

Side benefits

Since the very beginning of climate change policy and talks about measures to reduce GHG emissions, the focus has been on how to fairly distribute the high costs between the different actors. This inevitably led to a partial interpretation of the "efficiency" concept based on the sole minimisation of total abatement costs (and its corollary, the equalisation of marginal costs). The background was the correct but incomplete idea that the climate benefit of a reduced ton of CO_{2eq} is the same wherever it takes place (which gave birth to the well-known "Flexible Mechanisms" of the Kyoto Protocol). In fact, this only holds true if you exclude side benefits (i.e. non climate) from the picture. Side benefits, which can be quite important, refer to those positive effects induced by a policy or measure that was not specifically targeted at generating that effect. For example, reduced soil pollution is a potential side benefit that could result from a well-designed policy aimed at reducing GHG emissions from agriculture.

In an analysis relating to the electricity and road transport sectors in Belgium, we show that taking side benefits into account could substantially modify the optimal burden sharing of a given reduction objective between the two sectors.

It should be noted that our assessment specifically concentrates on externalities. A negative (positive) externality arises when the economic activity of one group of persons has a negative (positive) impact on another group without this impact being fully taken into account by the first group. This is typically the case of noise or air pollution for instance. As a matter of comparability and to avoid potential biases we use data on external costs based on the same methodology for both sectors. Using hypothesis, we find that a demand-side management (i.e. production-reducing) measure would give rise to a marginal side benefit **2.15** times higher in the road transport sector than in the electricity sector. Economically, this would call for the first reduced ton of CO_{2eq} to be performed in the road transport sector provided marginal abatement cost in that sector is less than 2.15 times higher than what prevail in the electricity sector.

Of course this value corresponds to a given status of emission levels at some point in time. To be of use, it would be necessary to calculate the entire curves with the aim of comparing them with marginal abatement costs curves. Given the complexity and the value judgement surrounding external costs assessment, it would be rather complicated to define the needed complete curves relating to net marginal side benefits. Nevertheless, systematically omitting them in the analysis would lead to a socially inappropriate allocation of reduction efforts. Defining a climate policy based solely on marginal abatement costs tends to increase the burden on some sectors (those assumed to have low marginal abatement costs) while leaving other sectors' increasing emissions untackled.

Beyond the above-mentioned simple figure (that is obviously strongly linked to the context studied and the hypothesis used), there is a clear need for further research and analysis leading to the use of a more integrated approach of climate policy. Ideally this would mean an increased effort towards a robust estimation of attached side benefits which not only includes reduced negative externalities but also potential productivity gains and long-known energy benefits. This, in turn, could provide a relevant input for EU ETS review in 2006 with the view of including new sectors and fairly distribute reduction effort.