

Renewable Energy Targets in the Context of the EU ETS: Whom do They Benefit Exactly?

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Executive summary

In this article, the general equilibrium model PACE is employed to investigate distributive effects of European climate policy across households at the member state and income quintile level. In particular we focus on the interactions of the European Emissions Trading Scheme (ETS) and the pursuit of additional renewable energy targets (RET) in some of the member states. Since the ETS and possible carbon taxes generate revenues, the study considers several different options of revenue-use.

Our results indicate that the introduction of the EU ETS causes moderate costs in most member states, while some eastern member states benefit in real terms, because of generous allocation of revenue from auctioning ETS allowances. If the ETS is augmented by stringent RET in some (western) member states, there are moderate increases in overall policy costs, but notably benefits for eastern member states will be lower. This is due to increased renewable energy supply depressing conventional energy demand and thus ETS allowance prices, which in turn reduces the value of the generous shares of ETS auctioning revenue allocated to the respective eastern member states. That is, ambitious RETs (by some member states) may reduce the intended distributional effects of allocating large shares of ETS auction revenue to the economically weaker member states in the east.

Investigation of the burdens falling upon households shows that the policy costs of the ETS tend to be regressively distributed in most member states as long as revenue from auctioning ETS allowances is not returned to households. As mentioned above, the introduction of more ambitious RETs changes overall policy costs, but the overall pattern of incidence within the member states remains unchanged. In order to realistically predict how revenue recycling will affect the distributive patterns, the model mimics the existing tax and transfer schemes within the member states. If revenues from the ETS are recycled to households (viz. given to them in a lump sum fashion) based on those existing patterns, we observe rather neutral patterns of incidence, meaning that the households along the income distribution experience cost-burdens that are proportional to their income. We even observe progressive patterns of incidence for some eastern member states (i.e. Bulgaria, Romania, the Czech Republic, Slovakia, Poland), which implies that larger burdens (relative to income) fall upon households with higher income. However, for some other member states, a moderately regressive pattern is observed even after revenue recycling (i.e. Greece, Denmark). The above results assume that carbon policies governing emissions outside the ETS are not generating any revenue. If emissions outside the ETS are regulated by a carbon tax and the additional revenue is recycled via the existing tax and transfer schemes, we observe strongly progressive patterns of incidence in some, especially eastern member states and also in Greece. Low-income households will even be over-compensated in this case, meaning that

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their real expenditure increases after revenue recycling, compared to the no policy case. In summary it can be said that all member states have the means to avoid regressive impacts of climate policy by recycling revenue from carbon taxation and ETS permit auctioning. For some member states this may depend on regulation of non-ETS emissions generating revenue, but the introduction of RETs by some member states and the resulting reduction of ETS auction revenues does not jeopardize this capability.

Keywords Distributional effects; EU climate policy; renewable energy target.