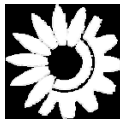

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FURTHER ENVIRONMENTAL TAX REFORM

– ILLUSTRATIVE POTENTIAL IN IRELAND

Prepared for the Environmental Tax Reform Workshop Dublin October 28 and 29, 2010, hosted by Comhar Sustainable Development Council, and organised with University College Dublin Earth Sciences Institute, Smart Taxes and Feasta.

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Integrated Environmental Assessment Programme

Further Environmental Tax Reform – Illustrative Potential in Ireland

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[1] Helpful comments from Professor Frank Convery are gratefully acknowledged.

Further Environmental Tax Reform – Illustrative Potential in Ireland

Ireland faces a fiscal crisis the addressing of which will require a combination of cuts in government expenditure, and increases in taxation, amounting in total to in the order of €10 to-15 billion over a four year period. And it has decided to achieve this without recourse to increasing the corporate tax rate of 12.5 per cent. To address this crisis, the government is preparing a 4 year budget in consultation with the European Commission. There are many interesting ideas as to how the budgetary gap can be bridged, but so far no analysis as to how environmental taxes, levies and charges – referred to here as 'environmental taxes' and defined as those which encourage us to use environment and resources parsimoniously - might contribute.

1. Summary

Environmental Tax Reform (ETR) involves policy measures that shift revenue-raising instruments from labour and capital to resource use and pollution. These measures mainly include taxes; charges; or auctioned permits in an emissions trading scheme.

This reform could be revenue neutral (ie increased revenues from environmental taxes matched by reduced revenues from labour and capital taxes) , or not, depending on country circumstances.

ETR can deliver five dividends: increased resource productivity and eco-innovation; increased employment; improved health of environments and people; a more efficient tax system; and a better sharing of the financial burdens of an ageing population.

The potential for ETR in Ireland, based on established practices across Europe, could be to raise environmental taxes on environmental "bads" such as pollution and the inefficient use of resources to 15-20% of total tax revenues by 2015, from 8% today.

The **revenues** generated as a result of ETR could be used in some combination of such different purposes as:

- Reducing the budget deficit directly by using the ETR revenues; and indirectly via the reduced cost of raising overall taxes via taxes on labour and capital. This benefit arises from the generally lower administrative costs of environmental taxes and from the more economically damaging costs of taxes on labour and capital[2].
- Reducing taxes on economic "goods" like labour and capital
- Compensating the poorer and pensioner households for any negative impacts on equity from environmental taxes.
- Recycling revenues to industry to offset any negative competitiveness impacts caused by higher prices and costs.
- Providing investment incentives aimed at stimulating innovations in resource productivity.

[2] "..simulations .. indicate that a shift from the most distortionary taxes (on labour and capital) to the least distortionary taxes (on consumption, housing) could mitigate the output losses associated with fiscal consolidation in the short run and have a positive impact on GDP in the long run." (EC, 2010, p.69).
It is recognised that any new taxes and charges will have an impact on economic activity and affect different interest groups; the question in Ireland today is whether a mix of increased environmental taxes will be less damaging in this regard than the alternative mixes of other tax increases and/or cuts in expenditure.

ETR can help better share the financial burden of an ageing population by reducing income taxes on the shrinking working population with revenues from the expanding tax base of the lifetime consumption of the whole population.

2. The knowledge base for Environmental Tax Reform

Between 1996 and 2005 the European Environment Agency (EEA) published four reports (EEA, 1996, 2000, 2005 and 2006) on market based instruments and the potential for environmental tax reform in the EU. More recently it has commissioned research into the impacts of Environmental Tax Reform (ETR) on eco-innovation, on equity, and on the political feasibility of substantial ETR (Bassi et al., 2009, Blobel et al., 2009 and Gehr et al., 2009).

Other bodies such as the OECD (OECD, 2001, 2006 and 2010) and Green Budget Europe, plus a wide range of EU and national research activities (for example, Clinch and Dunne, 2006, Wissema and Dellink, 2007, Convery et al., 2007, Andersen and Ekins, 2009, Green Fiscal Commission, 2010, and Ekins and Speck, 2011) have focused successfully on answering questions around the purpose, validity and effectiveness of many ETR instruments, while Conefrey et al (2008) and Legge and Scott (2009) have addressed the potential and implications in Ireland. Whilst this considerable research into the multiple benefits of ETR has helped to stimulate modest ETR in some EU and other countries, it is now recognised that the main barriers to ETR are largely political and institutional, requiring common understanding between many stakeholders and appreciation of the different national contexts within which ETR can work.

An important aspect when considering the introduction of environmentally related taxes and charges is that when they are effective, the base on which they are charged will shrink. Having some understanding of the relationship between the increase in a tax and its environmental impact is necessary to make credible estimates of revenue. However, environmentally related taxes and charges can improve energy, water and other resource efficiencies as well as spur innovation (OECD, 2010).

Experience also shows that as resource efficiencies improve some of the gains in income that then arise are spent on more consumption, e.g. driving further in more fuel efficient cars, so that the total consumption of energy and resources can increase following improvements in eco-efficiency. This is the “rebound effect”; see for example: Sorrell, 2007; Polimeni et al, 2008, and Barker et al., 2009.

Both a shrinking environmental tax base and the rebound effect can be offset by gradually raising the tax in line with the eco-efficiency gains. Such gradual environmental tax increases are justified by the increasing knowledge about the real harm, (as with tobacco and now from other forms of pollution), and by continuing resource depletion and scarcities. .

The EEA has therefore decided to help the process of ETR implementation in EU Member States by organising, in partnership with country organisations, ETR awareness raising events, with senior civil servants and representatives of civil society. This starts with a pilot event in Ireland organised jointly with Comhar Sustainable Development Council, University College Dublin (UCD) Earth Sciences Institute, Smart Taxes and Feasta.

The awareness raising events go beyond the evidence gathering activities of the last 15 years, to translating that evidence into an ***illustrative potential*** for ETR in a given country, based on their particular circumstances and on established ETR practice elsewhere in Europe.

3. Why Environmental Tax Reform?

Climate change, biodiversity loss, ecosystem degradation, the human health impacts of chemical pollution , growing material resource scarcity, concerns about food, energy and water security, as well as national budget deficits and an increasingly ageing population are current challenges facing the European Union. At the same time, there is increased understanding of the interlinkages between many environmental, economic and social problems, pointing to the cost-effectiveness of integrated packages of policy measures (EEA, 2010 in press).

A policy that shifts part of the tax base to environmentally damaging consumption activities can be a vital part of an overall policy package that aims to tackle these multiple challenges, as recommended in "Europe 2020".

Such a shift in taxes is often defined as an Environmental Tax Reform (ETR). Experiences gained in several EU member states, which have implemented ETR in the 1990s and early 2000s, show broadly positive results.

Environmental Fiscal Reform (EFR) extends the ETR idea to include the reduction of environmentally damaging subsidies so as to free up scarce financial resources for more efficient use elsewhere.

Another consideration when discussing the rationale of an ETR/EFR is that the burden of much existing environmental pollution and degradation often falls more onto the poorer parts of a population, who also frequently have less access to green environments. Therefore, the expected environmental improvements from environmental taxes**,** as well as the effect of reducing labour taxes (perhaps targeted on the young or unskilled workers) as part of an ETR, can help redress the greater impacts of some environmental taxes on poorer households, such as taxes on domestic energy (see Blobel et al, 2009)**.**

In addition, progressive social security changes, and progressive taxes on energy and water supplies, can also offset the initial equity impacts of a substantial ETR/EFR.

The rest of this paper focuses on the illustrative potential for a substantial ETR in Ireland by examining the Irish tax system and how it stands within the EU, and the scope for reform, building on established practices in other EU countries.

4. The economy and tax system in Ireland: some key facts

- Continuous GDP growth from 1983 up to 2007.
- Success in national debt reduction before the crisis, i.e. from a ratio of debt to GDP of more than 50% in 1998 to 25% in 2006.
- Since 2008 Ireland has been hugely affected by the financial crisis: GDP reduction, a massive fall in government revenues, and budget deficits leading to a large increase in government debt.
- Ireland largely relies on revenues from direct and indirect taxes: receipts from social security contributions are minor.
- The nominal revenues from environmental taxes increased during the last decade but their share of total government revenues fell. In 2008 and 2009, the ratio of environmental tax revenue to total tax revenues (including social security contribution (SSC)) was 8.3%.

5. Where does Ireland's tax system stand within the EU?

- The EU is a high tax area but Ireland has one of the lowest tax-to-GDP ratios in the EU, ranking 24 in 2008. However the Irish ratio is higher than in some OECD countries, such as the US and Japan.

- The Irish tax structure is ranked 4th for the contribution of direct tax revenues to total tax revenues and 5th for indirect tax revenues, whilst social security contribution are relatively low, ranking 25th in the EU in 2008. It is recognised that taxes in Ireland were increased in 2009 which may alter the rankings, but it is also the case that other jurisdictions, including the UK, have also recently increased taxes, and are considering further changes, so the ranking is unlikely to alter significantly.
- There are many environmental taxes applied in Ireland on energy and transport and such taxes have been recently revised and extended. In contrast there are only two taxes on pollution and resources, the plastic bag levy (March 2002) and the landfill levy (July 2002). Water services to educational institutions, commercial and industrial consumers are also charged for.
- Ireland is one of several EU member states to have introduced energy-carbon taxes for all energy products not covered by the European Union Emissions Trading Scheme (EU ETS); transport fuels were covered from mid December 2009, and fuel for heat from May 2010. Ireland can be described as a forerunner in that as its carbon tax is a pure carbon tax.
- The base for transport taxes (vehicle registration tax and annual motor tax) has been recently changed to better account for environmental effects, i.e. tax rates for new cars are now levied on the basis of CO2 emission levels, not on engine size.
- An air travel tax came into force on 30 March 2009.
- Energy prices to consumers are generally high compared to EU averages. Taxes levied on energy products (transport fuels) have been considerably increased during the last two years
- In July 2010 Ireland pioneered a tax on the carbon windfall profits of utilities. They had benefitted from the free allocation of allowances in the EU ETS.
- Households are largely exempt from paying towards the operating costs of water supply and wastewater services: user charges for domestic users were abolished in 1997.
- There are no taxes on water supply (i.e. water extraction) or on water effluent. Experiences in EU member states illustrates that the use of taxes and revenue recycling can help improve the management of water quantity and quality.

6. The illustrative potential for Environmental Tax Reform in Ireland

The base year of this analysis is 2009 when environmental tax revenue was 3,682 million Euro and total tax revenue was 44,622 million Euro[3].

- Policies in place or in the pipeline but not included in the revenue figures are: Fiscal package (Budget 2009): 466 million Euro; Carbon tax (Budget 2010): 330 million Euro; Carbon windfall levy (July 2010): 75 million Euro. The revenues of these policies amount to an estimated 870 million Euro and would increase the environmental tax ratio to approximately 10% from 8% today.

  In addition, the increase in the landfill levy and the auctioning of emission allowances under the EU ETS from 2013 will generate additional revenues. . Estimates for these revenues are not calculated at this stage.
- **Additional environmental taxes could be introduced gradually over several years**. These include:

[3] Preliminary figures: see Central Statistical Office, 2010 and data provided by Gerry Lawlor of the Irish Revenue Commission.

- Increasing carbon-energy taxes on transport fuels (diesel, petrol) so that they are comparable to the UK level. This would imply a bigger increase (absolute and relative) in the tax rate of diesel.
- Increasing carbon-energy taxes on energy products used for other purposes (heating and business use) for economic sectors not covered by the EU ETS and for households: experiences of the Netherlands, Finland and Sweden show this to be effective.
- Revising the annual car tax and vehicle registration tax for vehicles other than passenger cars.
- Increasing the air travel tax to UK levels
- Introducing pollution taxes levied on SO2 and NOx emissions, as in Denmark, Estonia, Czech Republic and Sweden.
- Introduce taxes on water effluent / pollution, as in The Netherlands, France and many new EU member states.
- Introducing water abstraction taxes, as in Denmark, France, Netherlands and many new EU member states.
- Introducing a mineral fertilisers tax, as in Sweden and abolish the VAT exemptions on fertilisers.
- Introducing an aggregates tax, as in UK, Latvia and Sweden.
- Introducing property taxes / land value taxation[4] eg Denmark, USA.

- **Reform environmentally damaging subsidies** by:
  - Reducing the tax partial exemption on diesel for the agricultural sector.
  - Introducing a national scheme of user charges for water services (water supply and wastewater). This policy would free up about 1 to 1.2 billion Euro, i.e. approximately 2% of total tax revenue (OECD, 2010).

Such Tax and Subsidy reforms could generate up to 5b euro in extra revenues by 2015 (about twice the current total from environmental taxes). In addition, there could be about an extra 1 billion Euro of revenue from the removal of water subsidies.

These revenues could be used, in some combination, to reduce taxes on labour and capital; to reduce the public deficit; to offset any negative equity impacts of environmental taxes, (or more than offset such impacts, if reduced overall inequality is desired); and for investment incentives that stimulate innovation & resource productivity.

Below is a summary of the Revenues projected over the budget cycle from the full range of new taxes that were considered

[4] See for example Smart Taxes Network, 2010.

Table 1. Potential New Environmental Taxes applicable in Ireland, 2011-2014, Million €[5]

Water Supply and Waste Water Treatment (subsidies removed)

Charge Category	2011	2012	2013	2014	Comment
User charges for water supply	250	500	750	1,000	Domestic sector free of charges in Ireland. Based on recovery of operating and (later) capital costs. Special provisions for those on low incomes
User charges for effluent and water discharge	57	114	171	228	same
Total	307	614	921	1,228	

Environmentally related taxes

Pollution and resource taxes	2011	2012	2013	2014	Comment
Water abstraction levy	21	42	64	85	Applying Danish rates and system, whereby pipe leakage could be reduced from 30-40% to 10%
Levy on aggregates levy	79	79	79	79	Sand, gravel, crushed rock. Applying UK rates for reduced volume + 25% recycling.
Tax on packaging	35	45	55	70	Applying Danish rates for glass bottles and by weight for other waste streams.
SO_2	29	59	88	118	Applying rates applicable in Denmark
NOx	78	155	233	311	Applying rates applicable in Sweden
GHG-nitrogen	23	45	68	90	15 € per $CO_{2\text{-eq}}$ for N_2O of mineral fertilisers
Sum	265	425	587	753	

Transport taxes	2011	2012	2013	2014	Comment
Re-calibration of VRT and extension to commercial	200	300	300	300	Data as to number of commercial vehicles etc. required for more accurate revenue estimates.
Air travel tax	55	55	55	55	Apply UK rate of 14 € for longer flights; lower rate for short flights at 3 € per passenger
HGV vignette scheme	56	56	112	112	Applying Germany's approach and rates.
Sum	311	411	467	467	

Energy taxes	2011	2012	2013	2014	Comment
Increasing excise duty on petrol and diesel	54	98	131	153	UK levels. Revenues netted out for the expected reduction in tank tourism from N Ireland and for differences in VAT rates.
CO2 tax, non-ETS	21	42	64	85	Increase CO2-tax to level in Sweden of 22€/tCO2
CO2 tax, offshore	21	42	63	85	Apply Norwegian system for taxation of offshore emissions from flaring etc. (0.05 €/Nm3)
Electricity tax	2	4	6	8	Introduce EU minimum rate for domestic sector (1.3 €/GJ)
Energy tax	59	118	178	237	Introduce new energy tax with minimum rate of 1.3 € per GJ - similar to EU minimum for electricity
Sum	107	214	321	429	

Total environmentally-related taxes	733	1,140	1,496	1,788	

Land Value tax (resource rent)

	2011	2012	2013	2014	Comment
Land Value Tax	500-750	1,000-1,500	1,500-2,250	2,000-3,000	Applying rates applicable in Denmark *(for 'Grundskyld')*

Grand total

	2011	2012	2013	2014	Comment
All sources	1,540-1,790	2,754-3,254	3,917-4,667	5,016-6,016	

[5] The potential for environmental taxes in Ireland based on experiences gained with environmental taxes in different European countries - with a gradual implementation over a period of four years.

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Appendices

Table A1: Existing environmentally related taxes and charges in Ireland

Tax or charge category	Revenue 2008 € million	Revenues 2009 € million	Change from 2008 to 2009	Notes (rates and units applied)
Road transport				
Mineral Oil Tax (petrol)	1,047	1,075	+2.7%	• €442.68 per 1,000 litres up to 14/10/08; • €508.79 per 1,000 litres from 15/10/08 up to 9/12/09; • From 10/12/09, €543.17 per 1,000 litres (this last rate includes a "carbon charge" of €34.38 per 1,000 litres which is based upon a charge of €15 per tonnes of CO2 emitted and comprises the difference between this rate and the previous one).
Mineral Oil Tax (auto-diesel)	1,052	1,060	+0.8%	• €368.09 per 1,000 litres up to 7/04/09; • €409.20 per 1,000 litres from 8/4/09 to 9/12/09; • From 10/12/09, €449.18 per 1,000 litres (this last rate includes a carbon charge of €39.98 per 1,000 litres which is based upon a charge of €15 per tonnes of CO2 emitted and comprises the difference between this rate and the previous one).
Liquefied Petroleum Gas (auto-LPG)	49	31	-37.9%	€63.59 per 1,000 litres (2009)
Vehicle Registration Tax (VRT)	1,121	375	-66.5%	• Prior to 01/07/08 the VRT on passenger cars was calculated based on the engine size (cc). There were 3 bands 0 – 1,400cc with a VRT rate of 22.5%, 1,401 to 1,900cc with a rate of 25% and 1,901 and above with a rate of 30%. • On 01/07/10 the VRT has been calculated based on the CO2 emissions from a passenger car. There are 7 bands with the rates ranging from 14% to 36%. • The rates for light commercials at 13.3% and large commercials at a standard €50 have not changed in these years
Annual motor tax	1,060	1,058	-0.2%	The annual motor taxation scheme was revised in the Budget 2009 and from January 2009 the annual motor tax for private cars is based on CO2 emissions.
Total Road Transport	***4,329***	***3,599***		
Air travel tax		150		€10 per passenger and reduced rate of €2 for journeys under 300 km
Total Road and Air	*4,329*	*3,749*		

Other energy products				
Marked gas oil (MGO)	65	54	-15.7%	€47.36 per 1,000 litres (2009)
Kerosene	0	0		
Fuel oil	6	2	-66.8%	€14.78 per 1,000 litres (2009)
Liquefied Petroleum Gas (LPG)	0	0		
Electricity Tax		2		Introduced 1 October 2008 • €0.5 per MWh (business use) and • €1 per MWh (non-business use)
Total other energy products	*71*	*59*		
Plastic bag levy	26	24	-8.3%	A levy of 22 cent is charged on each plastic shopping bag supplied to customers by retailers at point of sale.
Landfill levy				Landfill levy rate was increased from € 20 per tonne in 2008 to € 25 per tonne in 2009
Total environmental taxes	**4,426**	**3,682**		
Total tax revenues	**53,071**	**44,622**		
Share of environmental taxes to total tax revenues	**8.3%**	**8.3%**		

Note: The revenues of the plastic bag levy and the landfill levy are allocated to the environment fund which was established in 2002 to invest in waste prevention and reduction and raise environmental awareness etc. No recent data of the revenues of the landfill levy are available.

Data provided by Gerry Lawlor of the Irish Revenue Commission

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Table A2: Environmentally related taxes and charges agreed and in the pipeline, Ireland 2010-2014

The table provides an overview of already agreed environmental policy measures which will be implemented during the coming years. Some of the revenue figures presented in the table are published by the Government of Ireland or are estimates by the authors. The data showing the share of total environmental taxes to total tax revenues are estimates based on the 2009 figure of the total Irish tax revenue and are only indicative and illustrative of the potential of environmental taxes.

Category	**Notes (rates and units applied)**	**Revenue estimates (€ million)**					**Comments**
Year		**2010**	**2011**	**2012**	**2013**	**2014**	
Energy taxes – existing as of 2009		2,225	2,225	2,225	2,225	2,225	Revenues form road transport energy and other energy – see Table 1
CO2 taxes	€ 15 per tonne of carbon	215	280	280	280	280	Carbon tax implemented May 2010 for fuels other than petrol and diesel - coal is exempt from the carbon tax in 2010
Carbon windfall levy		37.5	75	75			
EU emissions trading scheme					300	300	See footnote[6]
Sum – energy taxation		**2,478**	**2,580**	**2,580**	**2,805**	**2,805**	
Transport taxes – existing		1,583	1,583	1,583	1,583	1,583	See Table 1
Car park levy		10	10	10	10	10	Announced in Budget 2009
Sum – transport taxation		**1,593**	**1,593**	**1,593**	**1,593**	**1,593**	
Resource and Pollution taxes –		24	24	24	24	24	See Table 1

[6] EU ETS – calculation based on data presented in 'EU energy trends to 2030 update 2009' (European Commission, DG Energy, 2010) – sector 'power generation/district heating' CO2 emission in 2015 13.9 mt and in 2020 14.7 mt (baseline case) – assumption full auctioning and an allowance price of 20 Euro/ton CO2 (is this assumption realistic) – revenues in the range of 300 million Euro. These figures are likely to be a minimum as additional EU ETS sectors will be subject to auctioning during the period 2013-2020.

existing							
Landfill levy		0	40	70	70	70	Rate to be increased to €50 per tonne in 2011 and to €75 per tonne in 2012[7]
Sum – resource and pollution taxation		**24**	**64**	**94**	**94**	**94**	
TOTAL – of all environmentally-related taxes		**4,095**	**4,237**	**4,267**	**4,492**	**4,492**	
Share of environmentally-related taxes to total tax revenue		9.2%	9.5%	9.6%	10.1%	10.1%	

Source:

EC DG Energy, *EU energy trends to 2030 update 2009*, http://ec.europa.eu/energy/observatory/trends_2030/doc/trends_to_2030_update_2009.pdf

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Organisation for Economic Co-operation and Development (OECD), 2010, *OECD Environmental Performance Reviews: Ireland*, Paris.

and authors' calculations

[7] Revenue figures are estimated assuming that there is no change in waste arising and reveal the additional generated revenues caused by the increase in the levy rate. The revenue of the landfill levy amounted to 32 million Euro in 2007 (OECD, 2010).