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‘Contemporary Legal and Policy Issues in the Global Oil and Gas Sector’

Environmental Taxation in the UK: the Climate Change Levy and policy making

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ABSTRACT

Environmental taxation is different from many other forms of taxation as it is not only used to raise revenue but it is also able to marginally influence behaviour to protect and enhance the environment. It provides valuable market led mechanisms to help limit greenhouse gas emissions, encourage sustainable behaviour and improve environmental performance to address climate change. The Post Paris (COP21) agreement provides a framework for global actions to address climate change and this sets the context for the discussion of environmental taxation.

Environmental taxes have enormous potential to change carbon usage. In 2012, the Coalition Government (2010-2015) opined that the definition of an environmental tax includes three principles, namely that the tax is explicitly linked to the government’s environmental objectives, that the primary objective of the tax is to encourage environmentally positive behaviour, and that the tax is structured in relation to environmental objectives, particularly the more polluting the behaviour the greater tax levied.¹ The current Government has adopted and applied this definition. By way of contrast, the definitions of environmental taxation favoured by the Office for National Statistics (ONS) and the OECD, respectively, give a wider remit for environmental taxation and policy making and include, for instance, various transport taxes which, as will be seen, do not fall within the Government’s definition of an environmental tax. The Climate Change Levy, which is the focus of this article, was introduced as one of a series of new environmental taxes on business energy use in 2001. It is charged on electricity, gas liquefied petroleum gas and solid fuels used by business.

Generally, environmental taxes are intended to increase investments in renewable technologies while reducing carbon emissions, but they are vulnerable to political influence and policy changes. Thus, the rationale for

¹ Janet E. Milne and Mikael Skou Andersen, “ Introduction to environmental taxation concepts and research” in Janet E. Milne and Mikael Skou Andersen, eds., *Handbook of Research on Environmental Taxation* Cheltenham: Edward Elgar, 2014 pp.15-32.

environmental or 'Green' taxes has shifted perceptibly to raising revenue rather than enabling government to meet its obligations under the Climate Change Act 2008. Environmental taxes are also susceptible to oil prices and fluctuations in the global economy. The North Sea oil and gas industry is going through a difficult period of retrenchment. A recent independent report has suggested that the industry has two years to adjust to changing economic circumstances.² Inevitably, this will impact on the tax revenues raised from this sector.

In an ideal world, environmental taxes should be easy to avoid through a change in behaviour and, consequently, hard to evade. Environmental taxes provide important means to achieve policy objectives, but their full potential requires public support and, especially, engagement by the business community. The future of environmental taxes may depend on the success of 'green' investment. There is a case for introducing a single climate tax on business. Undoubtedly, environmental taxes deserve greater attention in the economic toolbox to meet climate change commitments. The UK faces some difficult policy decisions under the Climate Change Act 2008 to meet the 2030 energy and climate change package targets.³ Currently, the UK receives 7.5 % of tax revenue from environmental taxes.⁴ To date, environmental taxation has had mixed outcomes in the UK, though few doubt its potential to define the future of carbon based energy use.

Introduction

Environmental taxation is distinctive from other forms of taxation as it is intended to raise revenue as well as marginally influence behaviour to protect and enhance the environment. It applies a market led solution to reduce climate change through favouring low carbon technologies.⁵ Altering behaviour is not easily achieved and environmental taxation is subject to many socio-political influences. The desirable outcomes are often contested and to be effective their design, regulation and enforcement need to be carefully judged. The so-called "greening" of the tax system is favoured by many international organisations including the OECD and the European Environmental Agency (EEA).

The underlying assumption is that the tax base should address environmentally harmful or polluting activities and favour environmentally beneficial or neutral activities. Increasing the share of environmental taxes in public revenues is a common aspiration with the intention of shifting the taxation of labour towards environmental taxation by 2020.⁶ The adjustment

² Price Waterhouse Coopers, *North Sea Oil and Gas Industry* London, 12th June 2016.

³ House of Commons, Environmental Audit Committee: *EU and UK Environmental Policy* 3rd Report Session 2015-16 HC 537 paras 3-15.

⁴ House of Commons, POSTbrief, *Measuring Performance for the Carbon Budgets* Number 17 (January 2016).

⁵ Janet E. Milne and Mikael Skou Andersen, eds., *Handbook of Research on Environmental Taxation*, Edward Elgar, Cheltenham, 2014.

⁶ HM Treasury, *Reforming the business energy efficiency tax landscape*, September, 2015.

in taxation from traditional sources, such as income to activities that may damage the environment is likely to be especially challenging when there are large budget deficits and constraints on public spending. Fluctuations in the global economy and in oil prices also add to the difficulties of ensuring consistent policy making. Many Western countries are no longer high users of energy intensive industrial processes that now reside, principally, in China and India. This has implications for the taxation base upon which environmental taxes are drawn.

The EU Commission has given strong support for increasing the application of environmental taxation.⁷ The EEA⁸ has also favoured reforming environment taxation suggesting that Member States adopt the wider use of taxation to achieve environmental goals.⁹ An additional benefit is that environmental taxation facilitates international country comparison and measurements that provide an indication of country performance on energy usage relative to the economy and growth.

A more coherent and integrated approach to taxation, including environmental taxes, is favoured in the findings of a review into UK taxation *Tax by Design*¹⁰ published in 2011, which was chaired by Sir James Mirrlees.¹¹ It is argued that in order to avoid short-term cyclical political change that it is necessary to integrate environmental taxation more fully into the UK taxation system.

The Coalition Agreement entered into by the Conservative and Liberal Democrat parties in 2010 made a commitment “to increase the proportion of revenue raised from environmental taxation by the end of this Parliament.” This aspiration has been continued by the Conservative led government since 2015 and remains so today. While policy makers may be encouraged towards environmental taxation, it is important to ensure that environmental taxation is coherent, and appropriately adjusted within the tax system as a whole.

The Climate Change Levy is a tax on non-domestic use of energy which was introduced in April 2001. It is a tax on electricity, gas, liquefied petroleum gas and solid fuels when supplied to business. Its main aim is to reduce energy demand and greenhouse gas emissions. The Levy required considerable negotiation with business to have it accepted, including a 0.3 % cut in employers’ national insurance contributions. The ensuing revenues had to be recycled into the corporate sector as employment tax refunds. This was a form of “earmarking” since the revenues were not used for a specific purpose other than mitigating the taxes imposed on the taxpayers paying the Levy. Earmarking is used to mean the practice of designating or dedicating specific

⁷ EU Commission, *Roadmap to a Resource Efficient Europe* (COM(2011), 571/3).

⁸ See, European Environment Agency, *Environmental tax reform in Europe: Implications for income distribution* (EEA Technical Report No 16/2011).

⁹ EU Parliament Library Briefing, *Environmental taxation in the EU* Brussels EU Parliament 2nd February 2011.

¹⁰ *Tax by Design* Institute for Fiscal Studies, London, 2011.

¹¹ It is noteworthy that the Mirrlees Review does not consider the application of the Tobin Tax named after James Tobin who suggested a tax for currency transactions to dissuade short term currency speculation. See: for historical background and context: *The Tobin Tax: recent developments*, House of Commons Library, SN06184 (16th January 2012).

revenues raised from taxation to offset specified public expenditures and public services. Undoubtedly, the aspiration that prompted the levy was the mitigation of the socio-economic effects of an environmentally related tax. This is indicative of some of the problems relating to environmental taxation. More recently, adjustments to the Climate Change Levy¹² are in train taking certain renewals out of an exemption for the tax. This underlines the susceptibility of environmental taxation to differing political policies when attempting to influence behaviour to reduce environmental pollution that may prove costly to business and industry. Trends in oil and fuel prices reveal broader weaknesses because of geo-political influences such as war in the Middle East and over-production of oil from OPEC countries lowering global oil prices. Slow-downs in major economies such as China may also have an impact on reducing demand for oil. It is also unclear if environmental taxes are regressive and more research is needed on the effectiveness of policy making. In February 2016, The House of Commons Treasury Committee expressed concern about the lack of clarity and stability on environmental taxation.¹³

This article begins with a short history of environmental taxes, followed by an explanation of how environmental taxes are defined in the UK. The significance of the Climate Change Levy is assessed in terms of lessons gained and reforms proposed. This is followed by a discussion of carbon taxes and the growing importance of transport and other forms of energy – taxes. Finally, the future of environmental tax is considered, including an assessment of its potential to change attitudes to protecting the environment. Since 1993, UK environmental taxes have been relatively stable and remain around 7.5% of total revenue from taxes and social contributions.¹⁴

The History of Environmental Taxation

Environmental taxation may be traced back to environmentalism in the 18th and 19th century and the protection of the environment as a means of preventing and ameliorating social evils.¹⁵ A.C. Pigou (1877- 1959) was influential in developing ideas associated with “economic welfare.”¹⁶ The principle that government action was favoured whenever it appeared that economic welfare should or might be increased. The Pigouvian principle of taxation is that the tax should be used to correct market externalities. This is intended to raise the marginal private costs to the level where it equals higher marginal costs. Consequently, environmental taxation offers a means to deter pollution. The tax takes into account the cost imposed by pollution on others and thus internalises external costs. Linked to Pigou’s analysis was a strong educational value, especially for business developments associated with

¹² House of Commons Library Briefing Paper: *Climate Change Levy: renewable energy* Number 07283 (26th August 2015).

¹³ House of Commons Treasury Committee, *Spending Review and Autumn Statement 2015* 6th Report of Sessions 2015-16 (HC 638).

¹⁴ Office for National Statistics, *Environmental Taxes 2014*: London: Office for National Statistics, 2015.

¹⁵ Boyd Hilton, *The Age of Atonement 1785-1865*, Oxford: Clarendon Press 1986, p. 270.

¹⁶ A.C.Pigou, *The Economic of Welfare* London: 1912.

economic growth. Pigou's underlying philosophy was to impose a tax on companies based on the external costs they generated. This was intended to reimburse society for the external costs while internalising the cost within the company. So-called Pigouvian taxes give incentives to companies to look for ways of reducing their market externalities and, thereby, their tax liabilities. The benefits ensure that regulatory structures are in place within the company itself rather than having to be applied through external regulatory controls. This is seen as potentially beneficial to the way environmental regulation may work. Instead of complex external systems of regulation, environmental taxation may provide more effective solutions.

Environmental taxes first appear in France in 1959 in water legislation as policy makers became interested in their potential to address pollution. In 1971, environmental taxation was used to tackle effluent control in the Netherlands and Germany. Economists have led the way in developing environmental taxation especially in the US in the 1960s.¹⁷ In 1974, it was accepted in Japan to pay for victims of pollution. The experience of the US and Japan also showed how effective that taxation might be in curbing emissions.

Environmental taxation has the potential to replace other forms of taxation, but this fundamental reform of the taxation system has been resisted. In recent years setting a price on carbon has attracted renewed interest and many international experts have argued for environmental taxes to be at the centre of tax reform.¹⁸ This means environmental taxes are closely linked to a variety of market based policy instruments, including the inverse, an environmental subsidy. Policy makers find market-based instruments such as pricing or quantity related taxes more beneficial than the traditional command control system of regulation and policy making. This makes a shift from prescription and bans that are often enforced by courts to incentives and negotiation to prevent and inhibit pollution. Economists largely dominate the literature on environmental taxes, but legal scholars have begun to recognise the significance of environmental taxation. This is partly because of legislation adopting environmental taxes, but also because there are various legal requirements that may become the subject of disputes in the courts. Legal principles of fairness and due process are relevant as are questions of standard setting and quality controls. The UK Supreme Court has held that the UK is in breach of the Air Quality Directive thus paving the way for its better application that will inevitably have to address the causes of air pollution in cities and towns.¹⁹ The question of how to address air pollution in cities and towns raises issues about congestion taxes and other mechanisms to prevent pollution. Diesel vehicles provide a major challenge in terms of nitrous oxide emissions and this makes environmental taxation particularly relevant today.

¹⁷ Michael G Faure and Stefan E Weishaar, "The role of environmental taxation: economics and the law" in Janet E Milne and Mikael Skou Andersen, eds., *Handbook of Research on Environmental Taxation* Edward Elgar: Cheltenham, 2012 pp. 399-422.

¹⁸ There is an Annual Global Conference on Environmental Taxation.

¹⁹ *R (On the application of Client Earth) v Secretary of State for the Environment Food and Rural Affairs* [2015] UKSC 28.

Legal discourse is engaged in both policy making as well as the interpretation of various aspects of tax law. Exposing the choices and dilemmas facing environmental taxation is highly challenging. Environmental taxes are intended to fund public expenditure, but there are associated distributional burdens that have to be considered. There are important questions about whether or not environmental taxation is progressive, especially in the area of transport.

Defining environmental taxation

Four possible approaches to the definition of environmental taxation are evident. First, the OECD, along with Eurostat, defines environmental taxes according to their intent, namely to encourage pro-environmental outcomes. Eurostat offers a general definition of environmental taxes that relates to excise duties levied on environmentally harmful tax bases, such as energy products, transport, polluting activities and resource use. The aim is to influence consumers and producers through price incentives towards less environmentally harmful behaviour. The OECD has a generic definition that deems environmental taxes to mean “any compulsory... payment to general government levied on tax-bases deemed to be of particularly environmental relevance”.²⁰

The second approach is the one adopted by the UK’s Office for National Statistics (ONS). Broadly, this definition is similar to the definitions used by the OECD and Eurostat. It defines environmental taxes by reference to the effects of the taxation on pro-environmental outcomes:

An environmental tax is defined as a tax whose base is a physical unit such as a litre of petrol, or a proxy for it, for instance a passenger flight that has a proven specific negative impact on the environment. By convention, in addition to pollution related taxes, all energy and transport taxes are classified as environmental taxes.²¹

Under the ONS definition, environmental taxes include Fuel Duty, VAT on Fuel Duty, Renewable Energy Obligations, Vehicle Excise Duty and Air Passenger Duty. These are included in the UK’s annual budget report. There are several environmental taxes that have been abandoned or changed in the UK. The Gas Levy was introduced under the Gas Levy Act 1981, but was repealed by the Finance Act 1998. The Hydro-Benefit was introduced in 1991 to protect consumers in remote areas from excessive charges resulting from the increased costs of supply. It was abolished in 2004, because it infringed EU law. It was maintained for a limited time, thereafter, by Scottish and

²⁰ The OECD definition is available online and is cited in the IFS, *The UK Tax System and the Environment* (2006) p.1.

²¹ See the Office for National Statistics, UK Environmental Accounts 2010, June 2010. This definition is also followed by the definition of the Organisation for Economic Co-operation and Development.

Southern Energy. There are many types of environmental tax and their diversity is one of their attractions.²²

The third approach, favoured by HM Treasury, is to consider the definition of environmental taxes by reference to a central question, namely what is the primary intention behind the taxation. Taxes that are primarily revenue raising are excluded from the definition of an environmental tax. There are three criteria to determine whether there is an environmental tax. They are:

- The tax is linked to the Government's environmental objectives;
- The primary *objective of the tax is to encourage environmentally positive behaviour*; and
- The tax is structured in relation to environmental objectives - for example the more polluting the behaviour the greater the tax levied.

The weakness in these criteria is that they are directly linked to the policy making of the government of the day rather than any objective or independent assessment of pro-environmental outcomes or intent of the taxation. While this is a permissible interpretation of environmental taxation, it is at variance with the interpretation favoured in the first approach by the ONS and international organisations. Since the election of the Coalition Government in 2010, there have been many pledges to ensure that environmental taxes are as large part of total revenue to 2015/16 as they were in 2010/11.

In July 2012, the Coalition Government promised to "increase the proportion of tax revenue accounted for by environmental taxes."²³ as part of its promise to be "the greenest Government ever". HM Treasury's review of environmental taxes published in July 2012²⁴ identified five environmental taxes. This stance has been maintained today under the Conservative government elected in 2015. In the UK, environmental taxes are the Climate Change Levy (carbon price floor), the Aggregates Levy, the Landfill Tax, the EUETS, and the Carbon Reduction Commitment. Significantly, HM Treasury excluded fuel duty and air passenger duty which are included in the ONS, OECD and Eurostat definitions.

In contrast, the IFS proposes a fourth definition " that reflects all those taxes which are environmental either in terms of intent or outcome for which there are revenue forecasts to 2015/16."²⁵ Unlike the HM Treasury definition, this definition includes the taxation of a company car which reflects the efficiency of the car, and VAT on fuel.

²² For example, the rail franchise premia under the Railways Act 1993 and applied to the first franchises until 1996, boat licences as a means of regulating boat use, fishing licences from 1995 onwards, the Aggregates Levy introduced in 2002 and which ensures the environmental impact of aggregates extraction, motor vehicles taxes (including excise duty paid by businesses/ households), and landfill taxes since 1996 according to the weight of the material deposited.

²³ HM Treasury, Budget 2011, HC 836 March 2011, paras: 1.110-1.111.

²⁴ The five are Landfill Tax, the Aggregates Levy, Climate Change Levy, the EU Emissions Trading System, and the EUETS Carbon Reduction Commitment.

²⁵ See ENDS Report MPs call for environmental tax roadmap (10th February 2016).

The significance of the definition of an environmental tax is that it has a major effect on whether or not targets are met and the potential of environmental taxation is fully realised. The IFS has assessed how the different definitions may have remarkably different consequences. Using HM Treasury's definition, the IFS has estimated that the Coalition Government's pledge to ensure that the environmental tax share of tax revenue should double from 0.4% to 0.9% by 2020. Significantly, it calculated that revenue from environmental taxes would fall between 2010 and 2015/16 by £3.3 billion namely 56% of tax receipts this fiscal year before the Government's pledge to increase environmental taxes made under the Coalition Agreement is missed²⁶. The exclusion of fuel duty is therefore significant in the calculation as it raised almost £27.8bn in 2015/16.²⁷ By excluding fuel duties the pledge to raise duty in line with the RPI²⁸ is harder to meet as the environmental tax share of tax revenue is set to fall by 0.8 % in 2015/16.²⁹ The exclusion is politically motivated because, as discussed below, there are strong political pressures to reduce fuel duty in terms of public expectations of lower taxes. The exclusion of fuel duty makes the policy of reducing taxes easier to meet in line with the recent Autumn Statement in 2015 cancelling any rise in the fuel duty. This is likely to be the policy for some time to come.

If the ONS definition is adopted, the proportion of revenues raised by environmental taxes will fall from 7.8% to 7.1 %. This would breach the pledge set by the Coalition Government and now the Conservative Government that revenue from environmental taxes should rise by 5% or £2.3bn.³⁰ This has not happened.

The definition of what to include as an environmental tax is largely a matter of political choice. The Coalition Government's *Plan For Growth*³¹ included the intention to move to a low-carbon economy fostered, in particular, by a £3billion capitalisation of the Green Investment Bank (soon to be privatised) to secure investment in a green infrastructure as well as a floor price for carbon for electricity generation from 1st April 2013. This remains the present position, but it may have to be adjusted if nuclear energy is to be taken into account. Linking environmental taxes to total revenues is not necessarily helpful. Setting targets is also subject to variable considerations that may ultimately reduce their credibility. The main consideration ought to be the improvement of the environment. The Mirrlees Review set high expectations that environmental taxes would be more fully integrated into taxation policy with greater clarity given to their role and purpose. It also sought to include fuel duty and related taxes within the definition of environmental taxation. HM Treasury has rejected this approach.

²⁶ Institute for Fiscal Studies, "A Defining issue? The Government's pledge to raise the share of revenue from green taxes" London: IFS, 2012 (12th December 2012).

²⁷ See: Office for National Statistics, *Environmental Taxes 2014* London: Office for National Statistics, 2015, pp. 1-4.

²⁸ Office for National Statistics *op. cit.* p. 4

²⁹ Office for National Statistics *op cit.*, p.2

³⁰ House of Commons Library Briefing Paper, CBF 7582, *Energy Policy Overview* (5th May 2016).

³¹ HM Treasury, *Plan for Growth* March, 2011.

The Climate Change Levy

The Climate Change Levy (CCL) introduced in April 2001 is a tax on business energy use. It is one of the UK's flagship environmental taxes.³² The inspiration for the CCL came from a HM Treasury report published in November 1998 which recognised that such a levy could act as an important economic instrument to improve the industrial use of energy by commercial and business enterprises.³³ The CCL is charged on electricity, gas, liquefied petroleum gas and solid fuels when supplied to business. The domestic sector, including public transport, is exempted. In addition, it is complemented by a system of Climate Change Agreements (CCAs) that incentivise energy intensive businesses with an allowance of an 80% reduction in the CCL where they agree to reduce emissions and increase energy efficiency.

In order to make the CCL politically viable, the revenues from the CCL were recycled back to the corporate sector including commercial and business enterprises through employment tax refunds. The CCL required careful negotiation with business. Initially, it was supported by a 0.3% cut in employers' national insurance contributions. This combination of national insurance contribution reductions and the CCL was not planned to increase the burden on the business sector but to encourage efficiency in energy use. By 2006, the value of national insurance contribution reductions exceeded the receipts from the CCL. As a consequence, additional incentives were introduced to encourage industry and business. An Energy Efficiency Fund of £50 million was established through the Carbon Trust. The Trust has responsibility for the administration of various tax subsidies, including enhanced capital allowances to encourage investments in environmentally friendly energy equipment.

The importance of the CCL is that it is charged on industrial and commercial use of electricity, coal, natural gas, and liquefied petroleum gas and that the tax varies with the type of fuel used. The original intention behind the tax was to help meet a domestic UK goal of a 20% reduction in carbon dioxide emissions between 1990 and 2010.³⁴ During this period, a major influence was Lord Marshall's recommendation in the 1998 HM Treasury report that a downstream tax was desirable to increase "incentives" for the take-up of renewable sources of energy.³⁵ This goal is important as it defined the rationale for the tax and acknowledged the important policy making role that environmental taxes perform.

³² House of Commons Library, Briefing Paper Number 07283 (26th August 2015)

³³ See, HM Treasury, *Economic Instruments and the business use of energy: A report by Lord Marshall* November 1998. At the time, Lord Marshall was Chairman of British Airways.

³⁴ House of Commons Library, *Climate Change Levy* SN/BT/235 (20th November 2009) and House of Commons Library, *Climate Change Levy: Renewable Energy* Number 07283 (26th August 2015).

³⁵ HC Deb 17th March 1998 cc 1108-1109 HM Treasury Budget Press Notice HMT 14 (17th March 1998).

A brief history of CCL is as follows.³⁶ In 1999, the then Labour government (1997-2010) took steps to ensure that the new CCL would be structured to reflect the energy content of fuels. Notably, the provision of electricity was treated according to the source of the generation of supply. However, electricity supplied from a renewable source was exempt. This exemption did not apply to energy generated from peat, fossil fuel or nuclear fuel. In 2005, this Government set an optimistic target with a planned reduction of 3.5 million tonnes of carbon over the next five years to 2010. This was partly to be achieved through a reduction in demand for electricity in the commercial and public sectors. De-industrialisation was also seen as an important element in the reduction of carbon due to reductions in electricity usage.

The importance of the exemption, in practice, was that it involved HM Revenue and Customs in overseeing the operation of the terms of a renewable source contract. The Office of the Gas and Electricity Markets (Ofgem) and the Northern Ireland Authority for Utility Regulation (NIAUR) have to certify that the renewable source electricity has been produced by an accredited generator. The process of certification is detailed and includes a Renewable Levy Exemption Certificate for each complete megawatt hour of renewable electricity produced. Details of the certificates issued are provided in the data set out by Ofgem.

Recently, the incumbent Conservative Government decided to abolish this renewable exemption. This was unexpectedly announced in the Budget statement in 2015. There are transitional arrangements in place from 1st August 2015. The consequence of removing the exemption is to raise additional funding of £450m in 2015/16 which is expected to rise to £910m by 2020/21. There are guidelines on the implications of the changes. One reason for the Government's decision to abolish the exemption is that it was impossible to distinguish between renewables generated in the UK and those generated overseas. The Government's position is that one third of the exemption went to overseas generators.

Some of the energy generators have complained about the speed of this change and the absence of appropriate consultation. They have argued that there had not been sufficient time to take account of the change in policy and that it was illegal. They decided to take a judicial review against the Government complaining that the changes had been taken with insufficient warning. The Administrative Court³⁷ rejected their case on the grounds that no express legitimate expectations or assurance had been given to the generators and that the public interest justified the Government's action with the consequence that the Government's policy should prevail over any private interest.

³⁶ The history is set out in some detail in the House of Commons Library, *Climate Change Levy* SN/BT/235 (20th November 2009)

³⁷ *R (On the application of Drax Power and Infinis Energy Holdings v HM Treasury and HM Revenue and Customs* [2016] EWHC 228 (10th February 2016).

The speed of implementation of these new arrangements for electricity clearly caught the industry by surprise, but it also highlights the vulnerability of tax planning and the difficulty of longer term strategic thinking. The implications of the abolition of the exemption are to make renewable electricity generators in effect pay a carbon tax. This also illustrates the difficulty of environmental taxes in general, namely that their rationale may be distorted by the need for government to raise additional revenue.

The vulnerability of environmental taxes is an entirely political choice. In the current Government's election manifesto in May 2015, it was promised that there would be no increase in the rates of VAT, Income Tax or National Insurance in the next Parliament. This has made other sources of taxes vulnerable to adjustment and with a view to enhancing their revenue yields. The 2016 IFS Green Budget (February, 2016) has predicted that the "government's plan to reach a fiscal surplus is predicated on tax receipts increasing by 1.1% of national income (£21bn in today's terms) between 2015-16 and 2019-20."³⁸ Current estimates suggest that the CCL is forecast to raise over £2.3 bn in revenue in 2015/16 and this target is likely to be met.³⁹

Carbon and Energy Taxes

The CCL has been subject to two major criticisms. First, it is poorly conceived and it would be efficacious to replace it with a carbon tax i.e. a tax on fossil fuels used especially by motor vehicles and intended to reduce emissions from carbon dioxide. Secondly, it has a disproportionate impact on manufacturing. Both criticisms have some merit. The CCL does not vary directly with the carbon content of fuels. However, successive governments have shown reluctance in taking forward a carbon tax. The economic and political sensitivities are such that this has proved too difficult to manage. In 2005, the Institute for Public Policy Research (IPPR) put forward a case for restructuring the CCL, which acknowledged that carbon dioxide emissions vary so considerably between the different fuels, particularly for coal and liquefied petroleum gas. The IPPR suggested a differential levy for different fuels.⁴⁰ There is opposition to adopting a domestic energy tax on the ground that it will only exacerbate fuel poverty even when the revenue is recycled to increase welfare benefits. Pressure on the CCL has continued since 2005 with opposition from some business sectors that have objected to perceived unnecessary tax burdens.

There is strong support for a carbon tax in the analysis offered by the Mirrlees Review, especially when viewed in the broader context of developing international carbon taxes. Establishing a consistent price for greenhouse gas emissions is an area where environmental taxation might be developed further and made more effective. In environmental terms, the aim is to reduce

³⁸ IFS, *IFS Green Budget 2016* London: Institute for Fiscal Studies, London 2016, p. 4

³⁹ *Ibid.*, House of Commons Briefing Paper CBP 7582, *Energy Policy Overview* (5th May 2016).

⁴⁰ IPPR, Lisa Hopkinson, *The War on Motoring Myth or Reality*, London: IPPR (August, 2012) p.25.

greenhouse gas emissions, thus making it more expensive to burn fossil fuels. This may in the short term lead to production cost increases with an inevitable reduction in output and the potential to create labour market shifts and unemployment. However, there are many gains to be made, including an impact on climate change. Pricing is the key factor, especially with the aim of reducing pollution. The IFS has estimated that:

The economic cost of a given reduction in carbon emissions would be far lower if the reductions occurred wherever they were cheapest. This would happen almost automatically if policy simply taxed all carbon equally, regardless of where it came from or how it was used: the price increase would mean that polluting activity of marginal value would no longer be worthwhile and would cease (or shift to using alternative fuels), leaving only those activities for which burning fossil fuels was so important that it was worth bearing the higher price.⁴¹

The CCL falls short of these ideals. There are wide variations in the emissions of carbon dioxide depending on the fuel used and whether it is within household or businesses. There is an absence of a coherent and consistent price for greenhouse emissions. Policy is often contradictory ranging from the EUETS, the CCL, the Renewables Obligations and even in the application of VAT. National taxation systems have to take account of international agreements and the globalised market makes any taxation system problematic. This must be acknowledged as a restraint on individual country initiatives. This is a long standing problem since the application of environmental taxes to energy following the agreements reached at the Earth Summit in Rio in 1992, which led, in turn, to the UN Framework Convention on Climate Change. Five years later, in 1997, the Kyoto Protocol provided binding commitments on countries to reduce emissions of the principal greenhouse gases. The Paris Agreement (COP 21) is likely to encourage carbon taxes and a greater use of environmental taxation.⁴²

In 2006, the Stern Review took matters to the next stage by providing an economic analysis of the costs of climate change. Whilst in the Mirrlees Review, Fullerton et al conclude:

... it is difficult to imagine that any substantial reduction in the UK's emissions can be achieved without according a significant role to energy pricing measures, in some form, whether through taxes or emissions trading.⁴³

They suggest that the most appropriate solution would be to set a price for fossil fuel usage, including one imposed generally on carbon fuels. Pricing is a complex and technical matter because as the authors suggest:

⁴¹ IFS, *IFS Green Budget 2012*, London: IFS, 2012, p.175.

⁴² Brookings Institute, *COP21 Brookings Institute*, New York, 2016.

⁴³ Don Fullerton, Andrew Leicester and Stephen Smith, *Environmental Taxes* chapter 5 pp. 423-548 in *Tax by Design* Institute for Fiscal Studies, London, 2011, p.450.

As with any other externality tax, the aim should be to ensure that private decisions that result – directly or indirectly – in additional greenhouse gas emissions take account of the costs imposed on the global climate.⁴⁴

Such environmental costs will be spread over a considerable time and are likely to include changes in sea-level and weather patterns characterised by storms, floods and droughts. Costs of population dislocation and potential social conflict have all to be considered. Ideally, it is concluded by Fullerton et al that a tax to control atmospheric emissions of carbon dioxide would be levied on individuals and enterprises. This might be best included within the existing EUETS established in 2005. Estimates can be made as to how such taxation might work. In 2006, permitted greenhouse gas emissions in the UK under the Kyoto Protocol were 652 tonnes, by 2015 these were reduced to 607.9 million. The aim is to reduce the emissions by between 12.7 and 20% by 2020.⁴⁵ Taxation in real terms might result in an aggregate revenue of about £13billion, a sizeable amount equivalent to 2.6% of total receipts from taxes and National Insurance Contributions.⁴⁶ It is envisaged that allowances, that is amounts set off against tax, might be calculated in terms of residential reductions and related taxes and might have to be adjusted to take account of the new taxation arrangements. This might provide a powerful set of incentives to users to change their habits and adopt environmentally friendly options. In summary, it is clear that energy taxes have the ability to affect behaviour, provide revenue streams and encourage the introduction of incentives for good practice. Pricing can promote cost effective strategies and this has the potential to encourage behaviour changes.

The Environmental Audit Committee concluded:

The UK has a complex mix of environmental taxes and price signals, particularly for energy. For example, there are now four carbon “tax points” in the electricity supply chain. And there are a multitude of different effective tax rates on carbon emissions that vary between different users of energy and different fuels. The Mirrlees review of the tax system concluded that there is a long way to go to achieve a consistent price for carbon and that the range of policies and emissions sources is so complex that it is hard to say what the effective carbon prices are.⁴⁷

Difficulties in addressing carbon emissions are also evident in pressure to reduce Fuel Duty rates.⁴⁸ This is especially sensitive when fuel costs rise. When fuel costs fall, the problem is that the yield from the tax diminishes.

⁴⁴ Ibid., p. 431.

⁴⁵ Committee on Climate Change, *Climate Change and the UK Emissions March*, 2015. See the NAO, *A Short Guide to the Department of Energy and Climate Change* London: NAO, July 2015.

⁴⁶ Don Fullerton, Andrew Leicester and Stephen Smith, *Environmental Taxes* chapter 5 pp. 423-548 in *Tax by Design* Institute for Fiscal Studies, London, 2011, p. 460.

⁴⁷ Ibid., p.13 para. 21.

⁴⁸ H.M. Treasury, *Budget Statement*, 2011.

Having few tax incentives to switch to lower carbon transport alternatives, the long term environmental strategies may be muddled with short term tax reductions. The *IFS Green Budget 2012*, makes clear that there is a need for a coherent system of environmental taxes and that “the effective tax on carbon varies dramatically according to its source, and fuel duties are a poor substitute for road pricing.”⁴⁹ Currently, the EUETS is of limited coverage. There are inconsistencies between it and the remit of national domestic taxes that cover the source of the emission as between variables such as the type of fuel used and the identity of users i.e. business or domestic. Reductions in levels of VAT on domestic fuels act as a distortion and effectively subsidise the creation of carbon emissions. The solution proposed is to find a way to tax emissions that are not within the current EUETS arrangements. One suggestion made by the Mirrlees Review is to make greater use of VAT. This has the disadvantage of arguably affecting poorer households disproportionately. Consideration of how to encourage policy making that successfully improves the energy efficiency of domestic housing and encourages improvements and efficiencies in fuel usage is important. Political policy making may well find this is a difficult task to address when public spending budgets are being cut and there is tight control over future spending. Another example is the related application of airport passenger duty related to airport usage.⁵⁰ The lessons for policy makers are that environmental taxes are complex and, without government prioritisation, they may lack political acceptance.

Transport taxes

HM Treasury’s exclusion of transport taxes from its definition of environmental taxes fits uneasily with the ONS approach and the IFS definition that includes transport taxes. Improvements in the design of transport taxes have the potential to improve the environment as well as increase tax revenues. The UK economy has to bear considerable costs because of road congestion, including time lost for journeys taken and the expenditure on higher fuel costs. Transport taxes may take two forms – congestion charges and road taxes. Congestion charges attempt to tackle traffic congestion, air quality and the economy. Road taxes include fuel duties and vehicle excise duties, but there is no coherent system of motoring taxation, and this may result in unnecessary burdens on business and, ultimately, consumer costs. Falling fuel taxes, since the end of 2014, have reduced the amount of tax revenue raised, and fuel duty was frozen in 2013 initially, until 2015. This was extended in the 2016 Budget.⁵¹

Congestion charges and road taxes

The Mirrlees Review favours congestion charging as a priority and as an important means to achieve environmental goals, while at the same time

⁴⁹ IFS, *IFS Green Budget* February 2012, p. 168.

⁵⁰ ENDS Report 441 (October, 2011), p. 5.

⁵¹ House of Commons Library, Briefing Paper: *Petrol and Diesel Prices* Number 04712 (17th March 2016).

considering that taxes relating to motoring and congestion charges should be related in a coherent way. Further, a recent Department of Transport study identified congestion as the largest cost to society.⁵² It estimated that congestion cost 12.3 p per kilometre mile compared to 1.6p for all other environmental and safety costs.

In relation to transport taxes, Fullerton et al state:

It is clear, however, that an optimal system of road transport taxes would require taxes that could be precisely targeted against the various externalities involved. In particular, road pricing should charge drivers according to the distance driven, location and time. If so, then prices would vary to take account of congestion and noise externalities, leaving fuel duties to capture environmental externalities.⁵³

Fullerton et al also raise doubts about whether any restructuring of the road transport tax system will result in any additional revenue, encourage motorists to change their behaviour, alter traffic patterns or ensure predictable gains for the environment. They argue, further, that the most appropriate measure is to consider congestion pricing, which is a very sophisticated form of congestion charging, as a viable alternative. This would involve complex road pricing schemes developed by economic modelling. They conclude that considerable benefits would come from this innovation. Such a wholesale reform would require public support and careful monitoring. There would have to be a commensurate reduction in fuel duty to leave overall revenues unchanged. Underlying such reforms, of course, is the need for the political will to lead and implement change.

To date, the experience of congestion charging has been patchy and indicative of party political division and extreme sensitivity to voter preferences.⁵⁴ Following the Labour Government's 1998 Transport White Paper,⁵⁵ first, the Greater London Authority Act 1999 for London and, then, the Transport Act 2000 for the rest of England and Wales introduced powers for local road users to be charged. In the case of London, this power is exclusively delegated to the elected Mayor of London. In the case of the rest of England and Wales, the powers are vested in the Secretary of State in collaboration with local authorities. Political parties are divided on the use of congestion powers and the then Conservative opposition in the 1990s were opposed to the enactment of new environmental taxes. Further, the Local Transport Act 2008 provides for how charging is to be implemented in London with oversight powers given to the Secretary of State over the equipment to be used and how the revenues from congestion charges should be raised.

⁵² Department of Transport, *An Introduction to the Department for Transport's road congestion statistics* London, Department of Transport, 2015.

⁵³ *Ibid.*, Para. 5.6.6. pp. 484-5.

⁵⁴ See, Mark Bowler Smith and Huigenia Ostik, "Towards a classification of the Central London congestion charge as a tax" (2011) *British Tax Review* 487.

⁵⁵ DETR, A New deal for transport: better for everyone CM 3950 July 1998.

The London congestion charging system covers the London Low Emission Zone (LEZ). There are emission standards that limit the amount of emissions and gases and where vehicles do not meet the requisite levels there is a daily charge. Under Boris Johnson, who was elected Mayor in 2008, the LEZ, which was established by the previous Mayor, Ken Livingstone, has continued, but with concerns about its effectiveness. Over the years, various proposals to alter the parameters of LEZ have been put forward. Since 2008 the charges have not been raised in line with the effective charging bands.

The lessons from the operation of the LEZ are clear. In order to meet potential political opposition and voter rejection, the case for congestion charging needs to be more strongly advanced, especially in terms of consistency and coherence. The Mirrlees Review⁵⁶ makes a strong case for making the pricing of environmental externalities a priority in the tax system and to provide a means of addressing the UK's current, arbitrary and inconsistent pricing on emissions from different sources and a poorly targeted tax on fuel consumption. The solution lies in settling the externalities of environmental taxes giving an appropriate priority in the tax system:

We remain some way short of having a coherent system of environmental taxes to address imperatives around climate change and congestion. The effective tax on carbon varies dramatically according to its source and fuel duty is a poor substitute for road pricing.⁵⁷

The case for taking forward congestion charging is a case in point where the benefits are likely to be beyond reductions in carbon emissions. In 2006, the Department of Transport proposed a variable road pricing scheme.⁵⁸ The variables included place, time of day and so on. The aim was to reflect the actual congestion levels and costs. If such a scheme were advanced, there would be sensitive political issues surrounding the public's acceptance of the tax. Even if there was some related reduction in fuel duty the true costs might prove excessive. This is a good example of relating consequences to policy making.

Transport policy is strongly influenced by increasing demands on road use, linked to business and domestic usage. The importance of a transport policy is clear; its absence as a priority in Government policy making is a matter of regret. There are many reasons for thinking that settling the tax regime may yet achieve the desirable consequences of making transport policy a reality. There is also the question of electric car use and its encouragement by government policy over traditional fossil fuel engines. This is an inevitable and

⁵⁶ James Mirrlees, et al , "The Mirrlees Review: Conclusions and Recommendations for Reform" (2011) *Fiscal Studies* vol. 32(3) pp. 331-359 at p.340. Also see: *The Coalition: Our Programme for Government* May 2010. Also see DfT, *Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen* CM 7996 January 2011

⁵⁷ James Mirrlees, et al , "The Mirrlees Review: Conclusions and Recommendations for Reform" (2011) *Fiscal Studies* vol. 32(3) pp. 331-359 at p.340.

⁵⁸ Don Fullerton, Andrew Leicester and Stephen Smith, *Environmental Taxes* chapter 5, pp. 423-548 in *Tax by Design* Institute for Fiscal Studies, London, 2011.

fast growing development that also needs to be incorporated into transport policy. Increasing reliance on electric cars feeds into the issue of electricity generation with profound consequences for energy policy. Less revenue may be raised through congestion charging if electric cars are given an advantage which may mean a drop in revenue. At one level moving to a national road pricing scheme is an important benefit. It may also deepen our need for a coherent taxation policy. A holistic approach to environmental taxation rather than settling on a case by case basis is an essential aim. The question remains as to how best to achieve this within policy making, and, further, whether policy makers are capable of achieving this laudable aim?

Road taxes include Fuel Duty and Vehicle Excise Duty. These duties generated a combined revenue of £33 billion in 2011. This amount has remained reasonably stable, for example, in 2014-15 when the revenue raised by Fuel Duty and Excise Duty amounted to £33.1 bn.⁵⁹ This makes road taxes an important revenue stream, but ignores the overall costs to society in terms of congestion, road casualties, congestion costs, air pollution, greenhouse gas emissions and health matters. Fuel duty is a case in point. Using its definition of environmental taxes, the ONS estimates that Fuel Duty accounts for 65% of all revenue raised by environmental taxes.⁶⁰ The Labour Government (1979-2010) introduced a Fuel Duty Escalator in 1993 based on 2001 rates of vehicle excise duty which were calculated by reference to levels of carbon dioxide emitted by the vehicle. In 2011, the fuel duty escalator was renamed the fuel duty stabiliser⁶¹. In March 2016, it was frozen for the sixth year in succession because of the dramatic fall in oil prices to around \$40 barrel.

Motor fuel⁶² has been subject to various revenue raising taxes, including, at one time, the above-mentioned additional year on year escalator to ensure that taxation maintained a consistent revenue stream.⁶³ This resulted in rising fuel costs that were exacerbated by global market forces in the supply of oil. The result was to see a limit on the amount the government could reasonably expect fuel consumers to pay. High fuel costs have the potential for distorting prices for food and other consumables as well as goods and services more generally with a direct impact on inflation and living standards across different income groups. Future policy shifts may include abolition of the Fuel Duty.⁶⁴

The failure of HM Treasury to regard Fuel Duty as an environmental tax because its original purpose was not to meet environmental objectives leaves the tax particularly vulnerable to the motoring lobby which complains of high fuel costs. Such complaint does not take into account the environmental significance of the duty in shaping consumer behaviour towards the use of public transport and the purchase of environmentally friendly vehicles. It is

⁵⁹ Institute for Fiscal Studies, *Green Report 2015* London: IFS, 2015.

⁶⁰ ONS, *Environmental Taxes-2014* London: Office for National Statistics, 2015 pp. 3-6.

⁶¹ See: House of Commons library Briefing Paper: *Petrol and Diesel Prices* 04712 (17th March 2016).

⁶² Zoe Smith, *The Petrol Tax Debate IFS Briefing Note* No. 8 July 2000.

⁶³ *Loc cit.* fn 59.

⁶⁴ HM Treasury, *Budget 2016* London: HM Treasury, 2016. And see page 14 above

clear that counting Fuel Duty as an environmental tax, not only, will ensure that motoring is an important source of tax revenue, but also becomes a lever of behavioural change.

Fullerton et al⁶⁵ commented that the abolition of the Fuel Duty Escalator, its replacement in 2011 by a fuel duty stabiliser, followed by a freeze in duty for the sixth year in succession and consequent behavioural changes has resulted in a “decline in revenues relative to national income tax which is also due, in part, to the significant switch towards diesel fuel that has taken place in recent years.”⁶⁶ This does not change the “UK pump price” of fuel which is one of the highest in the EU at about 10% more per litre than the EU average.⁶⁷

Environmental taxes also have the potential to distort the market as well as policy making. As Zoe Smith concluded in 2000, environmental taxes may also lead to a conflict of interests:

The aims of the road fuel duty are conflicting. The propriety of demand for fuel that makes it difficult to reduce consumption through price rises makes it a good source of revenue for the Chancellor. If the government did succeed in getting people out of their cars and onto public transport, they would lose fuel as a valuable source of revenue.⁶⁸

Such potential for distortions in policy making needs to be appreciated in the political cycle and environmental taxes are susceptible to vagaries of electoral choices at election times or where government is unpopular. Careful research and analysis are needed to ensure that one benefit is not outweighed by another. Calculating the potential benefits and detriments of environmental taxation is essential for the future. Energy and carbon use is another good example of this conundrum. Poorer housing is inevitably less efficient in energy use. Consequently, the revenue yield from energy taxes has to take account of the proportionate costs on different households. Such distortions make the tax difficult in terms of settling the correct level. Richer and poorer households need to be treated differentially;⁶⁹ a factor that through an inevitable element of progressivity can only add to complexity.

Another important source of revenue linked to the environment is the Vehicle Excise Duty. This is based on an annual per-vehicle tax variable according to age and size of the vehicle, and from 2001, carbon emissions of vehicles. There are also tax reductions for alternative fuels. The overall aim is to encourage consumers to purchase less polluting vehicles. There is no settled

⁶⁵ Don Fullerton, Andrew Leicester and Stephen Smith, *Environmental Taxes* chapter 5 pp. 423-548 in *Tax by Design* Institute for Fiscal Studies, London, 2011.

⁶⁶ *Ibid.*, p.471.

⁶⁷ Office for National Statistics, *Environmental Taxes 2014*, pp. 2-4. London: Office for National Statistics, 2015.

⁶⁸ *Ibid.*, fn. 43, p. 8.

⁶⁹ A.L. Bovemberg and L.H. Goulder, “Environmental Taxation and Regulation” in A.J. Auerbach and M.Feldsten, eds., *Handbook of Public Economics* vol. 3 Amsterdam: Elsevier, 2002.

view on how polluting the alternatives are and this is likely to discourage strong policy making by government.

Transport taxes are also a good example of the efforts required by the Government to convince the public of the advisability of taxation with a strong recognition of the environmental benefits that might accrue. The recent IPPR paper has made a number of key observations about fuel costs. The most important is that “planned annual increases in motoring taxes should be part of a rational government policy designed to change behaviour and raise much needed revenue to fund sustainable transport measures.”⁷⁰

The Future of Environmental Taxes in the UK

Environmental taxation may offer an alternative to the much criticised command and control form of regulation and offers a wider range of regulatory techniques. There are practical as well as theoretical considerations. In practical terms, the Finance (No 2) Act 2015 prevents Income Tax, VAT and National Insurance Contributions from rising above their current rates. This offers environmental taxation as a means of taking forward the raising of tax revenue as well as protecting the environment. At a theoretical level, the analysis offered by Don Fullerton, Andrew Leicester and Stephen Smith (Fullerton et al) in the environmental studies chapters⁷¹ of the research part of the Mirrlees Review makes a convincing case for the use of environmental taxation as opposed to conventional regulation based on the cost-effectiveness of various economic instruments. This is examined through the advantages and disadvantages of each approach. The main advantages of taxation are that it may provide incentives for innovation and it gives polluters an incentive to reduce pollution and, thereby, costs. Further, as the tax may apply to each unit of residual emissions, this creates an incentive to develop new technologies. Regulation seeks to achieve the same outcome, but, often, fails to encourage continued reductions and there is an incentive to bargain with the regulators on a case by case basis. Regulators are dependent on information and data from firms, especially about abatement costs. Dialogue and negotiation may invariably occur with a form of plea bargaining between the regulator and the industry. Extracting reduced prices from regulators for compliance agreements is not unusual. Examples abound over utility pricing or licensing agreements. In contrast, taxation has the advantage of seeking a cost-effective distribution of abatement without bargaining conditions. Case by case consideration of each taxpayer is not required with the result that there is potential for greater fairness as all taxpayers face the same tax on their pollution. Implicit in the claimed for advantages of taxation is the idea that the risk of individual negotiation and the erosion of environmental protection is reduced, but it should be noted that there is the possibility of negotiated settlements between HMRC and taxpayers.

⁷⁰ Lisa Hopkinson, *The War on Motoring Myth or Reality*, London: IPPR (August, 2012) p.25.

⁷¹ Don Fullerton, Andrew Leicester and Stephen Smith, *Environmental Taxes* chapter 5, pp. 423-548 in *Tax by Design* Institute for Fiscal Studies, London, 2011.

Finally, conventional regulation may not be effective in raising revenue. This gives environmental taxation an obvious attraction in times of fiscal uncertainty. However, this may not always be decisive. The predictability of tax revenues being raised also has to be factored into the assessment. Revenue is always dependent on behavioural responses and changing cultural attitudes. Political choices are often overshadowed by election contests and voter choices. In respect of the environment, behaviour may be minimally influenced by taxation strategies as there are demands on energy and transport usage that are non-optional. This may vary from location to location and reflect local/central relations more than a desire to protect or enhance the environment. Environmental taxation may be limited in its ability to change or influence behaviour. Taxation may simply be passed on to third parties through pricing or other market mechanisms. This may dilute its effects.

Collectively and generally, environmental taxation and other assorted economic instruments have drawbacks and shortcomings that also need to be considered. For many reasons, uniform pollution taxes may themselves be a result of inefficiency in identifying the sources of pollution effectively enough. Source-by-source taxation may not be adequate and lead to market distortions because the taxation system replicates market problems of hidden cross subsidies. The taxation system may be ineffective because the market is distorted. This can be remedied, in part, by tailoring taxation to meet the problem of differential sources and users. For example, domestic users might be treated separately from business users; rural and city communities may also be differentiated and, similarly, vulnerable groups from others. The operation of differential tax rates can result in effective outcomes. There are many variables, however, and it is often difficult to predict outcomes. Lobbying is also likely to be keenly felt, especially bargaining between parties and individuals with government.

Environmental taxes also require some degree of integration with the corporate frameworks that they apply to. The avoidance of over complication is essential and there is a need to ensure, for example, that larger enterprises are in a position to achieve overall control and guidance over their local subsidiaries or branches. This is a problem in terms of overall corporate governance and responsibility. The internal organisation in many local enterprises has to be able to accommodate general guidance from the "parent". Small enterprises have also to be such as to introduce marginal cost abatement of the pollution. Careful consideration has to be given to the internal management of firms and their ability to address abatement costs and to ensure that appropriate and effective measures are in place, for example, policies on ensuring that the environment is brought to the attention of groups for example, recycling or reuse.

Environmental taxation is also subject to adverse consequences if those subject to the tax are able to respond in a more damaging way. Waste taxation is a classic example where illegal dumping, which is difficult to prevent and regulate, can be the result. As a consequence, there is a loss of

revenue and a failure to protect the environment that leads to greater social and economic cost through the need for detection and clean up.

There is also a concern that, in general, taxation has a retributive effect. The burdens on the less advantaged may be disproportionately large when compared to the wealthy. This distributional effect is applicable to environmental taxation as surely as it is to any other taxation. It is also a matter of national concern as additional burdens claimed by industry increases the unit cost of production and impact on UK competitiveness. These are familiar arguments in the analysis of any taxation system and should be factored into the discussion of environmental taxation.

In weighing up the arguments for and against environmental taxation there are some additional factors such as administration and enforcement costs that have to be considered. A pollution tax may require the measurement of emissions and making these accurate is important both for monitoring and enforcement. In general, a tax can be readily imposed upon any market transaction such as the sale of a final good or service. An environmental tax is different. There are no ready market transactions for emissions, pollution and deforestation or dumping. Monitoring is difficult and often impossible to verify as it involves self-reporting. It often involves verification, inspection and monitoring and may be challenging. On the other hand, it is important that any driver to change behaviour and address environmental problems in the form of environmental taxation is an important element in future planning.

Assessing the use of environmental taxes is a matter of setting priorities and ensuring that revenue, as well as behavioural changes, is calibrated. Environmental taxes are perhaps at their most helpful in changing behaviour. The costs of direct regulation are much larger than taxation potentially making regulation relatively more expensive. Tax rates, however, need to be finely adjusted when applied in relation to polluting substances. Fine tuning and careful calculation of tax incentives is needed if environmental taxation is to make a difference.

There is also considerable literature on the potential for environmental taxes to create unintended distortions within tax systems that often enhance pre-existing distortions. Unintended consequences may include increased production costs that might be passed on through consumer prices, lowering the net wage of households. There may also be consequences for labour retention and company investment strategies.

The Mirrlees Review has two specific recommendations relevant to environmental taxes. First, it recommended that a consistent price on carbon emissions is introduced through a combination of extended coverage of the EUETS and a consistent tax on other emission sources. This would include a tax on domestic gas consumption. The latter is hard to implement because of the escalating political problems caused by higher energy costs. The second recommendation is that the current tax on petrol and diesel might be replaced

with a national system of congestion charging.⁷² Again, this may prove politically difficult to achieve. Both recommendations have to be viewed within the broader agenda which is to take the UK towards a progressive neutral tax system, although there is some room for negotiation in terms of implementation:

Where there is a strong case for deviating from neutrality – as where environmental externalities exist – such departures need to be much better designed and more clearly focused in the externality created than at present. This should involve consistent pricing of carbon and charges for motorists that reflect the main externality they cause, ie congestion.⁷³

Conclusions

Environmental taxes are an important element in tackling climate change. Under the Climate Change Act 2008, the UK is pledged in 2050 to reduce carbon emission by at least 80% from 1990 levels. Various caps in terms of Carbon Budgets have been introduced up to 2027. Environmental taxation has an important part to play in achieving such goals. Using the Government's own definition of environmental taxes, in 2014/15, UK environmental taxes were equivalent to 2.5% of GDP which is slightly above the EU average of 2.4%. In 2014/15, 72.9 % of all income from environmental taxes came from energy taxes, underlining the importance of energy in the taxation system. Transport taxes mainly consist of taxes relating to the ownership and use of motor vehicles. In total, transport taxes contributed to 23.7% of all environmental tax revenue. Motor vehicles contributed 47.6% of total transport taxes in 2014. Businesses contributed 50% of total environmental revenue amounting to £20.8 bn. Manufacturing was the largest contributor, followed by transportation and storage. Households have also been a contributor of £20.4 bn.

The CCL falls short of being a carbon tax and is, in effect, an energy tax, but, as indicated, the tax rate does not vary directly with the carbon content of fuels. In its own terms, it has made a contribution to achieving the UK climate change targets. Estimates vary but savings of 12.8 million tonnes of carbon dioxide are calculated to have been made between 2001 from 2010⁷⁴. In that respect, this is a reduction of 20% in carbon emissions. The CCL is forecast to raise £2.3 bn in 2015/16. The CCL may also prove to have been a more effective form of regulation than other forms of traditional regulation. Its critics suggest that it might have an adverse effect on business and industry, although this is hard to quantify or prove.

⁷² See: Mark Bowler Smith and Huigenia Ostik, “ *Towards a Classification of the Central London Congestion Charge as a Tax* [2011] BTR 487 re the Central London congestion charge, in particular, the charge's revenue raising capacity especially. p.500.

⁷³ James Mirrlees, et al , “*The Mirrlees Review: Conclusions and Recommendations for Reform*” (2011) *Fiscal Studies* vol. 32(3) pp. 331-359 at p.353.

⁷⁴ House of Commons Library Briefing Paper, 07283 Climate Change Levy: renewable energy (26th August 2015).

The present Government's policy to reverse the exemption on qualifying renewables, such as electricity that is not generated from peat, fossil fuel and nuclear fuel, is an important policy shift. This is illustrative of how political sensibilities may influence policy.

There are some anomalies in the UK system of environmental taxation. HM Treasury's decision to exclude transport taxes from environmental taxes is out of line with the ONS approach and is inconsistent with the present Government's claim to be the "greenest government" on record. There is a strong case for defining transport taxes within environmental taxation. This is a reflection of their potential, as within the UK, they provide, currently, a greater share of tax revenue as part of GDP than the OECD average for the leading industrial countries. Although, the UK is in the middle range when tax revenue from environmental taxes, is compared to EU Member States. The bulk of the revenue from environmental taxation in the UK comes from the taxation related to climate change and transportation.⁷⁵ A recent IFS report makes the point that the UK is "some way short of having a coherent system of environmental taxes to address imperatives around climate change and congestion".⁷⁶ There is considerable potential for the UK to increase both total revenues and GDP in environmental taxes.⁷⁷

There are strong political messages that attach to most forms of taxation, but environmental taxation has the potential to achieve sustainable environmental policies and to encourage good practice as well as income receipts. The need to raise revenue is greatest at times of financial downturns and the necessity to encourage sensible energy policies. It has been seen how environmental taxes are particularly vulnerable to political interference and this vulnerability is intrinsic to their worth, namely to both raise income and provide a forum for good environmental choices.

Globally, environmental taxation has not reached its full potential a century after it was first proposed by Pigou. Environmental taxation is a useful instrument for the delivery of environmental policies and the potential to facilitate changes in taxation policies. They may become a substitute for other taxes, particularly in areas connected with energy, transport and natural resources. The Mirrlees Review was a major step in the direction of a progressive, neutral tax system that included environmental taxes within a general umbrella of tax reform, but it has not been implemented. This is a missed opportunity as the recent findings of similar Australian and New Zealand tax reviews have shown:

⁷⁵ House of Commons: Environmental Audit Committee Sixth Report Budget and Environmental Taxes 2010-212 Col. 1 HC 878 (7th July 2011).

⁷⁶ IFS, *The IFS Green Budget* February 2012, p. 168.

⁷⁷ See: Claudia Dias Soares, "Earmarking revenue from environmentally related taxes" in Janet E Milne and Mikael Skou Andersen eds., *Handbook of Research on Environmental Taxation* Cheltenham, Edward Elgar, 2014 pp. 114-5.

... a shift towards consistent pricing of greenhouse gas emissions and the replacement of the current taxes on petrol and diesel with a national system of congestion charging.⁷⁸

The future success of environmental taxation depends on the full recognition of its potential to offer a “double dividend” providing a source of revenue as well as environmental protection, though as the Mirrlees Review points out “it is not necessary for taxes on pollution to be welfare improving”. There remain some sceptical views that environmental taxes may increase the price of goods consumed somewhere in the economy, which will have a distorting effect on the use of such taxes. However, it is possible to redesign the tax system to lessen this effect with differential tax rates being used and the share of environmental taxation adjusted accordingly, but this does not guarantee an outcome. Environmental taxation requires sound policy making⁷⁹ and more research of the implications for environmental taxation and how they may work. It is necessary for issues such as fairness and equity and the regressive or progressive nature of a tax to be more transparently made out and explained. Tax law offers many levels of analysis, but the relative merits of different approaches to taxation are, with limited exceptions, under-valued.⁸⁰

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⁷⁸ See, Chris Evans, “*Reflections on the Mirrlees Review: An Australian perspective*” (2011) *Fiscal Studies* vol. 32, no. 3 p. 387.

⁷⁹ See, HM Treasury, *Reforming the business energy efficiency tax landscape* London: HM Treasury September 2015.

⁸⁰ The exception is the excellent analysis offered by John Snape, *The Political Economy of Corporation Tax* Oxford: Hart Publishing, 2011.