

On the potential economic costs of cutting carbon dioxide emissions in Portugal

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Abstract The objective of this paper is to estimate the impact of reducing carbon dioxide emissions from fossil fuel combustion activities on economic activity in Portugal. We find that energy consumption has a significant impact on macroeconomic activity. In fact, a 1 ton of oil equivalent permanent reduction in aggregate energy consumption reduces output in the long term by €6,340. More importantly, and since carbon dioxide emissions are linearly related to the amounts of fuel consumed, our results allow us to estimate the costs of reductions in carbon dioxide emissions. We estimate that a uniform standard for reducing carbon dioxide emissions from fossil fuel combustion activities would lead to a marginal abatement cost of €95.74 per ton of carbon dioxide. This is a first rough estimate of the potential economic costs of policies

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designed to reduce carbon dioxide emissions. At this level one may conclude that uniform, across the board reductions in carbon emissions would have a clear negative effect on economic activity. Hence, at the aggregate level there is clear evidence for a trade-off between economic performance and a reduction in carbon emissions. This opens the door to the investigation of the scope for policy to minimize the costs of environmental policy and regulation.

Keywords Carbon dioxide emissions · Energy and the economy · Environmental policy · Vector autoregressive model

JEL Classification C32 · O13 · Q43