seen as a necessary condition for power, is also analyzed in a restricted framework. It is a case of imposing sanction only if A deprives B from the values that B already has. Again take the example of workers and capitalists. Consider a situation where the state is not effective (or willing) in monitoring whether all workers are registered and they have insurance, and where there is high level of unemployment. Moreover, suppose that the unemployment benefits either do not exist or are at very low levels (not an unrealistic assumption for most of the developing countries). Therefore, as one has to find a job in order to survive and as it is not in the interest of the capitalist to register workers and pay their insurance, there is a growing informal sector where workers are unregistered, do not have insurance and the wages are almost below the subsistence level (but still higher than the unemployment benefits if they exist). How can choice enter into this picture? Consider a "bargaining" between the capitalist and the worker

upon the hiring of the worker. The capitalist offers two options to the worker: the worker either will have insurance but will be paid a lower wage ([most, if not all, of] the insurance premium being paid from the wage of the worker) or he will not have insurance and will receive a higher wage which is already at the subsistence level (of course there is a third option of remaining unemployed but as the case will be the same for all workplaces and remaining unemployed means not being able to sustain one's life, this third option is not plausible).[9] As there is nothing here that the worker already has, the capitalist is not depriving him of anything and there is no sanction according to Bachrach and Baratz. Hence, there is no power! The worker freely chooses between the two options and, therefore, whatever the choice is made, he is better off. Again, might it really not be said that power is at the heart of this situation leading to, first of all, the existence of this very situation? And, might it not be said that there are sanctions in this case, not imposed, or threatened to impose, by the capitalist, but by the socio-economic system as a whole which led to the creation of the informal sector, rise in the unemployment etc.?

The view that the two examples given above are not considered as relevant for the analysis of power would equally be valid for the one dimensional view, as A (the capitalist) is not making B (the workers) to do something that B would not otherwise do. Once one accepts that these are, indeed, cases of power and should be analyzed so, the need for another conception of power becomes apparent.

[9]Call this case as 'bargaining between capitalists and workers' for further reference.

The three-dimensional ("radical") view of Lukes (1974), which is built upon the critique of these two first approaches, and which I will elaborate now, goes further, as claimed also by Lukes himself, compared to the first two views.

3.2.1.3. Lukes and the Three-dimensional ("Radical") View. Lukes (1974), after critically reviewing the views of Dahl and Bachrach and Baratz, and naming them as the one-dimensional and the two-dimensional views, respectively, constructs his three-dimensional ("radical") view of power.

Lukes criticizes Dahl's view as resting upon the existence of conflict between interests which are assumed to be consciously developed, exhibited in actions, and thus revealed by behaviour. However, he argues, interests might be unarticulated or unobservable, and above all, people might actually be mistaken about, or unaware of, their own interests. This point turns out to be the basis of the concept of the real interests which is at the heart of Lukes' theory.

Lukes' one line of criticism of Bachrach and Baratz's analysis rests on the argument that they focus on actual, observable conflict, overt or covert. Power still shows up only where there is observable conflict. Lukes, righty, asks: "is it not the supreme and most insidious exercise of power to prevent people, to whatever degree, from having grievances by shaping their perceptions, cognitions and preferences in such a way that they accept their role in the existing order of things, either because they can see or imagine no alternative to it, or because they see it as natural and unchangeable, or because they value it as divinely ordained or beneficial?" (1974, p.28)

Lukes criticizes the two-dimensional view also because of its methodologically individualist view of power and writes, "...the bias of the system is not sustained simply by a series of individually chosen acts, but also, most importantly, by the socially structured and culturally patterned behaviour of groups, and practices of institutions, which may indeed be manifested by individuals' inaction" (1974, p. 26).

After these criticisms of the first two views, Lukes develops the three-dimensional view of power, which focuses on (a) decision-making and control over political agenda (not necessarily through decisions); (b) issues and potential issues; (c) observable (overt or covert) and latent conflict; (d) subjective and real interests (1974, p. 25). The third dimension of power considers the case where A is able to affect B's wants. Three-dimensional view "allows for consideration of the many ways in which potential issues are kept out of politics, whether through the operation of social forces and institutional practices or through individuals' decisions" without assuming actual, observable conflict (1974, p. 24). When there is no observable conflict, what one may have is a latent conflict, which consists in a contradiction between the interests of those exercising power and the real interests of those they exclude. The concept of real interest constitutes the core of Lukes' theory but is, at the same time, at the core of the problems with that theory. This is, in large part, due to the moral relativism of Lukes' stance on real interests. Conceptions of what real interests are, he argues, will differ according to whether one is a liberal or a reformist or a radical. It is thus something which is not only a priori but also

beyond the scope of analytical explanation. To avoid this vagueness, he argues that the identification of the real interests ultimately always rests on empirically-supportable and refutable hypotheses. However, he does not give an example of such hypotheses.

He further asks whether power can be exercised by A over B in B's real interests:

> [S]uppose there is a conflict now between the preferences of A and B, but that A's preferences are in B's real interests. To this there are two possible responses: (1) that A might exercise 'short-term power' over B (with an observable conflict of subjective interests), but that if and when B recognizes his real interests, the power relation ends: it is self-annihilating; or (2) that all or most forms of attempted or successful control by A over B, when B objects or resists, constitute a violation of B's autonomy; that B has a real interest in his own autonomy; so that such an exercise of power cannot be in B's real interests (1974, p. 36-37).

Therefore, he argues that it is possible for power to be exercised over an agent against his/her preferences but in his/her real interests. As the conditions of relative autonomy of B are non-existent, B would not be able to realize this and it must be A who makes the judgment of what B's real interests are despite what B maintains his/her interests to be.[10]

[10]Benton (1981) identifies the analogy of these other ascribed preferences with the central problem of Marxist theories, and refers to their common paradox as the "paradox of emancipation" (p. 162). I shall return this below.

These considerations lead Lukes to defend his view that may be misused as "paternalist license for tyranny" (1974, p. 37). He states two strictures on the use of the concept of real interests that are sufficient to guarantee against any such misuses. These strictures are that real interests must be empirically identifiable and that they must be identified by the objects of the exercise of the power themselves, under the conditions of relative autonomy (in particular, autonomy from the source of the power exercised over them).

Lukes adds a further argument, significant versus non-significant affecting: "The absolutely basic common core to, or primitive notion lying behind, all talk of power is the notion that A in some way affects B. But, in applying that primitive (causal) notion to the analysis of social life, something further is needed—namely, the notion that A does so in a non-trivial or significant manner" (1974, p. 30). Alternative conceptualizations of power offer alternative criteria of significance. The one, two and three dimensional views, Lukes writes, "can be seen as alternative interpretations and applications of one and the same underlying concept of power, according to which A exercises power over B when A affects B in a manner contrary to B's interests" (1974, p. 30). Other alternative criteria of significance analyzed by Lukes are that of Parsons's (1963, 1967), which focuses on the use of authoritative decisions to further collective goals, and of Arendt's (1970) which dissociates power from the command-obedience relation and from being the property of an individual, hence, existing as long as people get together and act in concert. Lukes argues that his view of power is superior to Parsons's and Arendt's views as they

focus on "power to" and ignore "power over", and, as they refer to co-operative action where there is no conflict, what they mean is influence but not power.

There are, however, difficulties associated with the study of the three-dimensional view, also recognized by Lukes. In the first place, power, according to this view, involves inaction rather than (observable) action. In the second place, it may be unconscious (this seems to be allowed for on the two-dimensional view, but to the extent that nondecisions are differentiated from decisions). There are a number of ways of being unconscious of what one is doing. One may be unaware of what is held to be the "real" motive or meaning of one's action, of how others interpret one's action or of the consequences of one's action. The third problem stated by Lukes concerns the cases where power is exercised by collectivities, such as groups or institutions:

> The problem is: when can social causation be characterized as an exercise of power, or, more precisely, how and where is the line to be drawn between structural determination, on the one hand, and an exercise of power, on the other? (1974, p. 52)

His confusion at this point is, in my view, due to the conceptualisation of structure merely as the environment where independent and autonomous individuals interact. Moreover, there is no specification of this environment in which agents are assumed to interact. Is it a liberal capitalist system or a social democratic one? Either this point is ignored, which may imply the presumption that "it does

not make any difference", or there are some implicit assumptions. I am, obviously, not in a position to answer which one is the case.

This point becomes clearer once it is recognised that at the heart of Lukes' analysis of power there is a strong commitment to an ethic of responsible individualism: it is the responsible individuals who exercise power (Clegg, 1990). Power presupposes human agency, in particular, the ability to choose. Choice, in turn, entails responsibility for the effects that individuals either promote or might have hindered. Even though these choices are exercised at the heart of the structures of power, the analysis of the relationship between power and structure remains residual to the central conception of agency. The reason for the centring of the focus on agency and responsibility rather than on structure and determination is evident in Lukes' writings. What is being avoided is any conceptual assimilation of power to structural determination as it precludes moral responsibility: "within a system characterized by total structural determinism, there would be no place for power" (1974, p. 57).

On the other hand, Lukes explicitly formulates the relation between power and structure on the premise of a notion of power, which remains ineradicably tied to human agency:

> [P]ower ... presupposes human agency. To use the vocabulary of power (and its cognates) in application to social relationships is to speak of human agents separately or together, in groups or in organizations, through action or inaction, significantly affecting the

> thoughts or actions of others. In speaking thus, one assumes that although agents operate within structurally determined limits, they none the less have a relative autonomy and could have acted differently (1977, pp. 6-7).
>
> The future, though it is not entirely open, is not entirely closed either (and, indeed, the degree of its openness is itself structurally determined) (1974, p. 57).

These passages apparently realise the interaction between agency and structure and the irreducibility of one to the other. However, when he refers explicitly to power, the focus is still on As and Bs involved in exercises of power revealed in concrete social action. The question of the determinants of A's power remains unexamined. The novelty, over and above the behavioural focus of Dahl's behaviouralist approach is the focus on meaningful social action rather than on simply observable behaviour. However, meaning is judged by an observer. There can be no particular solution to this puzzle. This is a point well taken up by Clegg (1990):

> Either the judgement is that of an observer or that of a subject. If that of an observer, it will be made either according to some standard of real interests or capriciously or inconsistently. If that of the subject, it is impossible to differentiate an authentic, real articulation of interests, which is made from without power, from an unauthentic, false articulation of interests which is made as a

> result of the constraints of power. If subjects cannot know their own minds, how can observers? (p. 100)

Consider the joining the union case as described above. What is the real interest of workers in this case? It might be that workers' real interest is not to join the trade union and to remain employed, in which case the capitalist is exercising power over the worker against their preferences but in their real interest in so far as the capitalist succeeds in avoiding the workers in joining the trade union. Or, alternatively, workers' real interest might be to join the trade union in which case there is a latent conflict between the workers and the capitalist. If this is the case and the capitalist succeeds in avoiding the workers joining the trade union, then the capitalist exercises power over the workers against their real interest. If, on the contrary, the capitalist cannot succeed in preventing the workers from joining the trade union, there is no power according to Lukes, as for the two other views discussed before. The reason is that A is not able to affect B's choice. And, I ask, again: Is it really not a case of power?

Now consider the second case of bargaining between capitalists and workers. This case, as well, is not considered as a case of power according to this dimension. There is no conflict, overt, covert or latent in the theories' own terms. The worker—the responsible agent—is able to make a choice under conditions of relative autonomy—not forced by the capitalist regarding the choice—and, therefore, is responsible from the effects that the choice promotes. Lukes would accept the

fact that the choice is made within "the structurally-determined limits"; however, it is not clear where he would locate power in this picture.

Finally, let me define the three-dimensional view of Lukes along the dimensions of the taxonomy. The subject and object of power, is the responsible individual; the indicators of power is the existence of overt, covert or latent conflict, and A having B to do something that B would not otherwise do; the source of power is not discussed explicitly or implicitly, hence leaving the questions of "why is it A having power but not B?" and "are the perceptions of B not enough for A to be able to affect B's behaviour in this framework?" unanswered; the amount or extent of power is not discussed in quantitative terms but, in Lukes' term, it may refer to the concept of significant affecting; the ends of power is to gain control over the political agenda and to influence the object's wants.

I tried to underline the similarities and differences between the three views of power which are "radically" differentiated by Lukes (1974). The analysis showed that the underlying conception of power remains the same, A affecting B in a manner contrary to B's interests. Different ways of affecting correspond to different conceptions of power. However, the locus of analysis as A and B remains unchallenged in all these views, leading to their failure to grasp the systemic character of the concept of power. Power, in the end, remains as the property of actors, the source of which is either not discussed or explained in individualistic terms. However, if it is some individual endowment of whatever base that is the source of power, the questions as of "why is it that specific thing (material or nonmaterial)

but not something else that endows the owner with power?" and "what determines the distribution of that thing that constitutes the base of power?" remain as unanswered at the individual level. Lukes goes further than the first two views and asks the right questions; yet, alas, he fails to formulate a framework so as to conduct an analysis of power where the structure is not marginalized at the expense of the centralization of the individual, and the interaction between the two is realized.

3.3. Economics and Power

Is the economy a system of power? Can phenomena such as unemployment, distributional inequalities, growth and development etc. be explained in terms of power? If power has a role in the evolution of the economic system, then how can the evolution of power be determined? Questions like these have been preoccupying most economists since the emergence of political economy. Adam Smith, in the Wealth of Nations, observed that the market order was achieved only within the structure of power, that is, markets were structured by power and market solutions were power structure specific (Samuels, 1973). Some schools of thought, mainly institutionalist and Marxist, still place power at the centre of their analysis, whereas other approaches either deny its relevance or accept a very limited role for it only under abnormal conditions. However, between the schools of thought which take power into account, and within these schools, it is not possible to find a commonly accepted conception of power. One of the leading economists, Williamson (1985), puts this point quite explicitly: "the concept of power is so

poorly defined that power can be and is invoked to explain virtually anything" (p. 238). Thus, power can mean anything; therefore, virtually means nothing and, in analytical terms, it turns out to be a tautological term with no explanatory role.

In this part, I will review the main approaches in economics—mainstream, Austrian, institutionalist, and Marxist—with regard to the ways in which they conceptualize power. The review, as in the first part, will be based on a representation of the general framework of each theory (in terms of its fundamental assumptions, the underlying conception of the agency-structure relation and the questions that constitute its research agenda), and a taxonomical representation of the theory's position with respect to power along the dimensions of the indicators, the means, the objects, the amount and the ends of power. A comparative analysis between these schools of thought and the views discussed in the first part will then be conducted.

3.3.1. The Mainstream Economics and Power

The meaning of the term "mainstream economics" is increasingly surrounded by ambiguity with recent developments in economic theory since 80s, such as experimental economics, evolutionary economics, behavioural economics etc. (Davis, 2006). What I take as the mainstream are the approaches whereby the social plasma such as institutions are either ignored or reduced to mere creation of individuals and every phenomenon is explained in terms of the observable data at the individual level, i.e. characterized by empiricism and individualism. The core of

the mainstream approach is an account of harmonious human interaction taking place in markets where voluntary, bilateral trade occurs, at the end of which all parties engaged are made better-off. Resources are efficiently allocated through the markets, thanks to the price mechanism. Any inefficiency arises either due to the absence of markets or due to other kinds of market failures such as imperfect competition, asymmetric information etc. Until 1950's any such inefficiency was by definition beyond the scope of the theory as perfectly competitive markets, where perfectly rational individuals interact, were the basic loci of analysis. After that, with the development of the game theory and more recently experimental economics, the theory incorporated market imperfections and boundedly rational individuals into its research agenda so as to explain inefficiencies.

The equilibrium parameters in the markets—prices, output, wage, rent, interest rate—are determined as solutions to the constrained maximisation problem which rests on two elements: constraints and utility or profit. Constraints are related to the resource availability and technology, utility is the subjective evaluation of the resources one has, and profit is the objective measure of success of the firms. The problem is to maximise the amount of utility or profit that is to be obtained under given constraints. Individual behaviour is described as the outcome of rational choices which is the choice that solves the constrained maximization problem. Hence, what determines the individual action is the final level of utility or profit that is to be achieved under given constraints.

Within this general framework, the few cases where the term power is used explicitly refer to the cases of "power to" that the individuals possess such as purchasing power and monopoly power. Any explanation of these concepts in terms of relation between individuals, let alone their structural determinants, is ruled out. As pointed out by Bartlett (1989), no one is forced to trade with the monopolist, thus, each person who does so does it freely and must be considered to be made better off by the trade relative to a no-trade position. Since everyone is free to engage (or not to engage) in exchange, both parties are better off when the exchange actually takes place. And, as such, the theory remains silent to the claims (as pronounced, among others, by Bardhan [2005] and Barry [1989]) that gains from power are conceptually different from gains from trade since A can indeed exercise power over B even if B is actually better off in comparison with his/her previous situation—A's power in this case lying in the ability to obtain "low-cost compliance" from B.

Only in the case of externalities there is a potential to include "power over"; however, externalities are not considered as cases of power according to the mainstream approach. Externalities arise because the interaction is taking place outside the market. Here, Coase's theorem is worth remembering as it implies that the externality will be "corrected" once a market for property rights is created, hence rendering irrelevant any outside criticism based on power. However, one may still ask, is it not a case of power to oblige one party (the one who is subject to the externality) to take part in this market? This is the case of power, for example,

according to the one dimensional view of power, that of Dahl (1957), as A (the party imposing the externality) gets B (the party who is subject to the externality) to do something (to engage in the market for property rights) that B would not otherwise do.

In general, power is conceptualized as a by-product of individual behaviour which does not aim to coerce, thus, is not intentional. Whether the behaviour will bring about this by-product or not, depends on the market structure or the specific states of market phenomena, e.g. informational asymmetries etc. The most relevant example of such "power" in the mainstream literature, which arises due to the market structure, is the monopoly power. An implication of such a conception of power is that power is seen as an exception to the general rule which loses its relevance once the relevant markets are set and work perfectly and the economy approaches to the state of general equilibrium.

Power has also been examined as an item that is traded. An apparent example of this is the labour market where the submission to authority is purchased. The same reasoning may be extended to the externality case in which the submission to externality is purchased. Therefore, being subject to power is a choice which is made as a result of a cost-benefit analysis. If the benefit of submission, that is the wage in the labour market case, is greater than the costs of submission, such as material and subjective non-material costs of work, then the individual would indeed choose submission. Equivalently, the wage may be considered as the price of authority. In whatever wording it is explained, the logic is that power is

something that is bought and sold, and since everyone is free either to make or not to make this exchange, when exchange is made both parties are expected to benefit. In the end, both the decisions to exercise power and to be subject to it should be rational. Moreover, the overall system should be efficient as everyone is acting rationally and they are all better off compared to their next best alternative option.

As opposed to other social sciences which have developed a perspective and a vocabulary for considering the impact of power on human interaction, the mainstream approach has developed a perspective and vocabulary, even a methodology, which tends to ignore those that cannot be quantified, thus avoiding the consideration of power (Klein, 1980). However, it might be an interesting exercise to think what a mainstream theory of power would look like. As the unit of analysis is the atomistic agent (let us call it as the individual), the only data will be individual behaviour. Therefore, the possibility of explaining the systematic nature of power which arises from the social structure due to an interaction of economic, political and cultural realms is ruled out. Such a structure simply does not exist in the mainstream approach. Therefore, even if the theory had placed the concept of power at the centre of its research agenda, it would analyze it in terms of individual behaviour. Exercise or non-exercise of power would be discernible in the behaviour of agents. As the behaviour of agents is displayed in the market activity, the empirical knowledge of the market phenomena would be used in

order to analyze whether the very behaviours which gave rise to the market phenomena were determined by the existence of power or not. Note also that, as individual behaviour is determined by the constrained maximization problem, and the preferences, therefore the utility function, are given, individual behaviour can only be changed through changing the constraints, e.g. changing prices, income etc. (Pagano, 2007, personal communication).[11] Therefore, A could get B to do something that B would not otherwise do by changing the constraints of B's constrained maximisation problem. The base of A's power would be the resources A has, the means of his power would be the instruments used in order to change the constraints B faces, the indicator of power would be the change in B's behaviour, and the scope of power would be anything that would further A's utility as the exercise of power by A has to be a rational decision in the end. The amount or extent of power would be calculated in a similar fashion to Dahl (1957).

At this junction, a complementary view comes from sociology, "social action" theorists, who see the major object for sociology as the human action (see, e.g. Weber, 1947). "Action", according to social action theory, is defined as those behaviours which are subjectively meaningful, social (involving others, not solipsistic), and which involve elements of intentions and purpose. The theory sees

[11]Effects of advertising on individual preferences might be incorporated into the theory's framework without any further change. Of course, advertising is itself an exercise of power but the theory would take it as a given, as an exogenous shock to preferences. As will be presented below Galbraith's (1967) theory of conditioned power and Pagano's (1999) theory of power as a positional good incorporate the effect of manipulation of preferences to the analysis of power.

compliance as a conscious act, i.e., subordinates performing subjectively meaningful non-self-regarding action. This view is compatible with the mainstream approach in economics according to which, as discussed above, both the decisions to exercise power and to be subject to it should be rational decisions. Similar to the mainstream approach's argument in economics, social action theorists argue that sociology gives a rational, coherent account of peoples' actions, thoughts, and relationships. I will return to the discussion of social action theory while discussing the institutional economics and their criticism of the mainstream approach.

The mainstream theory, needless to say, would not incorporate the two cases mentioned previously—joining the union and bargaining between capitalists and workers—as the cases of power. It would see the first one, where the workers have to choose between joining the union and losing their job or remaining employed at the expense of not joining the union, as a voluntary termination of an exchange on both parts. And it would explain the second example, where the worker has to choose between having insurance at the expense of receiving a lower wage and having a higher wage at the expense of having no insurance, as the worker's decision regarding whether to engage in an exchange.

To recapitulate, the mainstream approach is characterized by the individualistic analysis where the individual behaviour is the only data which is to be used to explain everything else which is of interest. Other parameters are determined at their optimal levels as a result of all individuals acting in isolation but in the end producing optimal outcomes for everyone. The overall point is well expressed by

the "invisible hand" welfare theorems: if there are enough markets to internalize all transactions, then a Pareto Optimal allocation would be achieved by competitive markets as a consequence of rational decisions of individuals, and among all possible Pareto efficient outcomes one can achieve any particular one by competitive markets after an initial lump-sum redistribution. Therefore, the market alone is sufficient and there is no need for other structural entities. This has important implications in terms of the theory's position with respect to individual-structure relation. There is no reference to structure other than the market structure. The individual pole seems to be prioritized in the individual-structure dichotomy, as the only explanan is the individual behaviour and individualism is supported on the ground that everyone is free to engage in an exchange or not (remember that exchange is the only social interaction conceived by this approach). On the other hand, single individual has negligible influence on the market structure, hence on the structure. Accordingly, despite its individualist make-up, I position the mainstream approach in the structuralist pole as the individuals are conceptualized as the mere bearers of the price mechanism and market structure.

3.3.2. The Austrian School and Power

In marked contrast with the equilibrium analysis of the mainstream approach, the Austrian school views the economic system as in a perpetual state of disequilibrium, ever evolving and creating unforeseen profit opportunities that agents are constantly trying to find and exploit (see, e.g. Boettke and Leeson, 2003). This is

the reason why the Austrians are mainly concerned with knowledge which is seen as highly decentralized, imperfect, and dispersed, and entrepreneurial venture. Entrepreneurs are the real movers in the economy. The Austrian economist's world is not composed of atomistically optimizing and passively consuming or producing individuals. The basic premise is that there is an enormous amount of ignorance in the system, decentralization is fundamental due to specialization, and the economy evolves through trial and errors. Therefore, the analogy of the Pareto Optimal central planning allocation and the competitive market allocation are not found in the Austrian school according to which the central planning problem cannot even be defined. Individual behavior alone determines social order. The issues of fitting together the individual pieces and making sense of the performance of the economic system as a whole are explained through the spontaneous order argument stated by Karl Menger (1871) and exposited later by Hayek (1937, 1945, 1960). This order arises from the spontaneous activities of specialized individuals pursuing and perfecting their own business, including intermediaries who buy and sell from the suppliers and assemble and market the final product. "The watchmaker is blind, but the watch happens anyway" (Rosen, 1997, p. 143).

How does power fit with this picture? The Austrian school refers to the unequal distribution of asset specificities—in terms of "tacit" knowledge[12] and "entrepreneurial spirit"—in setting out the origins of power differences in societies (see, e.g.,

[12]Tacit knowledge is the knowledge that has been gained through personal experience, consisting often of culture and habits, and cannot be codified. Consequently, it is not easily transmitted to others. See Michael Polanyi, 1966.

Hayek, 1937; Kirzner, 1973; see also Adaman and Devine, 1997). The origin of this unequal distribution, alas, remains untouched. The bases of power, i.e. individual endowments of tacit knowledge and entrepreneurial spirit, enable the individual to perform better in business, exploit more profitable opportunities etc. Again, as in the mainstream approach, this is a "power to" concept and the relational aspects of power either in the form of "power over" someone/some group or the power structures are neglected.

A conception of power from the Austrian perspective is provided by Rothbard (1970). He departs from the example of employee-employer relation and asks whether the case where an employer fires a worker is an exercise of power by the employer over the employee. The conclusion he reaches is in line with the voluntary-bilateral exchange argument of the mainstream approach as he explains the case in question by the employer terminating a certain exchange while the worker preferred to continue. "'Economic power', then, is simply the right under freedom to refuse to make an exchange. Every man has this power. Every man has the same right to refuse to make a proffered exchange" (1970, p. 281). Since everyone has the power either to make or not to make exchanges as he pleases and with whom he sees fit, in the free market everyone is a victor or everyone gains.[13]

Moreover, the concept of political power is inappropriate in the free-market society. Rothbard distinguishes "power over nature" and "power over man" and

[13]Obviously, the two cases of joining the union and bargaining between capitalists and workers fail to be classified as instances of power according to the Austrian approach.

argues that it is the failure to make this distinction which leads to the confusion of political and economic power. Power over nature is "an individual's power to control his environment in order to satisfy his wants" and it increases the general standard of living or promote the satisfactions of all (1970, p. 284). Everyone can achieve power over nature. Power over man, on the other hand, does not serve any general desirable purpose as by its essence only some men in society can wield this kind of power. The libertarian doctrine, Rothbard adds, advocates the maximization of power over nature and minimization of power over man. As the main figure exercising power over man is the state, this is to say that the state should be minimized. In Rothbard's view, this minimum should be zero, that is, there should be no state.

Besides the power of the state, Austrian economists, e.g. Hayek (1944), are also concerned with the negative impact of monopolies over competition.

In sum, power is not a central concept in the Austrian school. The conception of power based on asset differences provides an individualistic analysis where individual power is explained in terms of individual endowments of tacit knowledge, entrepreneurial spirit etc. However, as the mainstream approach, the Austrian school also fails to take into account the structural power relations which underlie the supposedly free-market which is at the core of its theory.

3.3.3. Marxism and Power

According to Marxists, society is divided into the social structure (the superstructure) and the economic structure (economic base). The economic base consists of the forces of production such as land, labour, capital, technology, and the relations of production which are mainly the class relations. The relation between the economic base and the superstructure is a matter of dispute among Marxists. On the one hand, the orthodox Marxism argues that the economic base determines the superstructure, as well as the forces of production determine the relations of production within the base. Critical Marxists, on the other hand, conceive a dynamic relation between the two structures, both affecting the other (see Dugger and Sherman, 1994).

Technology plays an important role for Marxist explanation of the evolution of the superstructure. This led to a tendency in Marxism to reduce all social explanations to technological change. Dugger and Sherman (1994), in this respect, draw an analogy between the mainstream approach and the Marxist one. The mainstream approach reduces all explanations to given individual preferences without explaining the preferences themselves. Marxist view suffers from the same kind of flaw as they reduce the understanding of society to technology without explaining technology itself. However, this argument is not completely true as even if it is accepted that the class dynamics are determined by technology, technology is in

turn affected by this dynamic as the dominant class attempts to restrict the development of new technologies which might undermine their dominance. Therefore, the evolution of technology can be explained with reference to class relations and it is accepted that the relation between society and technology is a dual one.

Power is a central concept in the Marxist approach though it is generally expressed in other terms such as exploitation, alienation etc. As the main unit of analysis in this approach is social class, the subject and the object of any power relation is the class, and the analysis of power serves to explain the class conflict. The most direct conflict between the classes is the economic one, but there are other conflicts—social ones—deriving from that. The economic power of the capitalist arises from the capitalist's control over capital and refers to the ability to hire and fire workers and to exploit them. Other domains of power come up once the economic power is secured. As the superstructure is affected by the economic base, economic power implies the power to determine the superstructure as well so that the overall system of class dominance, hence the system of power, is maintained.

In particular, it is possible to identify two distinct concepts in Marxian theory in which the theory of power is embedded (Madra & Adaman, 2007). The first is the labour theory of value which links power to private property, i.e. the property of the means of production, which is determined in the historical process. The second is the reserve army of labour which offers a systemic conception of power. Power is not seen only as deriving from the ownership of the means of production, but also from the process of capitalist accumulation. Such a conception allows for power

to be potentially available for subordinate classes. When capital accumulation proceeds rapidly, wages rise and the reserve army is gradually depleted. This implies an increase in the relative power of workers. However, the fact that the capitalists have the power to choose the technology may easily reverse this situation as the choice of labour saving technology would lead to an over-supply of labour pushing the wages down.

Among the Marxist scholars, Benton (1981) reviews the three-dimensional debate mentioned in the first part through the lenses of a Marxist approach and defines an alternative Marxist conception of power. Benton argues that Lukes' approach shares the same problem with Marxists, namely "the paradox of emancipation", which is

> [T]he problem of how to reconcile a conception of socialist practice as a form of collective self-emancipation with a critique of the established order which holds that the consciousness of those from whom collective self-emancipation is to be expected is systematically manipulated, distorted and falsified by essential features of that order. If the autonomy of subordinating groups (classes) is to be respected, then emancipation is out of question; whereas if emancipation is to be brought about, it cannot be self-emancipation (p. 162).

He further points to the problems surrounding the empirical interpretation of "relative autonomy".

> If a temporary withdrawal of the exercise of A's power over B is supposed, how do we know when enough of his power has been withdrawn for it to be legitimate to call B's expressed preferences at that point expressions of his/her real interests? (p. 167)

Though the location of the problem is rightly determined, it seems to us that the core of the problem is not the one stated by Benton since there are two points which may render Benton's question irrelevant: (i) temporary withdrawal of A's power may not, and probably will not, change anything as long as B knows the fact that the withdrawal is temporary; (ii) even if A's power is removed—for whatever period—A's interests may already have been internalised by B in which case there are no observable changes in B's behaviours.

Benton defines his alternative concept of power as follows:

> A has capabilities and resources, and B has capabilities and resources, such that if A mobilizes A's capabilities and resources in pursuit of A's objective, and B mobilizes B's capabilities and resources in pursuit of B's objective, then A still achieves A's objective (p. 176).

However, this definition also comes with some problems. As Benton himself recognizes, the definition leads to attribution of power to A even where A and B do not have incompatible objectives. Another problem is the reference to the "mobilization" of resources as, in my view, the existence of A's resources per se

may lead to B's not being able to achieve his objective because B may not mobilize his resources in view of the impossibility of achieving his objective.

Another theory of power from a Marxist perspective can be found in sociology. Martin (1977) investigates the path through slavery, feudalism and capitalism in terms of power relations.

> Power relations under slavery, feudalism and capitalism indicate how each system hangs together, to form a more or less coherent, dynamic whole. This whole is an unstable network of interdependent, unequal and conflictual individuals and groups, not the homeostatic organism or machine of systems theory. Changes in patterns of dependence, deriving from the discovery of new natural resources, technological innovation, the evolution of inheritance rules, or simply from different priorities, or changes in the means available for escape from dependence, lead to new patterns of power relations (p.163).

He argues that power relations arise out of interdependence, which in turn is derived from differential control over access to the resources required to sustain life. This differential control is based partly upon inheritance and partly upon the differential "criticalness" of specific resources—determined by the prevailing sources of production, especially technology, and scarcity—at a particular time (p. 161). The chain of cause and effects can be summarized as follows: technology and scarcity lead to criticalness; criticalness and inheritance lead to control over

desired resources; control over resources and goals lead to dependence; dependence and limited escape potential lead to power relations. He further argues that, "[t]he distribution of power results directly from the multiple and varying goals of the actors, the resources required for achieving them, and the means available to escape from the dependences thereby created" (p. 161). Therefore, different systems of labour exploitation—slavery, feudalism, capitalism—develop different patterns of dependence relation. Power relations in each of these systems hang the system together to form a coherent, dynamic whole which is an unstable network of interdependent, unequal and conflictual individuals and groups. Changes in patterns of dependence, deriving from the discovery of new natural resources, technological innovation, the evolution of inheritance rules, changes in priorities or in the means available for escape from dependence, lead to new patterns of power relations.[14]

Going back to the two cases, of joining the union and bargaining between capitalists and workers, apparently, Marxists would argue that in both cases capitalists exercise power over workers. The base of capitalist's power is control over resources and through this control they are able to shape the economic system in a manner that would further their interests, and they are also able to reproduce this system by limiting the escape potential of workers from the dependency relation in which they are positioned in. Hence, Marxists consider power as a structural characteristics rather than a property of the individuals. Even though the base of power is

[14]The similarities between the view of Martin and that of Marx are apparent and are also accepted by Martin. Still, Martin differentiates his view as being less structuralist and having more pluralistic conclusions.

the control over the resources, the distribution of this control is determined at a structural level.

As for the dimensions of the taxonomy, the indicator of power can be said to be the existence of interdependence, the subjects and objects of power are classes but which classes will be subjects or objects is determined by some non-individualistic parameters. The indicator of power is class conflict, the means of power is the capitalist system itself and the ends of power are extracting surplus value from labour, determining the nature of superstructure so as to sustain the system of power and preventing class consciousness to develop.

3.3.4. Institutionalism and Power

Institutionalism, mainly associated with the works of Veblen, Commons, Mitchell and Ayres, provides a holistic and evolutionary approach that focuses on technology, institutions and power. Such an approach, contrary to the mainstream and Austrian schools, opens space for a structural analysis in explaining the origins of asset differences among people, stressing the crucial role the institutions play in shaping power relations among social groups/classes. In these respects, the institutionalist school and Marxism are parallel and the basic terms of the two can be translated into each other. They are both competing with and complementing each other on most accounts (see Dugger and Sherman, 1994 for a comparison of Marxist and institutionalist approaches).

Although there are two distinct forms of institutionalism—one arising from Veblen through Ayres, the other from Commons—both have a common relationship to mainstream economics and some common principal features (see, e.g. Samuels [1984, 1995] for a survey of institutional economics). A detailed analysis of all the features of institutional economics is beyond the scope of this chapter. However, suffice it to give a brief overview in order to be able to understand the theory's position with respect to other theories and power.

Hodgson (2000, p. 318) lists five propositions as the core of institutional economics. The first four ones—concern for practical relevance, multidisciplinarity, institutions being the key elements of the economy, and the economy being viewed as an open and evolving system situated in a broader set of social, cultural, political and power relationships—, Hodgson argues, are necessary for the definition of institutionalism but not sufficient. It is the fifth one which is the most important defining characteristic of institutionalism drawing the demarcation line between institutionalism and the mainstream approach. The fifth proposition states that "the notion of individual agent as utility-maximizing is regarded as inadequate or erroneous, Institutionalism does not take the individual as given. Individuals are affected by their institutional and cultural situations. Hence, individuals do not simply (intentionally or unintentionally) create institutions. Through "reconstitutive downward causation" institutions affect individuals in fundamental ways" (ibid., p. 318).

Accordingly, in terms of methodology, institutionalists argue for methodological collectivism where individuals and culture are mutually interdependent and individual preferences are endogenous as opposed to methodological individualism of both the mainstream and Austrian approach where individuals are treated as atomistic, isolated and self-subsistent with given preferences. Whereas the mainstream approach tends to explain and rationalize the market economy on its own terms, the institutionalist approach views the market as an institutional complex which operates within and interacts with other institutions. So, the allocation of resources are not analyzed through the market mechanism per se but through the analysis of broader set of variables concerning the organization and control of the economy broadly conceived.

> It is simply not true that scarce resources are allocated among alternative uses by the market. The real determination of whatever allocation occurs in any society is the organizational structure of that society—in short, its institutions. At most, the market only gives effect to prevailing institutions. By focusing attention on the market mechanism, economists have ignored the real allocational mechanism (Ayres, 1957, p. 26).

Therefore, "the ultimate determinant of the allocation of resources is not some abstract market mechanism but the institutions, especially the power structures,

which structure the markets and to which markets give effect" (Samuels, 1995, p. 573).

Institutionalists are also critical of the neglect of the state in the mainstream approach. They view the state as providing the legal foundations of the existing system and the mechanisms of legal means of institutional adjustment and systemic evolution. Moreover, the state apparatus has an important role as creator of power inequalities/guarantor of existing ones.

Though there is no commonly accepted definition of an institution, the functions of whatsoever defined institutions can be identified in a manner compatible with the core of the institutionalist argument. Dequech (2002), along this line, lists three types of influence that institutions have on economic behaviour: (i) "restrictive function" consists in the institutions' role as constraints on economic behaviour; (ii) "cognitive function" refers to the information providing role of institutions such as information about the likely action of other people ("informational-cognitive function"), and to the institutions' influence on the perceptions of people, that is, "on the way people select, organize, and interpret information" ("deeper cognitive function"); (iii) "motivational or teleological function" corresponding to the institutions' influence on the ends people pursue (p. 566). Dugger and Sherman (1994) also present an argument in line with the deeper cognitive function of institutions where through myths and misconceptions weaker groups and individuals fail to recognize their own interests and serve the interests of the dominant

group. Such myths may be racist, sexist and classist, and they serve to rationalize the exploitation of the weak and of the outsider by the strong and by the insider.

These functions, although not an exhaustive list of the functions of institutions, are important in pointing out the oversimplicity of the mainstream approach's view of individual economic behaviour, and shedding light on the individuals-institutions interaction. Nevertheless, the fact that individual preferences are determined by institutions, if carried to the extreme, leads to criticisms of structural or cultural determinism where the individual is seen as the passive bearer of the social structure and institutional change is seen as an outcome of a process involving autonomous social forces, institutions versus technology, that impinge on individuals (Rutherford, 1989). As pointed out by Hodgson (2000), some institutionalists have promoted such structuralist views. It was explicitly mentioned by Ayres (1961) who wrote "there is no such thing as an individual" (p. 175).

The criticism of institutionalists in terms of being structuralist has not yet been encountered in a convincing manner. Though it is possible to find passages, especially in Veblen (1919), which contradicts with structuralism and supports an interaction between individuals and institutions where both depend upon each other, this interaction, i.e. the dynamics through which individuals and institutions depend upon each other and interact, is left largely unexplained. This lack of clarity also led to criticisms arguing that institutionalists treat institutions and technology in a somewhat dichotomous fashion, whereby institutions are associated

with constraint, rigidity and technology with change and dynamics. Hamilton (1991) justifies this dichotomy in the following manner:

> What makes institutions static is the fact that the ultimate test of authenticity for any institutional pattern rests on authority—the authority of magic, religion, habit, and custom reinforced by a mythical efficacy. The institutional pattern is tied closely to the system of status of the community to which is attributed great significance ... Thus, it comes about that there are various roles in society which give to those fulfilling them a particular status within the institutional framework. These status positions are defined by mores which prescribe what is construed to be appropriate behavior within any given role. Such mores define status-relationships within the institutional fabric. The whole process is justified by myth and has the authentication of the ancestors. As such it is not subject to empirical verification and is believed to be true beyond the necessity of further inquiry. In fact inquiry would be impertinent. This supposition gives to the ceremonial behavior pattern its peculiar rigidity. Hence it is the rigid aspect of culture (Hamilton, 1991, pp. 84-5).

Technology, on the other hand, is conceptualized as dynamic and it is the force leading to evolution, growth and development whereby the existing institutionalized patterns of behaviour can be changed. Additionally, it is the human activity

mediated through technology that determines what counts as a resource and how scarce and how efficient it is.

Apart from all the criticisms for which it paved the way, the great merit of the idea that institutions shape individual behaviour is that it allows for a deeper analysis of power which goes beyond the simple conception of coercion or "power to".[15] Institutionalists recognize the role of power in economic, social and cultural evolution. Power relations make it possible to defend existing rights (including but not restricted to property rights) and to create and acquire new ones. They also determine whose rights count/do not count and whose voice is heard/not heard (Dugger and Sherman, 1994). Culture, according to this view, has a role in the formation of social structure and individual identities, goals, commodity preferences, and lifestyles which in turn affect the economic life and institutional adjustment (Samuels, 1995). However, they add that culture itself is a product of continuous interdependence among individuals. Individuals are born into a culture and society through which they are socialized. In turn, culture is transformed through individual behaviours. Power is important in this respect as it determines which individuals will have greater or less impact on the transformation of culture.

If, on the contrary, as in the Hamiltonian framework, institutions are being viewed as static due to the patterns of authority, then the power structure persists because one needs authority to bring about any change and the ones who have

[15]However, power, like institutions, is a concept which does not have a commonly accepted definition within institutionalists, though it is accepted to be one of the key elements of the economic system. Therefore, again I shall focus on the role of power rather than its definition.

authority are the ones who would want to preserve the existing structure rather than changing it. The already powerful ones would also prevent any change in technology that would change the institutional set up, hence the power structure. Therefore, in the end, a system conceived as such would never change unless some radical change, in Marxist sense, occurs.

However, it is possible to find institutionalist perspectives on power which are not characterized by such structuralism. One of them is that of Galbraith (1952, 1967, and 1983), whose works have been very influential in the debate on power. Yet, it is possible to find different conceptions in each of his work. In American Capitalism (1952) he argues that American capitalism has been a system of countervailing power where organized interests struggle ultimately cancelling each other out. In The New Industrial State (1967), power can be unequally held for it arises from the control of the scarcest factor of production in each stage of history. He also emphasizes the ways in which individual preferences are shaped such as advertising. In The Anatomy of Power (1983), power becomes the submission of some to the will of others, in the Weberian sense. He dissects the anatomy of power through different types: condign, compensatory and conditioned power. Different types reflect different means of exercising power. In the case of condign power the means are negative sanctions that threaten the individual with something physically or emotionally painful enough so that he forgoes the pursuit of his own will or preference in order to avoid the sanction (p. 14). Compensatory power, on the other hand, uses positive sanctions, i.e. giving something of value to

the individual so submitting. Another instrument which is used by both condign and compensatory power is that "submission reflects a proper, reputable, accepted, or decent form of behaviour ... it is a submission that derives from belief" (p. 23). Without this final instrument, condign and compensatory power would both be expressed by the one-dimensional view presented by Dahl (1957). However, the inclusion of this third instrument renders it possible to consider the cases where there is no conflict as potential cases of power, thus, differentiating Galbraith's view from one and two dimensional views. The third type of power, conditioned power, is exercised by changing beliefs through persuasion, education and social commitment. Here he comes closer to the three-dimensional view of Lukes but with an important difference: Galbraith analyses the structural determinants of this change in beliefs (in Lukes' terms, change in wants) more carefully than Lukes does.

> While condign and compensatory power are visible and objective, conditioned power, in contrast, is subjective; neither those exercising it nor those subject to it need always be aware that it is being exerted. The acceptance of authority, the submission to the will of others, becomes the higher preference of those submitting. This preference can be deliberately cultivated—by persuasion or education. This is explicit conditioning. Or it can be dictated by the culture itself; the submission is considered to be normal, proper, or

> traditionally correct. This is implicit conditioning. No sharp line divides one from the other (p. 24).

Hence, Galbraith argues that power may have systemic characteristic, i.e. arising from and reproduced by the cultural and institutional elements. The bases, according to Galbraith, are personality, i.e. the "ability to persuade or create a belief", property, and "persuasion and submission to the purposes of the organization" (pp. 6-7). The last base of power which rests on the concept of organization might be seen as a cultural and institutional element only if and in so far as it is placed in a dynamic structural context whereby persuasion and submission are explained not in individualistic terms, e.g. by the charisma of the organization leader.

Another important contribution to the institutionalist literature is Pagano's (1999) theory of power as a "positional good". Positional good is the type of good that is defined by the fact that consumption by an individual of a positive amount involves the consumption of a negative amount by at least one other individual. Accordingly, he defines class relations as involving "'joint but opposite' consumption of a different type of power, power being a pure positional good", that is, consumption by an individual of a positive amount involving the consumption of an equal negative amount by at least one other individual (p. 77). The main argument is that, in modern capitalist societies, private wealth per se cannot determine the social classes as more than one positional good determines class membership, and there are other mechanisms, besides the market, through which positional

goods can be acquired such as education, innate skills, family background, and willingness to conform to powerful people's wishes. Moreover, the market allocation of power can be inefficient, and sometimes it does not occur at all; hence, much of the allocation of power is not done by the market mechanism. Preferences of individuals will also have a role in determining class membership in so far as individuals have different tastes.

One of the implications of the incorporation of positional goods into the analysis is the emergence of an additional concept of scarcity, besides that of natural scarcity, namely "social scarcity", which is defined by the fact that the production and consumption of certain goods by some individuals involve the production and consumption of negative amounts of the same good by other individuals; hence, their availability (and their scarcity) for the positive consumers is related to the willingness of other people to consume negative amounts of the same good (p. 79). This is why manipulating other people's preferences and increasing their willingness to consume negative amounts may be the most appealing way to expand their positive consumption. Conversely, decreasing the consumption of positional goods may be achieved through diminishing individuals' taste for these goods.

The positional good theory of power is important as, like Galbraith's theory of conditioned power, it allows for the exercise of power through manipulating the preferences of individuals—a theoretical setting which is not considered in much of the economic literature as we have seen. Moreover, the theory attempts to explain

the capitalist system at an institutionalist base rather than relying on the isolated relationship among individuals.

This said, however, the model can be subject to some criticisms if one would like to defend a different conceptualisation of power relations. The fact that willingness to consume negative amounts of positional good on part of some individuals is necessary for some other individuals to consume positive amount so that there is a relation of power, has the implication that entering into power relations is a matter of choice. This choice might be a result of manipulated or unmanipulated preferences. Even though it is true that manipulation of preferences constitute one of the main instruments through which power is exercised in contemporary capitalist society, the cases like the ones presented in the two cases are not nonexistent. Pagano would not disagree with the assertion that these are cases of power. Yet, to say that the workers are willing to consume negative amounts of the capitalist's positional good, especially for the second example, would be misleading. Therefore, the theory of power as a positional good needs to be positioned in a broader framework incorporating the reproduction and transformation of this very positional good, which in turn depends on its distribution.

Finally, as mentioned in the discussion of the mainstream approach, I will turn to the social action theory, mainly to its critiques as they echo the institutionalist critique of the mainstream approach. The social action theory, as mentioned above, sees compliance as a conscious act, i.e., subordinates performing subjectively meaningful non-self-regarding action. I drew the analogy of this view with

the mainstream approach. Now, let me turn to its critiques. This view is criticized on the account that actions may in fact be non-self-regarding, but not recognized as such by the actors involved: subordinates may act out of incomplete knowledge or out of an unthinking acceptance of the routine, of "the way things are done here", without understanding its non-self-regarding significance (Martin, 1977, p. 165). Westergaard and Resler (1975) comment on this point in a more general context:

> [P]ower derives more from the routine application of effectively unchallenged assumptions than from the manifest dominance of one faction, group, interest, or policy over others in open conflict ... the institutionalization of conflict involves just that kind of unspoken adoption of lay assumptions, behind which there is pragmatically dictated agreement but no legitimation through positive consensus. The effect is to restrict the policy alternatives about which there is practical dispute to a much narrower range than would otherwise be the case. So many decisions are not "made" because they are built in from the start. Power lies closest to the interests that benefit most from this predetermination of the boundaries of conflict (p. 147).

Therefore, social institutions reinforce domination by rendering subordinates unaware of their subordination. Subordinate understanding is also inhibited by the linguistic deprivation (Mueller, 1973)—the restricted speech code of the poor

inhibits the development of political consciousness and thus united action—and by mobilization of bias (Schattschneider, 1960)—(consciously or unconsciously) restricting the range of problems and solutions considered by political actors and thus access to the political system. Martin (1977) argues that these are the manifestations, among many others, that call for attention to the cultural conditioning of subordinate groups—as opposed to naïve behaviouralism—, and to the process whereby the hegemonic bourgeois culture hinders the development of subordinate consciousness and reinforces the positions of dominant groups by routine operation of social institutions. Thus, it is necessary to examine the influences upon the values of actors, and to avoid simply accepting them as final, independent causes of action. There are, however, some difficulties in doing this: What are the determinants of consciousness, especially subordinate consciousness? How are interests defined? The latter difficulty implies another one, that is, the value dependency of the theory, which is also pointed out by Lukes (1974). As the above argument makes clear, these are the questions that have been asked for many decades by the institutionalists as well. I think that they should be considered as part of a more general problem, that is, the problem of the agency-structure relation, which forms the basis of this review and will be analysed in more detail in the next chapter.

To sum up, the institutionalist conception of power, in general, allows for a structural analysis of power. The source of power according to institutionalists is institutional position and the means of power are institutionally determined. The ends of power might be to change the institutional set up or to preserve it. It

signifies that the exercise of power may not be observable in the surface phenomena of market exchange but may have to be sought in the overall functioning of the economic system. Therefore, the fact that power has been exercised in a specific situation cannot be deduced from individual behaviour but only through the analysis of the institutional environment and the structure of power. This is partly because individual preferences are taken as endogenous; implying that the complex interaction between individuals, institutions and culture should be analyzed. Such an analysis obviously requires moving beyond the empirical level. By explicit references to situations where there is no open or covert conflict and relating them to culture and institutions, the institutionalist view more successfully analyses the cases which Lukes had in mind but could not go as far as the institutionalist since he avoided explicit considerations of the structure.

3.3.5. New Institutionalism and Power

In institutionalism, the mainstream approach, resting on a mechanistic view of the economy and taking individuals as given, is abandoned in favour of one that situates the economic system within the broader social and cultural context; hence the individual is not taken as given but as continually interacting with the forces in this context. On the other hand, new institutionalists search for some modifications or extensions in the mainstream approach rather than abandoning it. The extension that new institutionalists suggest is to endogenise the institutional constraints in the mainstream analysis and give economic reasons for the existence, the role and

the evolution of institutions in societies. The new institutionalist literature broadly is concerned with the topics of property rights (see e.g. Demsetz, 1967), common law (see e.g. Posner, 1972; 1981), rent-seeking and distributive coalitions (see e.g. Buchanan, Tollison and Tullock, 1980; Olson, 1982), transaction cost analysis (see e.g. North, 1981), organizational evolution (see e.g. Williamson, 1975; 1985), game theoretic approaches and mechanism design (see e.g. Baland and Platteau, 1996; Ostrom, 1990, 2005; Shubik, 1975; Schotter, 1981).

Institutions, according to this approach, might be designed deliberately by governments or by individuals or groups as the mechanism design theory suggests. The main query underlying the mechanism design theory is to devise rules that would govern interactions among people in such a manner that would simultaneously facilitate the pursuit of their own ends while inducing each to take adequate account of the effects of their actions on others (see Bowles, 2003; see also Hurwicz, 1973; Maskin and Tirole, 1999; Myerson, 1989). The type of institutions that are to be designed according to mechanism design, therefore, are the ones that might efficiently communicate private information known by one agent to others. The main difficulty is clear enough. People with private knowledge and information would communicate it in a way that is in their self-interest depending on how it will be used and how it will affect them. Voting on a public good is a prototypical example as voters in this case have strong incentives to exaggerate their reported willingness to pay because they will not pay that amount in reality. Truthful elicitation of information requires incentive compatible mechanisms that always

make it in the reporter's self-interest to tell the truth. Alternatively, the tendency towards efficient institutions might be governed by an evolutionary selection mechanism which rules out the inefficient institutions. An example of such mechanisms is the spontaneous generation of institutions and conventions out of repeated coordination and prisoners' dilemma games (Lewis, 1969; Ullmann-Margalit, 1977; Schotter, 1981).

The above argument makes it clear that new institutionalists explain institutions (and other social phenomena) as the intentional (i.e. mechanism design) or unintentional (i.e. evolution) consequences of individual behaviour. They use the basics of mainstream economic theorizing—i.e. take as given only the individual preferences[16] and initial resource endowments and endogenise all social phenomena as they are to be explained by theories of individual action per se. Therefore, the new institutionalist approach maintains the methodological individualism of the mainstream one. The obvious problem with seeing the institutions as the outcome of individual action is the failure to recognize the reverse line of causation from institutions to individual preferences and actions. The only effect that institutions are allowed to have is to constrain individual behaviour, once the institutions themselves come about as a result of that very behaviour. Such a view is problematic as it neglects the institutions' influence on individual preferences as long as preferences are taken as given. As institutions are determined in an efficient manner

[16]Albeit, new institutionalists do not strictly argue that preferences are given, at least "for the purposes of economic inquiry", they conduct their analysis as such (Hodgson, 1993, p.5).

through the constrained optimization problem of individuals, the constraints being endowments, technology, or the underlying parameters of the economic system in general as reflected in relative prices, and as individual preferences are given, institutions can only change if these givens change.

Within the new institutionalist approach, one of the contexts in which power is discussed is firm theory. Within the Transaction Costs approach (Coase, 1937; Williamson, 1975, 1985, 1995, 1996A, 1996B; Williamson and Ouchi, 1983; Simon, 1951, 1991), Coase, concerned with the nature of the firm in capitalism, formulated the problem as one that is concerned with the nature of the hierarchies in the firm, where the hierarchical mechanisms within the firm are set as alternative modes of coordination to the market price mechanism. Taking the ability of one of the parties in the labour exchange, the employer, to command the other, the employee, as the distinguishing characteristics of the firm from relations among individual contractors, he explored the reasons why hierarchical relations can be economically superior to market relations in a context of positive transaction costs.[17]

Another question, which is indeed implied by the one analyzed by Coase, is asked by the contractual approach (Alchian and Demsetz, 1972; Alchian and Woodward, 1987; Jensen and Meckling, 1976; Cheung, 1983, 1987A, 1987B, 1992), namely, why should the employee obey the command of the employer? Alchian and Demsetz (1972) argued that labour market is not different from other markets,

[17]As pointed out by Bowles and Gintis (1999), this distinction has earlier been recognized by D. H. Robertson (1930), and Marx.

and they explicitly denied the existence of any form of power or authority in the firm.

> The firm ... has no power of fiat, no authority, no disciplinary action any different in the slightest degree from ordinary market contracting between any two people ... Wherein then is the relation between a grocer and his employee different from that between grocer and his customer? (1972, p.777)

However, what is ignored in the theory of Alchian and Demsetz is the fact that monitoring itself is difficult to monitor (Bowles and Gintis, 1999). Williamson (1967, 1971, 1973, 1975, 1979, 1985, 1995, 1996A, 1996B, Williamson and Ouchi 1983), another contributor to the transaction costs economics approach, claims that the position of Alchian and Demsetz (1972) is "exactly wrong" and asserts that "firms can and do exercise fiat that markets cannot" (Williamson 1996B, p. 33). In this approach, markets and hierarchies are considered as alternative instruments for the same end (to complete transactions) and their existence is explained in terms of their relative efficiency. Opportunism, bounded rationality and asset specifity produce transaction costs and this prevents any single institution from allocating resources efficiently. In particular, the reason why markets and hierarchies coexist in reality is that transaction costs prevent both of them from solving the entire allocation problem efficiently. Hierarchy has some advantages over the

market since it reduces opportunism (both by means of authority and by stimulating solidarity), attenuates problems stemming from bounded rationality (by facilitating adaptive sequential decision making processes in situations in which contracts on the contingent states of nature are not possible and spot markets are risky) and lowers bargaining costs caused by assets specificity (both through authority and by generating convergent expectations between the parties). Market, on the other hand, have some advantages over hierarchy due to the incentive mechanism of competition and the growing diseconomies associated with hierarchical organization. All in all, the relation between markets and hierarchies is one of substitution, and the substitution of markets with hierarchies proceeds as long as economic benefits of centralization exceed economic costs. This kind of reasoning helps to explain another issue besides the nature of the firm, that is the boundaries of the firm, since the optimal degree of decentralization—the end of the substitution process—defines the optimal dimensions of the firm.

The Property Rights approach (Grossman and Hart 1983; Hart 1987, 1988, 1990, 1995; Hart and Moore 1988, 1990; Moore 1992) is closer to the approach of Williamson as for the issue of power. They are concerned with contract incompleteness; however, it is solely due to imperfect information, as in Alchian and Demsetz's approach—whereas in Williamson's theory it depends also on bounded rationality. They define the firm and its boundaries with the market controlled by the owners of the physical assets (Grossman and Hart, 1986; Hart and Moore, 1990; Moore, 1992). If the two assets have the same owner, then they form a

single firm; if they have different owners, then they form two separate firms and the relation between them is a market one. Ownership entails control over assets which, in turn, gives the owner decision making power in case of unforeseen contingencies, i.e. about what is not contractually delegated to others. Hence, the allocation of power matters in situations where people cannot write complete contracts. Moreover, Hart observed that "control over non-human assets leads to control over human assets" (1995, p. 58). However, as pointed out by Bowles and Gintis (1999), though being an important jump, this approach leaves one of the core questions unanswered: why should the commanded obey? (I will present the answer proposed by Bowles and Gintis below.) This is obviously a trivial problem within the context of neoclassical economics which asserts that the coordination between isolated individuals both in the sphere of production and in that of consumption takes place entirely within the market, thus renders all other institutions economically redundant. Moreover, as the firm and the market are just two alternative allocative mechanisms, why should one be concerned with the internal relations of the firm? As Paul Samuelson (1957, p. 894) put it, "in a perfectly competitive model, it really doesn't matter who hires whom; so let labour hire capital."

All in all, the new institutionalist conception of power rests on explanations in terms of individual behaviour as the determinant of all social phenomena. Samuels (1990, p. 85), rightly, argues that "the optimization analysis promoted by the new institutionalists is independent of the structure and processes of power, which

govern whose interests count ("which individuals?"), is comparable to, and indeed at bottom a manifestation of, conventional neoclassical practice and is subject to the same critique".

3.3.6. Power in the Parlance of Bowles and Gintis

Although one can see some links with the institutionalist approach, the approach of Bowles and Gintis (1988, 1992, 1999, 2007) is hard to be affiliated with the school, and hence I will be considering their model as a separate entry. I do admit the difficulty in positioning Bowles and Gintis in any single school of thought as—both in their individual and joint works—their oeuvres analyse on the one hand, the relationship between the distribution of wealth and the position of agents in employment and, on the other hand, credit-based power relationships from a Marxist and radical political economy perspective. Their strength, and indeed uniqueness, is that, while going beyond the structural explanations proposed by Marxism, they aim at incorporating the aspect of individual decision-making into their analysis (see, inter alia. Bowles 2003, especially CH 10; Bardhan, Bowles and Gintis 2000). However, here, I will be referring mainly to their works which mainly focus on the analysis of power (Bowles and Gintis 1988, 1992, 1999, 2007). In these works, Bowles and Gintis present an analysis of the exercise of power in competitive markets for goods, labour and credit. They stress the importance of power arguing that the exercise of power may alter the prices and other aspects of

exchanges and they show that, if contracts are incomplete, power may be exercised either in Pareto-improving ways or to the disadvantage of those without power.

Bowles and Gintis (1999) start with the observation that competitive equilibrium has the characteristic that "if agents A and B engage in an exchange, B's gain exactly equals the gain from his or her next best alternative" thus "A cannot affect B's well-being by terminating the exchange, and hence has no power over B" (p. 13). Contrary to the assertion that, power must be absent in the equilibrium of a competitive economy, since every exchange is voluntary, they argue that the exercise of power is a characteristic of voluntary exchange. Accordingly, they analyze the exercise of power in goods, labour and credit markets (1999, 2007). The power relations in each of these markets "are members of a generic class of power relationships which are sustainable in the equilibrium of a system of voluntary competitive exchanges" and "in all three, those with power are transacting with agents who receive rents and hence are not indifferent between the current transaction and their next-best alternative" (2007, p. 9).

They identify four defining characteristics of power which must exist when power is said to be exercised: (i) power is "interpersonal, an aspect of relationship among people, not a characteristic of a solitary individual"; (ii) "exercise of power involves the threat and use of sanctions"; (iii) "power should be normatively indeterminate, allowing for Pareto-improving outcomes ... but also susceptible to abuse in ways that harm others in violation of ethical principles"; (iv) "power must be sustainable as a Nash equilibrium of an appropriately defined game" to be defined

"as an enduring aspect of social structure" even though it may be exercised in disequilibrium situations (2007, p. 3). The following sufficient condition captures all these four criteria:

> For A to have power over B, it is sufficient that, by imposing or threatening to impose sanctions on B, A is capable of affecting B's actions in ways that further A's interests, while B lacks this capacity with respect to A (1992, pp. 326-327, quoted in 2007 p. 3).[18]

They admit that their definition shows a close affinity to the standard analytical conception of power offered by Dahl, French and Raven, Harsanyi, March, and Simon (1999, p. 24); however, they differentiate their view from the others by the inclusion of sanctions as a necessary condition which implies that only the influences arising from strategic action qualify as the exercise of power.

Bowles and Gintis demonstrate the existence of economic power by relaxing the exogenous enforcement axiom assumption (exchanges between agents in the economy can be enforced by a third party at no cost to the exchanging parties) of the Walrasian model. When the third party enforcement is infeasible or expensive, other means of enforcement, such as privately imposed sanctions, come to the scene. Dealing with the problem of nature of the firm, they state that what is crucial for the exercise of power is that some important markets, even perfectly competitive ones, fail to clear in equilibrium, creating a key asymmetry between

[18]However, they also do admit that there may be forms of power that operate without the use of sanctions.

those on the short and long side of the market, thus "a hierarchical organizational structure is neither necessary nor sufficient for the exercise of power" (1999, p. 18). Their answer to "the puzzle of obedience", i.e. "why should the commanded obey?" is based on the idea of "contested exchange", which is defined by the fact that the seller's good or service possesses an attribute that is valuable to the buyer, yet is not fully specified in an enforceable contract, e.g. the manager worker relation (1999, p. 18). When exogenous enforcement is absent, "contingent renewal", whereby the buyer elicits performance from the seller by promising to renew the contract in future periods if he is satisfied, is claimed to serve as an endogenous enforcement mechanism (1999, p. 18). When contingent renewal is operative, agents on the short side of the market (the demand side in case of excess supply and vice versa) have power over agents on the long side with whom they interact. After the analysis of manager-worker relation, they reach the conclusion that

> Short-side power is not a zero-sum game, since if A [the employer] did not exercise this power, the best mutual agreement would involve the wage effort pair... which is strictly inferior to [equilibrium effort/wage configuration] for both parties. ... Thus entering into a power relationship (one in which A has power over B) may be Pareto improving (1999, p. 23).

Following Dahl, they describe the "base" of short side power as economic sanctions, the "means" as contingent renewal and its "scope" as the contested attributes of exchange. Following Harsanyi, they take the cost of exercising power as the enforcement rent A offers to B. They, however, point out a difference between Dahl's approach and their approach (which, I think, would be clear also to the reader of the two approaches): when individuals implementing their optimal equilibrium-defining programs, thus are on the margin indifferent to which services and to whom they provide, there is no power according to the approach of Bowles and Gintis even though the case satisfies Dahl's definition of power, e.g. purchasing power.

Though agreeing with Bowles and Gintis on the general characteristics of power, I think that reliance on sanctions is problematic. As mentioned before, they state sanctions as a sufficient, rather than necessary, condition of power; therefore, they do not assert, as Bachrach and Baratz (1973) did, that one cannot talk of power if there are no sanctions. It is true that, if one party is able to impose sanctions on the other, then there is a power relation in place. However, as shown by the bargaining between capitalists and workers case, power may be present even in the absence of sanctions and such cases are not covered by the definition of proposed by Bowles and Gintis; though, such cases fit very well within their overall approach.

Conclusion

The contested nature of the concept of power has become apparent after the tour d'horizon which revealed that, though there are commonalities between different theories of power, it is not possible, even at the most basic level, to position all theories on a common ground. This follows, as I have tried to show, especially from the conception of the agency-structure relation implicit in the various approaches considered.

I have argued in detail the flaws of individualistic and structuralist conceptions of power and underlined the need to analyse power at both the individual and structural levels while taking into account the relation between the two. Nevertheless, as is made clear by the review of the institutionalist and the Marxist approaches, taking into account both structure and individual without falling into the trap of determinism is not an easy task. The analysis of the ways in which the agency and the structure depend upon each other (though remaining irreducible to each other) and to position power within this framework requires an inquiry into the nature of the individual, the structure and the power so conceived. An ontological analysis is therefore needed to make sense of the rich array of manifestations of power and a multitude of definitions of power.

The next chapter will consider the agency-structure relation in more detail and a framework for the analysis of power will be offered. Then, the various manifestations of power present in the model formulated in chapter 2 will be analysed.

3.4. Conclusion

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CHAPTER 4

The Political Economy of Power: A Critical Enquiry

4.1. Introduction

The literature review presented in chapter 3 revealed that different schools in economics have different definitions, categorisation, and incorporation of the concept of power, and that this proliferation equally holds for theories of power in other social sciences as well. Therefore, rather than presenting all theories of power, the review was based on a taxonomical presentation that departs from the general framework and the underlying conception of agency and structure of each approach and, then, presented the approach's position vis-à-vis power. Such a taxonomical analysis rendered it possible to examine commonalities/differences between existing theories of power. The main observation was that, in economics, power is conceptualised at either the individual or the structural level. The distinction in terms of the conceptualisations of power implies, in a more general context, that in terms of the agency-structure relation, either the social structure is reduced to, or is conceptualized as, the mere creation of human agency (individualism); or human agency is reduced to, or is conceived of, as being totally determined by an external, coercive structure (structuralism). While individualism and structuralism have each been criticized separately on various grounds, the common critique

they share is that they both fall short of taking the dynamic interaction between agency and structure into account. As for the conceptualisation of power, such reductionist approaches, in the end, entail conceptions of power as a property either solely of agencies in case of individualism, or solely of structures in case of structuralism.

The analysis of power developed in this chapter, on the other hand, rests on the premise that power structures are reproduced or transformed through the dynamic interaction between agency and structure. The underlying conception of the agency-structure relation is that of Critical Realism (associated by, among others, Roy Bhaskar and Tony Lawson), according to which agency and structure are interdependent but remain irreducible to each other.[1] The chapter then proposes that the building blocks of this dynamic interaction between agency and structure are positions and what I call as structural conditions, briefly defined as the constituent parts of the structure. This analysis is hoped to go beyond the reductionist conceptions of power presented by individualism on one hand and structuralism on the other hand, and offer an explanation of the underlying mechanisms that govern power structures.

[1]It should be acknowledged that Veblen also argued that individual and social structure is in a process of co-evolution rather than being determined by the other, hence, he was against the reductionism of both individualism and collectivism. However, his argument is not fully developed and lacks the multiple ontological levels and emergent properties offered by Critical Realism (see Hodgson, 2001).

In particular, departing from the Critical Realist view of a stratified nature of reality, the framework developed here aims at identifying the underlying mechanisms of the reproduction and transformation of the system of power. It is argued that there are two aspects of the dynamism of the system of power: the distribution of power may change; and the very definition of power—its base and/or scope—may alter. Seen as a continuous process of reproduction and transformation, such a framework highlights the importance of historical aspects as well. This framework not only conforms to the principal features of the institutionalist approach, but also contributes to it by elaborating the conception of the agency-structure relation which remained blurred in the institutionalist school.

Based on this background, the remainder of this chapter is structured as follows: In the first section, the problem of the agency-structure relation is discussed as the starting point of the framework to be developed. This framework will be completed in the second section; in particular, it will be argued that power is an emergent property arising from the interactions of structural conditions. In the third section, the developed framework will be discussed by way of the two cases described in the previous chapter, namely the cases of joining the trade union and of bargaining between capitalists and workers.

4.2. The Agency-Structure Relation

> *[G]enerically 'society' is that which nobody wants in exactly the form they find it and yet it resists both individual and collective efforts at*

> *transformation—not necessarily by remaining unchanged but altering to become something else which still conforms to no one's ideal.* (Archer, 1995, p. 2)

Although named as a problem of relation, discussions concerning the problem of the agency-structure relation have been based on the conceptualization of agency and structure as two distinct poles, where different approaches veer toward one pole or the other. Individualist approaches, for instance, render the structure epiphenomenal. Society, then, is reduced to an aggregation of individuals that can only be understood at a disaggregated level. All phenomena, including social structure, if ever considered as an issue, are explained at the individual level. What follows is that "no social tendency exists which could not be altered if the individuals concerned both wanted to alter it and possessed the appropriate information" (Watkins, 1968, p. 271). Structuralist approaches, on the other hand, follow the reverse line of causation, and render human agency an epiphenomenon of structure. Agency is thus reduced to passive bearer of a coercive structure. All social phenomena are explained in terms of other social phenomena. Accordingly, to rephrase Watkins's above quote from a structuralist perspective, no social tendency exists which could be altered even if the individuals concerned both wanted to alter it and possessed the appropriate information to do so.

Notwithstanding, both approaches have been criticized on various grounds. The main critique of individualism is that it neglects the social context in which individuals are situated. Individuals are identified independently of their social

context. The only social context compatible with methodological individualism is other people. This leads to the individualist conception of social structure as interpersonal relations (Archer, 1995). The individual is, thereby, inflated to include any social reference necessary. The individual is thus situated in a social context which matters as much as the individual is concerned with it. Any constraining, enabling or motivating influence of the social context, which would be in play independent of the individual, is ignored. In contrast, determinists bundle individual thoughts and preferences into collectivities and represent them as the basis of the social. While they defend the indispensability of structural factors, ironically, no overall conception of social structure is advanced ontologically.

In this chapter, I draw upon Critical Realism, which is based mainly on the works of Bhaskar (1975) and, in the realm of economics, represented mainly by the treatises of Lawson (1997, 2003) and Fleetwood (1999). Critical realism conceptualises the relation between agency and structure as an inherently tense process in which structure is temporarily prior to the agency. All human activities take place within the context of pre-existing social structure. The social structure is bequeathed to the current generation of actors and it has enabling, constraining and motivating roles on the agent. However, the structure is by no means fixed and its continued existence depends upon current human agency. It is this very dependence that makes structures social. This does not imply that social structure is merely the creation of individual human actors. "Individuals draw upon existing social structure as a typically unacknowledged condition for acting, and through

the action of all individuals taken in total, social structure is typically unintentionally reproduced" (Lawson, 1997, p. 169). Consequently, "[s]tructure is both condition and consequence, while the consequences of action (including inaction) are both motivated and unmotivated" (p. 170).[2] Such a conception is compatible with the continuous reproduction and transformation of social structure as the outcome of human action that is, in turn, conditioned by social structure.

The question Critical Realists ask regarding the main problem of the agency-structure relation is: "What is the point of contact between human agency and structure? ... In particular how do they come together in such a manner that different agents achieve different responsibilities and obligations and thereby, call on, or are conditioned in their actions by, different social rules and so structures of power?" (Lawson, 1997, pp. 163-4). The point of contact between agency and structure is considered to be the positions that are the basic building blocks of society.[3] Each position has associated obligations, prerogatives, privileges and responsibilities, and is defined in relation to other positions and is immediately occupied by individuals. Therefore, society, in part, is an ensemble of networked,

[2]The dual feature of social structure, that it is both the condition and the consequence of action is termed the "duality of structure", as coined by Giddens (1984). The dual feature of action, such that it constitutes both motivated production and unmotivated (structural) reproduction, is labelled as the "duality of praxis", in line with Bhaskar (1975). The same idea is called "reconstitutive downward causation" by Hodgson (2000).

[3]The idea of positions is not alien to the institutionalists either. Hamilton (1991) writes that "there are various roles in society which give to those fulfilling them a particular status within the institutional framework. These status positions are defined by mores which prescribe what is construed to be appropriate behaviour within any given role. Such mores define status-relationships within the institutional fabric" (p. 84). However, he sees the whole process as justified by myth and having the authentication of the ancestors, therefore, concludes that it is the rigid aspect of the culture.

internally-related positions with relevant rules and practices. Although not interpreted by critical realism as such, rights and obligations attached to the positions, together with the position's relation to other positions, are taken here as determining the preferences and incentives of the individual occupying the position.

It is important to note that practices routinely followed by an occupant of any position tend to be oriented toward some other group(s), and moreover, any individual can occupy any number of positions at any time.

Society, then, is a network of continually reproduced inter-dependencies. These inter-dependencies, as well as rights and obligations, are not inherent to the individuals occupying the positions but to the positions themselves; they exist independently of the individuals occupying them. It is through the occupancy of these positions by individuals that social structure and agency are brought together. While pre-existing patterns of rights and obligations might add some vested interest to the position and dispose those occupying the positions to act in certain ways, people are always free to act against these interests. As any individual will occupy any number of positions, the vested interests may clash and, in this case, the individual may choose a set of interests to prioritize in action.

In line with the opening quote and in contrast to individualist approaches, I depart from Critical Realist ontology that "society" is not determined solely by individual and collective efforts; it is more than the aggregation of individuals. Indeed, the notion of aggregation is flawed in that individuals are not independent of each other, and they do not interact in a linear manner to produce independent

effects that can be added up. In addition, I argue that society should be taken as a totality of agency and structure.[4] A totality is a system "of (or which include) internally related elements or aspects, i.e. systems wherein some aspects constitute conditions for the existence or essence (characteristic features and ways of acting) of others" (Lawson, 1997, p. 64). A totality cannot be understood merely through a separate analysis of each component, since the elements are affected by inter- or intra- dependencies, and the whole, in turn, is affected by the form and structure of the elements. Consequently, the whole is formed from an organic combination of the factors and can have properties that are not possessed by its parts; that is, the whole can include emergent properties.[5] The specific type of relation between each part, that make up the whole, is crucial. Once formed, the whole is sustained or modified through the interplay of the different forces acting on it. Parallel to the general argument sustained in this chapter, namely the totality of agency and structure, society cannot be analyzed or explained in terms that are reducible to

[4]The conception of society developed here as a totality of agency and structure conforms to the characteristics of the Critical Realist conception of the social realm, which are defined as being: intrinsically dynamic or processual as it depends on transformative human agency; internally related or organic, as agents in the social domain "are what they are or can do what they do by virtue of the relation to others in which they stand"; and, structured as "it does not reduce to human practices and other actualities but includes underlying structures and processes ... and [their] powers and tendencies" (Lawson, 2003, p. 17).

[5]The concept of emergence was defined by its originator, Conwy Lloyd Morgan, as the following: "Briefly stated, the hypothesis is that when certain items of 'stuff', say o, p, q, enter into some relational organization R in unity of 'substance', the whole R (o, p, q) has some properties which could not be deduced from prior knowledge of the properties of o, p, and q taken severally" (Morgan 1932, p. 253, quoted in Hodgson 2002, p. 162). The classic example of emergence is the case of water. Only when they are arranged in a specific way do water molecules end up as water—the whole—while the particular properties of water are not found in either of its constituents, oxygen or hydrogen.

the individual or structure. It is the interaction between agency and structure that is crucial; an interaction through which both agency and structure, hence society, may be modified. However, if one considers the forces acting only from the agents' side, the end result might be different from the expected one as there are forces and counter-forces, observable and unobservable, acting at the levels of both agency and of structure. Hence, even if the individual action effects the structure, its effect is not determinate.

Based on these basic premises, in the following section, I will offer a framework for the analysis of power. I will assert that the distribution of rights and obligations to the positions is determined by the interaction between agents, and what I call structural conditions. This interaction depends on the existing power structure, hence the existing distribution.

4.3. Structural Conditions of Power

In this section, a framework for the analysis of power will be developed based on the concepts of society and emergence discussed above, with the underlying agency-structure relation as the transformational model of social activity. Structural conditions form the building blocks of this framework. The stratified ontology which allows for an analysis of the underlying causes, mechanisms and tendencies, together with the concept of emergence, form the bases of the concept of structural conditions.[6]

[6]Critical Realism holds that there are three domains of reality: the empirical (experience and impression), the actual (actual events and states of affairs in addition to the empirical) and

Remember that a totality is a system of internally-related elements such that some aspects constitute the conditions for the existence or essence of others. I stated above that society should be taken as a totality of agency and structure. Now, I further argue that structure itself is a totality. The constituent parts of this totality are what I call the structural conditions. Therefore, both the existence of structural conditions and the relation between them are crucial for social structure as a totality. Some examples of structural conditions are culture, language, social norms, poverty, unemployment et cetera.

The conception of society so far elaborated is dependent on the condition that the positions which individuals occupy, and the rules associated with them, are relatively enduring over stretches of time and space. I will explain the endurance of positions, and rights and duties corresponding to them, via the dynamic mechanism whereby structural conditions determine the distribution of rights and obligations to positions, and individuals occupying the positions act on these structural conditions in order to reproduce or modify or challenge the distribution. This continuous process of reproduction and transformation of the system of power has two aspects: the distribution of power may change; and the very definition of power—its base and/or scope—may alter. The former aspect concerns changes in the distribution of rights and duties to positions, while the latter refers to changes in how structural conditions interact, and consequently changes in their influence on the

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the real (underlying structures, mechanisms and tendencies in addition to actual events and experiences). These domains are irreducible to each other and what differentiates one level from another are the emergent properties at that level.

overall structure. These changes may result from the creation of new rights and duties, the extinction of former rights and duties, the creation of new structural conditions, and the extinction of former structural conditions.

Thus, the questions that need to be raised are: how are rights and obligations distributed to the positions, i.e. how is the act of distribution perpetuated or transformed; how are the positions defined; how are the positions distributed, i.e. which factors determine the assignment of positions to individuals; and how do new forms of power (new rights and obligations which are attached to the existing or new set of positions or new relations between the existing or new set of positions) emerge. The answers to these questions determine the formation, reproduction and transformation of the incentives of the agencies involved which is of utmost importance to any analysis of individual decision making. This follows from the fact that rights and obligations of one's position and its relation to other positions determine these very incentives.

The definition of positions, i.e. the distribution of rights and obligations to the positions and the assignment of positions to the individuals—which determine the system of power in society—, are emergent properties that arise from structural conditions and the specific way they interact with each other. Individuals occupying the positions can act on the structural conditions to reproduce or transform them. (The dependency of structural conditions on individuals is what makes them social. Defined as a totality of structural conditions, the social feature of structure

is also maintained.) Thus, in addition to positions, structural conditions constitute another point of contact between agency and structure in this framework. Accordingly, I define power as the following:

> Power of an agency is the ability of the agency to act on the structural conditions that determine the distribution of rights and obligations to positions and the assignment of individuals to positions. This can be done in three ways: (i) by changing the existing structural conditions themselves; (ii) by creating new structural conditions that would interfere with existing ones and change how they interact, thereby changing the whole, i.e., the social structure; and (iii) by changing the perceptions of the agencies regarding their or others' positions.
>
> If, through this process, the wielder of power affects the rights and obligations of others' positions, this is a case of "power over" as long as the relation between the positions is: (a) recognised by at least one of the parties involved; (b) the power-wielder in the relation (could be both parties) purposefully aims to achieve some objectives that are dependent upon the actions or decisions of the other party.

It is important to note three points. First, the agency in this definition may involve individuals, groups, offices, governments, nation-states, or other human aggregates. Second, changing the perceptions of the agencies regarding their or

others' positions may be achieved via controlling the channels of knowledge (such as the education system or media). Changing the perceptions act in the same way as changing the positions themselves and, thus, result in change in preferences and incentives of the individuals. Third, the ability to act on structural conditions, in turn, depends on the rights and obligations of the position of the individual, hence, on structural conditions. This may seem as a circular argument but it will be clarified below once the dynamics of structural conditions are analysed in more detail.

Hence, power is a structurally-based capacity attached to positions and exercised by individuals occupying those positions. Since all positions are directly or indirectly related to each other, according to the conceptions of social realm and positions acknowledged in this chapter, what might follow is the tautological argument that all individual actions affect other individuals, and all positions have power over one another due to the obligations of each. In order to avoid this, as mentioned in the definition of power as well, I limit the concept of "relation" to those that are recognized by at least one of the parties involved. In order to count as a power relation, a further criterion must be satisfied: whoever wields the power in the relation (could be both parties) must purposefully aim to achieve certain ends (objectives) that are dependent on the actions or decisions of the other party. Hence, the exercise of power would ensure that the actions and decisions of the other party are geared to achieving the objectives of the power-wielding party. If

both parties are powerful, the result of this process will depend on the balance of power between the two.

Apparently, the endurance and effects of structural conditions are not independent either from other structural conditions or the existing system of power. The former follows from the definition of social structure as a totality of structural conditions, which implies that structural conditions are internally related. The latter follows from agents' potential influence, as occupants of positions, on the structural conditions. Each agent will try to reproduce the structural conditions that are necessary for the power of the position s/he occupies. For example, capitalist power may be said to emerge from, among others, the interaction of unemployment, absence of a welfare state that would favour the unemployed, and absence or weakness of trade unions, as these conditions determine the relative bargaining power between capitalists and workers. Capitalists, therefore, try to keep these conditions under control through various policies. However, this is not a determinate influence as there will be countervailing forces originating either from other agents or from other structural conditions.[7] If power-wielders are successful in sustaining the structural conditions upon which their power depends, the system of power will endure. If countervailing forces effectively intervene in this process, the system of power will change. This may imply, in turn, a change in the definition of positions; for instance new ones may emerge, former ones may vanish, rights

[7]Polanyi's (1957) theory of "double movement" is a practical example of such reasoning.

and obligations may change, etc. A historical review of the processes whereby the systems of power change can be carried out within this framework.

Of crucial importance here, are the conditions that determine the final outcome of the effects of opposing forces on structural conditions—i.e. the relative power of different positions—and the conditions that define which positions will be able to act on structural conditions. For example, access to resources is one such condition that has been widely discussed in the literature as the source of power. However, resources are not enough, as they will only produce outcomes under certain conditions. Possible determinants may include collective action, political participation, political hegemony etc.

As made clear by the literature review presented in the previous chapter and further underlined throughout this chapter, there is need for a theory of power which would offer a fully-fledged framework for analysing the dynamics of power while recognising the interdependent roles of agency and structure. The framework developed here is hoped to be useful in this respect, offering a wider perspective. It is also hoped to be useful in offering a conception of agency and structure relation together with a conception of society, thanks to which, an alternative framework of power could be suggested.

In the next section, I will first discuss the two cases—joining the trade union and bargaining between workers and capitalists—described in the previous chapter. Then, I will analyse various manifestations of power as formulated by the model

in chapter 2 through the lenses of the framework developed here and also from the perspective of the theories of power discussed so far.

4.4. In Lieu Of Conclusion: Where Do We Stand?

As for the two cases—joining the trade union and bargaining between workers and capitalists—the previous chapter has shown that, these two cases are not considered as cases of power for the individualist theories of power and also for other theories that rested on the presupposition that power necessitates sanctions (defined as to be deprived of something one has), and compliance on part of the subordinate with the wishes of the powerful. I will first remind these two cases and analyse them according to the framework developed above.

Case 1:

Consider the conflict between factory owners (capitalists) and workers, arising from the workers' demands to join a trade union. In the case of noncompliance, assume that all the workers who join a trade union will be fired. If the workers comply, they will not be fired but they will not be allowed to be members of trade union.

This is a case where there is an open conflict and there are sanctions. What about compliance? If the workers choose noncompliance, say because they value their collective interests as the working class more than their wages, and as a result are all fired, the case ceases to be a case of power if compliance with the wishes of the powerful is also taken as a necessary condition for power. I asked in the

previous chapter: Might it really not be said that capitalists are exercising power over the workers? Within the framework developed above, I answer this question in the affirmative. This is a case of power, because the capitalists are trying to perpetuate the structural conditions of their power. Unionised labour is seen as a danger as it destroys one of the structural conditions of capitalist power, i.e. unorganized labour. Capitalists try to reproduce the structural conditions of their power by exercising the power of their position as a capitalist: firing the workers if they do not comply with the capitalists' interests. From this perspective, saying there is no power in this case as the workers do not comply, would be misleading.

Case 2:

Consider a situation where the state is ineffective (or unwilling) in monitoring whether all workers are registered and insured, and the unemployment level is high. Moreover, suppose that unemployment benefits are either non-existent or very low (not an unrealistic assumption for most of the world). Since people must find a job in order to survive, and since it is not in the interest of the capitalist to register workers and pay their insurance, there is a growing informal sector where workers are unregistered, lack insurance, and are paid wages almost below subsistence level (but higher than unemployment benefits if they do exist). Consider the "bargaining" between the capitalist and the worker upon the process whereby the worker applies for a job. The capitalist offers two options: the worker will be either insured but paid lower wages ([most, if not all, of] the insurance premium being paid from the worker's wages) or not be insured and receive higher wages,

already at the subsistence level. (Apparently, in this case there is a third option, to remain unemployed, but since the situation will be the same for all workplaces and remaining unemployed translates to a lack of livelihood, this option is not plausible.)

As there is nothing here that the worker already has, whatever option is selected by the worker, this is not a case of the capitalist depriving the worker of anything and thus there is no sanction. All there is, an individualist would argue, is that the worker freely chooses whether to engage in exchange or not, and therefore is better off with either choice.

The question is: Might it really not be said that power is at the heart of this situation leading to, first of all, the existence of this very situation? As argued in the first story, capitalists attempt to reproduce and reinforce the structural conditions on which their power depends. The existence of an informal sector can be explained by the interaction of structural conditions such as unemployment and the absence of a welfare state (among others, which would constitute a long list that is not within the scope of this chapter). These structural conditions define the rights and obligations of the positions of "capitalist" and "worker". The state does not act so as to change the system which is shaped in such a way that the capitalist, in the end, is able to make the worker such an offer. Again, the capitalist actualizes the power of her/his position in order to reproduce this system of power.

The Contested Commons Model and Power

Consider the model presented in chapter 2. The model is based on the interaction between industry and fishermen. The state is another important actor in the following sense: If fishermen take an action and get successful, it feels obliged to enter into the play and take action. In this case, the choice of the state—the upper bound level of pollution—constitutes an important parameter in determining which equilibrium will be realised.

To briefly summarise the main set-up: the industry pollutes the lake, which reduces the income of fishermen and creates conflict between the two groups. Fishermen can take a political action against the industry so as to make the state play a more active role—in this context, this means setting a lower upper-bound level for pollution. If an action is taken and is successful, the industry will have to pollute less, which implies increased costs due to abatement. Therefore, to weaken the opposition—either by decreasing the success probability of action or preventing action—, the industry offers employment to fishermen at wages greater than or equal to their fallback positions, which is increasing as more fishermen are turning to employment in industry. On the other hand, taking an action comes with a cost, and the probability of success is a function of the number of fishermen. The main focus in the model is on the collective action of fishermen in resisting pressure from the industry and the role power plays in this process.

Now, let me analyse the role of power in the model with respect to the framework developed here. First, I will identify what constitutes agency and structure in

the model.[8] Fishermen, the industry and the state are the agencies. The structure of the game (the sequence of moves and strategy spaces at each node); the exogenous parameters, such as the parameter measuring the strength of opposition that fishermen would face in case they take an action and the parameter determining the curvature of the success probability function; the current values of the endogenous parameters, such as a (the level of beliefs of fishermen regarding the number of others participating), q (the weight of the industry profits in the planner's social welfare function) and p^s (the level of pollution maximising the planner's social welfare function—depends on q); and, the corresponding equilibrium all define the structure. The choice variables, L and p for the industry, and p^s for the state, are the structural conditions. a and q are structural conditions as well, the current values being parts of the structure. In sum, agents are the ones who solve the optimisation problems, the structure is constituted by the elements taken as given in these problems, and the structural conditions are the endogenous parameters and choice variables.[9]

The industry has the power to change the position of fishermen, hence their incentive structures, by employing them. Once employed in the industry, the incentives of the individual will be defined by those of a worker rather than a fisherman.

[8]The structure, of course, includes the broader social structure within which the industry and fishermen interact; however, I will focus on the aspects of the structure which are referred to in the model.

[9]The choice variables are taken as structural conditions as their interaction defines the equilibrium which is an element of the structure.

The choices of the industry determine the income of the ones remaining as fishermen, and also the success probability of action (for given values of the exogenous parameters). Industry's power is derived from the dependence of fishermen's income on the level of pollution (the structural element) and industry's ability to control the level of employment, L, and the level of pollution, p (due to its position). By way of acting on the structural conditions of L and p, the industry can affect the structure through its effect on the equilibrium outcome (the agency element).

Fishermen, on the other hand, have the ability (due to their position) to constrain the choices of industry by the threat of action. However, whether fishermen will take action or not depends on the choices of the industry—L and p—, the level of their beliefs regarding the number of others taking action, the levels of ps and Ls which are to be set after a successful action (these levels, in turn, depend on q). The level of beliefs can be affected by fishermen: through communication and by better organising, fishermen can sustain a high level of belief. The industry, on the other hand, affects the range of beliefs (denoted by $\underline{a}$ and $\overline{a}$ in the model) for which the action will take place. Both fishermen and industry can affect the level of q. The initially given level of q can be interpreted as representing the relative political power of the two groups. The level of q in the subsequent periods depends on whether a successful action has taken place or not, which is affected both by fishermen and industry. While the industry wants to prevent q from decreasing, by decreasing the success probability of action or preventing action; fishermen prefer a

lower level of q. Note that, the effect of fishermen and industry will act as counter-forces and the result will be determined by the relative strength of these forces, along with the exogenous parameters. If q is decreased, then the upper-bound level of pollution is decreased; therefore, the choice set of industry is narrowed.

To sum up, the model exemplifies various mechanisms through which power operates. The industry has the power to change the position of fishermen; yet, fishermen have the power to constrain industry through the threat of action. This leads to the second dimension of the industry's power which is its effect on the structure within which fishermen are deciding whether to take action or not. The source of both the industry's and fishermen's power is the structure; however, the end result of the power plays between the two groups is determined by the end result of the process whereby they both act upon the structural conditions. The role of exogenous parameters is to define the specific way these structural conditions interact and form the structure (i.e. define the equilibrium). Hence, even if no forces are in effect on the structural conditions either from industry or fishermen, the structure might change due to changes in the exogenous parameters.

A final word needs to be said on the necessity of sanctions and compliance issue, which was the underlying argument of the two cases described both here and in the previous chapter. The above analysis of the model made no reference to sanctions or compliance since they are not present. The mechanisms through which power operates are defined in terms of its structural and individual elements, and the interaction of these two. Therefore, the case described in the model provides

another example of power where there are no sanctions, and further, there is no compliance.

CHAPTER 5

Conclusion

The aim of this dissertation is to contribute to both the theoretical and empirical literatures on the nature and the role of power in the discipline of economics. To this end, an empirical study is conducted in the context of a local environmental resource management, at Uluabat Lake in Turkey, where a participatory decision-making mechanism has been implemented between 2002-2007 with no major success. The result of the 5-year phase of the mechanism can easily be interpreted as a failure in terms of both decreasing the pollution level and sustaining participation. The reasons of this failure and the role of power in the process are discussed in detail. It was argued that, besides the lack of incentives and confusion of responsibilities of civil servants, and problems related with the cumbersome bureaucratic process, the institutional aspect of the participatory-decision making mechanism is found to be quite ineffective.

The field research I have conducted, by employing qualitative and quantitative methods, indicated that the industry, being the most powerful group, was not abiding by the existing regulations. The state, due to its modernist position, prioritised economic growth over environmental concerns as a result of which environmental

regulations were not effectively implemented. Consequently, the industry was imposing costs on the local stakeholders, fishermen being the group which bore the highest cost. Fishermen were well aware of the costs brought about by the pollution as well as the main source of pollution as been the industry. The survey results revealed that an overwhelming majority of fishermen stated that they would take part in an action against the industry so as to make the state play a more active role in terms of monitoring and make the industry reduce the pollution level.

I then posited that the problem could be seen as a collective action problem among fishermen in organising such an action. My argument was based on the assumption that being part of such an activity would come with a cost while the benefits, in case the action succeeds, would be nonexcludable. Accordingly, overcoming the free-rider dilemma, the problem of not being able to make an impact on the outcome to compensate for the costs one bears, becomes essential. To be able to better analyse this strategic play, a game theoretical model is formulated in chapter 2, based on the observed relation between the industry and fishermen, whereby the industry imposes costs on fishermen and keeps their opposition in control by offering employment to them in the industry. The set-up is formulated as a contested commons problem where the main focus is on the collective action of fishermen in resisting the pressure of the industry and the role of power in this process; and, it is formalised as an infinitely repeated game, which is analysed for the cases of identical and heterogeneous fishermen.

The results showed that, there is a positive relation between the level of pollution and the level of employment, i.e. the industry can pollute more and still prevent action as long as it employs more fishermen. Moreover, the threat of action induces an increase in the profit maximising level of employment. Regarding the level of fishermen's average income and the level of beliefs, it is shown that fishermen get the maximum level of average product such that the non-action constraint is satisfied for the intermediate level of beliefs rather than very high and low values.

The various manifestations of power exemplified by the case study called for a conceptual inquiry on the concept of power. A literature review was then conducted, which revealed that most schools of thought analyse power either at the individual or at the structural level. It was argued that power should be analysed at both the individual and the structural level to clearly understand the dynamic relation between the two. It is through this interaction that the structure of power is reproduced or transformed. This led to the subsequent chapter, where a framework is offered to identify the underlying mechanisms of the reproduction and transformation of the system of power. It is proposed that the building blocks of the dynamic interaction between agency and structure are positions and "structural conditions", which are defined as constituent parts of the structure. The framework differs from the theories of power that are based on the premise that power necessitates conflict, sanctions, and compliance on part of the subordinate

with the wishes of the powerful. The various manifestations of power, as exemplified by the case study and formulated by the game theoretical model, are then analysed from the perspective of the framework of power proposed in the chapter.

1. APPENDIX 1 The Qualitative Part of the Field Study: Focus Groups and In-depth Interviews

IN-DEPTH INTERVIEWS

Distribution According to Groups	Number of Interviews
Central Government- The Governorship of Bursa	**2**
Local Municipalities	**5**
Local Agenda 21	**1**
Local and Professional Organisations	**3**
Private Sector Representatives (Industry)	**1**
NGOs	**2**
Local Media	**1**
Those who were Part of the Policy Making in the Past	**2**
Academics	**3**
Total	

FOCUS GROUP INTERVIEWS

Gölyazı Village	Eskikaraağaç Village	Gölkıyı Village
Occupation, gender, age		
Fisher, male, 43	Farmer, male, 50	Farmer, male,40
Industrial worker (former fisher), male, 32	Farmer, male, 57	Farmer, male,57
Fisher, male, 62	Farmer, male, 55	Farmer, male,53
Fisher, male, 56	Farmer, male, 60	Farmer, male,, 45
Fisher, male, 46	Farmer, male,42	Fisher, male, 50
Worker, male, 30	Farmer, male,37	Fisher, male, 55
Fisher, male, 43	Student (participates in farming), male, 25	

2. APPENDIX 2 The Questionnaire

frekans RESEARCH	Bogazici University	Questionnaire no.	
		Village/ Neighborhood	
		Date	
		Interviewer	

THE ULUABAT SURVEY – SEPTEMBER 2009

Hello. My name is..... I am here for a research study being conducted by faculty members of Bogazici University. The study aims to examine the opinions of people living in the vicinity of Lake Uluabat, about the situation of the lake. A total of 600 people in the area will be interviewed for the study. These people were chosen randomly. In presenting the results, personal information, including your name and address will be kept confidential. There is no right or wrong answer to these questions; it is your opinions that matter.

1.	Does your household receive income from any of the work areas I will now read to you?		YES	NO	
		Fishing	1	2	a1.
		Farming/Raising Livestock	1	2	a2.
		Industry (factory) worker	1	2	a3.
		Other.	Explain ……		a4.
NOTE TO INTERVIEWER: IF RESPONDENT ANSWERED NO TO ALL THREE SOURCES OF INCOME, END THE INTERVIEW. IF RESPONDENT ANSWERED YES TO ANY ONE ITEM, CONTINUE.					
1a	(IF RESPONDENT SAID YES TO MORE THAN ONE SOURCE OF INCOME) Which is your main source of income? (Which source of income generates the most income?)	1> Fishing 2> Farming/Raising Livestock 3> Industry work Other…….			a5.
2.	I will now read you a list of options, which suits you the most?	1> I'm a fisherman (GO TO QUESTION 5) 2> I'm a farmer/I raise livestock (GO TO QUESTION 4) 3> I'm an industrial worker (GO TO QUESTION 4) 4> I'm a retiree (GO TO QUESTION 3) 5> I'm a homemaker (GO TO QUESTION 3) 6> I'm a student (GO TO QUESTION 3) 7> I'm unemplpyed (GO TO QUESTION 3) 8> I'm unemployed, looking for work, want to work if I find a job (GO TO QUESTION 3) 9> I don't work bu live on incomes from rent, interest or similar (GO TO QUESTION 3) Other.....			a6.
3.	Do you contribute to the family income by fishing and/or farming/raising livestock?	1> Yes, I help out with fishing (GO TO QUESTION 5) 2> Yes, I help out with farming/raising livestock (ASK QUESTION 4) 3> No (END THE INTERVIEW)			a7. a8.
4.	Has fishing been the main source of income for your family during the last 5 years?	1> Yes 2> No			a9.
5.	TO BE ASKED TO ALL RESPONDENTS How satisfied are you to be living here? You may choose any number between 0 and 10, where 0 means you are not at all satisfied and 10 means you are very satisfied. INTERVIEWER: SHOW CARD	I'm not at all satisfied … I'm very satisfied 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10			a10.

6.	To what extent do you feel you belong here? You may choose any number between 0 and 10, where 0 means I don't feel I belong here at all, I live here out of necessity and 10 means I feel I belong here completely, I couldn't live anywhere else. INTERVIEWER: SHOW CARD	Not at all … Completely 0 1 2 3 4 5 6 7 8 9 10	a11.
7.	Given the current situation, how polluted do you think Lake Uluabat is? You may choose any number between 0 and 10, where 0 means not at all polluted and 10 means very polluted. INTERVIEWER: SHOW CARD	Not at all polluted … Very polluted 0 1 2 3 4 5 6 7 8 9 10	a12.
8.	NOTE TO INTERVIEWER: IF THE SCORE FOR QUESTION 7 WAS HIGHER THAN 0, ASK THIS QUESTION I will now read you a number of options; how effective do you think each was in causing POLLUTION? You may choose any number between 0 and 10, where 0 means not effective at all and 10 means very effective. INTERVIEWER: SHOW CARD	Not effective at all … Very effective 0 1 2 3 4 5 6 7 8 9 10	
		Industrial wastes	a13.
		Domestic waste (sewage) carried over from nearby settlements such as Mustafa Kemal Paşa and Karacabey	a14.
		Domestic waste (sewage) from settlements around the Lake	a15.
		Excessive use of fertilizers by farmers	a16.
9.	Given the current situation, do you think the NUMBER OF BIRDS at the Lake has decreased compared to 2 years ago? You may choose any number between 0 and 10, where 0 means decreased not at all and 10 means decreased significantly. INTERVIEWER: SHOW CARD	Decreased not at all … Decreased significantly 0 1 2 3 4 5 6 7 8 9 10	a17.
10.	NOTE TO INTERVIEWER: IF THE SCORE FOR QUESTION 9 WAS HIGHER THAN 0, ASK THIS QUESTION I will now read you a number of options, how effective do you think each was in the DECREASED NUMBER OF BIRDS? You may choose any number between 0 and 10, where 0 means not effective at all and 10 means very effective. INTERVIEWER: SHOW CARD	Not effective at all … Very effective 0 1 2 3 4 5 6 7 8 9 10	
		Hunting	a18.
		Pollution of the Lake	a19.
		Locals don't like birds	a20.
11.	Given the current situation, do you think the NUMBER OF AQUATIC SPECIES at the Lake has decreased compared to 2 years ago? You may choose any number between 0 and 10, where 0 means decreased not at all and 10 means decreased significantly. INTERVIEWER: SHOW CARD	Decreased not at all … Decreased significantly 0 1 2 3 4 5 6 7 8 9 10	a21.
12.	NOTE TO INTERVIEWER: IF THE SCORE FOR QUESTION 11 WAS HIGHER THAN 0, ASK THIS QUESTION I will now read you a number of options, how effective do you think each was in the DECREASED	Not effective at all … Very effective 0 1 2 3 4 5 6 7 8 9 10	
		Pollution of the Lake	a22.

	NUMBER OF AQUATIC SPECIES? You may choose any number between 0 and 10, where 0 means not effective at all and 10 means very effective. INTERVIEWER: SHOW CARD	Excessive and uncontrolled fishing by fishermen	a23.
13.	Given the current situation, do you think the QUANTITY OF AQUATIC SPECIES at the Lake has decreased compared to 2 years ago? You may choose any number between 0 and 10, where 0 means decreased not at all and 10 means decreased significantly. INTERVIEWER: SHOW CARD	Decreased not at all … Decreased significantly 0 1 2 3 4 5 6 7 8 9 10	a24.
14.	NOTE TO INTERVIEWER: IF THE SCORE FOR QUESTION 13 WAS HIGHER THAN 0, ASK THIS QUESTION I will now read you a number of options, how effective do you think each was in the DECREASED NUMBER OF AQUATIC SPECIES?	Not effective at all … Very effective 0 1 2 3 4 5 6 7 8 9 10	
		Pollution of the Lake	a25.
		Excessive and uncontrolled fishing by fishermen	a26.
15.	How worried are you about these issues? You may choose any number between 0 and 10, where 0 means not at all worried and 10 means very worried. INTERVIEWER: SHOW CARD	Not at all worried … Very worried 0 1 2 3 4 5 6 7 8 9 10	
		Pollution	a27.
		Decrease in the number of birds	a28.
		Decrease in the number of aquatic species	a29.
		Decrease in the quantity of aquatic species	a30.
16.	Do you think the lake became more polluted or less polluted in the last two years, or was there no change?	1> More polluted 2> Less polluted 3> No change	a31.
17.	When you think about the Lake's future, which of these opinions best reflects your view?	1> Conservation of Lake Uluabat is necessary for the future of the lake and the creatures and birds that live in the lake. So the Lake must be protected, at all costs and under any conditions. (ASK QUESTIONS 18 AND 19) 2> Conservation of Lake Uluabat is necessary to improve the economic standing of groups that directly or indirectly earn a living from the Lake such as fishermen and farmers. Measures to protect the wildlife in the Lake should not be taken at the expense of the local population.(ASK QUESTIONS 18 AND 19) 3> Conservation of Lake Uluabat depends on the operation of industrial treatment plants. This will increase costs to industry. Industry is more important for our region than the pollution of the lake. (GO TO QUESTION 20)	a32.
18.	You said it was necessary to protect Lake Uluabat. How do you think the Lake should be protected, and how should these efforts be managed?	1> Centralized protection and management is needed. State organizations should develop a plan, and everyone should do their part in the implementation of that plan, making sacrifices if necessary. 2> Since locals are the actual beneficiaries of the Lake, they should be involved in its conservation and management. The state should do its part in implementing decisions taken by the local population. 3> Relevant groups and organizations, including state institutions, non-governmental organizations, and universities should develop and implement the plan in conjunction with the locals.	a33.

19.	Although conservation of Lake Uluabat may come with personal costs, would you agree to make certain concessions, such as limiting your water use, limiting fertilizer use to grow crops, catching less fish, and adhering to rules that ban fishing at certain times to help boost the fish stock? In not, why?	1> Yes 2> No. I'm not the one responsible for pollution in the lake; those responsible should make concessions. 3> No. Even if I do make certain concessions, the majority won't.	a34.
20.	TO BE ASKED TO ALL RESPONDENTS If there was a training activity on the environmental issues at Lake Uluabat and their solutions, for instance this weekend, would you attend?	1> Yes 2> No	a35.
21.	Did you know that Lake Uluabat is by statute a protected wetland of international importance? If yes, could you tell the name of this statute?	0> I have no idea whether or not it is a protected wetland of importance. 1> Yes. Its name is: ..... 2> Yes. But I don't remember its name.	a36.
22.	In general terms, do you think protecting Lake Uluabat/declaring it a conservation area was beneficial or harmful for the lake and local population?	1> It was beneficial for the lake and the people 2> It was harmful for the lake and the people 3> It was beneficial for the lake, but harmful for the people 4> It was harmful for the lake, but beneficial for the people 5> It was neither beneficial nor harmful	a37.
23.	A management plan has been in effect in Lake Uluabat since 2002. The aim of this plan is to: • Reduce pollution in the lake, • Enable sustainable fishing in the lake, • Ensure the rational use of the lake's natural resources, and • Enrich the wildlife in the lake. Are you aware of this plan?	1> Yes. 2> No (GO TO QUESTION 30).	a38.
24.	Did you express any opinion to the authorities during the development or implementation phases of the plan? INTERVIEWER: IF THE RESPONDENT SAYS NO, ASK "Why didn't you?" AND SHOW THE CARD.	1> Yes I did. 2> No I did not. My opinion wasn't sought. (Go to Question 26) 3> No I did not. My opinion was sought but I didn't think it would be taken seriously. (Go to Question 26) 4> No I did not. My opinion was sought but I didn't offer one because I'm not interested in the conservation of the lake. (Go to Question 26) 5> No I did not. My opinion was sought but I didn't offer one because I don't trust the organizations involved. (Go to Question 26) 6> No I did not. My opinion was sought but I didn't offer one because I lack the necessary knowledge/expertise on the issue. (Go to Question 26)	a39.
25.	So, do you think your opinions were taken into consideration? If not, could you tell us why not? INTERVIEWER: IF THE RESPONDENT SAYS NO, ASK "Why not?" AND SHOW THE CARD.	1> Yes I do. 2> No I don't. My opinions went against the interests of the powers that be. 3> No I don't. They only asked me for show anyway, they made their own decisions about what to do. 4> No I don't. I lacked the necessary knowledge/expertise. 5> No I don't. There were some things I considered a priority, but those who developed the plan had different priorities.	a40.
26.	How successful do you think the management plan was in terms of the objectives I will now read to you? INTERVIEWER: SHOW CARD	Not successful at all — Very successful 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10	
		Reduce pollution in the lake	a41.
		Increase the number of birds	a42.
		Increase the number of aquatic wildlife	a43.
		Increase the number of species of aquatic wildlife	a44.
		Improve the economic standing of the local population	a45.

27.	(If respondents score less than a 5 for any of the objectives) What do you think is the most important reason for this failure? INTERVIEWER: SHOW CARD					
	To be asked about objectives scored less than a 5	Industry prevented the implementation of the plan and did not do its part to protect its own interests	Opinions of the local population were not taken into consideration and their needs were ignored	Regulation was inadequate	There was a conflict of interest between the official groups/institutions	
	Why do you think the Management Plan failed to reduce pollution levels of the lake?	1	2	3	4	a46.
	Why do you think the Management Plan failed to increase the number of birds?	1	2	3	4	a47.
	Why do you think the Management Plan failed to increase the number of aquatic wildlife?	1	2	3	4	a48.
	Why do you think the Management Plan failed to increase the number of species of aquatic wildlife?	1	2	3	4	a49.
	Why do you think the Management Plan failed to improve the economic standing of the local population?	1	2	3	4	a50.
28.	In your opinion, which of these statements best expresses the situation 2 years down the line if the current conservation plan continues to be implemented? INTERVIEWER: SHOW CARD		1> The Lake's situation will worsen. People will either move away or try to secure employment in industry. 2> The Lake's situation and the economic circumstances of the local population will improve. 3> The Lake's situation will worsen but the economic circumstances of the local population will improve. 4> The Lake's situation will improve but the economic circumstances of the local population will worsen. 5> Nothing will change.			a51.
29.	Do you think any modifications should be made to the current implementation of the plan? If yes, what kind of change?		1> No. 2> Yes. Industry regulation should be stricter. Bans that apply to the local population should be relaxed. 3> Yes. Its use by both industry and the local population should be regulated more strictly. 4> Yes. Locals should be invited to meetings on the plan and their opinions taken into consideration. Other:.....			a52.
30.	Keeping in mind the processes related to deciding on the Lake's future and enforcing these decisions, in your opinion, which of these institutions/groups is the most powerful? What about the second most powerful institution/group? INTERVIEWER: SHOW CARD		1> The local population 2> Industry 3> Environment and Forestry Provincial Directorate 4> Directorate of Agriculture and Village Affairs 5> Non-governmental organizations 6> Nilufer Local Agenda 21 7> Municipalities 8> University 9> Office of the village headman			a53. a54.

31.	Which of these groups do you think was harmed the most by the pollution of the lake?	1> Fishermen 2> Farmers 3> Industry Other (Explain)	a55.
32.	Which of these groups do you think was harmed the least from the pollution of the lake?	1> Fishermen 2> Farmers 3> Industry Other (Explain)	a56.
33.	Please tell me to which extent you trust the organizations I will now read to you. For each, give a score between 0 and 10, where 0 means you don't trust them at all, and 10 means you trust them completely. INTERVIEWER: SHOW CARD	Don't trust them at all — Trust them completely 0 1 2 3 4 5 6 7 8 9 10	
		Environment and Forestry Provincial Directorate	a57.
		Provincial Directorate of Agriculture and Village Affairs	a58.
		Non-governmental organizations	a59.
		Nilufer Local Agenda 21	a60.
		Municipality	a61.
		University	a62.
		Office of the village headman	a63.
34.	In your opinion, to what extent does the state care about the interests of the groups I will now read to you? For each, give a score between 0 and 10 where 0 means cares not at all, and 10 means cares a lot. INTERVIEWER: SHOW CARD	Cares not at all — Cares a lot 0 1 2 3 4 5 6 7 8 9 10	
		Industrialists	a64.
		Fishermen	a65.
		Farmers	a66.
35.	Consider the last two years; how has your economic situation changed?	1> Nothing has changed 2> It became worse 3> It became better	a67.
36.	Consider the upcoming two years; how do you think your economic situation will change?	1> Nothing will change. 2> It will worsen 3> It will get better	a68.
37.	Are you thinking about moving away from here?	1> Yes, I'm decided, I will move from here. 2> The situation right now is really bad. If it doesn't get any better, I'll move away soon. 3> The situation right now is not that bad, but I'll move if things get worse. 4> I'm not thinking of moving away.	a69.
38.	Is there anyone from your family or circle of friends who is thinking of moving away sometime soon?	1> Yes 2> No	a70.

FISHING

(Questions should be asked if respondent is currently a fisherman or helps out and/or has worked as a fisherman)

(Go to Question 54 for workers, Question 63 for farmers)

39.	Data shows that industrial waste is one of the major causes of pollution in the Lake and why the number and species of fish are decreasing. Now, please assume you are offered two options; which would you choose?	(i) No restrictions will be placed on industry-based pollution, but a group of fishermen, you included, will be given jobs in industry. (ii) Industry will regulated more strictly and pollute the lake less, but in this case fishermen won't be hired as industry workers.	a71.
40.	Imagine that <u>other fishermen</u> plan a collective action to draw the attention of relevant authorities to pollution in the Lake. Should this action succeed, imagine that the state will reduce pollution in the lake by better regulating industry, ensuring they operate their treatment plants, and build sewage treatment plants, among others. Would you take part in this action?	1> Yes. (Go to Question 42) 2> I wouldn't as things stand, but if the situation of the Lake worsens then I would. (Continue from Question 41) 3> No. (Continue from Question 41)	a72.
41.	Could you tell me why you wouldn't take part? INTERVIEWER: SHOW CARD	1> I'm an industrial worker. 2> Some members of my household are industrial workers. I wouldn't want them to be laid off. 3> Industry is beneficial to our region, I wouldn't want to see it restricted. 4> I plan on working in industry should it prove impossible to generate an income from fishing. I don't want industry to be restricted. 5> I don't trust other fishermen. 6> I don't believe the authorities would take the action seriously. 7> I think an action like that would be extremely costly. Other:..... Go to Question 42	a73. a74.
42.	Consider the fishermen in your area; <u>out of 10 fishermen, how many</u> do you think would participate in this action?	... people	a75.
43.	Do you think an action like this has a high or low chance of success? Please give a score between 0 and 10 where 0 means very low and 10 means very high. INTERVIEWER: SHOW CARD	Very low Very high 0 1 2 3 4 5 6 7 8 9 10	a76.
44.	Imagine such an action was organized and achieved success, and that the state indeed did its part. How polluted do you think the Lake would be then? Please give a score between 0 and 10 where 0 means not at all polluted and 10 means very polluted. INTERVIEWER: SHOW CARD	Not at all polluted Very polluted 0 1 2 3 4 5 6 7 8 9 10	a77.
45.	Now imagine that <u>farmers and industrial workers</u> plan an action to draw attention to the problems in relation to the Lake, and get the authorities more involved in resolving these problems. Would you take part in this action?	1> Yes (Go to Question 47) 2> I wouldn't as things stand, but if the situation of the Lake worsens then I would (Continue from Question 46) 3> No (Continue from Question 46)	a78.
46.	Could you tell me why you wouldn't take part? INTERVIEWER: SHOW CARD	1> I think the others may not follow through with the action. 2> I don't believe the authorities would take the action seriously. 3> I think the action would be extremely costly. 4> Protecting the lake would increase costs to industry. I don't want industry to be restricted. Other:..... Go to Question 47	a79. a80.

47.	Consider the fishermen in your area; out of 10 fishermen, how many do you think would participate in this action?	... people	a81.
48.	Do you think an action like this has a high or low chance of success?	Very low — Very high 0 1 2 3 4 5 6 7 8 9 10	a82.
	QUESTIONS 49 TO 53 SHOULD BE ASKED ONLY TO RESPONDENTS WHO ARE FISHERMEN OR HELP FISHERMEN (NOT TO RESPONDENTS WHO USED TO WORK AS FISHERMEN)		
49.	How satisfied are you to be working as a fisherman? Choose any number between 0 and 10, where 0 means you are not at all satisfied and 10 means you are very satisfied.	Not at all satisfied — Very satisfied 0 1 2 3 4 5 6 7 8 9 10	a83.
50.	Which of these statements holds true for you?	1> Fishing is the traditional source of income here. I don't think I could do any other job. 2> I would like to keep on working in the fishing industry as long as there are fish in the Lake. Otherwise I'll look for other job opportunities. 3> I work in the fishing industry because I found no other means of livelihood.	a84.
51.	Imagine that the Lake has dried up, or there are no fish are left. What would you do?	1> I would rent a dam or lake in another village with other fishermen, and go catch seafood there. 2> I would look for job opportunities in industry. Other:	a85.
52.	Let's assume you're offered a job in industry, and you'll be paid the same amount you earn as a fisherman. Would you accept the offer?	1> Yes (If respondent is not a farmer or a worker, go to Question 71) 2> No (Ask Question 53)	a86.
53.	How much more than your present earnings would you have to be offered to accept the job?	1> I would accept it under no circumstances 2> At least half as much more than my current earnings 3> At least twice as much as my current earnings Other:……..	a87.
	MODULE FOR INDUSTRIAL WORKERS		
54.	How satisfied are you to be working in industry?	Not at all satisfied — Very satisfied 0 1 2 3 4 5 6 7 8 9 10	a88.
55.	How long have you been working in industry?	..... years /or ..... months	a89.
55a	How many months a year do you work at the factory?	..... months	a90.
56.	Did you have another job before you began working in industry? If yes, what?	1> No 2> Yes, in the fishing industry 3> Yes, in farming 4> Yes, other	a91. a92. a93.
57.	Which of these statements best explains why you started working in industry?	1> I had no other choice 2> I could have worked in fishing or farming, but the income would have been insufficient 3> I wanted to earn a regular income	a94.

58.	The existing data shows that industrial wastes are one of the primary causes of pollution in the Lake. If you were offered the two options that I will now read to you, which would you prefer?	1> No restrictions will be placed on industrial pollution, and since costs won't increase there won't be any layoffs. 2> Industry will be regulated more strictly, and pollute the Lake less. But that means costs will increase and some workers will be laid off.	a95.
59.	Now imagine that farmers and fishermen plan an action to draw attention to the problems in relation to the lake, and get the authorities more involved in resolving these problems. Would you take part in this action?	1> Yes (Go to Question 61) 2> I wouldn't as things stand, but if the situation of the Lake worsens then I would (Continue from Question 60) 3> No (Continue from Question 60)	a96.
60.	Could you tell me why you wouldn't take part? INTERVIEWER: SHOW CARD	1> I think the others may not follow through with the action. 2> I don't believe the authorities would take the action seriously. 3> I think the action would be extremely costly. 4> Protecting the lake would increase costs to industry. I don't want industry to be restricted. 5> I fear I may be fired if I took part in the action. Other:..... Go to Question 61	a97.
61.	Consider the workers in your area; <u>out of 10 workers, how many</u> do you think would participate in this action?	... people	a98.
62.	Do you think an action like this has a high or low chance of success?	Very low ... Very high 0 1 2 3 4 5 6 7 8 9 10	a99.
	MODULE FOR RESPONDENTS WHO ARE FARMERS OR HELP OUT IN THE FARMING INDUSTRY		
63.	I will now read you some statements; which one best describes your relationship to the land?	1> I'm a landowner but I don't till the land; I lease it or give it to a sharecropper 2> I'm a landowner and till the land myself 3> I'm not a landowner, I till someone else's land as a sharecropper or tenant	a100.
64.	How satisfied are you with working as a farmer?	Not at all satisfied ... Very satisfied 0 1 2 3 4 5 6 7 8 9 10	a101.
65.	People are saying that there is an increase in the sale of lands around the Lake.	a. Have you sold any land in the last 5 years? 1> Yes (GO TO QUESTION 66) 2> No	a102.
		b. If not, would you consider selling all of your land and giving up farming if an offer was made on your land in the near future? 1> Yes (GO TO QUESTION C) 2> No (GO TO QUESTION 66)	a103.
		c. If so, why? 1> Irrigation and other raw materials we use are very expensive 2> We're able to sell our produce at only a very low cost 3> I don't want to be a farmer anymore	a104.
66.	To what extent do you think pollution in the Lake affects agriculture?	Not at all ... Very much 0 1 2 3 4 5 6 7 8 9 10	a105.

67.	Imagine that farmers are organizing a boycott to protest industry purchases of their produce at cheap prices. Would you take part in this boycott?	1> Yes (Go to Question 69) 2> I wouldn't as things stand, but if the situation of the Lake worsens then I would (Continue from Question 68) 3> No (Continue from Question 68)	a106.
68.	Could you tell me why you wouldn't take part?	1> One of the other farmers would just go and sell all their produce. The boycott wouldn't work. 2> Industry is too powerful for us to deal with. 3> I think the boycott would be too costly for me. Other:..... 69. soruya geç	a107.
69.	Consider the farmers in your area; out of 10 farmers, how many do you think would participate in this action?	... people	a108.
70.	Do you think an action like this has a high or low chance of success?	Very low — Very high 0 1 2 3 4 5 6 7 8 9 10	a109.
	ENVIRONMENTAL SENSIBILITY (TO BE ASKED TO ALL RESPONDENTS)		
71.	In your opinion, which of the items I will now read to you is presently the most important issue Turkey needs to resolve? And the second most important issue? (NOTE TO INTERVIEWER! SHOW CARD)	1> Inflation-The high cost of living 2> Unemployment 3> Economic instability/Crisis 4> Bribery and corruption 5> Environmental problems 6> Education 7> Health/Social security 8> Democracy/Freedom of thought Other……	a110. a111.
72.	Are problems related to the destruction of nature and pollution being exaggerated, or are such worries well-founded?	1> They are being exaggerated 2> Worries are well-founded	a112.
73.	Please tell me how much you agree with the statements I am about to read to you. 0 means I fully disagree, 5 means I neither agree nor disagree, and 10 means I fully agree. The more you agree with a statement, the higher your score should be between 0 and 10.	I fully disagree — I fully agree 0 1 2 3 4 5 6 7 8 9 10	
		Although using chemical fertilizers, and herbicides and pesticides over a specified amount is harmful to the environment, it is necessary to use them to increase yields	a113.
		Even if it slows economic development, conserving the environment should be one of Turkey's priorities	a114.
		If I could be sure it would be used properly, I would agree to pay an additional tax toward environmental conservation	a115.
		Even is overfishing depletes the fish in the Lake, fishermen may do so if this is necessary for them to earn a living	a116.
		Environmentalists don't care for people, they make life difficult for people in the name of protecting nature and wildlife	a117.

QUESTIONS ON SOCIO-ECONOMIC STATUS				
74.	Gender	1> Female 2> Male		a118.
75.	What year were you born?	.....		a119.
76.	May I ask about your marital status?	1> Single (Go to Question 79) 2> Married 3> Widowed/Divorced		a120.
77.	IF RESPONDENT IS NOT SINGLE How many children do you have?	…….....		a121.
78.	IF RESPONDENT HAS CHILDREN How many of your children are younger than 14?	…….....		a122.
79.	What was the last school you completed?	1> Illiterate 2> Literate 3> Primary School 4> Secondary School 5> High School 6> University education and above		a123.
80.	Could you please tell me how many people live in your household, including yourself?	..... people		a124.
81.	Could you please tell me how many people in your household are gainfully employed, including yourself?	..... people		a125.
82.	Is the house you live in your own property, or do you live in someone else's property without paying rent, or lodging provided by an employer, or do you rent?	1> Own property 2> Property belongs to someone else but pays no rent 3> Lodgings 4> Rented		a126.
83.	Could you please tell me if your HOUSEHOLD owns any of the below items?	YES	NO	
	Credit Card	1	2	a127.
	Computer	1	2	a128.
	Internet	1	2	a129.
	Home phone	1	2	a130.
	Automatic washing machine	1	2	a131.
	Automatic dishwasher	1	2	a132.
	Car	1	2	a133.
	Tractor	1	2	a134.
	Hunting rifle	1	2	a135.
	Fishing boat	1	2	a136.
	Sheep and goats	1	2	a137.
	Cattle	1	2	a138.
	Farmland	1	2	a139.
84.	Please consider what each member of your household spends on food, education, health, rent, electricity, transportation, communication and other costs monthly, and tell me what the total monthly expenses of your household might be.	Note to interviewer! Household expenses should be written in Turkish Lira. ……..……TRY		a140.
85.	Given your incomes, to what extent are you able to meet the needs of your household?	1> My income is not enough, we meet expenses only by borrowing 2> Our income is only just enough, we have to limit some of our expenditures 3> Our income is enough, but we're unable to put aside some savings 4> Our income is enough, and we're able to put aside some savings		a141.

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