Budget 2013 – Three Cheers For The Carbon Tax

Key Point

Ireland is a pioneer in the implementation of a carbon tax. This has allowed us to avoid (more) increases in income tax which would have further reduced disposable income, increased labour costs and destroyed jobs. It is also facilitating us in meeting our very demanding legally binding obligations to reduce greenhouse gas emissions, and provides support for the creation of new jobs in improving energy efficiency and growing the low carbon economy. We will continue to benefit economically and environmentally if we keep it in place, and increase the rate per tonne of CO_2 from €20 to €25, as envisaged in the programme for government.

Context

Ireland was the first of the fiscally stressed countries in Europe to implement a carbon tax, which is now an important source of income for government, generated in a way that does not destroy jobs, and which at the same time helps us protect the environment and meet our legally binding greenhouse gas emission reduction obligations.

This achievement has become a focus of attention internationally, as an increasing number of countries struggle to find a path that increases government income and does good at the same time.

Many countries talk about introducing a carbon tax, but few do it. We did it, and it is important to keep it in place. In this commentary, I summarise the economic context, what we've done, and to what effect as regards government income and greenhouse gas emissions, and why we need to increase it. Notes that give more detail, including sources etc., are provided at the end.

Economic Crisis

The economy was in free-fall between 2008 and 2009 – GDP (real terms) fell from €166.80 billion in 2008 to €157.69 billion in 2009, a drop of over 5%. Since then GDP has stabilised – expected to be €159.7 billion in 2012.

Tax revenues went over an even deeper cliff, dropping from €40.78 billion in 2008 to €33.0 billion in 2009, a fall of over 23%. Since then tax take has increased; it is expected to rise to €36.4 billion in 2012 (but still well below 2008 levels). Most of the increase has been in income taxes, which rose from €13.2 billion in 2008 to €15.3 billion in 2012.

The Irish Carbon Tax

The carbon tax was first introduced in December 2009, to apply in 2010. In its design, it followed the recommendations of the Commission on Taxation which reported in 2009, of which I was a member. The key to progress was what we were not asked. We were not asked "Is a carbon tax a good idea?" We were told that the government had decided to implement a carbon tax – a key plank of the Green Party – and we were asked to advise as to how to do it. Most of our advice was taken. The tax has the following features:

Coverage: In all European countries, climate change policy distinguishes between emissions that are in the European Union Emissions Trading Scheme (EU ETS) which sets a (declining) cap on greenhouse gas emissions from the power and heavy industry sectors, and the *non-traded sectors*, which comprise the rest of the economy (heat in households and business, transport, agriculture, waste). The Irish tax is on CO_2 emissions from the *non-traded sectors* (mainly transport and heat in buildings**).** The logic of applying the tax only to emissions from the non-trading sectors is that emitters in the trading sectors – who can buy and sell allowances - already confront a price for carbon.

Rate: €15 per tonne of CO_2, applied in 2010 and 2011, increased to €20 for 2012. The idea was that there would be a rough symmetry between the tax and the allowance price in the trading sectors – everyone would face roughly the same price and therefore the same incentive to reduce emissions.

Table 1. European Union Allowance (EUA) Price (trading sectors) and Carbon Tax (Non Trading Sectors), Ireland, 2008-2012

Year	EUA Price in € per tonne of CO_2	Carbon Tax in € per tonne of CO_2
2008	22.40	0
2009	13.38	0
2010	14.46	15
2011	13.52	15
2012	7.38	20

The price symmetry held in 2010 and 2011, but a wide gap emerged in 2012.

Revenue Yield: Roughly €100 million per €5 per tonne tax. Tax-take has risen from €246 million in 2010 to about €400 million in 2012. It will approach €500 million if the rate is raised to €25 per tonne.

Price Effects

Table 2. Impact of a €5 increment in tax, Ireland

Fuel	Unit	Carbon tax increase (including VAT)	% change in price
Petrol	Litre	1.4 cents	0.93
Auto diesel	litre	1.6 cents	1.09
Kerosene	1000 litres	€14.40	1.68
Natural Gas	13,750 kwh	€14.46	1.94

Has it had any effect on greenhouse gas emissions from the non-trading sectors?

We have good data on transport, and in particular consumption of petrol and auto diesel.

Table 3. Transport Fuel Consumption, Ireland, 2008-2011

Year	CO_2 tax - per tonne of CO_2	Consumption of petrol Million litres	Consumption of Auto diesel Mill litres	Total (petrol and diesel) Million litres
2008	0	2310	2960	5272
2009	0	2117	2714	4832
2010	15	1930	2560	4491
2011	15	1829	2563	4393

Consumption of petrol fell from 2310 million litres in 2008 to 1829 million litres in 2011 (fall of 21%)

Consumption of auto diesel fell from 2,960 million litres in 2008 to 2,563 million litres in 2011 (fall of 13%)

Considering that GDP over the same period 'only' fell by 5%, this reduction in motor fuel consumption is very striking. However, note that the drop was already underway from 2008 to 2009, before the tax came into effect. And there are complementary policies which have played a role. Ireland imposes a substantial tax on car purchase, called Vehicle Registration Tax (VRT) and an annual motor tax. In the past they were based on engine size. From July 2008 both of these were re-calibrated, based on open market selling price and CO_2 rating.

These had major effects on the composition of the new car fleet, shifting it dramatically towards low emitting vehicles. Ninety per cent of 90,000 new car sales in 2011 (down from 187,000 in 2007) were in the lowest carbon bands (A and B)

Issues and Analyses

Limitations of Data and Analysis

Correlation is not causation – beware the 'Leacock' effect.....With a very short time horizon, and very turbulent economic conditions and other policies (tax on new cars), it is difficult to draw definitive conclusions.

Stephen Leacock (early 20th century writer and political scientist): *When I state that my lectures were followed almost immediately by the Union of South Africa, the banana riots in Trinidad and the Turco-Italian war, I think the reader can form some opinion of their importance.*

But we cannot reject the hypothesis that the carbon tax has had some effect in reducing emissions

We would expect the biggest environmental effect to be on the heat in buildings sector – because the price increase is 8-12 per cent, and there is a presumption that there are some low cost responses available. But the data are not yet readily available to track such effects

Limitations of Coverage

In terms of addressing total emissions from the non-traded sectors, its effects will be limited by the fact that it only applies to CO_2 emissions, while methane and nitrous oxide emissions from agriculture contribute about 50% of total emissions from the non-traded sectors, and are not taxed. Double income tax relief was provided to farmers in respect of their additional carbon tax liabilities for farm diesel from May 1, 2012.

For a combination of technical, leakage (with Northern Ireland) and political reasons, the carbon tax has yet to be applied to coal and peat, the most carbon intensive of all fossil fuels. This omission reduces the incentive to switch from peat and coal to woody biomass.

Limited Double Dividend Effect

The double dividend is garnered where tax is raised by charging for emissions ('environmental bads'), and some or all of the revenue generated is used to reduce taxes on something good we want to foster, like jobs and employment, thereby stimulating the economy. "Taxer moins le travail, plus les pollutions ou les atteintes à la nature" (Tax work less, pollution or harm to nature more); so spoke François Hollande, President of France, on Sept 14, 2012. The tax on CO_2 in 2012 will raise about €400 million, increasing to about €500 million in 2013 if the rate is increased to €25 per tonne. This amounts to 3-3.5% of money raised from income tax. As such, it is by no means trivial, but it does not allow a major reduction in taxes on labour. But it does, (in the Irish case) help prevent increases.

Distributional Concerns

When the tax was introduced in December 2009, the Minister provided funding for complementary measures to support retrofitting of homes to improve energy efficiency, and there is also a subsidy for the fuel poor. However, the number of weeks for which the latter applies has been reduced from 32 to 26.

A group that would not be 'picked up' by these policies are the long distance commuters, especially to Dublin, who lack good access to effective and efficient public transport. These were identified in a report by an ESRI team as the most significant 'losers' of a carbon tax.

EU Policy

There is a revision to the Energy Tax Directive under consideration, which is likely to be finalised under the aegis of the Irish Presidency of the EU (January – June 2013). If this results in the setting minimum rates, they are likely to be well below the rates already applying in Ireland, but could bring peat and coal into the net.

A wide gap now exists between the carbon tax rate (€20) and the European Union Allowance price (EUA) of about €7 per tonne. This creates an incentive for consumers to 'favour' electricity over other sources, and as such will be economically inefficient. The likely solution is that action will be taken at EU level to increase the allowance price by either shrinking the supply of allowances, or increasing demand – e.g. by including transport in the EU ETS.

Why stick with the carbon tax, and indeed increase it to €25?

There are several reasons:

- The government desperately needs the money. Raising the extra €100 million or so that another €5 tax on CO_2 would raise will do far less damage to the economy that raising the same amount by an increase in income tax.
- Why is it better to increase charges for using the environment, instead of raising taxes on income? Increasing the tax on labour reduces the amount each worker has to spend on goods and services, and increases the cost of labour, so that employers are incentivised to move jobs offshore, or replace workers with machines. With a rise in your income tax, your income shrinks and you have no choice but to pay it. But with the carbon tax, you are faced with a rise in cost but you do have some choice as to how to adjust.
- It helps us all transition to a more sustainable and affordable world. Anyone who can possibly afford it now has very strong incentives to invest in insulating their house and (if they need a car) buying one that is super fuel efficient. If they can store wood (which is exempt from the carbon tax), they have an incentive to switch from oil or natural gas, which are taxed. As energy costs rise, such investments will pay off in more affordable mobility and more comfortable housing.
- And the tax encourages innovation. Sean O'Sullivan showed how crowd sourcing could help solve the problems of the long distance commuter
- A charge on environmental 'bads' improves the quality of our environment, which improves the quality of our lives.
- It means that we more easily and less expensively meet legally binding environmental obligations and avoid the costs (including fines) and reputational loss of being in the European Court.
- To the extent that we play a part in making the transition to a world less threatened by climate change, we also support our grand-children in limiting their exposure to the turbulence of climate change.
- It makes us less dependent on imports, and less vulnerable to potential interruption in the event of war or other supply-interrupting turbulence.
- It creates jobs as we invest in making our buildings, heating systems and boilers more energy efficient, and as we switch to locally grown wood as a source of heat.

Taxes are never popular. Edmund Burke's familiar "To tax and to please, no more than to love and be wise, is not given to men" still rings true. But some taxes are less bad than others.

'Dying must be very hard,' a friend said to Flaubert, 'It is' he responded, 'but not half so hard as writing a novel.' Taxing is always hard, but we can reduce the pain by taxing smartly.

Notes

1. I am grateful to Cormac O'Sullivan of publicpolicy.ie for accessing data on GDP, income tax etc. from sources below:

GDP and income tax data comes from the National Accounts (current price<http://cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=N1105&PLanguage=0> and constant price<http://cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=N1106&PLanguage=0>) the forecast for 2012 was taken from the ESRI's QEC (Quarterly Economic Commentary)<http://www.esri.ie/publications/latest_publications/view/index.xml?id=3558>.
Tax data comes from the exchequer returns (here<http://finance.gov.ie/viewdoc.asp?DocID=-1&CatID=5&UserLang=EN&m=19>) and the 2012 figures are based on Finances' tax profile for 2012 (2012 revised tax profile<http://finance.gov.ie/documents/exchequerstatements/2012/revtaxprofile.pdf>).

Year	Total GDP Millions of € in real (volume) terms	**Total Tax Income (millions €)**	**Income Tax (millions €)**
2008	166,796	40,777	13,177
2009	157,695	33,043	11,835
2010	156,487	31,753	11,276
2011	158,726	34,027	13,798
2012	159,700	36,375	15,300

2. ***Report of the Commission on Taxation 2009*** **is available at: http://www.commissionontaxation.ie/downloads/Commission%20on%20Taxation%20Report%202009.pdf.** The details of the analysis and recommendations on the carbon tax are in Section 9.

3. Emissions from the traded sectors

I am grateful to Eimear Cotter (EPA) and Luke Redmond (UCD) for assistance here.

Pricing Carbon, Cambridge University Press 2010 (Ellerman, Convery and De Perthuis) is a good source on EU ETS and its performance in the pilot phase

Year	Price per allowance (€/tonne)	Emissions in tonnes of CO_2 (EUAs) - Ireland
2008	22.40	20.38
2009	13.38	17.22
2010	14.46	17.37
2011	13.52	15.77
2012	7.38	

4. Greenhouse gas emissions from non-traded sectors

Some data sourced from *Ireland's GHG Emissions Projections 2011-2020,* EPA, April 2012 (Table A and B, pp. 22, 23) Available at:

http://www.epa.ie/downloads/pubs/air/airemissions/EPA_GHG_%20Emission_%20Proj_publication_2012_final_v1.pdf

I am grateful to Eimear Cotter (EPA) and Luke Redmond (UCD) for assistance in accessing data

Year	CO_2 tax - per tonne of CO_2	NETS CO_2 emissions – transport (Mill tonnes)	Consumption of petrol Million litres	Consumption of Auto diesel Million litres	Total (petrol and diesel) Million litres	Agriculture
2008	0	13.17	2310	2960	5272	19.10
2009	0	11.98	2117	2714	4832	18.73
2010	15	11.08	1930	2560	4491	18.68
2011	15		1829	2563	4393	

The consumption of petrol and auto diesel is taken from a very useful paper by Eric Gargan, Fiscal Policy Division, Department of Finance. See especially Slide 16 ('Revenue Yields and consumption trends') in 'Reflections on the Implementation of the carbon tax in Ireland, presented at UCD/NESC Climate Change workshop, 16 May 2012. All the papers presented at this conference are available at: http://www.nesc.ie/en/news-events/events/icc-workshop/

5. President Hollande and the Double Dividend

I am grateful to Aldo Ravazzi for drawing my attention to this.

The link to the French president's thinking is: "L'écologie n'est pas une punition, c'est ce qui doit nous permettre d'être plus forts ensemble. Dès lors, il nous faudra changer des modes de prélèvement et surtout peser sur les choix, taxer moins le travail, plus les pollutions ou les atteintes à la nature; dissuader les mauvais comportements ; encourager les innovations ; stimuler les recherches ; accélérer les mutations."

François Hollande, ouverture de la conférence environnementale, 14 septembre 2012, page 5 line 5

http://www.developpement-durable.gouv.fr/IMG/pdf/discours_ouverture_conf_environnementale_140912.pdf

6. Distributional effects of an Irish carbon tax

These are mapped by Callan, T., Lyons, S., Scott, S. and Tol, R. 2009. The distributional impacts of a carbon tax in Ireland. *Energy Policy*, 37, 2, 407-412.

7. Innovation

Sean O'Sullivan "Revolutionary Mobility: Collaborative Consumption and Connected Computing – Crowdsourcing the Public transit Network" presented at the UCD-NESC workshop 16 May, 2012. Available at: http://www.nesc.ie/assets/files/downloads/project_climate%20change/ucd_workshop/seanosullivan.pdf

8. Edmund Burke on Taxation

From a speech by Edmund Burke on American taxation in 1774. The full speech is available at: http://www.econlib.org/library/LFBooks/Burke/brkSWv1c2.html

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