ENVIRONMENTAL TAX POLICIES IN AUSTRALIA AND THE UK: CAN IT ONLY BE A CARROT OR STICK APPROACH?

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Abstract

This paper considers the relative merits of various types of environmental taxation. After briefly reviewing where it fits in with the other environmental policy options, the paper then looks in detail as to what can be learnt from the contrasting approaches to environmental taxation that have been taken by Australia and the United Kingdom.

Australia has tended to adopt an enabling (or carrot) approach by rewarding and encouraging positive environmental policies through tax allowances in the Australian federal income tax system. The UK by the introduced the *Climate Change Levy* (CCL) in 2001, with increases recently introduced in 2007 and further rises in 2008 planned, has taken a more 'stick' approach. The CCL is an indirect taxation on business energy costs. It is claimed to have the advantage of administrative simplicity whilst giving a clear message to businesses, and it is an important part of the UK's environmental policy.

The paper concludes with a review of the different approaches to: design and administration, competitiveness, revenue neutrality, the 'polluter pays' principle, tax allowances, tax bases, base line issues, federal/state responsibilities, the latest technologies and the political aspects.

Introduction

In many jurisdictions taxation measures have long been considered to be an important means to deliver environmental policies. Some of these measures impose a cost or a disincentive, whereas others in contrast allow for incentives and rewards. Undoubtedly these measures will influence the behaviour of taxpayers and therefore need to be carefully considered if the desired policy outcomes are to be achieved. The purpose of the paper is to consider the relative merits of the contrasting approaches adopted by a number of jurisdictions, with a particular emphasis on Australia's 'enabling' approach to environmental policy as opposed to the United Kingdom's (UK) 'stick' approach. These two countries, which are normally staunch allies, adopted conflicting positions to the Kyoto Protocol and on this basis were chosen for the purposes of this analysis. The paper concludes by identifying the issues raised by these different approaches and considers their likely impact on the development of environmental tax policies in the future.

Environmental tax policy options

Researchers have acknowledged the importance of the design and administration of environmental tax as being the key to

effective implementation (OECD, 1996). Voluntary agreements, tradable permits, regulation and taxation have all been used to address pollution, with any single measure unlikely to prove entirely effective in isolation (Hansford et al, 2004). However, before embarking on the design, implementation and administration phases of environmental tax reform, there needs to be clear directions from policymakers that will guide and underpin the process. Basically, policymakers are faced with the choice of direct taxation, indirect measures or a combination of both. Direct taxation measures (i.e. users pay, or the 'stick' approach) has considerable support as a cost effective, non-regulatory-dependent method of changing business behaviour (ESRC, 1998). Further support for taxation comes from the *Advisory Committee on Business and the Environment* who suggest that 'Voluntary agreements and regulations may be insufficient to meet the Government's targets … [an] … economic instrument in the form of a tax may be necessary' (ENDS, 1998, p.27). The imposition of a direct tax is claimed to be a superior mechanism for pollution abatement because of its administrative simplicity and its avoidance of regulatory failure (O'Riordan, 1997).

Alternatives to the imposition of direct taxes or penalties on environmental polluters/users include voluntary agreements, regulation and tradable permits (i.e. the 'carrot' approach). Voluntary agreements lack certainty and, without legally binding obligations, an industry is not compelled to make significant change. For the past two decades regulation has been another popular method of addressing pollution (Barde, 1997), and it has been particularly useful in dealing with large point sources of pollution and industrial effluents, which may have dangerous local effects (Hewett, 1999). Tindale and Holtham (1996) argue that there is also the likelihood that businesses will only undertake minimal changes to comply with regulation. For those who do more there is no reward.

Tradable permits have been popular in the USA for air, water and waste pollutants and the *Institute for Fiscal Studies* believes them to be a particularly useful tool in fighting pollution (IFS, 1999). They are flexible and there is the benefit for government that they can control and identify the levels of pollution entering the environment (Farber, 1998) but a tradable permit does little to encourage innovation to reduce harmful emissions and it could be considered to be a license to cause pollution.

In support of the argument in favor of direct environmental taxation, and energy taxes in particular, positive experiences within Northern Europe (e.g. Scandinavia) are cited to indicate that they can be introduced and uncompetitive effects successfully avoided. Where taxes are introduced or increased on a national scale only, there is a risk that particular industries will suffer. The UK has made progress with the introduction of the CCL on business energy consumption as part of a larger program aimed at reducing greenhouse gas emissions. In 2002 the UK *Confederation of British Industry* (CBI) with the *Engineering Employers Federation* (EEF) calculated that the UK CCL has resulted in manufacturing industries being the worst affected and that in the year since the introduction of CCL the sector has faced a '£328m increase in energy bills and a net £143m rise in costs' (CBI, 2002).

However, others have dismissed such concerns and consider that industry has nothing to lose and everything to gain from environmental taxation. They maintain that arguments such as taxation being opposed to the goals of economic expansion are based on the self-interests of a few. Tindale and Holtham (1996) suggest there are powerful interests, such as the fossil fuel and chemical

industries, who oppose any change in the pattern of economic behaviour and whose lobbying operations are well-resourced, well-organized and not overly-principled. Tindale and Holtham argue that environmental measures can spur firms to develop more resource-efficient methods of production and reduce costs. Cox (2000) also endorsed this argument and suggested that the CCL would push energy efficiency up the agenda of many industries by providing a clear financial message and encouraging the use of exempt energy sources.

We now investigate these theoretical positions by reviewing the approaches taken by Australia and the UK as they have adopted contrasting positions. The UK's agreement to the *Kyoto Protocol* was in accordance with the majority view and certainly that of its European neighbours. Australia instead chose to side with the United States, though it has been described as 'being backed into a corner', rather than taking a position based on a sound policy rationale (Saddler et al, 2006). The current Australian position has been stated as to encourage cleaner industries by using and spreading the latest technologies to limit emissions. This is in contrast to the UK position of imposing economic restrictions or penalties on polluters.

Environmental taxation — the Australian approach

Historically, Australia has tended to adopt an enabling (or carrot) approach by rewarding and encouraging positive environmental policies through tax allowances in the Australian federal income tax system. However, such allowances have primarily been directed towards the conservation of land and water, rehabilitation of mining sites and investment in research and development, rather than towards the reduction of energy usage or greenhouse gas emissions. Further, the benefits of such allowances are effectively tied to the marginal tax rate of taxpayers, and their effectiveness (in terms of providing an incentive) is questionable given the volatility of farm incomes (especially in periods of drought) and the incomes of start-up, high-tech businesses.

Traditionally, the power to raise income tax has been the domain of the Australian Government whilst responsibility for the environment has rested with the various State and Territory Governments (and local governments to a lesser extent). The financial burden of this responsibility is reflected in the breakdown of environmental expenditure for 2002-03, with the States and Territories accounting for 47% of the national public sector total, local governments incurring 37%, and the Australian Government expending the balance of 16% (Beeton, 2006). Given the limited taxation powers of the States and Territories (and even more limited taxing powers of local governments), the Australian Government is still very much in the driver's seat when it come to environmental tax policy and control of the purse strings.

The Australian Government has favoured the carrot approach including tax deductions for donations to environmental or heritage organisations, capital gains tax exemptions for gifts of property left in a will to eligible organizations, and income taxation concessions for landowners entering conservation covenants with eligible organizations (this includes States, Territories, some local governments and some non-government organizations). Other national initiatives include legislative change (for example, the *Environment Protection and Diversity Conservation Act 1999*), the *National Climate Change Strategy*, the development of a *National Water Initiative* in 2004 and the formation of

the *Asia Pacific Partnership on Clean Development and Climate* (as an alternate position to signing the *Kyoto Protocol*).

The *Australian Greenhouse Office* administers the Australian Government's $1.8 billion climate change strategy which is centered on five key areas – emissions management; international engagement; strategic policy support; impacts and adaptation; and science and measurement which involve a variety of programs. Within the jurisdiction of the individual states, there are further climate change programs such as the *NSW Department of Environment and Conservation Hunter River* salinity trading scheme (emissions trading) and *Load-Based Licensing*.

The *National Water Initiative* (NWI) is an intergovernmental agreement by all States, Territories and the Australian Government and encompasses commitment to water access entitlements, water markets and trading, and best practice water pricing. For Australia, it represents a critical environmental and economic development given that 67% of water usage by industry nationally is attributed to irrigated agriculture. The initiative, to which the Australian Government allocated $2 billion, is an attempt to balance the needs of all current and future users with the need to protect the ecosystem and water as a scarce resource. In addition to the NWI, New South Wales, Victoria, South Australia, the Australian Capital Territory and the Australian Government have a water agreement in respect of the Murray-Darling Basin setting out the arrangements for investing $500 million over five years commencing in 2004-05, principally to reduce the level of water over-allocation.

The policy position that has evolved is that the Australian government should take the lead on matters of national significance (such as Kyoto) and national coordination, while pulling back from direct command and control of matters which have been traditionally been regulated at State level. As a result, standards have varied from State to State and the ability to manage the environment on a national level remains hampered in spite of some progress being made in respect of water management. Critics have claimed that the Australian government still has only limited national powers to address issues such as greenhouse gas emissions, forest protection and land clearing (Smith, 1999).

In July 2005 Australia, along with the United States, China, India, Japan and South Korea, announced the formation of the *Asia Pacific Partnership on Clean Development and Climate*. The Australian Government described the partnership as aiming to develop, deploy and transfer existing and emerging clean energy, meet increased energy needs and explore ways to reduce the greenhouse intensity of member economies, build human and institutional capacity to strengthen cooperative efforts and to seek ways to engage the private sector in reducing emissions. The message sent is that the activities that lead to GHG emissions should not be unduly constrained or taxed. However, this approach may well see Australia locked out of the emerging carbon markets and limiting foreign investment in Australian clean technologies (Saddler et al, 2006).

Overall, the current Australian position has been to encourage cleaner industries and more effective management of natural resources by using and spreading the latest technologies, it has not been the 'stick' approach. This position also embodies the need for a more collaborative approach by governments at different levels, with greater national directive. The politics of the relative power of governments (both in terms of taxation and responsibility) and the current fiscal imbalance have hampered

collaboration to date. However, some progress, at least in respect of water management, has been made. Australians already believe they have a very complex tax system, thus it is unlikely that the impost of further taxes and their inherent compliance costs would be well received.

Environmental taxation – The UK approach

The use of indirect, input taxation on the purchase of energy is a market pressure to reduce consumption. This form of indirect taxation has the advantage of administrative simplicity, as no expensive monitoring of pollution outputs is required, and it is one of the options adopted by the UK government at present (HM Treasury, 2006). Research has shown that the costs fall disproportionately on small to medium sized enterprises (SMEs). However, for larger businesses the additional costs can be absorbed more easily and has been considered by some in large businesses to be a catalyst for a change in behaviour resulting in moving to more environmentally friendly processes and procedures (Hansford et al 2004).

This section focuses on the *UK Climate Change Levy* (CCL) which was introduced in the 2000 Finance Act by the UK Government as part of its wider climate change programme. It was regarded as the 'UK's most significant green tax to date' (Andrew, 2000). CCL is calculated on the quantity of fuel supplied, with different rates for various types of fuel. The rates were raised by FA 2006, giving a clear message that CCL is here to stay within the armoury of the UK Chancellor's environmental tax measures. The rates that applied from April 2001 – March 2007 are as follows with rates in (brackets) from April 2007 and [brackets] from April 2008:

Electricity–0.43p per KwH (0.441p) [0.456p]

Natural gas – 0.15p per KwH (0.154p) [0.159p]

Solid fuel (coal) – 1.17 p per kg (1.20p) [1.242p]

Liquid petroleum gas for heating – 0.96p per Kg (0.985p) [1.01p]

The 2007 and 2008 rates are rises in line with inflation. CCL is imposed at the time of supply to industrial, commercial and public sector users, and it covers qualifying primary and secondary fuel for lighting, heating, motive power and power for appliances derived from nuclear and fossil fuel sources. It is added to the energy bill before VAT is calculated and cannot be reclaimed.

At its introduction the Government appeared to be attempting to take account of Lord Marshall's recommendations that any tax needs to be designed in a way that would protect the competitiveness of UK firms (Marshall, 1998) whilst nonetheless attempting to ensure that businesses no longer ignored environmental concerns. From the outset there were a number of important allowances and exemptions to CCL.

The UK government announced that the revenue generated by CCL would be re-cycled back to businesses through a reduction of 0.3% in *National Insurance Contributions* (NIC) and thus should prove to be revenue neutral and non-damaging to UK businesses. This arrangement provides the 'double dividend' of encouraging more efficient use of energy resources as well as reducing employment costs (Oates, 2002). The winners would be those with low energy costs that are labor rather than plant-intensive. Even in those businesses that were overall winners, there was a realization that the allocation of costs to processes would be likely to include the higher costs of production caused by CCL but not all, if any, of the lower costs of NIC (Hansford &

Woodward, 2003). Pocklington (2001, p. 222) considered it to be 'a quick and dirty solution [that] is ineffective and inefficient' due to significant inequalities in the re-distribution of revenues that are detrimental to manufacturing and engineering businesses. A further anomaly is that employee intensive businesses receive a rebate – irrespective of any commitment to energy efficiency.

The government introduced a system of 100% enhanced capital allowances for approved items of energy efficient equipment including motors, good quality combined heating and power (CHP) plants, boilers, lighting systems, variable speed drives, refrigeration, pipe work insulation and thermal screens. However it would appear that not all in industry were convinced that these allowances had longevity and there was disquiet that the revenues generated by CCL would be channeled into other government schemes (Hansford & Woodward, 2003). From the introduction of CCL the opportunity to avoid it through the use of 'good quality' CHP has been possible. This source of power is energy efficient in operation, providing significant fuel savings, with both cost and environmental efficiency gains through reducing carbon dioxide emissions in comparison to other forms of electricity generation and heat supply. CHP status is approved on individual power plants and is dependent on certification from the *Department for the Environment, Farming and Rural Affairs* (DEFRA). Approval depends on whether the standards of production come within its quality assurance specifications.

It was recognised that energy intensive users would be particularly disadvantaged by CCL when it was added to their energy costs and so they required special consideration. *Climate Change Agreements* (CCA) or Negotiated Agreements were introduced but restricted to 'energy intensive' processes as originally set out in the *Finance Act 2000* and *SI 2000/1973*. Whether businesses qualify as intensive users depends on the limited requirements of whether they fulfil the *Integrated Pollution Prevention and Control* (IPPC) criteria. In order to compute the energy reduction targets, consumption of a recent year - the 'base year' - was used in order to calculate these annual energy usage reductions. A base year in which there was a high energy use meant that the target reductions over the coming 10 years would be easier to achieve than targets based on a low base year figures. A significant 80% reduction in CCL is available for businesses that qualify as an IPPC process and that comply with the agreed reductions in energy consumption.

Due to these additional administrative demands on businesses, larger organisations lead in the implementation of these agreements. Many SMEs do not have the resources to divert the time nor have the financial commitment required to establish and maintain these agreements (EEF/CBI, 2002). CCAs can be considered to be useful in the setting of targets and monitoring them, although this inevitably leads to highly complex and costly systems. These costs to both industry and regulators are considered to be a significant drawback and result in SMEs being less likely to participate (Pocklington, 2001). The time frame to complete agreements can be lengthy (up to five years in some cases) but some which were concluded quickly are considered to be environmentally weak (Shaw, 2001).

There has been some 'fine-tuning' to the CCA requirements, including the 90/10 rule and additional allowances for non-IPPC processes that are directly linked with a qualifying process. In cases where over 90% of the energy usage does qualify then the entire site is eligible for cover by a CCA

(90/10 rule). There are some processes where not all the consumption of energy relates to activities that qualify for IPPC allowances but are directly associated with operations that do qualify. In both these cases they have to be agreed with DEFRA.

An important part of CCAs is to set targets for reductions in energy use and together with an emission-trading scheme, they are a form of risk management. Emissions trading can result in selling emissions permits gained as a result of over performance in reducing energy consumption and purchasing emissions permits when a business has under performed. By adjusting the emissions permitted then the allowance can be maintained and so the 80% reduction in CCL can apply.

Green energy (wind, hydro, solar and wave energy) does not attract CCL and, although the cost per unit is slightly higher than conventionally produced energy, as it does not attract CCL the total unit cost compares favourably.

Discussion

UK and Australia, with different theoretical perspectives, can inform the environmental tax debate. It has been maintained that achieving comprehensive tax reform is regarded as being one of the most politically difficult tasks a government can undertake in a democratic context (Eccleston, 2004). Australia's position and 'carrot' approach has been criticised for not being based on a sound policy rationale. The UK's stance, the 'stick' approach, was in accordance with the majority view of the EU. The UK has indicated its commitment to CCL with an increase in the rates from April 2007 and a further rise planned from April 2008.

We now summarise some of the tensions and issues that have arisen from our review:

Design and administration

Stakeholders need to be convinced that there is an environmental problem requiring action, and that the advocated policy can contribute efficiently to its solution. Irrespective of whether taxation takes the form of a charge upon outputs or inputs, it is vital that the design is effective and is driven by sound policy and commitment by stakeholders.

Competitiveness

There are concerns that UK business is suffering serious loss of competitiveness. CCL at 2001 levels have applied at the same rate to business energy costs from 2001–2007 and the increases in line with inflation in April 2007, with a further increase planned for April 2008 indicate that it here to stay. In addition, as a result of rising fuel prices and the pace of liberalisation in European energy markets remaining slow, the UK will continue to be competitively disadvantaged. Competitiveness was a driver in Australia's decision not to sign the *Kyoto Protocol*, on the basis that there would be a loss of industry to Asia. Striking the balance between international competitiveness and the need for greater co-operation will continue to be a challenge, particularly where countries face scarce resources, different needs, ability to adopt new technologies and rates of growth in both their population and economy. Greater co-operation will be needed to be established by policymakers.

Revenue neutral

There is a strong case to introduce measures in (appropriate) revenue neutral ways and this has been contravened by both countries in their current approaches. Issues of the resulting double dividend, of reduced energy consumption and employment costs on the introduction of environmental taxes as part of a revenue-neutral tax package, needs careful thought. Where distortions already exist, then the introduction of pollution taxes

can further exacerbate these distortions. In the case of the UK, the link between CCL to NIC wasn't operational in most cases – nor believed to be, which is possibly more important. From 2003 CCL was part of general taxation and the ring fencing, to reduce employment costs and so support the double dividend, was lost. From the perspective of Australia, the various incentives and subsidies offered have been to encourage investment – but given that they are linked to the tax system with its marginal and progressive tax rates, they offer greater reward to wealthier taxpayers. This can distort investment behaviour and provides little if any incentive to those on low levels of income (for example, primary producers).

'Polluter pays' principle and tax allowances

Tax allowances on certain business costs have limitations, including the abuse of tax expenditures and the impact on technological developments (Ashiabor, 2002). In focusing on a 'polluter pays' approach then removing tax concessions ensures a more rigorous application of this principle. However, the 'stick' approach may deter undesirable pollutant behaviour, it will not necessarily provide encouragement for business to invest in research and development for the future. There will be different preferences within industries and within businesses and it may be that a mix of strategies can offer wider appeal. A more general OECD model involving a tax mix of market based instruments and carbon taxes may be more successful in achieving reform to limit environmental damage within a global setting.

Tax base

Comparing the Australian and UK approaches raises interesting tax base issues and in particular, the view that the tax base, wherever possible, should be the polluting activity itself – not some related activity. In the UK, CCL is charged on fuel, irrespective of the emissions resulting. Some water companies, who pay the full CCL with no CCA 80% allowance as they don't fulfil the IPCC criteria, have state-of-the-art machinery that minimises pollution and they feel they are treated unfairly. In Australia the direct link between polluter and the tax base doesn't exist. There may be grounds for arguing that it should, at least to provide a deterrence effect.

Base line issues

Issues of both the environmental costs associated with pollution and the way in which the tax measures interact with the rest of the revenue system need to be considered in order to set the environmental tax rate (Oates, 2002). Activities to amend or reduce pollution depend on a base line and so it is necessary to define a baseline (Smith, 2002). In the UK, the CCL base year issue distorts the level of reductions and researchers have shown that some companies had high base year emissions and so they had 'easy wins' in the first few years of CCAs (Hansford et al, 2004). Clearly, similar arguments could be mounted in the Australian context. There may need to be consideration of the needs of business based on industry type and stage of development. Consultation and collaboration with industry can help inform policy and encourage greater commitment to the environmental tax agenda.

Federal/state responsibilities

Australia appears to be still struggling to address the complexities of its federal/state relationships, or perhaps this is simply an excuse for not having an effective national environmental policy in place. The Prime Minister's arguments for not signing the *Kyoto Protocol* reinforce the view that the decision was driven by economic considerations rather than genuine commitment to the global environment.

Whilst the environment is a national matter, there were no related tax measures announced in the 2006 Federal Budget. However, given that Australia does arguably have one of the most complex tax systems in the world, there may be a reluctance to use tax policy as the primary mechanism to reduce greenhouse gas emissions. Whilst the UK does not have these same issues, its position within the EU can also give rise to similar tensions.

Latest technologies

As to progress in terms of Australia's stated position of encouraging cleaner industries by using and spreading the latest technologies to limit emissions where most needed, it is difficult to find evidence of progress made to date. In fact the counter argument exists that by insulating the Australian economy from a carbon price, the development of new clean industries may be retarded and the future dependence on imported technology and expertise may increase. The UK does not appear to have a clear policy on encouraging latest technology and this is consistent with its preference for the 'stick' approach.

Political aspects

The current UK government appears to be warming to the idea of the benefits, both environmentally and politically, of being seen to be 'green' with the Conservatives, under the leadership of David Cameron, majoring on environmental issues and environmental responsibilities. Cynics may attribute this to the realisation that this could be a 'let-out' from further unpopular environmental taxation.

With the effects of current Australian approach under scrutiny, with some viewing apparent environmental incentives as little more than a political tool, there will undoubtedly be a place for tax policy within the armoury of governments in order to address one of the most important issues facing the global community.

Conclusion

This research, to date, has highlighted the contrasting approaches taken by Australia and the UK. The analysis indicates that neither Australia nor the UK has consistently adopted either a 'carrot' or a 'stick' approach. The policy perspectives of both countries lack commitment, are unconvincing to business, and may have serious implications for their environmental achievements in the longer term. It may well be that both the 'carrot' and the 'stick' can be successful instruments, provided they are appropriate given the underlying policy objectives. Developments in the future are likely to involve blurring of the boundaries between tax policy and encouraging 'good' environmental practice. In the post-Kyoto era there will continue to be calls for developments in green technology that improves both sustainability and profits. However, this will need to be supported by much more direct environmental intervention.

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ENVIRONMENTAL MANAGEMENT ACCOUNTING AND AQUACULTURE IN SOUTH AUSTRALIA

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Abstract

Environmental management accounting and reporting are growing in importance. The Australian aquaculture industry provides an example of where environmental management accounting and reporting could be used to help management and stakeholders address social, environmental and economic issues. In this article, following a brief introduction, the main ecologically sustainable development issues in Australian aquaculture are identified. The notion of whether environmental management accounting has the potential to bring together the information needs of government departments and corporations involved in the aquaculture industry is then explored. It is concluded that guidance provided by the accountancy profession tends to focus on the regular provision of information for decision making, whereas guidance provided by government appears to concentrate on ad hoc information for investment appraisal. The two need to be integrated if systematic movement towards ecologically sustainable development in the industry is to be encouraged.

Introduction

The concept of environmental management accounting has emerged over a number of years. In 2001, the *United Nations Division for Sustainable Development* published a document entitled *Environmental Management Accounting Procedures and Principles* to help establish a culture of pollution prevention and waste minimization within industry (UN 2001). A number of academics engaged with Environmental Management Accounting (EMA) framework development in decision making contexts (Burritt, Hahn, & Schaltegger 2002) and risk management (Burritt, 2005). Promotion of EMA was taken up for the accountancy profession by the International Federation of Accountants (IFAC) through the production of a similar framework published in an *International Guidance Document* in 2005 (International Federation of Accountants 2005). The expectation of IFAC is that companies, through their accountants, will perceive the self-evident value of EMA and introduce it into their organizations in order to help the environment and society as well as corporate financial bottom lines on the way towards sustainability. The organizations to which the Guidance is addressed include government bodies, as well as companies.

In this paper the possible contribution of EMA is considered in the context of ecologically sustainable development (ESD) of the Australian aquaculture industry. The paper briefly provides a background to the aquaculture industry in Section II, while Section III highlights the main issues facing ecologically sustainable development in aquaculture. In Section IV the challenges for environmental management accounting and