Environmental Ethics and Information Asymmetry among Organizational Stakeholders

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ABSTRACT. This paper addresses the conflicting environmental interests of a firm and the community, an important stakeholder. The short-term profit maximization objective of a firm may stand in contrast with what the community wants – a "safe and clean environment". This paper argues that the information regarding the environmental impact of a firm's products, processes, and waste may be asymmetrically distributed between the firm and the community. The resultant information asymmetry may influence the probability of a firm acting opportunistically, and ultimately, a firm's ethical behavior. The paper identifies information asymmetry *between* a firm and community, as well as that *within* the community. The perceived information asymmetry across various community segments may perhaps be a determinant of environmental discrimination. The paper further contends that information asymmetry may diminish in the long run. Finally it examines the implications of information asymmetry for firms and government policy.

Introduction

A number of researchers in business and environmental ethics have argued that a firm needs to meet the objectives of its stakeholders, concerning various environmental issues (Clarkson, 1995; Freeman, 1984, pp. 102–107; Hargrove, 1995; Shrivastava, 1995). This prescription has important implications for corporate environmental and social performance (e.g., Epstein, 1996; Wood, 1991a, b). It is, however, likely that the objectives of a firm – such as short-term wealth maximization, may be in conflict with those of other stakeholders. For example, the community surrounding a firm's manufacturing plants, an important stakeholder of the firm, may want a safe and clean environment. This may constrain a firm's profitability in the short run.

The conflict among the objectives of a firm's stakeholders regarding environmental issues has resulted in a number of environmental disputes. Any attempts to resolve such conflicts entail that there be "trust" between a firm and its stakeholders (e.g., Bacon and Wheeler, 1984). The concept of trust forms a cornerstone of corporate ethics and morality (Barney and Hansen, 1994; Kjonstad and Wilmott, 1995). One of the key reasons for a firm adopting an "ethical code of conduct" is to reassure the organizational stakeholders that an "ethical" company can be "trusted" (Robertson and Schlegelmilch, 1993; Waters et al., 1986). In this paper, we identify the community as an important organizational stakeholder. We further argue that the level of trust between a firm and the members of the community may be a function of the information asymmetry between them regarding the firm's environmental practices.

A number of studies in the organizational economics literature have investigated the implications of trust and opportunism, especially in a buyer-seller relationship (cf. Williamson, 1985). However, researchers (cf. Carlin and Strong, 1995) have only recently begun to explore the cross-fertilization possibilities between organizational economics and business ethics. This paper attempts to extend the insights gained from the organizational economics literature to environmental ethics, an area of considerable interest and significance to business ethics researchers, executives, and government.

This paper identifies information asymmetry *between* a firm and community, as well as that *within* the community. It examines some of the

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potential reasons for why these types of information asymmetry may arise in the short run. Drawing on the literature in organizational economics, we argue that an opportunistic firm may exploit these information asymmetries to generate rent in the short run. Environmental discrimination may occur if a firm takes advantage of the perceived information asymmetry among various community segments. This paper specifically discusses implications of the perceived information asymmetry for environmental justice, a type of environmental discrimination.

Several forces may diminish this information asymmetry, and the accompanying rents, in the long run. Some of these forces include the possibility of community retaliation against an opportunistic firm (cf. Axelrod, 1984), as well as government policies. Our study discusses the implications for government policy and companies in the long run.

Our paper has three principal objectives:

(1) Examine information asymmetry *between* a firm and community, an important organizational stakeholder, as a source of conflict regarding environmental issues.
(2) Explore information asymmetry *within* community, and the potential for discriminatory practices by a firm; and
(3) Investigate whether a firm can sustain its informational advantage in the long run, and discuss its implications for government policy and firms.

The first objective is usually a part of the general environmental ethics framework that addresses the conflict among different organizational stakeholders regarding issues, such as waste disposal, remediation, and so forth. The second objective is an integral part of the environmental justice research. The third objective examines the first two in a longitudinal context. In this paper, we view the three objectives as interrelated. We attempt to provide a conceptual framework that addresses these issues.

This paper is broadly divided into four sections. First, it discusses the conflicting objectives of organizational stakeholders, and identifies information asymmetry as a source of conflict. Second, it examines why information may be distributed asymmetrically between a firm and the community, as well as across different community segments. Third, it investigates whether a firm can sustain its informational advantage in the long run. Finally, the paper outlines the implications for firms and government policy.

Conflicting environmental objectives of organizational stakeholders

The term "environment" denotes different things to natural and social scientists. However, there is an increasing consensus to define "environment" as "a dynamic and evolving system of natural and human factors in which living organisms operate or human activities take place, and which has a direct or indirect, immediate or long-term effect or influence on these living beings or on human actions at a given time, and in a circumscribed area" (Vaillancourt, 1995).

We argue that the short-term profit maximization goals of firms may be generally incompatible with the preservation and enhancement of the environment (e.g., Kaplan and Norton, 1992, 1993). A firm may view the expenses incurred on waste disposal, remediation, and decontamination as detrimental to its profitability in the short run. As an example, the American Petroleum Institute has cited environmental restrictions as a reason for the loss of 400 000 jobs during the 1980s (Hong and Yang, 1992). Similarly, the Motor Vehicle Manufacturer Association has stated that increasing fuel economy standards cost approximately 300 000 jobs (Linden, 1992).

It may seem apparently contradictory that according to some researchers (e.g., Russo and Fouts, 1997), the economic objectives of a firms may *not* conflict the environmental objectives. That is, corporate environmental performance may, in fact, be positively associated with economic performance. One of the important reasons for this is that an environmentally oriented firm establishes its reputation among customers that are sensitive to environmental issues. Applying the resource-based theory (cf. Barney, 1991), reputation produces economic rents for a firm, since it is often inimitable. We

would argue, however, that reputation effects usually obtain in the *long run* (e.g., Klein and Leffler, 1981; Shapiro, 1983). Further, where pressures for short term profit maximization are intense, those situations are likely to resemble the well-known "Prisoner's Dilemma" in game theory (e.g., Axelrod, 1980, 1984), as outlined in the following section. Therefore, it is likely that a firm would sidestep (or perhaps be indifferent)[1] toward environmental issues in the *short run*.

It is conceivable that the objectives of a firm's stakeholders may be different from those of a firm.[2] A stakeholder is any group or individual who can affect or is affected by the achievement of the organization's objectives (Freeman, 1984, p. 46). According to this definition, the community surrounding a firm's plants, warehouses, and waste disposal sites may be considered an important organizational stakeholder, since it is affected by a firm's environmental practices. In addition, the community may also influence a firm by using its leverage in policy-making. A firm's customers may also be considered members of the community, and stakeholders, because of their direct involvement with a firm's products. The community may then influence a firm through the attitudes and behavior of its members (e.g., consumers) toward a firm's environmental practices.

Information distribution among organizational stakeholders

The short-term profit maximization objective of a firm may create an incentive for it to act opportunistically, depending on how information is distributed among stakeholders. Because trust, in many ways, is the opposite of opportunism (Sabel, 1993), there may be a low degree of trust between a firm and the community in the short run. According to Barney and Hansen (1994), trust between a firm and the society is a cornerstone of corporate ethics and morality.[3] Therefore, the existence of information asymmetry and opportunism has important implications for corporate ethics.

Information asymmetry occurs when the community does not have as much information about the environmental practices of a firm, as the firm itself. The term "environmental practices" is used here to include the environmental impact of a firm's *products*, *processes*, and the *waste* released. For the purpose of this paper, products are end items that a firm manufactures. Processes imply the methods used by a firm to manufacture a product. Waste usually implies the material that is released by a firm into the environment, and that cannot immediately be reused (Graedel and Allenby, 1995, pp. 10, 83). Moreover, waste is generally considered a function of a firm's products and the manufacturing processes used. Accordingly, we will focus attention on a firm's products and processes as the key organizational components or activities that affect the environment. Next, we will investigate the influence of information asymmetry between a firm and the community regarding a firm's products or processes.

The significance of information in environmental negotiations was recognized in the 1972 Stockholm Action Plan (see bibliography). However, this plan or the existing related literature, for the most part, does not clearly define what constitutes information. We have, therefore, adapted here the term "information" from the business and economics literature (e.g., see Orlikowski and Gash, 1992, p. 2) to denote processed facts and data about the environmental impact of the products, processes, as well as the waste released by a firm into the environment.

In economics, game theorists usually make a distinction between incomplete and asymmetric information (Milgrom and Roberts, 1987, p. 184). The information is *incomplete* (although symmetric) when only part of the information is public, but each player (the firm and the community) has the same amount of information. On the other hand, information *asymmetry* implies that each player has private information about his or her strategies. Situations involving asymmetric information are, by far, the more interesting from a strategic point of view.

Two types of information asymmetry[4] may usefully be distinguished: (1) information asymmetry *between* a firm and the community; and (2) information asymmetry *within* community.

Information asymmetry *between* a firm and community

We would argue that the information asymmetry between a firm and the community arises because a firm typically knows more about the environmental impact of its products, processes (and the waste it releases into the environment) than the community. This may be because many times a firm's products and processes are protected by patents, where the community may not have *full* knowledge of a firm's manufacturing practices. The release of such information is frequently regarded by corporations as competitively important (Graedel and Allenby, 1995, p. 83). It is also obvious that a firm usually contemplates the manufacture of a product much before it actually manufactures it or sells it to customers. Therefore, it is likely to possess unique knowledge about the environmental impact of its products and processes *before* the community knows anything about it. Further, where the manufacturing knowledge is tacit (e.g., Polanyi, 1962), it is expected that any idiosyncrasies regarding the environmental impact of a product or process will be revealed to the firm before anyone else.

The information asymmetry between a firm and the community may be further reinforced by a firm's desire to act opportunistically. The rationale here is derived largely from two streams of literature in industrial organization: (1) adverse selection (cf. Akerlof, 1970), and (2) moral hazard (cf. Arrow, 1971). Both, adverse selection and moral hazard are considered types of *opportunism*. Opportunism implies "self-interest seeking with guile" (Williamson, 1985). In the context of this paper, adverse selection (or hidden knowledge) implies that a firm may, for instance, deliberately withhold information about the environmental impact of its products, processes, and waste from the community. It may also perhaps omit references to some of the environmentally sensitive attributes of its products, processes, and wastes, while disclosing the information to the community. Moral hazard (or hidden action), on the other hand, refers to the tendency of a firm to deliberately manipulate or distort the information.

Although information asymmetries may arise out of hidden knowledge or hidden action, we do not differentiate between the two. An elaborate discussion of the differential effects of adverse selection and moral hazard on the firm-community relationship is outside the scope of this paper. We also recognize the possibility of the *community* acting opportunistically. For example, it may file counterfeit claims against a company (Katzman, 1988) regarding exposure to environmental hazards. However, this paper focuses primarily on a *firm's* opportunistic behavior, and its implications for organizational ethics.

A firm's opportunistic behavior produces rents in the short run, because the firm saves on the costs of waste disposal, remediation and environmental clean-up. Additional insights about a firm's opportunistic behavior may be gained from game theory. Consider, for example, the "Prisoner's Dilemma". In the basic scenario, the players (e.g., a firm and the community) have two choices: to cooperate and trust each other or to act opportunistically. Information asymmetry is especially important here, because each player must make a choice without knowing what the other will do. In a game played for one period, opportunism is usually the dominant strategy for players, since it maximizes their payoffs (e.g., Hill, 1990). Even in finitely repeated (short-run) games subject to opportunism, the outcome usually is the same as the one-shot game. In the last repetition, for example, the subgame is identical to the one-shot game, so the firm acts opportunistically, and the argument can be carried back to the first repetition. This is termed the "chainsaw paradox" (Selten, 1978).

The upshot of our arguments is that a firm, driven by short-term gains, is likely to exploit the information asymmetry between the community and itself. This may result in environmental malpractice. As an example, synthetic detergents rapidly replaced traditional soaps in the late 1940s and 1950s. By early 1960s, many communities began to report excessive algal growth in lakes and rivers. This was linked to the presence of phosphates in detergents. There is evidence that detergent companies in the United

States were aware of the role of phosphates in promoting algal growth in rivers and lakes as early as 1950s (McGucken, 1995). Many companies were, in fact, privately seeking a substitute for phosphates in detergents. However, these companies publicly denied that phosphorus was the element responsible for algal growth.

Information asymmetry *within* community

Our previous arguments implicitly assume that the community is homogeneous. That is, at any given point in time, *all* individuals in the community have the *same* amount of information. It is possible, though, that the information regarding a firm's products or processes may not be evenly distributed *within* a community. This has significant implications for environmental discrimination. Adapting Becker (1971), we define discrimination as "unequal treatment (of individuals) based on criteria irrelevant to the activity involved". Where a firm's environmental practices are the activity in focus, perhaps the most important, and relevant criterion is the underlying hazard to the environment or any part thereof (e.g., members of a community). Therefore, potential for discrimination exists in the short run when a firm adopts different environmental practices across community segments, based on its perception of how information is distributed within a community.

Sometimes, it becomes difficult to differentiate "discrimination" from an expression of tastes and preferences (e.g., Becker, 1971). A firm may adopt different environmental practices if it perceives different environmental preferences among community members. As an example, a firm may carefully monitor and control the release of waste in communities that are perceived as having "high concern for environment", as opposed to those having "low concern for environment". Therefore, it is important to control for the environmental preferences among community members, while defining discrimination.

We argue that the information level of a community segment may be a function of its concern for environment, and the resources available to the segment, among other things (cf. Newell and Green, 1997). Where there are insignificant differences in the levels of environmental concern among community members, information asymmetry may arise because of differences in the availability of resources. We will discuss this at some length below.

Environmental concern is a broad construct that usually encompasses multiple dimensions, such as concern for conservation, population, pollution, and so on (e.g., Zimmer et al., 1994). Concern for conservation reflects an efficient use of natural resources. Concern for population indicates that overpopulation may severely constrain the natural resources. Concern for pollution involves the input of man-made synthetic substances into the air, land or water in sufficient amounts to be significantly harmful to any part of the web of life. In this paper, we use the term "environmental concern" to denote a community's concern about the pollution potential of a company's products and processes.

The racial differences regarding environmental attitudes (e.g., the level of environmental concern) and behavior have received considerable attention (e.g., Lahart, 1978; Murphy et al., 1978; Ostheimer and Ritt, 1976; Taylor, 1989). Some of these studies have indicated that there may be a significant difference in the environmental concern displayed by minorities and the majority, because of different values, beliefs, and cultural traditions. However, some researchers have argued that these differences are likely to disappear because of "acculturation" (e.g., Russo and Fouts, 1997). Acculturation is the extent to which ethnic minorities mirror the values, beliefs, and cultural traditions of the majority white society (Landrine and Klonoff, 1994). It has also been referred to as cultural assimilation – "a change of cultural patterns to those of the host society" (Williams and Ortega, 1990). Therefore, the acculturated minorities are expected to exhibit attitudes and behavior regarding the environment similar to the majorities.

It is possible that the minorities may just be as concerned about the environment as the majority (e.g., Dunlap and Jones, 1987) but lack the resources to obtain information about the

impact of industrial practices on the environment. Individuals in the lower socio-economic strata, with their limited income and resources, may place priority on spending on basic needs, such as food and shelter rather than on obtaining information about environmental matters (e.g., Commoner, 1971; Howenstine, 1993).

Some researchers have asserted that a high level of environmental concern may motivate an individual to acquire environmental education (e.g., see Palmer and Neal, 1994, pp. 3–10; Orr, 1995). Environmental education implies a study of the interrelationship between natural and human systems, among other things (Sterling, 1992). For example, an individual with high concern for environment is likely to acquire more knowledge about industrial pollution, and its impact on the ecological system than an individual with low environmental concern. Further, this knowledge may be acquired formally through the completion of environment-related courses at schools and colleges, as well as informally through family, friends, outdoor activities, and so forth (Palmer and Neal, 1994). However, as posited earlier, it is important to have the means and resources to obtain the necessary information. As an example, the minorities that had income and education levels similar to the majority were found to be equally concerned and informed about environmental issues as the majority (cf. Newell and Green, 1997).

A firm driven by short-term wealth maximization may exploit the *perceived* information asymmetry across various community segments. Communities that are perceived as not having high levels of environmental concern or resources (Horvat, 1974; Taylor, 1989) and information (Lahart, 1978) are likely to be subject to environmental discrimination. Recently, several researchers (cf. Arora and Cason, 1999) have found that there is a disproportionately high concentration of toxic waste and chemicals in areas that are predominantly inhabited by people from lower socio-economic strata. It is possible that firms often perceive the segments from a low socio-economic background as less knowledgeable about environmental issues (Bryant, 1995).

A firm may exploit its informational advantage in the short run. However, it is important to examine whether this advantage may last in the long run.

Information asymmetry in the long run

In this section, we argue that several forces tend to reduce the information asymmetry (and the accompanying potential for opportunism) between a firm and community, and that within the community in the long run.

Our principal rationale for the above argument is threefold: First, we adapt the arguments underlying the "long-run equilibrium" in game theory. Second, we examine the influence of externalities by the informed members of the community. Third, we examine how government policies help reduce the information asymmetry.

(1) Game Theoretic Rationale. For the purpose of this paper, the time horizon for a "long-run" is the same as that for an infinitely repeated game in game theory (e.g., see Klein and Leffler, 1981). Following Klein and Leffler (1981), one might argue that in an infinitely repeated game, co-operation rather than opportunism emerges as the norm for players (e.g., the firm and the community).

Consider the Prisoner's Dilemma, discussed earlier. Using an iterative prisoner's dilemma, Axelrod (1980, 1981, 1984) demonstrated that players predominantly used a "tit-for-tat" strategy in the long run to be nice, retaliatory, forgiving, and clear. The player was nice because (s)he was never the first to act opportunistically. The player was retaliatory because (s)he retaliated in kind to the other player's opportunism. The player was forgiving because (s)he reverted back to co-operation if the other player did so. The player was clear because (s)he sent an unambiguous signal to the other player. Axelrod found that players that deliberately tried to exploit others by acting opportunistically always faired poorly in the long run.

It has also been argued that the "chainsaw paradox", mentioned earlier in this paper, does not apply to infinitely repeated games, because these games do not have an "ending time

period". Further, reputation effects play an important role in the equilibrium in the long run. That is, a firm's reputation regarding its environmental practices may matter in the long run. According to some researchers (e.g., Kreps and Wilson, 1982; Milgrom and Roberts, 1982), reputation effects are obtained even in finite games where the time horizon is "sufficiently long".

Hill (1990) has argued that the "invisible hand of the market" will delete actors who are habitually opportunistic. Because opportunism results in low payoffs for a firm in the long run, it may reduce the value of a firm's investment in assets. In addition, a firm may also invest significantly in governance mechanisms to protect itself against retaliatory acts of opportunism. The elevated costs often limit a firm's ability to compete and survive in markets.

(2) Externalities by Informed Community Members. In the short run, it is possible that information about the environmental impact of a firm's products or processes may be known only to a few members of the community (e.g., some scientists, engineers, etc.). The rest of the community is largely unaware of this information. However, in the long run, the informed members of the community may impart externalities on the uninformed ones. The dissemination of information may occur through newspapers, magazines, trade journals or scholarly journals. It may also take place through word-of-mouth communication or social networks within the community (e.g., see Granovetter, 1985).

Several environmental organizations that operate at the grassroots level use public education to disseminate information about industrial waste to the community at large. As an example, Environmental Action is an environmental lobby that educates citizens about substances being used and disposed by industries in their communities (Bosso, 1995). It also disseminates information about nuclear waste and disposal by nuclear power plants.

Sometimes the information asymmetry across community segments may diminsih over a period of time because of "social mobilization". Social mobilization is defined as the process by which traditional attitudes and attachments are eroded, and gradually replaced by more modem paradigms (Deutsch, 1961). Consistent with this notion, old habits, customs, and commitments are first uprooted; second, the mobilized people are inducted into new patterns of commitments and lifestyles. The individuals once inducted into new patterns (mobilized), begin to need such provisions as safe and clean environment, among other things. The expanding number of the mobilized population and the greater urgency of their needs for political decisions tend to translate into increased political participation (e.g., crowds, meetings, and demonstrations), and environmental activism.

Recently, the World Wide Web has become an extensive source of information on environmental matters. A number of environmental organizations and government agencies actively disseminate information on the Web about environmental practices adopted by various firms (Skow and Barrett, 1999). The Internet has considerably reduced the costs of information dissemination and acquisition (Dern, 1997). Therefore, it may be possible for environmental organizations to transmit more information at a cost the same as or perhaps lower than that in the past. In a similar vein, it is likely that the community members can acquire information more efficiently than before.

(3) Government Policies. Several laws and government regulations also help reduce the information asymmetry between a firm and the community regarding environmental issues. For example, the Emergency Planning and Community's Right-to-Know Act of 1986 specifically requires manufacturing facilities to disclose information about a number of toxic substances and chemicals to the community. The specific provisions of this and other Acts will be discussed in the following section.

In the short run, it may be possible for a firm to stay within government regulations, and engage in environmental practices that may be unacceptable to some segments of the community. However, in the long run, the government may eventually adopt and enforce more stringent criteria. For instance, industries have been required by law to report the levels of persistent

bioaccumulative toxic chemicals, including dioxins and mercury, that they release into the environment. However, the government has recently lowered the reporting threshold levels for some of these chemicals, forcing many companies to adopt better environmental practices (Hileman, 1999).

Policy implications

There are several government policies that aim at disseminating information to the community regarding the environmental impact of a product or process. We discuss two of them specifically: (1) the Emergency Planning and Community's Right-to-Know Act of 1986 (EPCRA), and (2) the Presidential Executive Order on Environmental Justice, 1993. The EPCRA has implications for the information asymmetry *between* a firm and community, as well as that *within* the community. The executive order on environmental justice has implications for how information may be distributed *within* community.

Implications of the EPCRA

The EPCRA usually refers to a community's right to access information about environmental hazards to human health, especially those posed by toxic or hazardous chemicals. It requires manufacturing facilities to submit to the Environmental Protection Agency (EPA) annual reports of their releases of a list of about 350 toxic chemicals. This toxic release inventory (TRI) is available to the public in several forms, including an electronic database.

Recently, several environmentalists and communities have demanded that the EPA expand the list of toxic chemicals currently reported. The expanded list will force companies to reveal many more chemicals that are potentially hazardous to the environment. Further, there is also a demand for lowering the reporting threshold for some of the chemicals, that are currently included in the TRI. For example, some activists want companies to lower the reporting threshold for dioxin, a potentially hazardous chemical (Hileman, 1999). This will reduce the information asymmetry between a firm and the community.

The EPA is planning to make the TRI available on the Internet in an effort to disseminate information to the community at large in an efficient and timely fashion. However, it is important to ensure that this information is available to *all* sections of the community, so that it does not affect information asymmetry across segments adversely.

Implications of the executive order on environmental justice

Environmental (in)justice may be considered a form of environmental discrimination. Environmental justice incorporates the principle of the "right" of all individuals to be protected from environmental degradation (e.g., Bullard, 1995). It also targets the industrial practices that result in a disproportionate environmental impact on the poor and the minorities. Numerous studies have indicated that lower income persons, working class individuals, and people of color may be disproportionately exposed to elevated health risks (cf. Arora and Cason, 1999). The differential impact on the community segments is reflected in the distribution of air pollution, toxic waste release, location of municipal landfills and incinerators, cleanup of Superfund sites, and lead poisoning in children (Bullard, 1995).

The concept of environmental justice is related to the notion of distributive justice. Moreover, it stands in contrast with the utilitarian principle of justice (Brown, 1995). The utilitarian principle or "greatest good for the greatest number" usually remains silent on the issue of how a certain good be distributed.

Environmental justice concerns have recently permeated the federal government. In June, 1993, for example, the EPA began drafting a "Presidential Executive Order on Environmental Justice" for implementing Title VI of the 1964 Civil Rights Act, a provision that outlaws discrimination in the provision of federal funds. The Executive Order on Environmental Justice

calls for an Interagency Task Force to set guidance for social and economic impact reports under the National Environmental Policy Act (NEPA) and Clean Air Act (CAA), and data collection and analysis on disparate risks and health effects. Environmental justice concerns are also being voiced at the state level. Several states, including Arkansas, Louisiana, and Virginia have already passed environmental justice laws or resolutions.

As outlined in earlier, environmental (in)justice may be a concern, when information about a company's product or process is perceived to be asymmetrically distributed within a community. Several government regulations recognize the significance of providing information to all segments of a community as a measure against potential environmental discrimination. For example, according to the executive order on environmental justice, "each federal agency shall ensure that the public, including minority communities and low-income communities, has adequate access to public information relating to human health or environmental planning, regulations, and enforcement when required under the Freedom of Information Act, 5 U.S.C. section 552, the Sunshine Act, 5 U.S.C. section 552b, and the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11044".

Further, according to section 1103 of the Executive Order on Environmental Justice, each federal agency shall collect, maintain and analyze information on the race, national origin, income level, and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental effect on the surrounding populations. Such information shall be made available to the public. Section 5.5 ensures that the information is disseminated is concise, understandable, and readily accessible to all sections of the community.

The provisions of the Executive Order on Environmental Justice broadly conform to the spirit of "democratization of environmental information" (e.g., Bryant, 1995). This would reduce the information asymmetry within a community.

Implications for companies

The "hand of government" or the environmental policies may guide the corporations' environmental practices. However, the "hand of management" argument states that corporations are expected to act in ways that protect and improve the welfare of society, as well as advance corporate economic interests (Goodpaster and Matthews, 1982).

Opportunism may produce rents for companies in the short run. However, in the long run, the probability of opportunism is likely to diminish. How can one then reconcile a firm's interest in rent generation, and the diminishing levels of information asymmetry (and opportunism) over time? Is it possible to reconcile the differences between a firm's and the community's interests? In this section, we address these questions from a firm's point of view.

We would argue that diminishing levels of opportunism between a firm and the community are expected to result in higher levels of trust. Trust is often considered the opposite of opportunism (Barney and Hansen, 1994), because a firm's actions are opportunistic to the extent that they take advantage of another party's vulnerabilities. Considering that informational advantage is a significant source of opportunism (cf. Akerlof, 1970; Arrow, 1971), we may adapt Sabel's (1993, p. 1133) definition of trust for the purpose of this paper: "Trust is the mutual confidence that no party to an exchange will exploit its informational advantage". As argued earlier, the information asymmetry between a firm and its customers is closely associated with high levels of opportunistic behavior on the part of the firm.

Now, the key question is whether a reduction in firm's opportunism attributable to information asymmetry (or an increase in the levels of trust between a firm and its buyers) can be a source of rents. Exchanges between parties characterized by opportunism are known to incur significant expenses in the form of setting up appropriate conflict resolution or social governance mechanisms (cf. Williamson, 1985). It follows, therefore, that an increase in the levels of trust between a firm and the community would lead

to substantial reductions in the governance costs. This is expected to produce rents for a firm.

Recently, Barney and Hansen (1994) have proposed that there may be three types of trust in a buyer-seller relationship: weak, semi-strong and strong. These types may have different potential for producing rents. The weak form of trust is due to the limited opportunities for opportunism. The semi-strong form of trust usually arises in response to the economic and social costs incurred due to the opportunistic behavior of transacting parties. This form of trust usually implies a reduction in adverse selection and moral hazard (such as that between a firm and its customers, assumed in this paper). In the long run, as argued earlier, several rules emerge (such as "tit-for-tat") if any of the transacting parties behaves opportunistically. These rules imply significant payoff losses for both parties if either one behaves opportunistically. The strong form of trust, on the other hand, arises due to the values and beliefs of the transacting parties.

Barney and Hansen (1994) assert that as long as the cost of developing and maintaining strong form trustworthiness in a firm plus the cost discovering strong form trustworthy partners is less than the cost of exploiting semi-strong (or weak) governance devices, strong form trustworthy firms will have a *competitive advantage* over those with semi-strong or weak forms of trust. The competitive advantage refers to the ability of a firm to conceive of and implement strategies that are *different* from its competitors in the industry (Barney, 1991; Porter, 1980). It is usually associated with above-normal economic returns.

Conclusion

This paper examines the antecedents and consequences of information asymmetry among a firm's stakeholders regarding corporate environmental practices. The information asymmetry arises in the short run, because an opportunistic firm may withhold or manipulate some of the information about the environmental impact of its products and processes. As a result of its informational advantage over the community, a firm is likely to generate significant rents.

This paper identifies information asymmetry *between* a firm and community, as well as that *within* the community. Both kinds of information asymmetry may decrease in the long run because the community may retaliate or the informed members of the community may impart externalities on the uninformed ones. The government policies may also eventually force a firm to disclose more information. For example, the EPCRA 1986 has implications for the communities' right to know a firm's environmental practices. The Executive Order on Environmental Justice, on the other hand, has implications for how the information may be distributed among various community segments. Finally, we argue that in the long run, transactions characterized by cooperation and trust between a firm and the community are likely to be a source of rents.

Trust among organizational stakeholders has often been considered a cornerstone of corporate ethics and morality. Environmental ethics, a specific domain of corporate ethics that deals with ethical issues related to the natural environment, has received increasing attention in recent years by researchers and practitioners (cf. Enderle, 1997). However, the significance of trust in environmental ethics has not been adequately highlighted. This paper explicitly examines trust between a firm and the community regarding corporate environmental practices.

Our study provides a nexus between environmental ethics and organizational economics. Recently, Carlin and Strong (1995) have asserted that organizational economics provides a significant perspective on organizational ethics. According to these researchers, more studies are needed to investigate the implications of opportunism and trust for business ethics. Drawing on the literature in organizational economics, our study proposes that trust, which in many ways, is the opposite of opportunism, may be contingent on how information is distributed among the stakeholders. It recognizes the potential for adverse selection and moral hazard in a transaction between a firm and the community.

This paper also examines information asymmetry *within* community. It argues that an opportunistic firm may exploit the perceived information asymmetry among various community segments. This, in turn, may contribute to the environmental discrimination by a firm. Recently, environmental (in)justice, a type of environmental discrimination, has received considerable attention by the government, as well as environmental activists, and communities. This paper provides a conceptual explanation for why environmental injustice may occur in the short run.

Our study examines whether a firm can sustain its informational advantage in the long run. It argues that government regulations may help reduce the information asymmetry. In addition, the game theoretic rationale suggests that a firm is likely to co-operate with the community in the long run, because the community may retaliate if the firm acts opportunistically. The loss of informational advantage in the long run has important economic implications for a company. Our paper outlines how it may be possible for a firm to leverage its trustworthiness as a source of rent generation.

This paper draws heavily on the literature in organizational economics for its theory development. Hence, it is also subject to the same limitations as some of the other studies (e.g., see the studies cited in Daly and Cobb, 1989) that are principally grounded in economics. One of the limitations of the economic approaches to environmental ethics, in general, is that they are predominantly anthropocentric as opposed to ecocentric (e.g., Shrivastava, 1995). We agree that the short-term profit maximization objective of the firm may be anthropocentric. However, the community's interests – to have a "safe and clean environment", need not necessarily be anthropocentric. These may be driven by the need to protect the environment, as opposed to merely serving human needs. For example, a community may be against the heavy use of pesticides, not merely because the chemicals may pose risk to human life and health but also because these chemicals may be harmful to fish, birds, mammals, and other elements of the ecosystem. We hope that future researchers will investigate the implications of the anthropocentric and ecocentric objectives of organizational stakeholders.

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Notes

[1] Consider for example, Carroll's (1987) well-known typology of managerial ethics: moral, amoral, and immoral. There are some obvious parallels between an "amoral firm" and a firm that is indifferent toward the community's environmental concerns in its pursuit of short-term wealth maximization.

[2] We acknowledge the importance of examining the differences in the environmental objectives of owners (principals) and the management (agent), two of the key organizational stakeholders. However, any discussion of agency problems and instrumental ethics (e.g., Quinn and Jones, 1995) in the present context would shift the attention away from the core problem – information asymmetry between the firm and the *community*. Accordingly, we focus on a firm that faces strong pressures for short-term profit maximization. In other words, the differences in the objectives of the principal and the agent, and the problem of "incentive alignment" are assumed secondary to the differences in the objectives of a firm and the community.

[3] Much research explores the importance of trust in interpersonal dyads (e.g., Rotter, 1967). Although some researchers disagree about whether organizations can be targets of trust, a large stream of literature emphasizes that people can develop trust in organizations (e.g., Doney and Cannon, 1997; Morgan and Hunt, 1994).

[4] Operationalizing information asymmetry may be challenging, although not impossible. For example, Nayyar (1990) has successfully measured the information asymmetry between service firms and consumers.

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