

The impacts of environmental tax on production and consumption of goods in the Spanish economy

Topic: Input-Output economics and industrial ecology - LCA analysis 1

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There is an ever increasing concern of climate change around the globe as different researchers reveal the unequivocalness of climate change and the urgency need of response to effective mitigation options. CO₂ emissions induced by human activities are the major causes of climate change; hence strong environmental policy that limits the growing dependence on fossil fuel is indispensable. Tradable permit and environmental tax are among the main tools used in CO₂ reduction strategies. Such economic tools provide incentives to polluting industries for any positive measure they take to reduce their emissions through market signals. The aim of this work is to define an environmental tax on products and services based on their life cycle CO₂ emissions. We examined the relevance of environmentally extended input-output analysis as methodological tool to identify emission intensities of products and services on which the tax is based. The short-term price effects are analyzed using input-output price model. The effect of tax introduction on consumption prices and its influence on consumers' welfare are determined. The results which is based on the Spanish economic and environmental data for the year 2007 show that sectors such as Production and distribution of electricity; Manufacture and distribution of gaseous fuels; Collection, purification and distribution of water; Manufacture of other non-metallic mineral products; Manufacture of cement, lime and plaster; Manufacture of glass and glass products; Manufacture of ceramic products are among the most polluting sectors that exhibit relatively higher emission intensities and environmental taxes. The tax on CO₂ emissions increases the production price of all sectors without any exception. The consumption price index is estimated to be increased by 1.74%. The increased consumer's price index has a negative effect on the private welfare which is subjected to a drop of 1,148 million euros. The results in general show the most important sectors which are relatively sensitive to price changes due to environmental taxes imposition and how such a policy enhances the environment as it ensures reductions in productions and consumptions.