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Viewpoint

Policy-making under uncertainty: Commentary upon the European Union Emissions Trading Scheme

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Abstract

The authors undertake a critical assessment of the intellectual foundations supporting the new European Union (EU) Emissions Trading Scheme (ETS, or the Scheme), the cornerstone of polices designed to achieve the targets of the Kyoto Agreement of reducing emissions of greenhouse gases (GHG). Despite its considerable scope, the authors found that officially sponsored research and academic efforts in support of ETS were surprisingly limited. Importantly, in advance of implementation, a definitive consensus on both the potential economic impact and the usefulness of the Scheme in reducing the GHG emissions had not been reached. Reviewing the literature, the authors encountered varying and, at times, conflicting viewpoints, officially and in academic research, on the potential economic impact of the Scheme. These included attempts to quantify its benefits and costs, raising concern that this huge and encompassing multi-national policy initiative may have been launched with inadequate intellectual ground-work. According to the authors consistency between the ETS and other EU policies, such as those relating to energy, should have been a key concern, but such aspects have received only minimal attention in both official and academic research. The European Commission has promoted open and competitive markets for gas and power across member states, but the record in achieving such conditions is relatively poor and the authors argue that, as a result, the environmental objectives of the EU Scheme may not be thwarted. In addition, continuing disagreement over the Kyoto Agreement itself—especially with regard to its potential costs and benefits—further frustrates efforts to rigorously justify a policy in support of reducing GHG emissions. The authors argue that, given the scope of the EU Scheme, the paucity of research evidencing that it is likely to succeed in reducing GHG emissions in the form of CO_2 is surprising and should be of concern to those affected by it along with environmental campaigners, many of whom are enthusiastic supporters.

Keywords: EU Emissions Trading Scheme; Energy policy

1. Introduction

In January 2005 began one of the most ambitious multi-national policy programmes in history, known as the European Union (EU) Emissions Trading Scheme (or ETS). The ETS is the vanguard for achieving compliance with the Kyoto Agreement on greenhouse gases (GHG) and involves 25 nations acting in a coordinated manner with regard to hydrocarbon emissions arising from combustion and chemical processes from over 9000 installations across the EU. The Scheme involves the allocation and trading of CO_2 allowances to energy-using installations across Europe and has been conceived as a means of internalising the external social costs arising from CO_2 emissions. Overcoming the disadvantages of quota constraints or a per unit tax on carbon emitted, the EU ETS is designed to minimise the overall cost of reducing GHG emissions by recognising that abatement costs are not uniform and that, through trading of allowances, the compliance costs may be reduced.[1]

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[1]Quotas involving a command and control approach, unlike an effluent tax, would mandate the maximum quantity allowable per site

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Reflecting the scope and magnitude of the EU Scheme, considerable debate has arisen over its direct impact upon regulated utilities and indirect impact upon consumers and users of energy. Questions such as the following have been raised: Will the Scheme reduce GHG emissions? Will the Scheme promote energy efficiency on the part of energy-intensive sectors? Will the costs of compliance under the Scheme, as reflected in the price of CO_2 allowances, be sufficient to promote energy conservation and reduce reliance upon carbon-based technologies? Will the Scheme encourage power generators in the immediate term to alter running regimes and the scheduling of plant merit order towards less carbon-intensive energy sources (and, in the longer term, away from carbon-based technologies) such as renewables? How will the burden of compliance under the Scheme rest between consumers and businesses? Will switching away from coal in favour of natural gas create upward pressure on hydrocarbon prices? Will the international competitiveness of energy-intensive sectors, e.g. bulk chemicals or aluminium sheet, be adversely affected? Will there be a long-term macroeconomic impact occurring from transition and structural readjustment costs under the Scheme? These and many other questions in relation to the EU ETS are frequently mentioned in recent business and financial press and various policy forums.[2]

In the present research, as we examine the intellectual background for the EU ETS, we point out three main concerns. Firstly that, given the scope of the Scheme, it is somewhat surprising that research, both academic and official, into the potential impact has not been exhaustive. To that effect, in Section 2.1, we survey existing efforts and the extent to which a received view has emerged. We also analyse the context in which such research has been undertaken and examine whether its remit was appropriate and its objectives sufficiently ambitious. Secondly, the authors maintain that existing research has overlooked some critical aspects for the Scheme to function properly. Therefore, turning to the gaps in existing research, in Section 2.2, we look at the inter-action between the ETS and present EU energy policy, examining whether the two areas are consistent and compatible with one another. This subject raises a host of new questions on how the structure and behaviour of energy markets relates to the pursuit of environmental policies, such as the reduction of GHG through the EU Emissions Scheme. Thirdly, in Section 2.3, we focus upon the challenges of applying cost–benefit analysis to the ETS within the context of the Kyoto Agreement. We ask to what extent objective quantification of such benefits and costs are possible, and how helpful they might be in validating the EU Scheme. In Section 3, through exploring the intellectual foundations upon which the EU Scheme currently stands, we will examine the extent to which this ambitious policy is intellectually well-supported and the grounds for believing that it will achieve its objectives of reducing GHG emissions.

2. Research and literature review

Given the scope of the EU Scheme it is somewhat surprising that research into the above issues has not reached a consensus, although not for lack of effort. Useful research into the European ETS has appeared in a variety of academic journals,[3] in addition to work undertaken on behalf of the European Commission and some national governments by consultancy organisations and other research bodies employing a variety of methods and models. Notwithstanding such efforts, it cannot be said they led to an 'official' view of the Scheme's potential impact upon businesses, industry and consumers.[4] Perhaps it is the inherent complexity common to alternative methods of research that still prevents a *received perspective* on the likely impact of the Scheme to emerge. Some of the most prominent studies undertaken under the aegis of the European Commission are summarised below, before turning to research commissioned by various EU governments.

As far back as 1997 the EU Commission undertook to study the impact and design of environmental taxes and levies.[5] Under this remit, in 2001, the Commission sponsored research by ECOTEC Consulting in conjunction with the University of Gothenburg to look at all forms of environmental levies and taxes. Researchers

(*footnote continued*)
or installation, and are regarded as inefficient because cutbacks may not be made where the cost of abatement is lowest. An effluent tax is applied per unit of discharge, and in some applications may be problematic because damage costs vary according to location (Musgrave and Musgrave, 1989, Chapter 32).

[2]Here are but few recent examples: Tricks, H., Marsh, P., 2004. Manufacturers face 40% rises in energy bills. The Financial Times, August 18, p. 1; Moules, J., Done, K., Firn, D., 2004. Feeling the heat from increased energy costs. The Financial Times, December 16, 2004, p. 27; Harvey, F., 2004. New Regulations Confuse Companies. The Financial Times, December 29, 2004, p. 2; February 17 2004, DEFRA sponsored conference on Emissions Trading, Brimingham, National Convention Centre.

[3]Examples include: Szabo et al. (2004), Evans (2003), Mathiensen and Maestad (2004) or Baker and Ekins (2004).

[4]E3M Lab, Capros and Mantzos (2000). http://europa.eu.int/comm/environment/enveco/climate_change/primes.pdf.

[5]EU Commission (1997) at: http://europa.eu.int/comm/environment/enveco/climate_change/ecoeva_ex.pdf and Virani, S., Graham, S. of Risk and Policy Analysts Limited, September 1998. Economic Evaluation of Environmental Policies and Legislation using CBA and CEA. Final Report, Prepared for the European Commission, DGIII. Centre for Clean Air Policy, http://www.ccap.org/pdf/COP6Compliance.pdf#search='Center%20for%20Clean%20Air%20Policy'.