

## **Opening Statement**

### **Joint Oireachtas Committee on Climate Action – 5 September 2018**

**Alan Barrett, John Curtis and Kelly de Bruin, ESRI**

Let me begin by thanking the Chair for the invitation to appear before you today. I am Alan Barrett, the Director of the ESRI and I am joined by my colleagues Dr. Kelly de Bruin and Dr. John Curtis.

This committee is considering one of most important challenges that Ireland faces and it is critical that the policy response to the climate challenge is well-designed along a number of dimensions. Policies must ensure that we reduce our emissions of greenhouse gases to a level and within a timeframe that is consistent with our international commitments. However, policies should be least-cost so as to minimise the economic disruption and also distributionally fair whereby those most able to bear the costs do so. Ideally policies on climate action should also generate public support in part because public engagement will be important in achieving climate objectives.

In this opening statement, I want to give you a sense of the current work being conducted at the ESRI on climate issues. As is always the case with ESRI work, our goal is to provide evidence to guide policy formation primarily in the socio-economic domain. Rather than commenting on the specific proposal of the Citizens' Assembly, we hope to show how the impacts of proposals can be measured and how proposed policy can be designed most effectively. In these opening remarks and in our subsequent answers, we will generally try to restrict our comments to areas where we are undertaking research ourselves or where we are familiar with relevant research from others. Climate change is a broad area and we do not pretend to be expert on all dimensions.

Our current work in this area can be seen as two strands: (a) modelling GHG emissions and the link to economic activity and (b) analysing household behaviour with respect to energy. This two-way categorisation does not capture everything but it is a useful way to organise these remarks.

Looking firstly at our work on modelling GHG emissions, Dr. de Bruin and another colleague Dr. Mert Yakut have developed an Energy Social Accounting Matrix (ESAM) and have used this model most recently to analyse the impacts of carbon taxes for the Department of Finance. We will say a few words about the model to give you some sense of what is involved. We will say more on the results of the carbon tax analysis. The results are important in themselves but in discussing them we also want to provide an insight into what can be done with the ESAM model.

The ESAM model reproduces the structure of the Irish economy including production sectors, households and the government and quantifies the nature of all existing economic transactions among diverse economic agents. Furthermore, the ESAM includes the flows of energy and emissions, creating a framework that can examine how money as well as energy and emissions flow between production sectors, households and the government. In this way the carbon content of different products and different household's consumption is estimated.

The current carbon tax in Ireland stands at €20 per tonne of carbon and is levied to incentivize households and producers to reduce their use of carbon intensive goods. The carbon tax is relatively low, however, and constitutes just 1.9% of total taxes levied on commodities in Ireland. In the case of petrol, carbon tax accounts for 7.6% of total excise duties and, in the case of diesel, 14%.

Dr. de Bruin and Dr. Yakut find that a doubling of the carbon tax to €40 per ton of carbon will increase the prices of carbon commodities by on average 3.4%. The diesel price is expected to

increase the most due to an increase in the carbon tax, where a €40 tax would result in a 7% increase in diesel prices. Putting this into a context, it can be noted that in 2018 alone consumers have faced much greater fluctuations in diesel prices. Consumers are accustomed to relatively large fluctuations in fuel prices and may not react to increases in prices, assuming prices will fall again. This makes it extremely important to communicate a clear commitment to an increasing carbon tax by the government.

To gain a better understanding of which production sectors are most vulnerable to increases in the carbon tax, Dr. de Bruin and Dr. Yakut estimate the impacts of a carbon tax increase on the production costs across sectors. They find that the natural gas supply sector as well as the transportation sector are impacted the most. Impacts on other sectors are small. Notably, the production sectors which drive Irish exports are relatively insensitive to a carbon tax increase, suggesting that an increase in carbon tax will not have significant impacts on the international competitiveness of Irish exports.

An important issue concerning the implementation of a carbon tax is its distributional impact across different household types. Dr. de Bruin and Dr. Yakut examine the impacts of a carbon tax increase across income deciles. They find that the impact on the CPI of the different households is virtually uniform, where a €20 increase in the carbon tax leads to the CPI of all households increasing by approximately 0.5%.

To examine the potential implication of a carbon tax increase on fuel poverty, they also examine the changes in households' energy CPI. They find that energy CPI increases more among richer households due to a carbon tax increase. While the poorest households face a 2.9% increase in energy CPI for a €20 increase in carbon tax, the richest households face a 4.5% increase. Heating CPI on the other hand shows slightly higher increases for the poorest households (1.1%) compared to the richest (0.9%).

In monetary terms a €20 increase in carbon tax would cost the poorest household €1.87 a week and the richest €9.63 a week. When these costs are expressed in terms of income, they are found to be regressive, i.e. the poorest households will lose a higher share of their income (0.67%) compared to the richest (0.28%).

Examining the potential impacts of an increase in carbon tax on emissions reduction in Ireland, Dr. de Bruin and Dr. Yakut find that a doubling of the carbon tax will result in less than a 5% decrease in GHG emissions. This indicates a strong need for a more stringent carbon tax policy in combination with other policy levers.

We will now turn to the second strand of research which is on household behaviour. Until somewhat recently, economists had a tendency to focus on carbon taxes and similar types of policies in the belief that the price mechanism could solve environmental problems. This approach had a rich tradition in economics, starting in the 1920s with the Cambridge economist Arthur Cecil Pigou and continuing through the Noble prize winning Chicago economist Ronald Coase. Today, we continue to believe that incentives to encourage pro-environmental or carbon-friendly behaviours are important. However, we also tend to believe that financial incentives or prices are not the only things that matter.

Research undertaken by the ESRI on SEAI's 'Better Energy Homes' energy efficiency grant scheme for residential buildings affords insights that are relevant to other areas of consumer behaviour. This research is based on over 160,000 homes that have made grant applications between 2009 and 2015

for the installation of cavity and attic insulation, boiler upgrades, heating controls and solar panels. Lessons from that research include the following.

Financial incentives work - the very simple evidence for this is the 190,000 applications to the Better Energy Homes scheme between 2009 and 2018. It seems reasonable to say that many of these energy efficiency retrofits would not have occurred without the financial incentive.

However, setting the “right” price is just one important element when encouraging changes in behaviour. Other components are also important. For instance, over 15% of SEAI grant applications are abandoned, with this situation three times more likely to occur with deeper, more complex energy retrofits compared to simpler applications.

Increasing the financial incentive doesn’t compensate for other barriers to behavioural change. In March 2015 SEAI revised the grant scheme structure and offered bonus payments totalling up to €400 for households that opted for deeper retrofits (i.e. installing 3 or 4 energy efficiency measures). The research finding on the bonus payments is that they had no measurable impact on grant applications.

Further research found that the structure of the financial incentives matters to households, so how the payment is made is important (e.g. cash payment, via tax credit, etc.). Households strongly prefer cash payment subsidies versus other indirect methods of financial support, roughly by a 70:30 ratio. However, this research also highlighted how households at different life stages have different views on what are the best types of support schemes

Most policy focus in residential energy efficiency/carbon intensity is on the owner-occupier rather than the rental sector. The absence of measures targeted at the rental sector is often attributed to the split-incentive where the benefits of the investment in energy efficiency do not accrue to the person who pays (i.e. the landlord). Our research on this issue found that rental tenants are willing to pay higher rents for homes with higher BER ratings. However, tenants’ understanding of BER ratings and associated potential energy cost savings could be better, which in turn could influence their housing decisions and increase the demand for more energy efficient properties.

We have made these points in the context of energy retrofits but the same principles will apply in other areas such as incentives for electric vehicles. Policy interventions need to be mindful of ensuring that financial incentives are complemented by other features of the programme which facilitate take-up.

We would now like to make some briefer remarks on other policy themes where lessons from earlier ESRI research apply. The Citizens’ Assembly, along with many others, have made proposals on environment-related taxes which involve (a) ring-fencing revenues and (b) exempting lower income groups. Both approaches have typically not been favoured in ESRI research. In the case of ring-fencing revenues – or hypothecation – the argument has often been made that tax revenues should simply be added to the pool of state revenue and then spent in the area with the greatest yield. By limiting the scope of expenditure, which could include tax reductions, the usefulness of the revenues is reduced. Generally, hypothecation is proposed as a way to increase the public acceptance of a tax but in the case of many environmental taxes, the onus should be on policy-makers to explain the purpose of the tax.

With regard to exemptions for low income groups, ESRI researchers have argued that it is preferable to compensate lower income households through the social welfare system. As environmental taxes are primarily aimed at providing an incentive to reduce certain activities, the effect of the tax is

weakened if large groups are exempted. However, it is still important for some groups to be compensated. By increasing social welfare rates in line with environmental taxes, the compensation can be achieved while maintaining the incentives.

We also want to comment on the proposal of the Citizens' Assembly to prioritise spending of public transport over new road infrastructure. This could indeed be a good idea but we would want to see careful appraisal work before endorsing the precise proposal of a 2:1 split. The key issue for us is that climate-related considerations be factored into the types of appraisal conducted by the Department of Public Expenditure and Reform in a way that fully captures the costs of inaction. If this is done properly, then all public investment will have climate policy automatically embedded.

We will conclude by making two final observations. The cost of action in this area will almost certainly be greater under two conditions: (a) if we delay and (b) if we exempt some sectors. Delaying will mean even greater actions are needed in the future which will tend to be more costly. And by exempting sectors, we will put a great onus elsewhere which again is likely to lead to greater cost.

We wish the Committee every success in its deliberations and we will be happy to assist the Committee through our answers today but also in the coming months.