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# The reform of the European energy tax directive: Exploring potential economic impacts in the EU27



Paola Rocchi\*, Mònica Serrano, Jordi Roca

Department of Economic Theory, University of Barcelona, Av. Diagonal, 696, 08034 Barcelona, Spain

## HIGHLIGHTS

- We analyze the reform of the European energy tax proposed in 2011, rejected in 2012.
- We simulate what potential economic effect this reform would have if implemented.
- We find that this reform would have weak effects on prices in all 27 EU countries.
- We study the effect of the reform if applied to European emission market sectors.
- In this second scenario, the economic impacts would have been much stronger.

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## ABSTRACT

The aim of this study is to analyze the effect that the Energy Tax Directive reform proposed in 2011 would have, if implemented, on the level of prices in the different sectors of the 27 countries of the European Union. We apply a multiregional and multisectoral model of trade flows that takes into account all the intersectoral and intercountry interdependences in the production processes. Using the World Input–Output Database we perform two different simulations. The first one considers the tax changes proposed by the reform; the second one shows the impact the reform would have entailed if it were applied also to sectors belonging to the European Trade System. The main finding of the first simulation shows that the new energy tax regime would have had a low economic cost in terms of impact on prices (less than 1% in all the countries). So, the concerns about competitiveness do not find empirical support in our results, suggesting the need for further analyses to find out the reasons that caused the failure of a reform that was an important step to introduce a taxation explicitly linked to CO<sub>2</sub> emissions. The second simulation, however, leads to strongly different results, pointing out the relevance of maintaining significant economic incentives to reduce carbon emissions for the European Trade System sectors, by improving the emission market performance or by applying carbon taxation also to these sectors.

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## 1. Introduction

Policy instruments aimed at reducing emissions are widely recognized as a necessary intervention to mitigate the impact risks related to atmospheric contamination and climate change. Through policy interventions, legislators try to reduce polluting behaviors and to encourage a more respectful conduct and more efficient technologies. There are several tools for emission control, many of which use economic mechanisms to influence the existing patterns of production and consumption. These instruments,

generally classified in price-mechanisms and quantity-mechanisms, should minimize abatement costs by creating an incentive to develop alternative technologies or to use alternative energy products.

In Europe, although each country has the legal competency to regulate emissions, the European Union (EU) takes part in this process too. One of the instruments implemented at European level is the minimum energy tax on the use of energy products, currently ruled through the Energy Tax Directive (ETD).

In 2011, the European Commission (EC) proposed a new version of the current ETD in order to strengthen its effectiveness, but the European Parliament blocked the process in 2012 and the reform was not accepted. The political process that leads to the implementation or, as in this case, the renewal of a policy instrument is often slow and difficult due to the complexities involved. The 2011

\* Corresponding author. Tel.: +34 934 024 312.

E-mail addresses: [paolixina@gmail.com](mailto:paolixina@gmail.com) (P. Rocchi), [monica.serrano@ub.edu](mailto:monica.serrano@ub.edu) (M. Serrano), [jordiroca@ub.edu](mailto:jordiroca@ub.edu) (J. Roca).

ETD reform was a political reform inherently difficult to be achieved that aroused the reaction of various interest groups. Such reform, which sought to rebalance the current treatment of different energy products used by different sectors, would have affected many economic agents and many countries that have different priorities regarding the climate change policy.

However, it is equally clear that, given the environmental objectives that the EU has set itself, and given the difficulties that the carbon market is facing, the 2011 ETD reform could have been a very moderate but useful step forwards the policy on climate change. This is the main reason that led us to ask what economic impact it would have if approved. As far as we know, there are almost no studies on the potential economic implications of the 2011 ETD reform, although such analyses could bring some evidence to the debate. [Barker et al. \(1993\)](#) and [Manne and Richels \(1993\)](#) analyzed the previous proposal of the Commission to renew the ETD in 1992, but there are no similar studies regarding the recent one. This paper tries to fill this lack.

Following the idea of [Nguyen \(2008\)](#) who examines the impact on prices of the Vietnamese program to increase taxes on electricity, we analyze the potential effect on prices that the implementation of the EU tax energy reform would cause on the different sectors and EU countries. We use a multiregional and multisectoral database with intermediate inputs that allows us to consider international trade flows within the EU and with the rest of the world. The results of our simulation are an interesting starting point to answer a simple question: would the reform imply a strong economic impact on costs and prices?

To contextualize the analysis, the following subsections describe the main economic instruments for emission control implemented in the EU so far (1.1) and the energy tax reform proposed by the EC in 2011 (1.2). [Section 2](#) presents the methodology and database. Results are presented in [Section 3](#), which will be discussed afterwards in [Section 4](#). [Section 5](#) concludes and gives some policy implications of this research.

### 1.1. Energy tax and emission trading: current status

Looking at different policies that can be used to reduce CO<sub>2</sub> emissions, two main market instruments exist: carbon (or energy) taxes and carbon emission trading.<sup>1</sup> Energy taxes try to affect the emission quantity by increasing the price of energy products. The emission trading is a “cap and trade” system that fixes a total amount of CO<sub>2</sub> emission allowances that are distributed among economic agents who can either use or trade them, letting the market determine their price and final distribution. In particular, the EU has implemented both instruments, approving the ETD and introducing an Emission Trading System (ETS).

Energy taxes are not a recent phenomenon in Europe; European countries have been using them for nearly ninety years, although initially the aim was only to raise revenues and to reduce oil imports.<sup>2</sup> It was during the 1980s when some European countries started thinking on the energy taxes as an instrument for emission control. In 1992, the EC presented the first proposal ([European Commission, 1992](#)) that reflected strong environmental concerns, recommending a tax on the use of energy products that explicitly referred to the CO<sub>2</sub> emissions content. However, this ambitious plan found the opposition of some countries and the text that was actually approved by the Council in the same year was much more

modest ([European Council, 1992](#)); it was mainly focused on regulating the minimum harmonized taxation on mineral oils and natural gas by imposing relevant rates only for motor fuels. Since then, the EC has started a slow and difficult process aimed at enlarging the scope of this instrument to more energy products, strengthening its climate change policy, and harmonizing the legislation among the Member States of the EU. The unanimity rule for fiscal decisions in the EU was the main obstacle to approve the subsequent attempts of the EC in 1995 and 1997 ([European Commission, 1995, 1997](#)).

Anyway, this process led to the adoption of the current regulation approved in 2003. The current 2003 ETD constitutes an important improvement compared to the 1992 legislation: it widens the scope of the energy taxation to other energy products, and it increases the minimum rates that countries must take into account when enacting their national implementation.<sup>3</sup> Nonetheless, despite the important achievements reached with the 2003 ETD, its environmental targets are still limited. Indeed, considering the dependence and intensity in the use of energy products for some industries and the impact of taxation in terms of competitiveness, the 2003 ETD proposes a complex system of reductions and exemptions that has been denounced as a factor that might reduce the environmental effectiveness of this type of taxes ([Ekins and Speck, 1999](#)). Moreover, in the current directive there are other elements that could suggest the need for a legislative renewal: in particular, the absence of a signal that clearly reflects CO<sub>2</sub> emissions and the energy content of the products, the absence of incentives to develop markets for alternative energies, and the absence of coordination with the European ETS approved afterwards ([European Commission, 2011](#)).

All these difficulties of setting a carbon tax raised the need for alternative emission control tools. The process to create a European emission trading mechanism did not start before the late 1990s influenced by the international context. In 1997, despite the initial opposition of Europe, within the Kyoto protocol negotiations “flexible mechanisms” for emission control such as the emissions trading between countries were introduced. In this context, in 1998 the EC proposed to create an internal ETS focused on individual companies ([European Commission, 1998](#)); the emission market, defined as one of the EU's flagship of the climate change project ([Vlachou, 2014](#)), was finally approved in 2003 ([European Parliament and Council, 2003](#)) and was launched in 2005.<sup>4</sup> Since the allowances were basically distributed for free considering historical emissions (grandfathering), the most part of them were given to large installations belonging to energy-intensive sectors. Practically, the main activities that enter the ETS mechanism are energy activities (such as combustion installations, mineral oil refineries and coke ovens), production and processing of ferrous metals (such as metal ore and production of pig iron), activities from mineral industry (such as installation for the production of cement, glass and ceramic product), and other industries as industrial plants for the production of pulp from timber and paper. Aviation was included in the ETS in 2012 but, due to international conflicts, initially it was only applied to internal flights in Europe.

A first learning phase of the European ETS (2005–2007) was followed by a second stage (2008–2012) that corresponded to the Kyoto protocol commitment period, and now the market is in its third phase (2013–2020). Although a major revision approved in

<sup>3</sup> Moreover, the 2003 ETD distinguishes between motor fuels and other uses of energy products and between business and non-business activities.

<sup>4</sup> Meanwhile, in 2004 it was approved that enterprises of the EU could obtain carbon credits from investments in other countries in order to accomplish the limits established by the ETS allowances. The two mechanisms, implemented by the Kyoto protocol, were the so-called “clean development mechanism” (CDM) and the “joint implementation” (JI) ([European Parliament and Council, 2004](#)).

<sup>1</sup> Compared with non-market instruments, market instruments imply efficiency gains because the marginal cost of emitting an unit of CO<sub>2</sub> is the same for all emitters ([Tietenberg and Lewis, 1984](#)) resulting in a cost-efficient reduction of total emissions.

<sup>2</sup> See [Hasselknippe and Christiansen \(2003\)](#), [Speck \(2008\)](#), [Weisbach \(2011\)](#) for a history of energy taxes in Europe.

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