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Flexible instruments in climate policy

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* Some issues covered in a presentation at the 4th annual conference on UNEP's Insurance Initiative, Oslo, Norway 10 June 1999.

Abstract

The presentation covers three main themes:

1. Flexible mechanisms and cost effectiveness.
2. Taxes vs. emission quotas: Some lessons from Norway.
3. Some issues related to the construction of a national emission trading regime.

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1 Flexible mechanisms and cost effectiveness

Why does economist perceive the so-called flexible instruments as advantageous in climate policy, in particular? The short answer is *cost effectiveness*. For a given target, for instance a ceiling on national greenhouse gas (GHG) emissions, flexible – or market based – instruments like GHG taxes or systems with tradable emission quotas, have the potential to secure equal marginal costs across emission sources. This implies that the costs of reducing an additional unit of emissions are the same for all participants in the system, and hence nobody will be interested in exchanging their marginal emission reductions with anybody else. In this situation the total cost of reductions is minimal.

Cost effectiveness is obviously an attractive property of the flexible mechanisms, and quite often put forward as a more or less self-evident criterion for any proposed control policy. However, it should be recognised that the cost minimising feature is only valid in relation to the given target (e.g. national emissions). If another target is more appropriate (e.g. the global emission level), the national cost minimising instruments may no longer secure a rational (economist's speak for cost minimising) policy. So, in discussing appropriate flexible instruments it is important to be specific with regard to the target one has in mind.

In addition, one should recognise that in the political world, cost effectiveness is not the only, and often not even the most important, dimension to measure alternative policy options against. Common concerns in climate policy debates, in addition to limiting the amount of GHG emissions, are regional impacts of the policy, for instance in terms of employment issues and other more general distributional consequences. Thus, the economist's mantra of cost effectiveness is often relegated to a low priority item in practical politics.

2 Taxes vs. emission quotas: Any lessons to learn from Norway?

GHG taxes and tradable emission quotas are the two instruments most often discussed in relation to the use of flexible instruments. In theory, they are very similar instruments with many common features. In practice the difference may be larger.

Today we see in Europe a high interest in the implementation of so called green taxes in general and GHG taxes in particular. Italy has recently introduced a CO₂ tax and several other countries (UK, Germany, The Netherlands) are on the brink of doing likewise

In this relation it is interesting to note that Norway (together with a few other small countries) already in the early 1990s introduced a so-called CO₂ tax. I say 'so-called', because the tax was not really tied to CO₂ emissions at all, but was instead based on a series of tax rates for various fossil fuels, see figure. In addition the power intensive and export oriented industry (responsible for some 40% of Norwegian CO₂ emissions) was all together exempted from the tax. Attempts over the years to harmonize the tax rates in term of CO₂ emissions and to include all sectors in the tax regime has met with strong lobbying from the exempted sectors in particular and generally met with defeat.

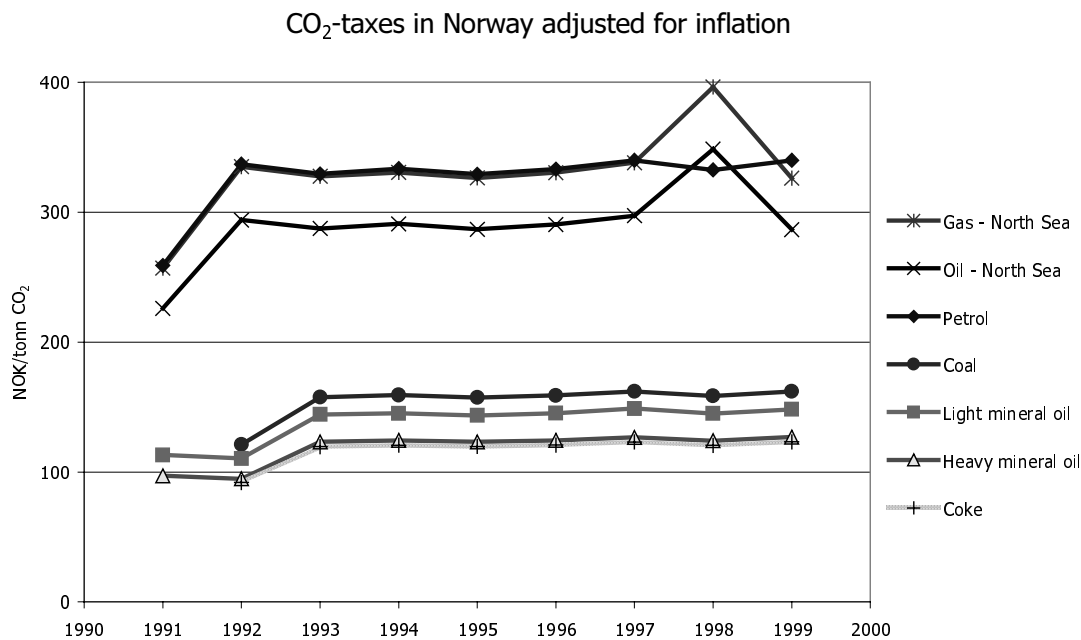


Figure 1: CO₂-taxes in Norway adjusted for inflation.

An additional important feature of the tax regime has been the frequent renegotiations of the tax rates that has taken place, generally twice yearly in connection with the general debates on the national budgets. The tax has therefore not been treated as primarily an environmental tax, but rather been an integral part of the fiscal tax regime. The general uncertainty this has generated for the manufacturing industry in particular, has been the main argument used by these sectors against the tax regime as such.

A proposal by the current government to take a (small) step in the direction of more harmonized CO₂ tax rates last year was defeated in Parliament who instead decided that a system with tradable national emission quotas should be explored. A committee was set up to do so, and is expected to report by the end of this year. Several guidelines were put down by the Parliament, among them that the system should at least cover the sectors now exempted from the CO₂ tax. The total 'width' of the system was, however, left open. In addition it was decided that the exempted sectors should receive emission quotas covering 70% of their 1990-emissions. At the same time the Parliament expressed concern for the current revenue level of the CO₂ tax (approximately NOK 8 billion).

The decision by the Parliament to go for a national quota system instead of, or in addition to, the tax regime, was generally received favorably by the manufacturing industry. Presumably this was because the tradable emission quota system is perceived as a more stable system than the current tax regime, giving more certainty to the operating environment for the industry.

Thus, overall we have seen in Norway a move away from taxes and towards a tradable emission quota system. It suggests that those countries now most eager to implement GHG taxes should take a close look at the Norwegian experience and decide on that basis whether they should, as an alternative to the proposed taxes, go directly for a quota system.

3 A national emission trading regime: Some issues

A national emission quota trading system raises a number of design issues. I will not have the opportunity here to cover them all, but rather make some comments on some of the more important concerns.

3.1 Who should be covered by a national quota system?

First of all, we have in Norway the question of the ‘width’ of the quota system. In other words, who should be included in the national trading system, and who should be kept out, and then presumably still be regulated under a tax regime. Several relevant observations can be put forward in this regard:

- The tradable emission quota system, or emission trading system for short, will be more cost efficient the broader it is, given a ceiling on national GHG emissions. Broad participation will secure that sources with high abatement costs can be better matched with sources that can reduce their emissions at a relatively low cost.
- As a corollary follows that within what can be termed a Kyoto regime, i.e. a situation where the Kyoto protocol has entered into force and private firms have access to emission quotas through the Clean Development Mechanism (CDM), Joint Implementation (JI) or International Emission Trading (IET), more reductions will be undertaken at home the broader the national quota system is. In other words, broad participation in the national quota system will support the so-called supplementary principle¹ put down in the Kyoto protocol.
- Finally, in the Kyoto regime it will be next to impossible to exclude some sectors of the economy from the national quota system. The reason is that sectors ‘inside’ the national quota system can sell quotas on the international market where sectors ‘outside’ the national quota system can buy them and earn national credits.

3.2 Loss of revenue from the CO₂ tax

The Parliament’s concern with revenue neutrality is understandable, given that current CO₂ tax rates are substantially higher than the expected international quota price in a Kyoto regime. Abolition of the tax in favor of a national quota system where the quota price will be determined internationally, may thus lead to a substantial loss of revenue. There are two comments I wish to put forward in this regard.

- First, it is wrong to associate the loss of tax revenue with the introduction of a national quota system. Rather it is a consequence of the Kyoto protocol as such, since

¹ The supplementary principle states that the use of the international flexible mechanisms (JI, CDM and IET) should be supplementary to national emission reductions.

internationally acquired quotas (through CDM, JI or IET) in any case will reduce the CO₂ tax base in Norway.

- Second, the revenue loss can, at least to some extent, be countered by auctioning off or selling the national quotas to the participants. With a broadly based national quota system a significant part of the revenue loss can then be prevented.

3.3 Early crediting in the interim period?

Both of these points (the width of the national system and the loss of revenue) have been commented on from the point of view of a Kyoto regime, i.e. a situation where the Kyoto protocol has entered into force. It is, however, far from certain that the protocol will be ratified by the number of parties required² to ever enter into force. In any case, we face an interim period before the Kyoto regime comes alive where the question of early crediting begs an answer.

In Norway this is really only an issue for the sectors exempted from the CO₂ tax. Sectors currently under the tax regime have plenty of incentives already to reduce their emissions. In any case, early crediting requires rules, laws and regulations covering such difficult topics as how to establish a credible baseline, and how to verify and certify early efforts to reduce emissions. In my view it would be better to spend our resources on an effort to establish at the earliest possible time a national emission quota system, instead of establishing more or less parallel rules for early credits. Thus, also in the interim period I will argue that a broadly based and tradable national quota system is a good solution. It is important to be aware that the alternative to this is not a policy free regime. Rather the alternative could be a tax regime, or a regime based on a command and control policy.

3.4 Allocation of national quotas

If, as stipulated by the Parliament, some of the national quotas are going to be given away for free, we are of course in for a fight over the endowment of quotas, both initially and then over time. From this point of view, going for a straight market based allocation mechanism (like for instance auctions of some kind) could save much energy and frustration.

It is also important to be aware of the fact that within a fully tradable regime, i.e. a regime without restrictions on the trade of the quotas, it does not matter to the functioning of the mechanism how the quotas are allocated. In particular, it will not have any effect on the amount of emission reductions undertaken by the firms, nor will it have an impact on the amount of 'carbon leakage'. In order to avoid carbon leakages, i.e. the phenomenon that a regulated firm may move abroad in order to avoid the implied control costs, the quota allocation must be associated with restrictions on the tradability of the quotas. One suggestion is to prohibit the sale of quotas when firms shut down or move abroad in an effort to keep work places in the country. These types of restrictions will however have a negative impact on the cost effectiveness of the system. Overall it must therefore be better to try to preserve

² The requirement is that 55 parties representing at least 55% of the CO₂ emissions in the Annex I-countries in 1990 should ratify the treaty before it enters into force.

working places and handle distributional issues, etc. by use of more appropriate tools than climate policy instruments, flexible or not.

This is CICERO

CICERO was established by the Norwegian government in April 1990 as a non-profit organization associated with the University of Oslo.

The research concentrates on:

- International negotiations on climate agreements. The themes of the negotiations are distribution of costs and benefits, information and institutions.
- Global climate and regional environment effects in developing and industrialized countries. Integrated assessments include sustainable energy use and production, and optimal environmental and resource management.
- Indirect effects of emissions and feedback mechanisms in the climate system as a result of chemical processes in the atmosphere.

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