
9 A view from Europe

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This chapter starts with an overview of the climate actions implemented in Europe as a response to the Kyoto Protocol, organised around the creation of the EU Emissions Trading Scheme. The discussion stresses the problems faced by the newly created carbon market and explains its disappointing outcome. The chapter then recalls the political and legal background of the initial European choice for an industry-limited market and briefly presents the intellectual debate on the relative merits of a ‘carbon market’ and a ‘carbon tax’ as a regional climate policy. The European story illustrates some of the general difficulties behind the implementation of an ideal global climate treaty. The discussion then evokes the solution by economic considerations alone, a kind of ‘super-Kyoto’ whose implementation would require the action of a powerful benevolent world planner. With utilitarian objectives, such a solution would go together with a strongly redistributive allocation of national quotas. This ‘grande rivière’ (‘big river’) is unfortunately utopian. What are the ‘petits ruisseaux’ (‘small streams’) that can be launched as partial substitutes? In between, can we expect ‘petites rivières’ in the form of climate clubs to emerge? The chapter concludes with a discussion emphasising the underlying difficulties, in particular (i) providing compensation and incentives to developing countries; (ii) making trade and environment policies compatible; and (iii) facing the possible occurrence of the ‘green paradox’, a reflection of the complex interactions between the markets for fossil fuels and climate policies.

The European Union's climate policy: Some key aspects explained

Under the provisions of the Kyoto Protocol, the European Union as a whole was committed to reducing its emissions by 8% by 2012, compared with 1990. Following a redefinition of member states' objectives, negotiated to be legally binding, a common policy was introduced.

This policy has several strands. On the one hand, the directives focused on 2020 and proposed targets relating to the role of renewable energy sources in the energy mix – 20% to be specific – and to improving energy efficiency. On the other hand, and this was the most dramatic innovation, a market for emissions allowances was established: the European Union Emissions Trading System, commonly known by its abbreviation, EU ETS. This trading system encompasses 11,000 industrial plants and power stations across 27 countries. It covers around 50% of the EU's CO₂ emissions¹ and is the world's largest carbon credits mechanism.

EU ETS: Past and future

Following a pilot phase (Phase 1) launched in 2005, the mechanism entered into force. This was Phase 2, which coincided with the 2008–2012 commitment period of the Kyoto Protocol. A total allowance is divided between member states, who allocate their national allowances according to common criteria based on previous emissions and sector-specific facilities.

In Phase 2, allowances were, for the most part, allocated for free; a small proportion (5% in 2012) was sold via auction. Last but not least, the companies involved can also seek carbon credits from the Kyoto Protocol project mechanisms (such as, for example, the Clean Development Mechanisms, or CDMs).

Phase 3,² which will run from 2013 to 2020, introduces or will introduce a series of modifications, the main elements of which are outlined here. First, the process of

1 And 40% of its greenhouse gas emissions.

2 This is part of the approach to reduce emissions by 20% by the end of the period.

auctioning off allowances will be significantly expanded, but in principle adjusted for different sectors depending on their exposure to the risk of ‘carbon leakage’. Then, the total allowance at the European level is set to be linearly reduced each year. Finally, allowances may be placed in reserve or withdrawn, depending on the trends observed, particularly with regard to the economic situation.

This is a brief overview of the mechanism and planned developments, which take account of an experience which has been, to say the least, disappointing. Price trends on the market are, in this regard, illuminating. After reaching €30 per tonne of CO₂ at the beginning of the preliminary phase, prices inevitably fell to zero by the end of the phase. More significant changes were seen in Phase 2. Starting at €15 per tonne of CO₂ at the beginning of Phase 2, the price began to collapse from March 2011, often falling below €5 per tonne. This is not at all surprising if we consider the huge number of allowances, in millions of tonnes, held by companies in 2012: 2,049 million tonnes in free allocations and around 100 million tonnes auctioned off, to which must be added the Kyoto credits (almost 500 million tonnes), which greatly exceed verified emissions (1,867 million tonnes) (Gloagen and Alberola 2013).³ It is therefore primarily the option of transferring allowances between periods that supports a positive price. Of course, what can be seen here must be termed a serious failure of the trading system – the incentive effect of a CO₂ price of €4 per tonne in terms of implementing significant ‘decarbonisation’ measures is close to zero. Indeed, existing studies suggest that the reduction in CO₂ emissions within the EU ETS area (which were down 12% during the period 2008–2012) could be explained firstly (up to 30%) by the post-crisis economic context (Gloagen and Alberola 2013), and secondly (50–60%) by the positive effects of the increased use of renewables and progress in energy efficiency.

How can this poor performance be explained? First of all, it is worth looking at certain aspects of the design of the trading system; here, the link established with the Kyoto Protocol project mechanisms. The link, no doubt already problematic in the initial Kyoto mechanism (which saw the establishment of a trading system between states), is even more questionable in the system that actually resulted. Control over the total number of allowances in circulation, a key element of the rationale behind the trading

3 Moreover, the gap has grown since 2008, and is likely to be 1,742 million tonnes over the period.

system if the manuals are to be believed, is becoming more uncertain. This is only part of the story; we must, of course, add the fact that allowances were allocated too generously and without taking account of the economic climate. And this is before we consider the unknowns surrounding the future of the quantities allocated on a longer-term basis, bringing even greater uncertainties with regard to prices.

The changes introduced in Phase 3, which have been briefly presented, seek to respond to these challenges, but without necessarily inspiring optimism. The issue is that in a market which is complex but limited to a subset of emitters, the problems of governance are more difficult to manage than it might seem, and this despite the introduction of an extremely unwieldy administrative structure which is also – there is no point trying to hide it – particularly opaque from the point of view of external observers.⁴

Why does the trading system exist? A look back at the beginning

Given this experience, it is worth revisiting the choice that was made to establish a trading system.

Why a trading system rather than a carbon tax? The issue is considered here at the country level, or at the level of a group of associated countries. The analysis does not prejudge the relative merits of a trading system and a tax at the global level, a largely independent issue to which I will return shortly.

A carbon tax has and would have had, at the European level, obvious advantages. First of all, it encompasses all stakeholders, households and companies. The amount of the tax and its evolution over time can be made public, with a credibility which reflects the credibility, assumed to be good, of the authority which is implementing it. Last but not least, this option would guarantee a form of equalisation between countries of the efforts made, somewhat of a blind spot in the current policy,⁵ which lacks clarity on both the procedures for the national allocation of allowances and the variations between the national policies which complement that allocation.

4 One example of this opaqueness is the allocation of allowances between sites and between countries.

5 Also the subject of a communications effort which has, to put it mildly, been poor.

Given the fact that all or the majority of allowances were allocated for free, the system is and has been popular with companies, and it is true that a system of differentiated exemption thresholds within the framework of a carbon tax, which would be able to mimic the effects on corporate profits of partly or completely free allowances, is difficult to implement. One point for the trading system, even if the completely free nature of allowances initially goes far beyond what economic expertise would advocate (see Guesnerie et al. 2012).

It is also worth noting that all else being equal, and in particular when the carbon tax and the trading system price are equal, the effects on the relative competitiveness of industries are identical. In both cases, the argument for putting in place border adjustment measures has the same force and raises problems which, while not identical, are not materially different.

To sum up, by its universal nature and apparently superior capacity to establish and better coordinate the price expectations of agents, a carbon tax could appear to be the solution, despite the probable preference of companies. I am one of those who believe this to be the case: at both the national and the regional level, a carbon tax solution is better than a market solution, even if it may be part of the broader framework of the Kyoto trading system (see also Cooper 2008, Gollier and Tirole 2015).

The reason why Europe adopted the trading system had nothing to do with an analysis of the relative merits of the two solutions, however. It reflects a legal provision (which ignores the close relationship that economic analysis ascribes to the trading system and the tax) whereby creating an EU-wide tax requires unanimity, while setting up a trading system can be done by majority. The choice was dictated by legal feasibility, but also indirectly reflects political feasibility. As we have noted, since the allowances are partly free, the trading system is strongly preferred by companies – and therefore by industrial lobby groups. And a carbon tax which affects consumers incites a great deal more hostility from the public than a trading system whose effect on prices is less direct and probably less noticeable in terms of redistribution. The fate of the French carbon tax is illuminating in this regard, and it can be assumed that there was fairly widespread resistance to a carbon tax approach in the various EU member states.

If we follow my argument, then, the creation of the EU ETS can be seen as the implementation of a second-best or even third-best solution, if we highlight the fact that it has been much more difficult than expected to get the system to operate effectively. This implementation reflects the favourable political context at the time that it was introduced, and the resilience of the system – when it is clear that many countries have only limited enthusiasm for implementing a climate policy – is worth noting.⁶

Climate policy around the world

A great river – a utopian ideal?

The EU ETS is what one might call a ‘small stream’ contributing to the fight against climate change. Will the existing small streams, along with those which will be developed in the future, feed into a ‘great river’ able to support a climate policy which can meet the challenges we are facing?

At this point, it is worth revisiting the idea of what an ideal ‘great river’ would look like, including the requirements for economic effectiveness as well as for a degree of distributive justice between participating nations.

The objective here is to control emissions, i.e. quantities, and economic expertise advocates charting a path for global emissions levels over the long term, say 30 years, which are compatible with the IPCC analysis on limiting the temperature increase to 2°C.⁷ To achieve this, economic expertise strongly suggests implementing a ‘cap and trade’ system: the global target for year n takes the form of a global allowance, broken down into allowances for each participant. The approach is therefore in line with that of the Kyoto Protocol, but with full participation (see also the chapters by Stavins and Sterner and Gunnar in this book).

All that remains is to define the procedures for this super Kyoto by allocating allowances to all countries. Let us allocate them from the point of view of a benevolent planner

6 It is probably worth examining the reasons for this resilience and the part played by the interpersonal skills and activism of the Commission – and perhaps also the opaqueness of the system!

7 A path which may be contingent on the gradual emergence of information.

who is sufficiently powerful to be able to impose these national allowances. It would make sense, in utilitarian logic, to set identical per capita allowances for all countries;⁸ countries whose per capita emissions were less than the global average would be the sellers within the trading system and therefore overall beneficiaries, while countries with emissions above the global average would be the buyers. Everyone would see their efforts governed each period by the same global carbon price. Of course, this particular approach of equalising per capita allowances is up for discussion, but it is clearly a logical way of spreading the costs of climate change from a utilitarian standpoint.

Although I have previously advocated for a carbon tax, the solution recommended here is a global market rather than a global carbon tax, which could result in very unpredictable regulation of quantities, if only because of the uncertainties associated with the ‘green paradox’. There is no contradiction; again, this ‘super-Kyoto’ market would establish a carbon price through the trading between states. And this price would serve as a reference for a regional or national carbon tax, which, if one accepts the argument made previously, could – indeed *should* – be laid on top of a global trading system to take over and support it at the regional or national level.

Note that such a system would not be the answer to all problems, far from it, and the voluntary nature of quantities leaves it open to uncertainty regarding the carbon price. The equalisation of spot prices does not establish the desired coordination of expectations regarding the future scenario. The reason for this, of course, is that the scenario is contingent on how quickly new technologies emerge, but also remains subject to the vagaries of the ‘green paradox’, created by the uncertainties of the policy’s effects on the fossil fuel market, and particularly on the development of the income they generate.

Small streams...

So, having taken every possible care in my choice of words, this is what a very successful ‘great river’ might look like. While everything points to the fact that this would be

⁸ This would apply all the way along the path. It should be noted that the proposal that Sterner and I made (Guesnerie and Sterner 2009a,b), regarding endorsing an ambitious objective for 2050 today by including a reference to equal per capita emissions rights in 2050, did not receive an encouraging response.

desirable, it is clearly entirely utopian, since the allocation of equal allowances for all countries would be rejected by the most powerful nations. Having described this river, can we say more about the ‘small streams’ that currently exist and will emerge in the future?

- First of all, why not link the existing small streams (see the chapter by Stavins in this book), specifically the EU ETS, with the Chinese market currently being created and a modest North American market which has been set up between some American states and Canada, and thus make not a great river, but certainly a bigger stream? However, even if we forget some of the shifts in the European market, objections immediately come to mind: the complexities arising from specific⁹ and potentially contradictory considerations cannot easily be superimposed, and how can the risk of a race to the bottom among the member systems be avoided?
- Another idea: Why not use the global reference of per capita emissions not to allocate allowances, but to calculate the contributions of each country with above-average emissions to a green fund of one kind or another, which would provide aid to poor countries? This is the option preferred by the Climate Economics Chair at Paris Dauphine University (Perthuis and Jouvet 2015), and if it were accepted, it would amount to the implementation of a sort of global carbon tax at a low rate. The low rates are evidently a factor in making the concept acceptable, and if accepted, could be the beginning of a virtuous circle – a sort of prelude to a global carbon tax (see also the chapter by Hourcade in this book).
- Why not also come to an agreement today on the targets for 2050, and the allocation procedures?¹⁰ Such an agreement would not be terribly binding in one sense, but it would be likely to anchor current discussions on what a desirable long-term future would look like.

9 As is happening with the assessment of the risk of leakage in Europe (see the chapter by Fischer in this book).

10 See note at the bottom of page 11, which refers to the Guesneric-Stener proposal, which is along these lines.

What about small rivers?

To conclude, it is important to highlight the limits of an ever-increasing number of small streams. There are certainly some useful initiatives here, but in all likelihood, they leave us quite a long way from the approach strongly advocated by economic expertise: the progressive promotion of a single global carbon price.

Going beyond coordinated small streams, some small rivers could of course begin to emerge. The creation of climate coalitions involving several countries or regions adopting some kind of shared climate policy would fit into this category. So let us finish by talking about climate coalitions, their potential weaknesses, and the probable inevitability of a link between trade and the environment.

Both the cost and the effectiveness of a climate policy that is unilateral or still limited to one or more virtuous coalitions are open to debate. In the case of cost, this is due to the risks of carbon leakage: minor risks to the competitiveness of the economy when the carbon price within the virtuous coalition remains within the ranges reached by the EU ETS, and probably significant risks outside these ranges. Effectiveness is affected if, as a result of the green paradox and the difficulties of market regulation, results do not match expectations.

Seeking to link trade and the environment is not in itself a protectionist step, even though it may support such temptations (Guesnerie and Stern 2012, de Melo 2013).¹¹ Thus, border adjustment mechanisms, which are difficult to set up properly, constitute either a legitimate response or a legitimate and credible threat from a virtuous coalition establishing a meaningful price for carbon among its members. Specifically, this means the coalition restoring a certain accuracy to prices within its economic area. That Europe has not explored and raised this option in international negotiations is no doubt explained by the failure of the EU ETS to establish meaningful prices, but also illustrates the weakness of the EU in moving beyond its prejudices and realising its potential for diplomatic influence.

¹¹ See Guesnerie and Stern (2012) and Melo (2013).

Environmental protection through trade is good for the coalition in the sense that, in principle, it increases its stability. But it in no way increases the appeal of the coalition in question. To increase the appeal of the coalition to nations outside it, it is necessary to introduce a punitive dimension, but not border adjustment! In any case, this is the argument recently put forward by Nordhaus (2015),¹² which shows that the implementation of a measure that is much tougher than border adjustment – in other words, an undifferentiated tax on imports from members outside the coalition – would create, if this tax were high enough, the stable conditions for a system of climate coalitions. The argument and numerical simulations underlying the study are complex. But the sanction for the ‘stowaway’ escaping the virtuous coalition is clear: a loss of external revenue that can only be avoided by joining the coalition. This is not about restoring accurate prices within the coalition, as a border adjustment would do, but about sanctioning, through restrictions on trade not linked to the carbon content of the products traded, those who do not join the coalition. This study merits consideration. In the absence of the benevolent dictator sought above, adherence to a climate policy would involve retaliatory measures with an impact beyond the scope of the climate policy. There is a certain naivety in being surprised by this, even if there are questions regarding the plausibility of the emergence, should it be necessary, of such a confrontational policy, the benefits of which would be long term. And I will conclude on this point, which is moving from economic analysis to ‘realpolitik’, a subject which clearly deserves another contribution!

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¹² Following an argument reminiscent of that previously presented by Barrett (1994, 1997).

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