

## Select Committee on Budgetary Oversight – 1 March 2023

**Kelly de Bruin and Niall Farrell, ESRI**

Let me begin by thanking the Chair for the invitation to appear before you today. I am Dr Kelly de Bruin, head of the Climate-Economy modelling team at the ESRI, and I am joined by my colleague Dr Niall Farrell.

This committee is considering the budgetary implications of the report prepared by the Commission on Taxation and Welfare. We will provide insight relevant to Chapter 13 of this report which focuses on Moving to a Low Carbon Economy. It is important that policies are targeted towards correcting for specific market failures. Well-designed climate policy ensures that we achieve the required emissions reductions while minimising disruption to economic and social activity. In doing so, we must ensure that the distribution of this burden is fair.

In this opening statement, I want to give you a sense of the current work being conducted at the ESRI concerning the Irish carbon tax and fossil fuel subsidy removal and convey our results regarding these issues. Our goal is to provide insight to guide policy formation.

To contextualise our results, a general understanding of our methods is useful. Hence, I will first give a short non-technical overview of our model, the Ireland, Environment, Energy and Economy (I3E) model, which was applied to research these issues. The I3E model is an intertemporal computable general equilibrium (CGE) model, which reproduces the structure of the economy in its entirety. It includes production sectors, households, and the government, among others. The model quantifies the nature of all existing economic transactions among diverse economic agents. According to microeconomic behaviour, producers/consumers maximise their profits/utility given their budget constraints. In other words, a CGE model examines how inputs and outputs flow between production sectors of the economy and finally result in final goods consumed by households.

The explicit modelling of sectorial inter-linkages makes it possible to investigate the wider economic impacts of a specific shock or policy through the different transmission channels in the economy. Therefore, CGE models have become a standard tool for empirical analysis. They are widely used to analyse the welfare and distributional impacts of policies whose effects may be transmitted through multiple markets and channels in the economy. Such secondary impacts are of critical importance in the case of climate policies.

The first recommendation we will discuss concerns the gradual increase of the carbon tax to €100 per tonne in 2030 and clarity on the tax path post-2030. Our research has examined the impacts of carbon taxation extensively. The results from the model (I3E) show that the proposed carbon tax increase has the potential to reduce emissions by approximately 16% by 2030 compared to the absence of an increase. The associated economic costs are limited, with an estimated cumulative decrease in real GDP by 2030 of 1.4% and a 2% decrease in real government revenues. There may be economic benefits if carbon revenues are recycled to reduce other taxes in the economy, with our analysis finding an increase in real GDP as well as reduced emissions, but with larger impacts on government revenues.

Much evidence exists to examine the distributional impact of carbon taxation. When considered in isolation, a carbon tax is found to have a regressive impact: the cost comprises a greater share of the budget for a low-income household. With a responsive government welfare system, the carbon tax increase need not increase inequality across households and can be net progressive.

The second recommendation we consider is the equalisation of the rate of excise duty of petrol and diesel. Our estimates show that this could lead to an almost 4% decrease in emissions, a 0.3% decrease in real GDP and a negligible impact on real government revenues by 2030.

The third recommendation we will comment on is the reduction of fossil fuel subsidies. Our work shows that the full removal of fossil fuel subsidies has a similar impact on emissions to the planned increase in carbon taxation; a 16% decrease by 2030. Real GDP impacts are slightly higher than the carbon tax increase, with an estimated 1.6% decrease by 2030. Given the high level of fossil fuel subsidies, the increased revenue created by removing fossil fuel subsidies is higher than the increased revenue from the higher carbon tax. Therefore the removal of fossil fuel subsidies will result in a smaller decrease in real government revenues compared to a carbon tax increase (0.2% compared to 2%). The economic impacts are, however, distributed more evenly with carbon taxation, where certain sectors will face large impacts under fossil fuel subsidy removal. These sectors would need support in this transition. Concerning fossil fuel subsidies to households in the form of fuel allowances, we find that the removal of these subsidies has negligible economic and emission reduction impacts, as they are not directly connected to energy use. However, this is a highly regressive policy as poorer households would face large negative impacts.

We would also like to draw your attention to an additional issue not specifically discussed in the report. We believe that the EU ETS price will be of pertinent importance for the Irish economy and the government budget. The EU-ETS price as projected by the EU will increase to €430 by 2030. Should this be realised, this would have considerable impacts on the Irish economy and government revenues. Though this policy is determined at the EU level, we believe the associated impacts for Ireland should be considered in more detail. Currently, the Irish government receives a large share of these EU-ETS revenues, and this stream of revenues should be considered when discussing the budgetary impacts of moving to a low-carbon economy.

We would like to highlight that the fiscal impacts of these recommendations on public balances are dependent on the secondary impacts. Policies can be designed to increase revenues but may lead to a decrease in net government revenues due to the economy's response to these policy changes. Receipts of sales taxes, wage taxes and corporate taxes decrease due to the dampening economic impacts of policies, which can outweigh the increase in the carbon tax receipts or reduction in fossil fuel subsidies.

In conclusion, we find that the economic and budgetary impacts of a carbon tax or fossil fuel subsidy removal will strongly depend on the policy design. A well-designed carbon tax and revenue recycling scheme can assist in reaching other policy goals (such as economic growth and inequality reduction) in addition to emissions reduction. The design should carefully consider the effects of policy-induced behavioural change of households, enterprises, and government in the transition to a low-carbon economy.

We wish the Committee every success and are happy to assist the Committee in the coming months.