

HOW TO RECOGNIZE AND MEASURE THE ECONOMIC IMPACTS OF ENVIRONMENTAL REGULATION: THE SULPHUR EMISSION CONTROL AREA CASE

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INTRODUCTION

How does environmental regulation impact the performance of economies? The SECA regulations on shipping exhaust gases are an example that may appear to be straightforward, but on closer inspection, this is a multifaceted issue that has several aspects that are difficult to measure and balance against each other. As such, it offers a good case example to categorize and conceptualize the questions of impact assessment. The SECA regulations are aimed at creating environmental and health benefits, and presumed to incur compliance costs. Other benefits and costs have not received much attention. Macro-economic effects and the issues of international distribution of costs and benefits are often neglected.

METHODS

Scientific literature on impact assessments on environmental regulation are analysed in this article, focusing on the ex-ante studies on the Sulphur Emission Control Area (SECA) in the Baltic Sea and North Sea. The relevant impact categories for the SECA regulations are identified and discussed systematically.



CONCLUSIONS

We propose a comprehensive regulation impact framework for socio-economic effects (table 1) that can be extended to other environmental regulation to support the needs of consistent and reliable evidence-based maritime policy.

The direct environmental impacts of SECA are related to decreasing acidification and ground ozone levels. Acidification can decrease biodiversity, which has value for humans in many ways. There are also economic benefits in improving the health of people, which are estimated to be considerable in the case of SECA due to decreasing particle pollution. SECA rules will impact businesses differently. Certain countries, regions or sectors may be impacted more than others. In order to analyse the impacts on different business sectors, we need to recognize the direct behaviour changes required from the addressees of the regulatory obligation, and then recognize the second-order impacts. There may also be administrative costs on business, related for example to the type of data required and the complexity of the submission processes. There may also be impacts on the flows of exports, imports and investments. Impacts on competition may also be relevant. Regulation may lead to a situation with higher prices due to less competition, or form barriers preventing new suppliers and service providers from entering the market. As regards the impacts on innovation and research, it should be assessed whether research and development is stimulated or hindered, and whether the introduction and dissemination of new production methods, technologies and products is facilitated.

Table 1: SECA impact categories

Impact Category	Measuring Task
Environmental impacts	Benefits of clean nature and biodiversity Costs: pollution flows, pollution deposits, ecological effects
Health impacts	Benefits of reduced mortality and illness for citizens and society Costs : cost effectiveness
Business impacts: ecological goods	Benefits of enhanced commercial ecological resources (ecosystem services) for businesses and society Costs: structural change
Business impacts: compliance	Costs of compliance for the maritime industry, its customers and society
Business impacts: innovation	Microeconomic benefits for clean-tech industries, macroeconomic benefits of innovation inducement in cleaner shipping
Administrative impacts	Costs of administration Benefits in enhanced expertise.
Macro-economic impacts	Dynamic possibilities for sustainable blue economies, and international cooperation

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