

TRADEABLE CARBON PERMITS

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Abstract

The research project on tradeable carbon permits has focused on three elements. First of all, the practical implications of designing a system of tradeable emission permits for reducing CO₂ has been studied. In the second part, the consequences of introducing a system of tradeable carbon permits for entry barriers have been considered. Last, the institutional requirements and welfare effects of coordination of CO₂ abatement in a second-best world have been examined.

1. Designing a system of tradeable carbon permits

One of the projects has been concerned with the study of a policy instrument for reducing CO₂ emissions: tradeable carbondioxide emission permits. A tradeable emission permit is basically quite similar to the classical permit, which allows a polluter a certain amount of emissions. The only difference is that the permit is tradeable. Because of this feature of tradeability, total costs of emission reduction will be as low as possible, which is not necessarily the case when the permits are not tradeable. A source which can only abate its CO₂ emissions at high costs will have the opportunity to buy permits from a source which has low abatement costs. Both parties will be better off and aggregate abatement costs will fall.

Another attractive feature of tradeable emission permits is that it can be easily combined with other policy initiatives like Joint Implementation. Suppose a system of tradeable carbon permits is operating in the European Union. A firm from the

European Union which acquired emission reduction credits through Joint Implementation with a country or firm in say Africa would be credited with an equal number of CO₂ permits. Consequently, it can emit more or sell the permits.

The study has focused on the practical issues related to the design of a workable system of tradeable emission permits for reducing carbondioxide emissions. Up till now, research has predominantly concentrated on the efficiency advantages of economic instruments like taxes and tradeable emission permits. Less attention has been paid to the feasibility of implementing such an instrument. However, this issue should not be neglected. Indeed, an instrument might theoretically be very attractive because it is cost minimising and because it will realise the policy target, but if it cannot be implemented it is of small practical value. Specific points which have been addressed are monitoring, enforcement, administration and acceptability of the instrument of tradeable carbon permits. The main conclusion is that a feasible system of tradeable emission carbon permits can be implemented in the European Union. Monitoring and enforcement need not be more complicated than when a carbon tax would be used to reduce CO₂ emissions. Contrary to popular believe, emissions need not necessarily be monitored at the end of the pipe for a system of tradeable emission permits to work satisfactory. Instead, producers and importers of fossil fuels can be obliged to hand over carbon permits for the amount of carbon contained in the fuels they bring on to the market. This significantly diminishes the number of firms which have to be monitored. Instead of having to monitor not only every industrial source of CO₂ but also all houses and cars, which is clearly impossible, the number of firms which have to be monitored would in the Netherlands be about 50 producers and importers of fossil fuel.

A carbon reduction policy can lead to large costs and expenditures for especially energy intensive industries. The revenues which these firms have to pay when a tax is levied on carbon or when carbon permits are sold will be huge, reducing their competitiveness. This burden can be alleviated when the permits are handed out for free to firms (which is called grandfathering). This will reduce resistance of industry against a carbon reduction policy. Firms can hand over the permits they received (or bought from other firms) to their suppliers of fossil fuels. They can in turn hand them over to the monitoring authorities as described above.

2. Entry Barriers

In addition to the study of the practical problems associated with tradeable emission permits, two other fields have been investigated. First, the possibility that the introduction of a system of tradeable emission permits might create entry barriers has been examined. It has been argued that grandfathering permits to the existing firms will put new firms at a disadvantage because they have to buy the permits they need. It is important to understand that grandfathering permits does not reduce the production costs of a firm as compared with selling the permits. Even though the permits are received for free, they do have opportunity costs. If a firm could more profitably sell its permits instead of using them for production, it would do so. However, established firms do not need to make the expenditure on the permits which new firms have to make. Under certain conditions (when capital markets do not work perfectly), this can constitute an entry barrier for the new firms. This will reduce industry dynamics, which in turn can reduce R&D effort, for example R&D on energy efficiency measures. It is difficult to estimate the size of this potential entry barrier, but our guess is that it will be small.

3. International coordination of CO₂ abatement

Secondly, a closer look has been taken at the issue of international coordination of carbon reduction policies. The greenhouse problem is a truly worldwide problem and therefore need to be addressed at an international level. This poses additional policy problems as compared with policies which only need to be implemented within a single country because countries will have to coordinate their efforts. A complicating factor is that countries already tax fossil fuels for different reasons. Both carbon taxes and tradeable carbon permits will interact with these taxes on fossil fuels. The question which arises is how to combine a carbon tax with existing taxes on fossil fuels.

This problem is analyzed in a theoretical second-best two country model in which the governments of both countries have as their objective to reduce environmental damage and to raise revenue. Special attention is paid to the role of sidepayments in policy agreements. The results show that agreements will differ

considerable between a second-best and a first-best world as regards who pays whom and the consequences for pollution. An interesting result is that allowing for sidepayment can under certain conditions increase pollution compared with an agreement on coordinated abatement without sidepayments, both in a second-best and in a first-best world.

In one variant studied, countries have exogenously set emission targets instead of including an environmental damage function in their utility function. This corresponds more closely with the idea of Joint Implementation (JI), a policy initiative described in the Framework Convention on Climate Change. It is analyzed what the specific institutional arrangements necessary for a well functioning cooperated abatement policy are. In an efficient JI agreement, countries should also agree on how existing taxes on fossil fuels may change. If this is omitted, countries will change their current taxes as they will see fit and as a result JI will not be cost-efficient.

4. Conclusions

It is possible to design a system of tradeable carbon permits for the European Union in which monitoring and enforcement will perform at the same level as with a carbon tax. Moreover, tradeable permits are both efficient and effective. Grandfathering permits can increase entry barriers for new firms who want to enter a market, but this problem appears to be small. In designing an international agreement, attention should be paid to the consequences existing taxes on fossil fuels have for the role of sidepayments and the institutions needed for realising an efficient agreement.