FIRMS AND THE ENVIRONMENT IN THE GLOBAL ECONOMY: CONCEPTUAL BACKGROUND AND POLICIES

Andre G. Fourcans
ESSEC Business School
FIRMS AND THE ENVIRONMENT IN THE GLOBAL ECONOMY: CONCEPTUAL BACKGROUND AND POLICIES

Abstract

In a capitalist system, can we expect firms to take into consideration the social environment in which they operate, and the environment per se, in their decision making process? If not, should we appeal to the moral values of managers to satisfy social and environmental needs? Or should we set up the right institutional structure so as for firms and managers to strive also for the satisfaction of these needs? In other words, should we rely on “ethics” or “incentives” to reach desired social goals, and, more specifically, not to pollute or to clean the environment?

Needless to say, the answers given to these questions are of paramount importance not only for society as a whole, but also to define the proper role of individuals, firms and the government in order to satisfy both economic and environmental (social) objectives. The view of this paper is that in general incentives dominate ethics as a means of economic and social organization.

After studying the meaning of the so-called social responsibility of the firm, and the on-going debate between economists and moral philosophers that follows, we show that their respective perception of man is at the heart of the dispute. This conceptual background being established, we analyse the misunderstandings occurring between economists and environmentalists with respect to cost-benefit analyses and, more generally, with respect to the role of the market and government in dealing with the subject matter. Based on this analysis it is possible to investigate and evaluate the main types of environmental policies, be they market-based or not, and their impact on firms’ behavior. Finally, our conclusion recaptures the main arguments of our thesis.
IS THERE SUCH A THING AS THE “SOCIAL RESPONSIBILITY” OF THE FIRM?

THE ECONOMIST AND THE MORAL PHILOSOPHER

“Is there such a thing as the “social responsibility” of the firm?” Asking such a question, in such a manner, can be seen as provocative. “Of course, corporations have a wide ranging set of social responsibilities” would be the answer of the vast majority of the population, except maybe for some greedy and heartless executives or no less heartless economists. Yet the “right” answer is not as obvious as it would appear at first sight.

No one, be they workers, customers, suppliers, shareholders or citizens, would contend that firms do not have an impact on the environment in the widest meaning of the word, via the pollution created by such firms. No one would deny that. But that is not the real issue. The real issue is whether firms should take into consideration explicitly and purposely these factors in the conduct of their activities. In other words, the question is whether the role of corporations is to simply maximize profits (or wealth value), thereby serve shareholders direct interests, or take a broader more proactive role in dealing with major social problems, the environment being one, and not the least important.

This debate is not new. For several decades now corporate social responsibility has been advocated for by many, demanding that corporations recognize their responsibility to society and deal with social problems such as poverty or unemployment, and more recently the environment. Nowadays it is safe to assume that the importance of firms’ influence vis a vis these problems is almost unanimously accepted. But should firms, and more precisely their managers, take such objectives as a behavioral background in their decision-making process? If the answer to this question is “yes”, the managers and their firms would behave “ethically”. Otherwise they would not.

The moral philosopher, essentially concerned with ethical behavior per se, would give an affirmative answer to the above question. The economist is more hesitant and careful in his answer. He does not want to engage in an endless philosophical debate about what is or what is not ethical (which does not mean he is not concerned with ethics, but, as such consideration barely belongs to his scientific tool box he prefers, as a professional, to remain on the sidelines of such debate), but seeks to define the proper role of the firm in a market system. He knows that under certain conditions - the “rules of the game” -, by having its self-interest as an objective, as narrow as it may appear to other social scientists or to the population at large, a firm may behave in a “social way”. And more, self-interest would be the best way to reach the desired social results. To paraphrase Adam Smith’s famous sentence about the butcher, brewer and baker providing our dinner, if we want social results such as a clean environment, let us address ourselves not to the ethics of the
managers, “but to their self-love and never talk to them about our necessity but of their advantages”.

To be more explicit, contrary to what many seem to believe, it is wrong to consider that economists do not take into consideration the social responsibility of the firm when they contend, as in the Classical view of the firm (see for example Friedman, 1962), that the latter must only strive for economic objectives such as profits. They are not “heartless” or “socially irresponsible” or “unethical”, they just consider that the best way for firms to help solve the more general social problems is, always under certain conditions (we will come back to these later), to focus on economic targets. The favorable consequences for the environment will emerge as a collateral benefit. Hence, managers and the firms they manage would not be explicitly ethical in the moral meaning of the word, and one would not have to appeal to their moral sentiments to solve social problems such as pollution; yet their actions would be ethical as far as they lead to ethical outcomes. Without elaborating on the respective moral value of intentions versus deeds, suffice to say that we face what seems to be a thick wall of bricks between the views of the economist and those of the moral philosopher as to the social responsibility of the firm. For the economist the socially responsible firm is not judged in function of the “good sentiments”, the preannounced explicitly ethical behavior of its managers, but with respect to its social results regardless of the moral judgment one could draw as to its managers’ behavior. If good sentiments lead to the worsening of pollution, for example, could one judge the managers’ behavior as ethical? “The road to hell is paved with good intentions” said the philosopher... Which does not necessarily mean that bad intentions or explicit unethical behavior would automatically pave the road to heaven on earth either!

Another issue must be raised: how to entangle “ethical” behavior from “self-interested” behavior? When firms make contributions to community organizations, or cultural groups, or compensate citizens for the inconvenience of the pollution they generate, or spend money to decrease such pollution, do they do that in order to behave ethically or to maximize their long-run profits, i.e., their self-interest, as far as they receive over time more benefits from this behavior? Difficult indeed to give an answer to this type of question. But is such an answer relevant? “Not at all” says the economist, since the “ethical” result is satisfied, that is all that counts as far as society’s welfare is concerned. In other words, since the days of Mandeville and Smith the economist is cautious of “private virtues” – such as ethics – as a means to reach “social virtues”, because he knows how complex social problems are. And how the exercise of private virtues may lead to “public vices” and to perverse side

---

1 Adam Smith, himself a professor of moral philosophy, argued that selfish interest such as profits yield good (ethical?) outcome. The zero excess profits of perfect competition constitutes good (ethical?) outcome. As we will see, market failures pose problems, but ethics, just like markets and governments, may also fail. This is part of the historical background of economics.
effects. And how the announced use of these private virtues can be a disguised way of maximising one’s self-interest (see for example on the subject of altruism and social efficiency: Barro, 1974; Becker, 1976, 1981; Phelps, 1975; Cahuc and Kempf, 2000).

**THE ECONOMIC VERSUS THE SOCIOLOGICAL MAN**

The above considerations boil down to the view of man and of the “good” social order, i.e., the incentive structure that can be derived so as to maximize human and social welfare.

Seeking to solve environmental problems by appealing to the ethical behavior of firms is based upon a sociological model of man (Brunner and Mekling, 1977). First, it considers that a firm exists in itself like a single body rather than as an organization which is the result of individuals’ behaviors interacting within a set of constraints and incentives created within and outside the organization. Second, with such a view the behavior of man “is a product of his cultural environment, ... and is determined by acculturation” (Meckling, 1975). Said otherwise, with this model of man, there is no room, or very little, for adaptive creativity, or for evaluating responses to incentives. This model attributes a crucial significance to the exogenous existence of social values and social norms such as ethics. These values and norms establish the social order independently of individuals.

The economist has a different perception of man, the basic outline going back to the Scottish philosophers (Mandeville, Ferguson and Smith). Man is viewed as a resourcefully groping, coping and evaluating maximizer. He is foremost an evaluator, his evaluation taking into consideration the context of his actions, that is the set of constraints, incentives and social norms to which he is subjected. But contrary to the sociological man he evaluates these various factors according to his own objectives and interests rather than just reacting passively to social norms (among them, ethics). In the R.E.M.M (Resourceful, Evaluating, Maximizing Man) model, man appears as responding to incentives and stimuli, some of these being associated with institutional arrangements surrounding him. This man’s behavior is thus the consequence of interaction between the individual’s value system and constraints or opportunities. And the role of these constraints and opportunities (the incentive system) in his behavioral changes dominate the role of the value system (the so-called “preferences” for the economist). To induce a change in man’s behavior one must alter the incentive structure (constraints and opportunities) rather than the value structure.

To avoid any misunderstanding one must emphasize the fact that the REMM view does not consider that preferences (values, ethics) do not have an impact on individual behavior. This view merely contends that changes in behavior depend more on changes in the costs and benefits, in the wide
meaning of these words, associated with one’s behavior than on changes in the value system. And that changes in the costs and benefits are easier and quicker to implement than changes in values. In other words, this view of man does not deny the role of values, here the role of ethics, in striving for the solution to society’s problems, but maintains that changing the incentive structure is a more operational and more efficient route to get desired results. The economist, the main proponent of this view, does not believe that changing the nature of man, i.e., having a more ethical man, is the most efficient way to solve social problems such as pollution. Again, that does not mean that ethical considerations should be outright discarded but that they are superseded, in terms of social efficiency, by the incentive system. Waiting for the “new man” to solve problems is a very inefficient and lengthy process, indeed may be an infinitely long route to bring about desired social results. Not to mention other perverse and unexpected effects that may be the outcome of such strategy. History speaks for itself on this matter...

This approach can be frustrating for the moral philosopher seeking correlation between consequences of human behavior and intentions, and looking for an explicit ethical behavior of managers aimed at social (environmental) responsibility. From the economic point of view (the REMM model), it is not the “good” intentions, the “ethical” intentions, the “moral quality” that count but the “good” desired results and the efficiency through which these results are achieved. Hence different analyses of the market system and, more generally, of the institutional structure best capable of leading to socially defendable results. And more specifically to a good quality of the environment.

Said differently, the economist considers the achievements of the desired social (environmental) results in an efficient way, whatever the explicit intentions behind businessmen’s behavior, of a higher ethical value than getting a lower level of social results (or even none) by having a so-called “ethical” background of behavior. He prefers the ethics of results to the ethics of intentions.

---

2 Some, such as Jenkins (1998), go as far as proposing a rejection of the Cultural Western heritage with its environmental destructively tendencies in sciences, economics and public policy, in favor of traditional Chinese culture supposedly more in harmony with contemporary environmental ideals. Without entering an analysis of this question, and even by admitting the value of this cultural change, if one must wait for such a revolution to happen in order to solve our environmental problems, can one be really sure that in between now and then the earth will still exist?!

3 This view is in the same vein as in Norcia and Tigner (2000) who argue that “business practices involve multiple motives and, like other social practices, normally involve ethical values”. Our position does not conflict with Norcia and Tigner’s, yet it considers that even if there are mixed motives in business decisions, changes in the incentive structure offers the most efficient and fastest way to alter these decisions in the direction of the desired social (environmental) objectives.
These differences explain a great deal the difficulties economists face being understood by, and communicating with, even well-meaning moral philosophers and environmentalists.

**MISUNDERSTANDINGS BETWEEN ECONOMISTS AND ENVIRONMENTALISTS**

**COST-BENEFIT ANALYSIS AND ETHICS**

Proponents of the economic approach to environmental problems also insist on the need for cost-benefit analyses as a decision-making tool necessary to evaluate in a systematic way the consequences of different courses of actions, with the trade-offs and constraints involved. With all the misunderstandings so created between economists and traditional environmentalists.

Cost-benefit analyses imply that an action should be undertaken to the extent that the benefits it generates are greater than its costs. And between different courses of actions must be choosen the action with the highest profit (benefits minus costs).

Many environmentalists consider that a decision resulting from such an analysis may not be morally right and should not therefore be undertaken (for example, Kelman, 1981). Why? Because there are situations “where certain duties – duties not to lie, break promises, or kill, for example – make an act wrong, even if it would result in an excess of benefits over costs” (Kelman, 1981). Hence, only ethical considerations should enter the picture when deciding on a certain course of action. Decisions about our natural environment would enter that category of situations. For supporters of this view, when decision makers (government officials, elected or not, managers) determine a legal level of pollution for example, they should consider in particular the harm inflicted upon certain vulnerable individuals (such as the elderly or asthmatics) even if it does not harm others, that is, even if total benefits for society are higher than total costs. In other words, even if such a level of pollution leads to an increase in living standards for the rest of us, it would be morally wrong to accept such a level. More generally, for these environmentalists, cost-benefit analyses do not consider the fact that there exists “specially valued” things that should outweigh the pure economic analysis.

The answer of the economist to such views is several fold. Cost-benefit analysis is not only about the (traditional) economic costs and benefits per se, it also encompasses all the aspects of what people want, those being in a way or another valued in monetary terms. And “specially valued” things can be dealt with in such a way, even if it is not always easy and errors can be made. Valuing costs and benefits with such a perspective renders environmental problems specially prone to this type of economic analysis, complemented by
an analysis of trade-offs between competing ends, subject to the constraint that people cannot have everything they want, a means of analysis often judged morally deplorable by many environmentalists! But is the moral argument so convincing?

Let us come back to this special value issue such as “the right” of vulnerable groups such as the elderly or the asthmatics “not to be sacrificed on the altar of somewhat higher living standards for the rest of us”. This view assumes that the costs involved in such a social choice are trivial. But what if the price to be paid is not “somewhat higher living standards” but the jobs of a number of workers. How to decide whether the health of asthmatics or the elderly has more “moral importance” than for example the jobs and the livelihood of workers? More: is the moral issue the same if one asthmatic is harmed at the cost of the jobs of 1000 workers, or 1000 asthmatics harmed at the cost of the job of one worker? Of course the two situations are not equivalent. And the abstract and subjective ethical argument does not differentiate between both situations, whereas the economic argument does and clarifies the choice.

As a whole, replacing cost-benefit analyses, and more generally economic analyses, by ethical considerations would be a poor way of treating environmental issues. Which does not mean that ethical, moral, esthetical, or other general values (such as duties and rights) considerations should be dismissed; rather they should to the extent possible be incorporated into the analysis by assigning monetary values to them. Obviously it is difficult to place objective monetary values to such intangibles, but economists have tools to do that in a reasonable if not perfect way. Anyway, in spite of its shortcomings and limitations economic analysis is essential for decision makers to consciously evaluate the trade-offs, to minimize the waste of scarce resources, and to improve their decisions over time when more information about costs and benefits is available.

The economist is also aware that cost-benefit analysis is not always possible in precise terms because there is great uncertainty in the estimates of costs and benefits - the greenhouse effect and the increase in world temperature that seems to go along with it is a good example of such difficulty (Nordhaus and Boyer, 2000; Fourçans, 2002, 2003) In that case “precautionary” considerations (ethical issues may be part of such precautionary motive) may also enter the analysis and the decision-making process. But that does not negate the possibility of economic analysis. It can be conducted, even if imprecisely and with results not absolutely reliable. Such analysis introduces some rationality into the decision making process, sets up a methodology to deal with the problem and establishes a rational background to improve decisions over time as new information and knowledge emerge (Fourçans, 2004).

---

THE MARKET AND THE ENVIRONMENT

Other sources of misunderstandings between economists and environmentalists are related to several myths as to the way our profession thinks about the environment. Particularly about the role of markets in solving environmental problems.

Economists are portrayed as asserting that markets can solve all environmental problems (not to say anything about the whole array of economic and social problems). Of course, this caricature is nothing but a caricature. What the economist says is that, under certain conditions, markets lead to the most efficient economic results. Production and trade in the market between self-interested producers and consumers achieve the greatest good for the greatest number, through the famous “invisible hand” of Adam Smith (1776). This market process leads to the economic optimum without interference from the government.

Yet economists are well aware that the conditions for markets to reach this economic optimum are not necessarily met. And they have analysed these conditions and their consequences almost from the beginning of the development of the economic paradigm. The literature on the subject is voluminous, with hundreds of books and papers. Since the famous contribution of A. C. Pigou (1920) and especially over the last 30 years, great theoretical as well as empirical progress has been made in environmental economics. “In short, the intellectual structure of environmental economics has been both broadened and strengthened over the past three decades” (Cropper and Oates, 1992).

Welfare economics clarifies the conditions under which markets do not deal efficiently with some situations, and therefore do not lead to an optimal allocation of our scarce resources. This is especially true with respect to so-called public goods and when there are externalities. Public goods concern goods that can be “consumed” by market participants even though they do not pay for it – the light from a lighthouse is a typical example, or missiles to defend a country. In that case, nobody would want to incur the cost of production of this good, the free market would “fail” or lead to an underproduction of the good. Externalities are related to more traditional environmental problems. Externalities exist whenever the production of goods or services entails consequences “external” to the market, that is when some costs (sometimes benefits), of pollution for example, associated with the production of these goods and services are not taken into consideration by the producer. To say it with the economic jargon, there exists negative externalities such that the total social cost of production exceeds the private cost of production. Let to its own devices, the market producethe too many pollution-generating goods and services. This is used as an argument for government “to enter the game” in an attempt to correct these types of market failures and thus to improve welfare and lead to greater efficiency.
But this argument does not mean that government intervention cannot have failures in itself. The “political man” or the “regulatory man” has also objectives of his own, he does not obligatorily maximize the public interest. There can also exist “political failures” and “regulatory failures” in dealing with the externalities, as analysed by the wide Public Choice literature.

As paradoxical as it may seem, the existence of externalities does not necessarily imply that market solutions cannot be used to deal with market failures. For example, pollution can be dealt with by the market through a system of taxes on firms’ emissions, taxes reflecting the external social costs. Or by rights being exchanged on a market for tradable emission permits. Through these methods pollution can be “internalised” and the market outcome be efficient. In addition, there may be private alternatives to public intervention such as transactions in property rights (Coase, 1960) or the organization of Clubs (Buchanan, 1965).

As can be seen, contrary to what many environmentalists believe, economists do not hold that the market alone always leads to the desired environmental outcome. Their position is more subtle. And they accept that, under certain circumstances, government may intervene to create incentives - or constraints, a form of “strong” incentives – so as to have some chances of getting the desired outcome. And different types of incentives are possible.

INCENTIVES, THE MARKET AND THE GOVERNMENT

THE MAIN TYPES OF ENVIRONMENTAL POLICIES

The role of incentives is to ensure that producers and consumers face the true costs of their actions, i.e., the full social costs and consequences of these actions. As far as firms’ behavior is concerned these incentives, or constraints, fall within one of five major categories: command and control regulatory approaches, pollution charges, market barriers reduction, subsidies elimination; and possible changes in property rights.

Command and control regulatory approaches are the traditional and more widely used methods of fighting pollution. Through regulations, governments set uniform standards, mostly technological or performance-based, for all firms. All businesses must then adopt the same measures and practices for pollution control. For example, firms in an industry can be required to use the “best available technology” to control water or air pollution. Performance standards set uniform control target for each firm (such as the maximum amount of pollutant permitted) but also allow some latitude as to the way to meet such target. Obviously, command and control approaches are not the economist’s favourite tool of creating “incentives” to deter pollution – in their constraining nature, as noted above, command and control measures

5 This part is based on Stavins (1990, 1992).
are more “forced-incentives” or “compulsory incentives” than typical incentives. The economist, in general, prefers more market-oriented incentives such as pollution charges.

Pollution charges consist of imposing a fee or a tax on the amount of pollution a firm creates. Theoretically, the applied tax must lead to an amount of pollution such that its marginal cost equals the tax rate. In that case firms have incentives to control their pollution as long as the costs of controlling it are sufficiently low, therefore having incentives to develop new and less expensive pollution-control technologies. This approach is used often enough in water pollution and smoke pollution controls. And it works. In 1991, Sweden, for example, introduced a sulphur tax: the sulphur content of fuels dropped to 50% below legal requirements and stimulated power plants to invest in abatement technology. Norway’s carbon tax, also levied in 1991, lowered emissions from power plants by 21%. This method is now proposed by some economists to help control global warming through a carbon tax.

Though this type of method can be efficient, it is not easy to evaluate precisely the level of pollution it would lead to. Tradable permit systems eliminate, at least in theory, this problem.

Under a tradable permit system the global overall level of pollution is determined by the organizers of the market (the government, or private operators), but the repartition between firms is made through the allocation of tradable permits. Firms keeping their emissions below their allocated level can sell their surplus permits, via a market for these permits, to firms that would emit beyond their allotted level. Hence, firms with low costs of pollution abatement have an incentive to reduce their pollution beyond the pre-established target level, whereas firms with high costs of pollution abatement will reduce their pollution less than the pre-established target level. The authorized total level of pollution is respected but its allocation between firms is determined by a market trading in these pollution rights. The total cost for society as a whole of cleaning the air is minimized.

This market procedure has been used in the US with great success for sulphur dioxide emissions control. It could be established at the international level to reduce greenhouse gas pollution, as proposed by the Kyoto Protocol.

Removal of market barriers resulting from governmental rules and regulations can also lead to great gains in environmental protection, through for example disclosure of information on the greenness of companies. This method has been used with success to promote more efficient allocation and use of scarce water supplies. It can also be used via a least-cost bidding process for electricity utilities, thus entailing a more rational energy transformation.

In this category of measures we can also incorporate the removal of barriers to international trade. As surprising as it can be to environmentalists, trade liberalization appears to lead to a cleaner environment, notably in the less developed countries. Many studies have shown that environmental degradation and income have an inverted U-shaped relationship, with
pollution increasing with income at low levels of income and decreasing with income at higher levels of income (for example, World Bank, 1992; Grossman and Krueger, 1995). The reason of such improvement? As countries develop, firms substitute cleaner technologies for the more polluting ones and citizens demand that more attention be paid to their environmental conditions (Grossman and Krueger, 1995; Antweiler, Copeland, Taylor, 2001; Dean, 2002). Again, incentives, and not direct ethical considerations, together with increase in income that is brought about by international trade help the global environment, at least after a certain level of income is reached and a minimum level of political certainty is insured (Fredriksson and Mani, 2004; Copeland and Taylor, 2004).

Finally, eliminating some government subsidies can also promote a more efficient and more environmentally friendly use of resources. Suppressing the enormous subsidies given to coal producers in various countries, for example, would help decrease CO2 pollution. The same would be true with respect to timber subsidies that lead to excessive timber cutting and damage not only forests but also habitat and various watershed values. One could add subsidies for pesticides (to make them more affordable to farmers), for water (often free, or very cheap, both for farmers and city dwellers), or for electricity (often underpriced for everybody).

More radical solutions are proposed by “market purists” through a shift to a policy grounded in private property rights (Coase, 1960). The proponents of this approach argue that the incentives and markets created by such rights would protect the environment better than any government action. Inappropriately assigned property rights, or the lack thereof may lead to a “tragedy of commons” whereby users over exploit a resource, such as over-fishing. In the long-run all fishermen would benefit from a thriving fishery, but in the short-run each catches as many fish as he can, thus cutting the branch the industry is sitting on. If fishermen had rights with an assigned quota, and could freely trade such quota, they would behave in a more “sustainable” way and stocks would be revived – as has been the case with such schemes in New Zealand, Iceland and parts of America. Though this approach can be very powerful in dealing with specific environmental situations, it is problematic to use more broadly as a solution to the wide array of environmental issues.

AN EVALUATION OF MARKET-BASED VERSUS COMMAND AND CONTROL POLICIES

Holding all businesses under the same target, command and control regulatory approaches can be expensive and even counterproductive. Although uniform standards can sometime be effective in limiting emissions of pollutants, they do so at relatively high costs to society. The same standards can force some firms to use unduly expensive means of controlling pollution
whereas the cost of doing so can vary between firms; also, the right technology in a given corporation may be the wrong one in another.

Furthermore, since little or no financial incentive exists for firms to go beyond their control targets, command and control approaches may hinder the development of technologies that could provide greater level of pollution abatement.

Finally, command and control regulatory approaches may be the final outcome resulting from firms lobbying to eliminate competition. For example lobbying by big firms as a method of eliminating small competitors, hence increasing the cost of regulation\(^6\) and decreasing social welfare.

Market-based approaches achieve the same aggregate level of pollution control as a command and control approach, but they allocate the burden of this pollution control more efficiently among firms. By providing monetary incentives for the maximum reductions in pollution by the firms that can do so most cost effectively, market approaches allow pollution control at a lower cost, thus more efficiently, for society as a whole. Not only do they drive firms toward cost-efficient solutions but also toward more R & D in search of cheaper and better pollution-abatement techniques, and toward the development of new pollution-control technologies, as far as such technologies lead to positive effect on profits.

The costs of market-based instruments can be \textit{much} lower than command and control ones. For example, it has been estimated that abatement costs of sulphur dioxide (SO\textsubscript{2}) emissions in the United States through a tradable permits system has saved about one billion dollars a year in compliance costs (Stavins 2003). And the phase down of leaded gasoline, accomplished through a tradable permits system among refineries, was associated with savings of about 250 millions dollars per year to consumers. The cost of reducing greenhouse gas via a world market for permits could decrease the cost by a factor of 4 compared to specific measures applied without a market procedure by each country independently of the others (Nordhaus and Boyer, 2000).

Economists, of course, also stress the necessity to use cost-benefit analyses in the evaluation of the different programs (as discussed above). As resources are limited, such analysis makes the trade-offs involved in different social investments more explicit. It informs decision-makers as to how can scarce resources be put to the greatest social good. As can be seen from Table 1 the estimated costs of regulations per life saved, in the United States, vary widely (by a factor of more than a million!) (Stavins, 2003). One can deduct from these cost figures the extent to which, for a given cost, some measures can save more lives than others - certainly not too light a consideration...

It spite of all their advantages, market-based policies are not widely used as pollution-control methods. For at least three reasons.

---

\(^6\) As shown in Table 1 below, the very high cost per life saved through regulation in solid waste disposal facility is highly correlated to this type of anti-competitive measure.
First, they do not fit every problem. They are tailor-made for problems where concern focuses on aggregate pollution levels such as the fight against acid-rain or greenhouse gas. But when concerns are with respect to local environmental problems it is the level emitted by individual firms that must be controlled. In this case, a conventional command and control approach, such as uniform standards, may be the preferred policy.

Second, environmentalists (except, in general, environmental economists) view the pollution problem more as a moral failing of corporations and political leaders than as a by-product of our societies that can be reduced in an efficient way by economic techniques. “Ethics” comes then at the forefront of the debate rather than “incentives”. In addition, environmentalists and social philosophers have a tendency to reject market-based approaches as being “unethical”, as establishing “rights to pollute”. They worry that increased flexibility in pollution control would lower the level of environmental protection.

We find again the misunderstanding between environmentalists and economists, even if, over the years, the gap between the two views seems to narrow, except may be for the hard core militants.

Third, environmental professionals and government officials do not like to see their experience and skills, in other words their power in dealing with command and control programs, dissipate. Businesses are also hesitant to pursue market-based instruments such as taxes or tradable permits because of their lack of experience with these instruments and the limitations in their internal structures as to such approaches. There is also a concern that these new fees or taxes would not be compensated by lowering other fees or taxes. Hence one reason, among others, that many environmentally sensitive industries argue in favor of voluntary approaches to environmental policy.

**The Limitations of Business Structures in Dealing with Market-Based Instruments**

“Economic-incentive instruments require a very different set of decisions than do traditional command and control approaches, and most firms are simply not equipped internally to make the decisions necessary to take full advantage of these instruments” (Stavins, 1998). Indeed, firms are not familiar with the use of these tools, are not sure whether they would remain a lasting component of government intervention in the realm of environmental control, and, as a result, are hesitant to incorporate this new approach in their organization. They fear that rules may be modified over time and hesitate to incur the investment costs associated with market-based instruments. A more predictable set of “rules of the game” and a higher sense of stability over time would improve the rate at which such tools would be used. Corporations are also concerned that the availability of economically efficient tools of
environmental cleaning may lead to more stringent limits imposed on the amount of pollution permitted.

The fear of being considered “unethical” by environmentalists and the public at large may also be a concern. Would not “buying the right to pollute”, as some environmentalists present tradable permits programs, for example, give the firm a bad image and therefore have an adverse impact on the corporation and its management? These considerations, as well as the lack of public understanding of market tools, should not be neglected as disincentives in the use of market-based instruments (Hockenstein, Stavins, Whitehead, 1997, also for the end of this section).

Furthermore, being accustomed to minimizing the costs of complying with command and control techniques, firms do not have extensive enough experience in evaluating costs of dealing with market instruments and do not make the necessary strategic decisions towards implementation thereof. So long as the functions of managers responsible for pollution control in their respective corporations are not clearly integrated with those of the business units, the latter have no incentive to introduce such pollution control objectives into their decision-making process. As a consequence, the relevant and necessary strategic and production decisions are not made.

Also, managers in charge of these issues have a tendency to strive for risk reduction and problem avoidance rather than to concentrate on the opportunities of the market-based incentive system. In general, these are engineers or law-related professionals, possessing technical and legal skills rather than the economic and managerial skills required to deal with market-based instruments.

One can expect that more certainty derived from public policy in the application of market instruments should over time increase the impact of the incentives so created on the structure of the firm. And as a result raise the efficiency of these incentives in cleaning the environment.

**VOLUNTARY APPROACHES**

Voluntary approaches for environmental policy have been developed in OECD countries since the 1960s and 1970s, with a significant increase in the 1990s, especially in Japan, the European Union and the United States. These approaches consist in firms making commitments to improve their environmental performance beyond what is legally required. Three main types can be identified. First, public voluntary programs whereby governments invite corporations to participate if they so desire. Second, negotiated agreements that lead to environmental commitments through a bargaining process between an industrial sector and the public authority. Third, unilateral commitments whereby firms act independently without any public authority involvement (Börkey, Glachant and Lévêque, 1998; Argandona, 2004). A
fourth type could be added through direct agreements between polluters and pollutees for example.

Within the terminology of this paper, should these voluntary approaches be classified as being based on “ethics” or “incentives”? Whereas the moral and social philosopher would tend to consider them as ethically rooted, the economist views such approaches as primarily based on some “materialistic” background, i.e., on some economic incentives. The main incentive being an effort to avoid the costs of public regulation. When governments plan to introduce new environmental regulations or a new tax to fight pollution, firms may attempt to pre-empt such public regulation by opting to reduce their emissions and demonstrating that they are “good environmental citizens”. Clearly, in that case, the reason for so doing does not stem from the “ethics of intentions” of the managers but from their desire to avoid the costs of the governmental regulation or the tax. It can also be a means, for corporations, of signalling to consumers (and stockholders) their responsibility to the environment in order to increase the market share of their products and improve stock performances. Other incentives may be working towards an improved partnership with the surrounding communities, be they local public authorities or employees. In any event the goal is to improve the firm’s reputation, and consequently its long-run profits.

With that view in mind, economic incentives make up the basic background of voluntary approaches rather than explanations based on vague moral arguments7. Yet, in our view, these behaviors are ethical as far as the “ethics of results” is satisfied, that is as far as the environment is cleaned in an economically efficient way.

But what is the real efficacy of these approaches in reducing pollution? There is a debate among policy-makers, scholars, environmental groups and corporations about the proper answer to this question. It is suspected that by giving corporations a prominent role in setting and implementing these instruments, corporations would “capture” environmental policy and make it too “business friendly”. Hence voluntary approaches would result only in cosmetic effects on the environment.

The evidence is not clear-cut and covers only a limited number of cases. Whatever little evidence is available, it suggests that voluntary approaches seem to provide “soft effects”, in other words they help raise the level of information and of awareness of different groups on environmental issues (Bökey, Glachant and Lévêque, 1998). But they seem to provide only meager incentives to innovate, and are not really understood by environmentalist groups and by public opinion at large. Yet they may be a useful first step in new policy areas that are not covered by existing rules, such as waste recycling problems or, most importantly, climate change policies.

---

7 Again, as was discussed earlier in the paper, the economic analysis of these problems does not eliminate the role of ethics. As Argandonia (2004) explains, these approaches can help develop and sustain ethical behavior in firms, and make corporate activity compatible with ethics.
Many big corporations have committed themselves to reducing their production of greenhouse gas in line with the principles of the Kyoto Protocol (chemical, concrete, housing and road construction, utilities, etc.). Some also accept to be more transparent and even work with green NGOs in their dealing with pollution. Finally, over the last couple of years, in London as well as Chicago (the Chicago Climate Exchange), markets for trading pollution allowances have been established by major companies. These initiatives can be seen as a first step toward the European Union market for rights that should commence in 2005 and, perhaps, toward a worldwide market for these rights that could (should) be created in order for society to be efficiently dealing, with the most cost effective means, with climate change (Nordhaus and Boyer, 2000; Fourçans, 2002).

CONCLUSION

The question of the social responsibility of the firm in a market economy, especially in terms of environmental protection, has been debated for several decades. And no doubt the debate will be on-going for many years to come. Though no one would deny the concept of corporations having an important role to play in the cleaning of the environment, the question remaining is whether one should rely on the “ethics” of managers to strive for a clean environment or on the set of “incentives” that can be created to make them behave in such a social manner. The moral philosopher relies on moral values, another terminology for ethics, of the managers whereas the economist, cautious of private virtues as means to obtain social virtues, prefers to rely as much as possible on incentives and the right institutional structure associated therewith. The economist considers that at least on these matters deeds must be judged based on results rather than on intentions. The ethical behavior is the behavior leading to a clean environment (more generally, the desired social results), without judging the underlying intentions (within certain limits, of course).

This view is based on a different perception of man than that of the moral philosopher’s. For the economist, man is resourceful, evaluating and maximizing. For the moral philosopher, man’s behavior is determined by exogenous social values and social norms such as ethics, independently of individuals. The economic man responds to incentives and stimuli. Efficient and swift changes in the social order are better brought about by changes in the incentive structure than by changes in the value system (ethics). Though the REMM model does not deny the role of ethics, it considers that changes in the incentive system dominate changes in ethics as far as efficient social change is concerned.

This different perception of man may explain several misunderstandings between economists and environmentalists, notably with respect to the use of cost-benefit analyses in evaluating environmental policies.
The moral philosopher-environmentalist considers that this decision-making tool is badly suited to incorporate “specially values” things, i.e., ethical considerations such as “rights” of vulnerable persons or groups, into the picture. The economist is not indifferent to these considerations but considers that they can more often than not be incorporated into the analysis by assigning monetary values thereto. At any rate, these values do not eliminate the need for evaluating the trade-offs involved in social choices so as to minimize the waste of scarce resources and improve decisions over time as more knowledge and information about costs and benefits emerges.

Yet contrary to what many an environmentalist may say, economists do not contend that the market can solve all environmental problems. They just demonstrate that under certain conditions, markets lead to the most efficient result. Even more: economists have widely analysed these conditions and in so doing established the role that government may play in dealing with questions such as public goods or externalities – the latter being at the heart of environmental economics. But if there can exist “market failures”, there can also exist “political” and “regulatory failures”. The solution to environmental problems requires therefore not forgetting the trade-off between market and government failures.

That perspective in mind, the economist prefers market-based environmental policies to command-and-control ones. Incorporating pollution charges or establishing a tradable permit system is preferred to uniform standards for all firms. And a cleaner environment can be achieved through the removing of market barriers, among them international trade barriers, or of some government subsidies, or by changing the structure of property rights. These market-based approaches, by creating the “right” incentives lead to favorable environmental results at least cost for society. But these approaches cannot fit every problem. In those cases where they do not, command-and-control policies should not be discarded.

Finally, especially since the early 1990s, voluntary approaches whereby firms make commitments to promote their environmental performance beyond what is legally required have been developed. If their efficiency is not clearly established they seem to at least raise the level of information and awareness of different groups on environmental issues, the fight against greenhouse gas being at the forefront on that matter.

At any rate, whatever the method used, the incentive structure (constraints included as a kind of compulsory incentives when there is no other solution) dominates ethics as a way of solving the problem of pollution generated by businesses.
<table>
<thead>
<tr>
<th>Regulation</th>
<th>Year Issued</th>
<th>Cost per Statistical Life Saved (Millions of 2002 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logging operations</td>
<td>1994</td>
<td>0.1</td>
</tr>
<tr>
<td>Unvented space hatters</td>
<td>1980</td>
<td>0.2</td>
</tr>
<tr>
<td>Trihalomethane drinking water standards</td>
<td>1979</td>
<td>0.3</td>
</tr>
<tr>
<td>Food Labeling</td>
<td>1993</td>
<td>0.4</td>
</tr>
<tr>
<td>Passive restraints/belts</td>
<td>1984</td>
<td>0.5</td>
</tr>
<tr>
<td>Alcohol and drug control</td>
<td>1985</td>
<td>0.9</td>
</tr>
<tr>
<td>Seat cushion flammability</td>
<td>1984</td>
<td>1.0</td>
</tr>
<tr>
<td>Side-impact standards for autos</td>
<td>1990</td>
<td>1.1</td>
</tr>
<tr>
<td>Low-altitude windshear equipment and training standards</td>
<td>1988</td>
<td>1.8</td>
</tr>
<tr>
<td>Children’s sleepwear flammability ban</td>
<td>1973</td>
<td>2.2</td>
</tr>
<tr>
<td>Benzene/fugitive emissions</td>
<td>1984</td>
<td>3.7</td>
</tr>
<tr>
<td>Ethylene dibromide drinking water standard</td>
<td>1991</td>
<td>6.0</td>
</tr>
<tr>
<td>NOx SIP Call</td>
<td>1998</td>
<td>6.0</td>
</tr>
<tr>
<td>Radionuclides/uranium mines</td>
<td>1984</td>
<td>6.9</td>
</tr>
<tr>
<td>Grain dust</td>
<td>1988</td>
<td>11</td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>1997</td>
<td>13</td>
</tr>
<tr>
<td>Arsenic emissions standards for glass plants</td>
<td>1986</td>
<td>19</td>
</tr>
<tr>
<td>Arsenic emissions standards for copper smelters</td>
<td>1986</td>
<td>27</td>
</tr>
<tr>
<td>Hazardous waste listing for petroleum refining sludge</td>
<td>1990</td>
<td>29</td>
</tr>
<tr>
<td>Coke ovens</td>
<td>1976</td>
<td>51</td>
</tr>
<tr>
<td>Uranium mill tailings (active sites)</td>
<td>1983</td>
<td>53</td>
</tr>
<tr>
<td>Asbestos/construction</td>
<td>1994</td>
<td>71</td>
</tr>
<tr>
<td>Asbestos ban</td>
<td>1989</td>
<td>78</td>
</tr>
<tr>
<td>Hazardous waste management/wood products</td>
<td>1990</td>
<td>140</td>
</tr>
<tr>
<td>Sewage sludge disposal</td>
<td>1993</td>
<td>530</td>
</tr>
<tr>
<td>Land disposal restrictions/phase II</td>
<td>1994</td>
<td>2.600</td>
</tr>
<tr>
<td>Drinking water/phase II</td>
<td>1992</td>
<td>19.000</td>
</tr>
<tr>
<td>Formaldehyde occupational exposure limit</td>
<td>1987</td>
<td>78.000</td>
</tr>
<tr>
<td>Solid waste disposal facility criteria</td>
<td>1991</td>
<td>100.000</td>
</tr>
</tbody>
</table>

* From Stavins (2003), whose source is Morral (2003). Estimates are from respective agencies. Non-mortality and non-health benefits were subtracted from the annual cost (numerator) to generate net cost. For each entry, the denominator is the estimated number of statistical lives saved by the regulation annually.
REFERENCES


