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# Strategic environmental policy; eco-dumping or a green strategy?

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## Abstract

The Porter hypothesis claims that a strong environmental policy best serves the interests of a nation's export industry. While this hypothesis seems to be based on some form of bounded rationality, this paper argues that governments may have good reasons for setting an especially strong environmental policy even though firms are fully rational. If the available abatement technology turns the environment into an "inferior input", competitiveness is spurred by a strong environmental policy. The government should take advantage of this, and set an especially strict emission quota or an especially high emission tax. The findings in the paper also has consequences for the desirability of international cooperation with respect to national environmental policy. If a strict environmental policy spurs competitiveness, the environment is better protected without cooperation.

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## 1. Introduction

Export firms are frequently given various kinds of subsidies, either openly as production subsidies or, more difficult to discover, as cheap government provided inputs or as tax reductions. One rationale for this line of thought can be found in the strategic trade theory literature. This literature explores how governments can help their national firms to steal profits from foreign competitors by making it possible for their firms to commit to a more aggressive strategy, see for instance [6]. While the literature on this subject dealt primarily with traditional industrial policy tools such as the ones mentioned above, it has during the 90s been extended to the field of

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environmental policy. The question has been to what extent a government should provide its export industry with a weak environmental policy as a sort of hidden subsidy.

Weak environmental policies which purposely seek to promote the competitiveness of the export industry, could be characterized by the term “eco-dumping”. The prospect of eco-dumping has been a major issue in the trade-environment debate, see for example [1,26]. Because the current GATT treaty prohibits the use of traditional industrial policy tools like export subsidies and restricts the use of other subsidies like R&D subsidies, eco-dumping could become even more attractive.

However, the prospect of eco-dumping presupposes that a strong environmental policy hampers competitiveness. Empirical research indicates that this may not always be the case. An econometric study from Norway by Golombek and Raknerud [9] suggests that a strong environmental policy spurred employment and induced a lower probability of exit from some industries notably pulp and paper and iron, steel and ferroalloys. Porter and von der Linde [17] refer to various case studies where a strong environmental policy lead to decreased production cost and/or higher value products. The idea that a strong environmental policy will improve the general performance of firms is the so-called Porter hypothesis, which we will refer to as a “green strategy”.

The Porter hypothesis is disputed among economists, see for example Palmer et al. [16]. Further, Porter and von der Linde [17] do not provide us with an unambiguous definition of the term green strategy. In this paper a green strategy will be defined as an environmental policy where marginal abatement cost exceeds marginal environmental damage, and vice versa, eco-dumping will be defined as an environmental policy where marginal abatement cost falls short of marginal environmental damage.<sup>1</sup> Regarding eco-dumping and a green strategy, we will deal with two questions in the paper. Firstly, we will analyze how environmental policy affects marginal production costs, and secondly, we will see how this affects the question of optimal policy.

A majority of the articles about eco-dumping do not explicitly treat the issue on how environmental policy affects cost, but assumes that both total cost and marginal cost is increasing in the stringency of environmental policy (see for example [2,3,7,18]). This paper shows that although total cost increases, it is not necessarily the case that marginal cost increases. If the environment is an inferior input for some levels of environmental policy, marginal production cost will decrease for these levels of policy.

The development of a cost model of end-of pipe cleaning further indicates that the inferior input case is likely if there is economics of scale in abatement technology. Economics of scale seems to be a feature of many abatement technologies. In an econometric estimation of abatement cost for the cement, pulp and paper and iron and steel sector Hartman et al. [12] find that “*average abatement cost drops sharply as abatement volume increases*”. Scale economics in abatement is also suggested by the US Environmental Protection Agency [23,24].

Ulph [22], Bradford and Simpson [4] and Ulph and Ulph [21] also contain a model of abatement where marginal production cost may be decreasing in the stringency of environmental policy. In these models the firms undertake environmental R&D before they compete in the market. The result that marginal production cost may be decreasing in the stringency of

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<sup>1</sup>The literature also compares the non-cooperative environmental standards with the cooperative environmental standards. This comparison is also made in this paper, but it is not used to define a green strategy or eco-dumping.

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