

THE ROLE OF ENVIRONMENTAL TAXES IN GENERATING TAX REVENUES AND REDUCING GREENHOUSE GAS EMISSIONS IN THE EUROPEAN UNION

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Abstract

The aim of this study is to examine the role of environmental taxes in generating tax revenues and reducing greenhouse gas emissions in the European Union. The study investigates how these taxes, particularly those on energy and transport, contribute to the EU's climate objectives, such as climate neutrality by 2050. It also assesses differences in their implementation between Member States. In the context of the European Green Pact, the research aims to provide a comprehensive analysis of the effectiveness of these taxes in supporting climate policies and sustainable development. The study uses an econometric analysis applied to a dataset comprising relevant economic and environmental indicators, including taxes on energy, transportation, net greenhouse gas emissions and GDP per capita. This approach makes it possible to assess the relationships between the variables and to measure the impact of each type of tax-on-tax revenues and emission reductions. The analysis also includes descriptive statistics to highlight differences between Member States. The results indicate that energy taxes have a significant and positive impact on revenues from environmental taxes, contributing substantially to the budgets of Member States that implement them in an ambitious way. At the same time, fuel and transport taxes have been found to be under-used in some Member States, thus limiting their potential to generate revenue and reduce transport emissions. The economic differences and uneven application of environmental taxes between Member States suggest the need for harmonization and coordination at EU level to achieve common climate objectives. From a policy point of view, the findings highlight the importance of developing well-coordinated environmental tax policies to maximize their effectiveness in reducing emissions and generating revenues. Strengthening environmental fiscal frameworks, reinvesting revenues in sustainable initiatives and ensuring equitable implementation across Member States are key measures that policy makers should consider enhancing the role of environmental taxation in climate governance. However, the study also has some limitations that should be considered when interpreting the results. The analysis is based on aggregate macroeconomic data, which may not fully capture sectoral and regional

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differences in the effectiveness of environmental taxes. In addition, although the econometric model isolates the effects of taxation, other factors such as technological advances, regulatory frameworks and behavioural changes also play an important role in reducing emissions and could not be fully accounted for in this study. Future research should explore more detailed sectoral analysis and assess long-term trends to provide a more comprehensive understanding of the effectiveness of environmental taxation in the European Union.

Keywords

environmental taxes, public policy, tax revenues, economic growth, econometric analysis

JEL Classification

H2, H3, H6
