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Does a stricter enforcement policy protect the environment? A political economy perspective

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ABSTRACT

The conventional wisdom suggests that a stricter enforcement policy can reduce pollution emissions. Nevertheless, this present paper argues that this assertion does not necessarily hold if the stringency of environmental regulation is subject to the influence of lobbying. A stricter enforcement policy increases the polluters' expected financial burden, and induces them to exert greater political pressure on reducing the stringency of environmental regulation, thereby resulting in a larger amount of pollution emissions. We also show that tightening the enforcement policy can reduce efficiency. We highlight the possibility of policymaking being misguided due to overlooking the political effect of enforcement policy.

1. Introduction

Enforcement policy is important in designing a regulatory regime and has been widely studied (Heyes, 2000). Neglecting enforcement policy or assuming full compliance would lead to inadequate designs of policies. In his seminal paper, Becker (1968) indicates that an increase in the expected penalties can enhance compliance with a law or regulation. However, by incorporating self-reporting

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and applying this to environmental regulation, Harford (1978, 1987) finds that, under certain conditions, actual emissions and outputs are independent of the enforcement policy (also see Sandmo, 2002), and thus the enforcement policy has no real effect. This result is based on the assumption that polluters are unable to influence the stringency of environmental regulation. As indicated by Weck-Hannemann (2008), the interference of special interest groups appears inevitable in the process of formulating environmental policy. Thus, it seems necessary to incorporate lobbying into the model when an enforcement policy is evaluated.

If interest groups can influence the stringency of environmental regulation, then a natural question arises: Does the enforcement policy alter polluters' decisions on pollution abatement or not? If the answer is affirmative, then what is the relationship between the enforcement policy and the actual pollution emissions? What is the enforcement policy that can maximize the social welfare in the presence of lobbying? We aim to address these questions.

To this end, we construct an imperfect compliance model close to that of Sandmo (2002). The firms in a polluting sector have incentives to under-report their net emissions. A random inspection and penalties are available to deter non-compliance. What deviates from the model of Sandmo (2002) is that we take the influence of lobbying groups into consideration. Two groups, namely, the shareholders of the polluting firms and environmentalists, engage in lobbying. Each lobbying group offers political contributions to the policymaker in order to influence the setting of the emission tax rate.

The enforcement policy is assumed to be determined by other divisions of the government,[1] e.g., bureaucrats, and to not be subject to the influence of lobbies. This setting enables us to investigate the effects of an exogenous change in the enforcement policy on the stringency of pollution regulation. Our results can provide policy guidance to a benevolent politician, say, a President, who faces a congress plagued by interest groups. Supposing the tax rate is mainly determined by the congress, and that the only instrument available to the benevolent politician is the enforcement regime, what then should he do to maximize the social welfare? This is the question we wish to address.[2]

Within this setting, we find that, in the presence of lobbying, the actual net emissions do change with the enforcement policy. A somewhat surprising result is that a stricter enforcement policy (an increase in the probability of detection or the penalty) can bring about a larger amount of pollution emissions, in particular when the polluting firms have a relatively large political influence. This finding is different from the conventional wisdom or the result in Harford (1978, 1987) and Sandmo (2002). The intuition underlying this result is that a stricter enforcement policy increases the polluting firms' expected financial burden, and thus they will exert greater political pressure to reduce the emission tax rate, leading to more pollution emissions.

Moreover, we also show that a stricter enforcement policy can reduce social welfare. In the case where the polluting firms have a relatively large political influence, the equilibrium emission tax rate is lower than the tax rate that maximizes social welfare. In this case, tightening the enforcement policy reduces the emission tax as indicated above, and causes the emission tax rate to deviate further away from the optimal level. The contribution of this present paper is that it demonstrates the possibility that policymaking will be misguided due to overlooking the political effect of enforcement policy.

Several recent studies show that enforcement policies do affect actual emissions (Macho-Stadler and Pérez-Castrillo, 2006; Macho-Stadler, 2008; Shiota, 2008), but all of them ignore the political effect arising from lobbying. A number of papers have investigated the effects of institutional changes on the stringency of environmental regulation in the settings with lobbying, including Fredriksson (1997, 1999), Bommer and Schulze (1999), and Damania et al. (2003), among others. These papers assume the full compliance of polluting firms, and ignore the role played by enforcement policy, which is our major concern.

[1] In reality, auditing policy and environmental tax rates are often governed by different authorities. For example, in the United States, audit targets are set by the Environmental Protection Agency in its annual performance plan, while the environmental tax rates are periodically adjusted by the Congress.

[2] We acknowledge that enforcement can be subject to the influence of interest groups in some cases. There is much empirical evidence in support of this result. For example, enforcement can depend on factors such as unemployment rates (Deily and Gray, 1991), or a firm's prior environmental record (Innes and Sam, 2008). However, endogenizing both the emission tax rate and the enforcement policy leads to a pure positive model, which is unable to address our major question.