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Trade rules and climate change subsidies

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Abstract: Countries can choose between a wide range of policy instruments to address climate change. While economists tend to argue for the efficiency of instruments such as environmental taxes, many countries are incorporating subsidies into their plans for limiting greenhouse gas emissions. However, these subsidies may conflict with World Trade Organization rules. This paper analyzes the potential benefits of using climate change subsidies in terms of addressing market failures as well as the risks of protectionism arising from such subsidies. It then examines World Trade Organization rules to determine whether they optimally differentiate between beneficial and harmful subsidy policies. It concludes that existing WTO rules do not provide adequate scope for legitimate subsidies and makes suggestions for reforming subsidies law.

1. Introduction

Climate change is a significant global environmental concern. While some doubt the need for action (Lomberg, 1998), countries have begun and will continue to take measures to address climate change. Russia's decision to sign on to the Kyoto Protocol to the United Nations Framework Convention on Climate Change ('FCCC') brought the Protocol into force, crystallizing the commitments of parties to the Protocol to reduce greenhouse gas emissions.[1] Under the Kyoto Protocol, countries commit to reducing their emissions of greenhouse gases by a specified percentage below 1990 levels.[2] The Kyoto Protocol specifies that countries are to

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1 United Nations Framework Convention on Climate Change, reprinted in (1992) 31 ILM 849 and Kyoto Protocol to the Framework Convention on Climate Change (1998) 37 I.L.M. 22. The Kyoto Protocol came into force 16 February 2005.

2 Under the Kyoto Protocol, the parties collectively agree to reduce greenhouse gas emissions by 5% below 1990 levels by 2008 to 2012. Individual countries commit to different reductions. For example, Canada has committed to a reduction of 6% below 1990 levels, and the UK, France, and Germany to 8%. The US is not a party to the Kyoto Protocol. Developing countries do not have reduction targets under the Protocol.

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use domestic measures to meet their commitments, but it does not require the use of specific measures.[3] Instead, it lists a broad range of possible measures parties may adopt.[4] Many countries, even those who have not signed onto the Protocol (most notably the United States), have begun to design climate change policies encompassing a variety of domestic policy instruments. These instruments include regulatory standards, taxes, government procurement policies, domestic emissions trading programs, and subsidies.

While economists have long argued for the efficiency of taxes and emissions trading in many contexts, governments have tended to use command and control regulations to meet environmental objectives (Keohane, Revesz, and Stavins, 1998). Such instrument choice can be explained in part through a positive political economy analysis of the advantages of such regulations for industry, government officials, and, in many cases, environmental groups.[5] In addressing climate change, governments are continuing to rely on traditional command and control regulations, such as mandatory energy emission or energy efficiency requirements, and on voluntary measures by industry and individuals.[6] At the same time, some governments are increasing the use of economic instruments to address climate change including emissions taxes and emissions trading regimes (United Nations, 2002, 2004).

However, as will be discussed below, subsidies for industries and individuals are also emerging as an important tool for governments in the context of climate change. These subsidy policies may conflict with international trade rules. The World Trade Organization (WTO) has created and enforces a range of rules to regulate members' subsidy policies. Because of the broad scope and potential for the use of subsidies by both parties and non-parties to the Kyoto Protocol, this

3 In addition to domestic measures, the Kyoto Protocol provides for 'flexibility mechanisms' countries can use to meet their targets. These flexibility mechanisms include greenhouse gas emissions trading, Joint Implementation (under which certain (Annex I) countries can obtain credits by investing in projects in other (Annex I) countries that reduce greenhouse gas emissions), and the Clean Development Mechanism (under which certain (Annex I) countries or private entities in those countries can invest in projects in developing countries that reduce emissions and use the emissions reduction to meet their own targets). While these mechanisms will be important for meeting Kyoto targets, this paper focuses on domestic climate change measures and, in particular, the use of subsidies.

4 Under Kyoto Protocol, Article 2, permissible measures include enhancement of energy efficiency; protection and enhancement of sinks; research on and promotion, development, and increased use of new and renewable forms of energy, carbon sequestration, and innovative environmental technology; progressive reduction of 'market imperfections, fiscal incentives, tax and duty exemptions, and subsidies in all greenhouse gas-emitting sectors that run counter to the objective' of the FCCC; and the 'encouragement of appropriate reforms' in reducing certain greenhouse gases.

5 For an overview of the political economy of instrument choice in the environmental context, see Revesz and Stavins (2004) and Wiener (1999).

6 See United Nations (2002, 2004) for a description of the range of regulatory standards adopted by governments such as in the transportation sector. Canada has proposed establishing mandatory emissions targets for large industrial emitters (although these targets are connected to a potential emissions trading program) (Canada, 2005). For a discussion of the trade implications of these regulatory measures, see Green (2005).

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paper examines whether WTO rules promote optimal use of subsidies. Section 2 discusses potential rationales for subsidy policies from a law and economics perspective and what types of subsidy policies are or are not desirable in addressing climate change. It argues that subsidies policy can play a positive role, particularly in light of the reluctance of governments to use potentially more effective and efficient tools such as taxes and emissions trading. Such a policy would involve the reduction of existing subsidies to industries (such as the coal industry), which are a significant source of greenhouse gases. It may also entail the increased use of subsidies to reduce emissions of greenhouse gases directly such as subsidies for emissions reductions or increased energy efficiency by particular industries. However, while there is a potentially positive role for subsidies, there is also a clear risk that such subsidies will be used to favour domestic production at the expense of imports.

WTO rules are intended to constrain members' ability to adopt such protectionist subsidies. The members have struggled over time with a desire to curb protectionist policy and at the same time allow scope for legitimate subsidies. Section 3 sets out the WTO rules on subsidies (including the now expired limited exception for environmental subsidies) and discusses how they impact on countries' ability to implement appropriate or inappropriate climate change policies. It argues that in attempting to hinder protectionist subsidy policies, WTO rules create a serious concern to the extent they constrain subsidies aimed at addressing market failures underlying GHG emissions. The impact of WTO rules on subsidy policies not clearly attributable to addressing market failures is more controversial and raises interesting questions about the interaction between the WTO and domestic political processes.

Section 4 identifies some potential reforms to the WTO rules that would permit policies that are more effective at addressing climate change while at the same time weeding out discriminatory policies. It argues that neither tailoring the tests for determining permissible subsidies nor bargaining over environmental subsidies is likely to be effective. Instead, a broadened exception for environmental subsidies similar to Article XX of GATT, while not optimal, would be an improvement over the current rules. Section 5 concludes.

2. Subsidies and climate change

To provide a basis for the discussion in Section 3 of the existing WTO rules on subsidies, this section sets out the potential motivations underlying governments' subsidy policies in the climate change area. It first discusses the potential economic rationale that countries may use subsidies to address the commons problem underlying climate change. It then sets out the dangers of subsidies used for protectionist purposes. Finally, it discusses the difficulty of sorting between protective subsidies and subsidies aimed at addressing the commons problem in the context of climate change.

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Subsidies: the commons and scientific uncertainty

Climate change results from an increase in concentrations of certain gases in the atmosphere, including carbon dioxide, methane, and nitrous oxide. While most of these gases occur naturally, human activities such as the burning of fossil fuels, deforestation, and certain agricultural practices have increased atmospheric concentrations of greenhouse gases significantly since the industrial revolution (Congressional Budget Office, 2003). The atmosphere is a 'commons' which individuals and industry use for deposit of their GHG emissions. They obtain the benefit of whatever activity creates the GHGs (such as producing energy, manufacturing products, or driving cars) but do not face the full cost of the activity in terms of the harms from climate change. The result is an example of the 'tragedy of the commons' creating overuse of the resource, particularly as greenhouse gases may remain in the atmosphere for a very long time (Congressional Budget Office, 2003). Nordhaus has called climate change 'the granddaddy of public goods problems – emissions affect climate globally for centuries to come' (Nordhaus, 1993: 18).

The commons aspect of the atmosphere is due a lack of control on access to the resource. Markets have difficulty dealing with the issue of the use of the atmosphere, as the atmosphere cannot easily be divided into property rights. Without property rights, a market for the use of the resource cannot be created (Congressional Budget Office, 2003).[7] Governments may take a range of actions to address the commons problem at the core of the climate change issue. For example, they can set standards for reductions in emissions or increases in energy efficiency, or can tax carbon emissions. Further, although as mentioned above the atmosphere as a whole cannot be divided into property rights, governments have made some attempts to make emissions into a form of property through emissions trading schemes. In particular, climate change policies in the EU and Canada rely to a significant extent on such schemes, which may involve designing a form of credit or allowance and allowing trading between sources (UN, 2004 and Canada, 2005).

Governments can also use subsidies. Initially assume that we can define a subsidy merely as a form of benefit provided by government to a private party, such as an industry group, a particular company or an individual. Not all subsidies are harmful from an economic perspective. Subsidies may be beneficial if they efficiently overcome a market failure, such as that arising due to the commons problem (Schwartz and Harper, 1972; Sykes, 2003a). Many countries are relying on subsidies to address greenhouse gases. For example, in regards to emissions from the energy sector, 'almost all Parties [to the UNFCCC] … reported

7 Even if there were some rights to the atmosphere, scientific uncertainty about the nature and timing of effects hinders decision making and market transactions (Kysar, 2004; Congressional Budget Office, 2003).

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new policies that give a direct financial incentive to some actors to take measures that reduce emissions. These included investment grants and preferential loan rates for renewables and energy efficiency projects, preferential electricity tariffs for renewables or CHP, and tax relief including accelerated depreciation of capital and exemption from tax on electricity tariffs' (United Nation, 2002: 24).

The following is a list of subsidy policies that will most likely be used in the climate change context, their potential economic justification and a discussion of their current or proposed use:

- *Reduce subsidies to heavy emitters:* Some industrial sectors are a significant source of greenhouse gases, in particular the energy sector. A first, very significant step governments could take to address climate change is to reduce subsidies to such sectors. These subsidies may relate to production or to energy use. For example, the total environmental damage from the use of coal in electricity production has been estimated to be three times that of gas and 'a very large multiple' of renewable energy sources (Owen, 2004). By one estimate, if OECD countries removed their coal production subsidies and developing countries removed distortions in their coal markets, global emissions of carbon dioxide could be reduced by up to 8% relative to emissions that otherwise would have occurred in the near future (Anderson and McKibbon, 2000; Owen, 2004). In terms of energy use, many governments provide direct or indirect subsidies to industry to keep the price of electricity or other power low. For example, electricity prices in some provinces in Canada have been held at an artificially low regulated price with the government supporting the price difference. Such subsidies may promote economic activity but do so at the expense of accurate price signals about the cost of electricity (Dewees, 2005). However, while some countries are taking steps about such subsidies (UN, 2004), there appears to be little political will to significantly reduce either general (production) subsidies or energy subsidies in these areas.

  Alternatively, governments could attempt to force companies to internalize the environmental harm from their activities through taxes, permitting schemes or command and control regulation. These measures could be targeted directly at emissions or, more indirectly, at reducing energy use. Some EU countries have adopted greenhouse gas related taxes, such as the UK's Climate Change Levy (United Nations, 2004). However, in many cases such regulatory action is politically unacceptable (for example, where heavy emitting industries, such as mining or oil and gas, are politically powerful) or may be technologically infeasible.[8] As discussed below, the lack of such regulatory action could be seen as a form of indirect subsidy.

8 Taxes may be technologically infeasible, such as where there are a large number of sources or emissions that are not easily measured for technological reasons (Fullerton and Mohr, 2002).

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- *Subsidies to foster reduced emissions:* Instead of reducing subsidies which increase production in heavily polluting industries or force internalization of externalities, governments may provide subsidies for reducing emissions. Such subsidies could take the form of 'Pigouvian' subsidies, which are directly tied to lower levels of production or, less directly, through government grants for adopting new technology or methods.[9] Such subsidies would initially have the same end result as a tax on emissions, but would have different distributional impacts. Instead of the government collecting revenue, it would have to pay for subsidies out of tax revenue and firms would be paid, rather than pay, for reductions. Such payments would have 'revenue-raising' effects, leading to lower welfare due to the need to increase distortionary taxes to fund the subsidies.[10] Further, any such subsidy may need to be combined with a tax on output in order to ensure that the intended emission reduction impact of the subsidy is not offset by an increase in output. For example, a grant for environmentally friendly inputs would reduce their price (fostering substitution towards them) and lower the overall cost of production, thereby possibly increasing output and GHG emissions (Wiener, 1999). The tax would be aimed at reducing this impact on output (Fullerton and Mohr, 2002). A similar analysis governs government's use of subsidies to induce industry to use less energy. For example, it could fund adoption of more energy efficient equipment or could provide financial rewards (grants or tax credits) based on reduced energy use. Most parties to the UNFCCC use such grants to reduce emissions and energy use, including both direct grants and tax relief (United Nations, 2002; Canada, 2005; United Nations, 2004).
- *Subsidies to foster the use of renewable, cleaner sources of energy:* Similarly, climate change policy in many countries involves an attempt to shift energy production towards sources that produce fewer greenhouse gases. Renewable, cleaner energy sources form a small part of the market in OECD countries.[11] Coal and gas have significant cost advantages under current policies over renewable forms of energy, although the cost gap is expected to be reduced somewhat over the next 20 years (Owen, 2004). Methods of fostering such cleaner sources of energy would be to tax, set regulatory standards for, or reduce subsidies to sources such as coal, as discussed above. The increase in price for these more heavily polluting sources of energy would make cleaner sources more likely to be economically feasible and would spur research and development into such cleaner energy forms (Owen, 2004; Buck and Verheyen, 2001;

9 Fullerton and Mohr (2002) and Stanlund (1997) arguing in certain circumstances for a subsidy for technological improvements may be a good substitute for costly or infeasible monitoring.

10 Perry (1998) arguing, however, that in addition to these welfare-raising effects, policy makers have to take into account positive impacts from 'tax-interaction' effects (welfare gains 'from the increase in labour supply, induced by the increase in the real household wage when the price of the subsidized consumption good falls' (p. 154)).

11 Renewable energy sources constituted only 5.6% of total energy supply for OECD countries in 2001 of which 54% was from combustible renewables and waste, 35% was from hydro power, and 12% from geothermal, solar, wind, and tide sources (Fischer and Newell, 2003).

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Posner, 2004). Such policies may be the most efficient method of reducing GHG emissions.[12]

However, if as seems likely, such policies on a large scale are politically infeasible, an alternative is to provide financial incentives to cleaner, renewable sources of energy, such as wind power or ethanol. In order to become competitive in the near term, these renewable forms of energy may require subsidies to increase economies of scale and to overcome the costs of renewable energy sources above those of fossil fuels.[13] Further, subsidies can provide an added incentive to innovation, where subsidies for research and development (discussed below) are insufficient, and the opportunity for 'learning by doing' encourages innovation.[14] Governments in the US, the EU, and Canada, for example, have implemented a range of subsidies to foster both research and development in and use of renewable energy (United Nations, 2002; Duff and Green, 2005). These subsidies have taken the form of direct grants for production, tax exemptions, and guaranteed prices (or 'feed-in tariffs') at above market rates.[15]

- *Subsidies to foster carbon sinks:* Aside from attempting to reduce emissions by industry or individuals, governments could subsidize carbon 'sinks', which take carbon out of the atmosphere. Such sinks include forests and agricultural lands. If the carbon removal services of such sinks are not valued in the market, there is no current incentive to use land for such purposes.[16] However, governments can, and are beginning to, subsidize the creation or maintenance of such sinks. For example, some countries such as Canada, Belgium, and the Czech Republic offer support for conservation of forests and farm land (United Nations, 2004).
- *Subsidies to foster research and development into climate change and new technology:* Research and development has public benefits that may not be wholly captured by the party undertaking it. Depending on the nature of the research and the country's intellectual property laws, the result without subsidies would be less than optimal investment in research and development.[17] Such under-investment may also occur because the externalities (such as the

12 Fischer and Newell (2003) find that policies which impact the emissions price are most efficient at reducing emissions as they foster reduced emissions of fossil fuels, reduced use of energy by consumers, and increased production of and research into renewable energy sources.

13 Owen (2004) arguing that leading renewable technologies may need subsidies because of the high initial capital costs, although this is partially offset by low operating costs, and Swedish National Board of Trade (2004).

14 For a discussion of these benefits of subsidies to energy generation, see Fischer and Newell (2003).

15 For example, Canada has a wind power production incentive in which energy producers can receive a direct grant covering approximately one-half of the current premium for installing wind generation over other sources. For a description of the program, see www.canren.gc.ca. On the other hand, the US, Canada, Korea, and a number of European countries have subsidies based on production levels (Duff and Green, 2005; Fischer and Newell, 2003).

16 See Posner (2004) arguing that subsidies may play a (limited) role in fostering carbon sequestration.

17 Sykes (2003a). The US, United Kingdom, Denmark, Ireland, Germany, Japan, and the Netherlands all have various forms of subsidies for research and development in renewable energy (Fischer and Newell, 2003). See, however, Posner (2004) arguing that the optimal method to foster technological change is through emission taxes, although recognizing a potential role for subsidies for basic research.

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impact on climate change) are not internalized with the result that the incentive to invest in research is further reduced (Popp, 2004). Many governments subsidize research and development into climate change to encourage private actors to undertake it (United Nations, 2002). These subsidies can be significant. In 2001, during the Clinton administration, the US budget included '$1.4 billion for research on ''clean technologies for the buildings, transportation and electricity sectors'' … and $1.7 billion for research on the role of greenhouse gases in global warming'.[18] In 2003 President George W. Bush sought $1.2 billion in research funds for vehicles that run on fuel cells (Popp, 2004) and there is potentially further research and development support forthcoming under the US Energy Bill.

Such subsidies may not be as efficient at reducing emissions of greenhouse gases – particularly in the short run – as incentives for reductions in generation of fossil fuel energy sources and for reduction in energy use by consumers.[19] However, while they may do little on their own, there is some evidence that such subsidies may act as a complement to other instruments, enhancing their effectiveness and reducing costs (Popp, 2004).

- *Subsidies to foster reduced energy use and emissions by individuals:* Individuals may use too much energy or undertake activities that emit excessive amounts of greenhouse gases from the standpoint of allocative efficiency. For allocative efficiency (that is overall efficient use of resources), individuals should face the true costs of their actions so that they can make efficient decisions.[20] Yet as with industry, individuals may not face the 'true' cost of the activity in its price. For example, the price of gasoline may not incorporate the full cost of its use, including the harm from emissions of GHGs. Governments could tax the use of products in the hands of consumers in order to force them to internalize the costs of environmental harm. However, governments are also attempting to subsidize actions that use less energy or emit fewer greenhouse gases, such as purchasing products which are more energy efficient (such as washing machines), retrofitting homes, installing interval meters measuring electricity use, or taking actions which emit fewer greenhouse gases (such as taking public

18 Yandle and Buck (2002: 208) noting that these amounts were later reduced by the Bush administration.

19 Fischer and Newell (2003) and Popp (2004). Further, research and development subsidies may crowd out private efforts that would have occurred anyway or may provide incentives for research in unproductive areas (Yandle and Buck, 2002).

20 There may be a further role for government even where the prices do reflect the true cost of the option, such as where individuals are confronted by collective action problems in satisfying their preferences (for example, they feel their choice will have no impact on climate change because others will not similarly take action). Further, individuals may make decisions relating to climate change which they believe to be satisfying their preferences about environmental risk but in fact are not because of limitations on individuals' rationality, for example, individuals systematically underestimate the (very low) probability of catastrophic climate change (Posner, 2004). Governments may have a role in aiding individuals to overcome these collective action or rationality concerns (see, generally, Sunstein, 2002; Jolls and Sunstein, 2004; Camerer *et al.*, 2003).

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transit).[21] Many countries subsidize these activities through direct payments to consumers (United Nations, 2002 and Canada, 2005).

Rent seeking and protection

Governments may therefore use subsidies to address market failures in an attempt to enhance domestic (and potentially global) welfare. However, there is another, more pessimistic view of government action that identifies risks from subsidies. These risks arise from the impact of subsidies on prices and on the production of the subsidized product. Subsidies may be harmful, from an international trade perspective, where they lower the marginal costs (either short run or long run) of producers, leading to their lowering the price for their products. Such lower prices may reduce or eliminate market access rights of exporting countries to the market of the subsidizing state, divert customers in other countries away from the products of non-subsidizing states towards products of the subsidizing state, and/or reduce global welfare by distorting resource allocation towards the subsidized industry (Sykes, 2003a and Trebilcock and Howse, 2005).

While such impacts may occur where a government is addressing a market failure, they may also occur due solely to rent seeking by domestic industry – that is, attempts by industry to use domestic governmental processes to further their interests at the expense of foreign producers. There are two general manners in which such rent seeking could occur. First, the subsidy policy may have, and foster, a legitimate environmental objective (reducing GHG emissions in a particular sector) but it could be carried out in a manner that discriminates against foreign producers.[22] Governments may use subsidies to aid industry in meeting the high costs of implementing the Kyoto Protocol or otherwise addressing climate change in order to maintain or enhance industry's international competitiveness. For example, to off-set costs of installing emissions-reducing technology, a government may provide domestic industry with subsidies that foreign competitors do not receive from their governments. Similarly, governments may provide subsidies to consumers to purchase certain fuel-efficient products that are predominantly produced domestically. Such subsidies will impose costs (in the form of higher taxes) on domestic consumers but the government may be willing to bear the political costs (if any) of the taxes in order to appease industry or to gain the benefits of jobs and tax revenue from increased production.

Second, the subsidy program may have no real impact on climate change or raise significant alternate risks but be provided merely as a payment to politically powerful domestic industries. One example of such rent seeking may be the increased emphasis on ethanol, a fuel additive made from corn. It has been argued

21 However, there may be a 'rebound effect' where consumers use the energy efficient appliances more (run the dishwasher more often), possibly leading to an increase in energy use (Yandle and Buck, 2002).

22 See, for example, Yandle and Buck (2002) discussing the lobbying that has occurred around the obtaining of climate change subsidies in the US.

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to have no significant impact on air pollution but merely result from rent seeking by the 'corn lobby' (Sunstein, 2002).[23]

This negative view of subsidies arises from the public choice theory of government. It postulates a market for political decisions in which legislators and bureaucrats essentially sell their votes or decisions to the highest bidder. In many cases, industry has greater power than ordinary citizens because it has the resources and faces significant costs or potential benefits (in the form of subsidies) from climate change policies. Citizens, on the other hand, face small individual costs (such as increased taxes or future harms to the environment) and collective action problems in organizing politically.[24] The result may be that industry persuades or induces government to adopt subsidy policies which harm international trade either 'unnecessarily' (because the action benefits the environment but could be taken in a less trade restrictive manner) or without any corresponding environmental benefit in terms of addressing market failure or fulfilling a democratic decision of a country or region.

Information, 'values' and subsidies

Government subsidies may therefore attempt to remedy the commons problem underlying climate change or be designed to protect domestic industry against foreign competition or both. Unfortunately, determining the underlying motive of a particular domestic subsidy policy is not straightforward. As this section will discuss, a government's decision to use subsidies to address climate change will be based on incomplete information and value judgments. As a result, the WTO Panel or Appellate Body assessing subsidies may need to examine both the substantive context for and the process leading to the choice of the subsidy.

Governments have difficulty setting objectives for climate change policy, as there is considerable uncertainty as to the existence, timing, location, and magnitude of any harms. As Kysar states, 'uncertainty pervades, we might even say defines, the climate change problem' (Kysar, 2004: 563). He notes that the uncertainty includes the extent that climate change is caused by greenhouse gas emissions, the impacts of climate change on agriculture, habitat, forests,or other aspects of nature, the level of economic growth that will occur absent climate change initiatives and the risk of catastrophic change. These uncertainties mean that governments will not be able to provide clear evidence of the basis for their decisions. The process for deciding in the face of uncertainty will be important to determining the legitimacy of a subsidy.

However, there is an even deeper concern about the information on which governments may base their policy decisions. These decisions rest on choices for

23 Another example may be the nuclear industry. It is a strong supporter of the Kyoto Protocol and may benefit from subsidies, which reduce its costs. These subsidies may be aimed at reducing GHG emissions in energy production but raise alternate risks (Yandle and Buck, 2002).

24 For a discussion of public choice and environmental policy, see Revesz and Stavins (2004) and Keohane, Revesz, and Stavins (1998).

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which there are (at least currently) no technical answers. For example, the effects of climate change and the benefits of action are spread across generations, necessitating the use of a discount rate to determine how to properly internalize costs of harm by current actors. Yet the debates over a discount rate for the environment are legion and in the end require a societal decision about the distribution of costs and benefits across generations (Farber, 2003a; Posner, 2004). More generally, governments must make further decisions around fairness and distribution. Climate change policy will be about distribution of costs and benefits (Congressional Budget Office, 2003). The distribution cuts across generations as individuals decide whether (or how much) to invest in actions that will aid their descendents, across regions both of the world and within particular countries, across sub-groups within the economy (such as industry versus individuals), and across aspects of the environment (as certain policies may aid some elements of the environment – such as forests – but not others). Governments cannot solve these distributional questions solely through economic analysis, but instead they are essentially political decisions.[25]

Moreover, assigning a value to the environment is difficult. There are effects of market failure in the area of climate change that (at least in theory) are easy to calculate, such as the potential cost of climate change in terms of lost (added) crops, health care, and changed heating and cooling requirements. However, calculating a value for lost species or ecosystems is harder, if not impossible. Economic solutions such as contingent valuation are partial and controversial (Congressional Budget Office, 2003 and Ackerman and Heinzerling, 2004). It is of course possible to set environmental taxes or establish emissions trading schemes without pricing the harms. However, doing so requires some form of political, not technical, judgment.

The result is that some of the key issues require explicit or implicit political decisions rather than technical solutions to a readily solvable commons problem. As Posner states, 'the uncertainties arising from the peculiar character of the catastrophic risks [such as catastrophic climate change] create the inescapable need for value judgments concerning such matters as the proper weight to be given the interests of remote future generations, the non-monetizable social benefits to be ascribed to basic scientific research, and the degree of risk aversion appropriate in responding to the catastrophic risks.' (Posner, 2004: 265) A government may choose to subsidize an activity to reflect such 'value judgments'.

25 Kaplow and Shavell argue for using an essentially utilitarian social welfare function to make all policy decisions because reliance on non-utility factors (such as the fairness of the results or the intrinsic values of rights) will lead in some cases to everyone in society being worse off. See, for example, Kaplow and Shavell (2001) and Kaplow and Shavell (1999). However, Kaplow and Shavell's theory has been argued to by-pass interesting questions of how the social welfare function should be chosen (both the criteria and the procedures), invoke a thin version of fairness largely limited to individual 'tastes' for fairness (how it enters individual utility functions), and suffer from the traditional concerns about utilitarianism, such as how to define and measure utility. See, for example, Farber (2003b) and Farnsworth (2002).

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However, if many of these decisions are ultimately political decisions or 'value judgments', the WTO will have difficulty determining whether the subsidy is aimed at addressing climate change or is in fact protectionist. Examination of the science underlying the particular measure may be insufficient. The WTO Panel or Appellate Body will have to consider whether the process by which the decision to implement the measure was reached raises concerns about protectionist influence by industry or others. As discussed below, the difficulty reaching such determinations may be part of the reason only a narrow, and eventually phased out, exception was permitted for environmentally related subsidies under the SCM Agreement.

A second set of issues arises around 'values'. Economists argue that optimally government should use instruments that make individuals internalize the harm they are causing, such as through environmental taxes or privatizing the commons. Individuals may then choose among various options based on the relative costs and benefits of the options and their individual preferences. As noted above, in certain cases, governments may use subsidies where taxes or private property are not feasible technically or politically. However, some environmental groups argue that climate change will not be solved solely through even innovative, market-based instruments, such as environmental taxes or emissions trading. Instead, they contend that real progress requires a shift in individuals' underlying values about the environment.[26] Governments use various instruments in attempts to shift the values of their citizens including subsidies to foster behaviour such as purchasing more fuel-efficient vehicles (Green, 2006). These subsidies may alter choices for particular products or may be aimed at influencing deeper preferences or values underlying choices.[27] There is of course debate about the legitimacy or ability of governments to undertake such actions.[28] However, it is clear that governments do use instruments to attempt to change individuals' preferences and values.

The WTO's determination of the legitimacy of the subsidy becomes even more difficult if the purpose of the subsidy is to protect or create certain values within a society (Deardorff, 2000; Benitah, 2004; Schwartz and Harper, 1972; Sykes,

26 This argument is based on the notion that our values, as disclosed in our market system, are unsustainable. It is argued that we need to realign our values to focus less on consumption and more on valuing the environment and our relationship to it – including possibly through a right to a clean environment as a human right (Speth, 2004; Boyd, 2003; Coyle and Morrow, 2004).

27 Economists generally assume individuals choose among options based on the relative costs and benefits and their exogenously determined preferences. However, the notion of 'preferences' is vague and captures a range of potential motivations for choices (Sunstein, 1996). Sen (2002) notes that there are several different explanations for the divergence of choices and preferences including (i) reputation and indirect effects, (ii) social commitment and moral imperatives, (iii) direct welfare effects (which appear to include esteem), and (iv) conventional rule following.

28 See, for example, Ellickson (2001) (discussing the optimistic and pessimistic views of government's role in norm management and arguing that government norm management does not necessarily improve welfare), Lessig (1998) arguing for a positive role for government in managing norms in some cases and Sunstein (1996) arguing for a positive role for government in norms management.

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2003a). Does such a purpose make the subsidy illegitimate (at least in theory since, as noted below, no such current provision for environmentally related subsidies exists) and, if not, how can you determine whether the subsidy is actually aimed at such a purpose? As Sykes notes:

> The wisdom of subsidies can become even more difficult to assess if one adds a political dimension to the analysis. Imagine a society in which the electorate has a taste for rural, agrarian life and wishes to see it preserved. The electorate enthusiastically supports government programs to preserve family farms. Is a protective subsidy present? Or should one instead view the resulting political equilibrium as an efficient transfer to family farmers based on the electorate's willingness to pay to see them remain in operation? Does the answer turn on the issue of whether the farm program results from preferences of the electorate at large, or from deficiencies in the political process that allow well-organized interest groups (farmers) to exact transfers from poorly organized interest groups (taxpayers)? (Sykes, 2003a, 8)

The decision is hard enough if the government is attempting to implement wide-spread preferences (such as, for Sykes, the taste for rural life). It is harder still if the government is attempting to lead – that is, to use instruments to develop preferences or values in its citizens. How can the WTO sort out the legitimate subsidies from protectionist subsidies where there is no technical or scientific evidence that the instrument choice is strictly 'necessary' to address the market failure? The key, again, may be in the decision-making process. For example, greater comfort will come from a process that is transparent, inclusive, and deliberative than from one which is closed and non-accountable.[29] Such a process may limit the ability of special interest groups to distort decisions through rent seeking (as discussed in Section 4) (Croley, 1998; Sunstein, 2002). The principal point is, however, that solely examining the commons problem that underlies climate change will not be sufficient to determine whether a subsidy is potentially legitimate. The task of assessing subsidies will require an examination of both the substantive context for and the process leading to the choice of the subsidy.

3. WTO rules and climate change subsidies

There are therefore potentially beneficial domestic environmental subsidies but also a risk that governments may use subsidies to protect their domestic industries

29 See, for example, Sunstein (2002) and Farber (1999) arguing for a broad form of cost–benefit analysis to aid in deliberative attempts to address environmental issues and Posner (2004) arguing for a central role for cost–benefit analysis in decisions about catastrophic risks, despite a lack of information about probabilities and timing. See also Howse (2000) arguing in favour of scientific evidence and procedural requirements under the WTO on the basis that they promote rational democratic deliberation, increasing respect for local preferences.

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from competition. The difficult issue becomes how to differentiate between them in order to reduce the negative impacts of protective subsidies on international trade. One approach to subsidies stems from the 'anti-distortion' view. Arguments for international trade rest on the theory comparative advantage, essentially incorporating the notion that welfare is maximized if resources are allocated through the market (Trebilcock and Howse, 2005). The anti-distortion view holds that the alteration of resource allocation resulting from the impact of subsidies on costs of production reduces domestic and international welfare (Schwartz and Harper, 1972; Sykes, 2003a; Benitah, 2004). The appropriate action under this approach is to have a clear presumption against subsidies and allow sanctions that offset the entire amount of the subsidy. However, this approach must take account of the argument that some subsidies may reduce distortions in the market and therefore improve both domestic welfare and the functioning of international trade (Schwartz and Harper, 1972; Trebilcock and Howse, 2005).

A second approach is the 'anti-injury' view. According to this view, subsidies can be beneficial and therefore domestic governments should have scope to use them. However, it does permit some action by other states to the extent that these states are harmed by the subsidy. It is not the entire subsidy that is important for this view but only the amount by which the subsidy upsets the market and therefore only this portion should give rise to a remedy (Haufbauer and Erb, 1984).

Benitah has recently undertaken a review of WTO subsidies law and argued that the underlying approach should be one of 'attenuation' of rights of states not to be harmed by subsidies (Benitah, 2001). He analogizes to regulation of domestic pollution, which permits polluters to harm individuals with the regulation offsetting this harm but not entirely. There is generally no complete right to be free of pollution; instead there are limits based on the social utility of the polluting act. Benitah similarly sees WTO subsidies law as setting up a system of attenuation of rights of exporting states not to be harmed by domestic subsidy policies.

The international trade rules that have been developed to distinguish subsidies that are beneficial or protective have changed over time, reflecting different approaches to these issues. The original GATT of 1947 had few provisions dealing with subsidies and those that did exist imposed few constraints on countries' domestic subsidy policies.[30] GATT subsidies rules were amended in the 1950s and 1960s, and in the 1970s the membership adopted a 'Subsidies Code' but the rules remained relatively lenient in terms of use of domestic subsidies (Sykes, 2003a). The rules on subsidies, however, were substantially changed during the

30 The GATT 1947 provisions relating to subsidies permitted a country to impose countervailing duties against a subsidizing contracting party where the industry in the non-subsidizing country was injured. Its national treatment provisions essentially required equal treatment in terms of tax and regulatory policy for domestic and foreign producers but created an exception for subsidies to domestic industry (Sykes, 2003a).

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Uruguay Round, leading to the adoption by the WTO of the Agreement on Subsidies and Countervailing Measures ('SCM Agreement').[31]

This section will now discuss the rules relevant to subsidies under GATT and the SCM Agreement and their application to the discussion of climate change policies in the previous section. It will first address the applicability of the doctrine of 'non-violation nullification or impairment' under Article XXIII of GATT. It will then discuss the principal issues arising under the SCM Agreement as they pertain to climate change subsidies. These issues include the definition of 'subsidy', the 'specificity' requirement, and the requirement to show harm or serious prejudice for actionable subsidies.[32]

Nullification or impairment

Under Article XXIII: 1(b) of GATT, a member may complain if a benefit it has under GATT (such as a tariff concession by another member) 'is being nullified or impaired … as a result of … the application by another contracting party of any measure, whether or not it conflicts with' the provisions of GATT. This provision could potentially apply to climate change subsidies of a member that undermine tariff concessions it has made to other members. If the complaining party is successful, the subsidizing member does not necessarily have to remove the subsidy. The required remedy is the restoration of the competitive relationship between the goods or compensation for the complainant and therefore may, but does not necessarily, include elimination of the subsidy (Steinberg and Josling, 2003).

The purpose of the provision is to ensure that the competitive opportunities from tariff bindings are not frustrated by government measures.[33] Article XXIII does not require a conflict with any other provision of GATT and even applies where a measure has been saved under the exceptions (such as for health-related measures) in Article XX.[34] The measure must upset the competitive relationship

31 In the Uruguay Round the members also adopted the Agreement on Agriculture. It also has provisions relating to subsidies. The SCM Agreement does not apply to agricultural products that fall within the Agricultural Agreement until the end of the implementation period or 'peace' period, which was to end 1 January 2004 (Sykes, 2003a; Steinberg and Josling, 2003). Some subsidies related to carbon sequestration may fall under the Agreement on Agriculture (Charnovitz, 2004). In addition, there is discussion of including subsidies provisions in the General Agreement on Trade in Services (Benitah, 2004). However, this paper focuses on trade in goods and therefore on the provisions of GATT and the SCM Agreement.

32 This article will address domestic subsidies but not export subsidies. Export subsidies are subsidies contingent on exports of products and tend to lower the price in the importing country below that charged in the subsidizing country. Article XVI of GATT prohibits such subsidies (except on agricultural products). They are not, however, likely to be the primary focus of subsidies that address climate change.

33 WTO Panel Report, *Japan – Measures Affecting Consumer Photographic Film and Paper* (*Japan–Film*), WT/DS44/R, adopted 22 April 1998.

34 WTO Appellate Body Report, *EC – Measures Affecting Asbestos and Asbestos-Containing Products* (*EC–Asbestos*), WT/DS135/AB/R, adopted 5 April 2001 (upholding the Panel decision to reject the EC's argument that if a measure falls within the exceptions of Article XX it does not fall within Article XXIII). Article XX sets out a list of exceptions to GATT obligations (such as for measures necessary to

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of the products by more than a *de minimus* amount.[35] Article XXIII 'should be approached with caution and should remain an exceptional remedy' as members 'negotiate the rules that they agree to follow and only exceptionally would expect to be challenged for actions not in contravention of those rules.'[36] The provision applies to 'any measure' nullifying or impairing benefits and therefore would encompass subsidies by any definition.[37] The term 'measure' has been interpreted broadly as more than just legislation or regulations, but may include non-binding government policies and even private action where there is a high degree of cooperation between the government and the private actor.[38]

The complaining party must prove that the measure upsets its 'legitimate expectations' to receive the benefit, taking 'into account all measures of the party making the concessions that could have been reasonably anticipated at the time of the concession'.[39] The Appellate Body has rejected the view that states have a duty to protect human life or health and that therefore there cannot be a legitimate expectation that they will not invoke measures to protect health.[40] However, it noted that where a measure falls within Article XX (such as where it is necessary to protect human health), Article XXIII is 'particularly exceptional' because of the importance of the objective. 'Very few' such measures will fall under Article XXIII.[41]

The Panel in *Japan–Film* held that there is a presumption that if a measure was not in place during negotiations, it could not have been reasonably anticipated.[42] However, in *EC–Asbestos*, the Panel noted that there was a difference for 'non-commercial' measures that fall within Article XX (such as those aimed at protecting health or relating to the conservation of exhaustible natural resources). For such measures, there was a stricter burden of proof to show legitimate expectations. In that case, the Panel found that Canada could not assume that over the 50 years since some of the concessions were made that there would be no advances in medical knowledge. It stated that the presumption from *Japan–Film* did not hold for commitments made such a long time ago and held that Canada failed to meet its 'heavy burden' of showing that it could not have anticipated that France might

protect human, animal, or plant life or health, or measures relating to the conservation of exhaustible natural resources). For a more detailed discussion of Article XX, see Section 4, below.

35 Panel Report, *Japan–Film*.

36 Panel Report, *Japan–Film*, paras. 10.36 and 10.37. The Appellate Body approved of this approach in Appellate Body Report, *EC–Asbestos*.

37 However, the definition of subsidy remains important, as it will likely be easier for a member to succeed where the measure is in conflict with an obligation under the Agreement or other WTO rules (Wilcox, 1998).

38 Panel Report, *Japan–Film*, paras. 10.43–10.49.

39 Panel Report, *Japan–Film*, para. 10.61. See also Sykes (2003a) and Steinberg and Josling (2003).

40 Appellate Body Report, *EC–Asbestos*. (France had argued that protection of health was a fundamental duty and could not be limited by the concept of non-violation.)

41 WTO Panel Report, *EC–Asbestos*, WT/DS135/R, 18 September 2000, para. 8.272–3 (result on application of Article XXIII upheld Appellate Body Report, *EC–Asbestos*).

42 Panel Report, *Japan–Film*.

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have adopted measures relating to the product.[43] Further, it held that Canada had not made its case that it had a legitimate expectation during the Uruguay Round that no measure would be implemented. The Panel found that France had some policies in place before the Uruguay Round and there was evidence of harm from asbestos existing during the negotiations, which should have led Canada to anticipate tighter controls.[44]

Most climate change subsidies would be implemented after the primary tariff negotiations, including the Uruguay Round in the 1990s. However, the FCCC came into force in 1992. While it is a framework convention, it clearly contemplates action, including domestic action, to reduce climate change; although it does not specify the form such action should take. In addition, further negotiations over climate change were taking place during the 1990s. Following *EC–Asbestos*, such negotiations could lead a Panel to conclude that subsidy measures addressing climate change should have been anticipated at that time. Moreover, a Panel may find that climate change measures fall within the exceptions of Article XX (Green, 2005), increasing the burden on the complainant to find a violation of Article XXIII. Article XXIII may therefore not impose a significant constraint on states adopting subsidies to address climate change.

Identifying a subsidy

As a result, the principal constraints on climate change subsidies will be found not in Article XXIII but in the SCM Agreement. A government measure must be a 'subsidy' to fall within the provisions of the SCM Agreement. It defines a subsidy to be 'a financial contribution by a government or any public body within the territory of a Member' that confers a 'benefit'.[45] Not surprisingly, the terms 'financial contribution' and 'benefit' have given rise to disputes between WTO members. Both terms must be considered in turn.[46]

Under the SCM Agreement, a 'financial contribution' includes a direct transfer of funds (such as grants, loans and equity infusions), government revenue 'otherwise due' that is foregone or not collected, or government provision of goods or services other than general infrastructure.[47] This definition is fairly broad, although there are other types of government measures that could be viewed as subsidies that may not be directly included.[48] The direct transfer of funds is straightforward, particularly as there is no need to actually quantify the level

43 Panel Report, *EC–Asbestos*, para. 8.292.

44 Panel Report, *EC–Asbestos*.

45 SCM Agreement, Article 1.1.

46 Appellate Body Report, *United States – Final Countervailing Duty Determination Softwood Lumber with Respect to Certain Softwood Lumber from Canada* (*US–Final Determination Softwood Lumber*), WT/DS257/AB/R, adopted 17 February 2004.

47 SCM Agreement, Article 1.1. The issues around the level and use of border tax adjustments relating to domestic tax policies are not addressed in this paper.

48 As the Appellate Body notes in *US–Final Determination Softwood Lumber*, the negotiation over the SCM Agreement indicates that the term 'financial contribution' was chosen to ensure not all government

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of the financial contribution at this stage of the analysis.[49] Some of the other elements of the definition, however, are less obvious. In terms of revenue 'otherwise due', the Appellate Body in the *US–FSC* found that the comparison must be made with reference to the tax rules of the member in question as members have the right to decide what to tax and what not to tax, provided that they do not contravene their WTO obligations.[50] Tax exemptions for purchases of more environmentally friendly equipment, for example, may therefore be considered a 'financial contribution' (Chalifour, 2004). As a result, the subsidy measures discussed in Section 2, above, would likely be considered 'financial contributions' under the SCM Agreement if based on tax exemptions.

In addition, the Appellate Body in *US–Final Determination Softwood Lumber* discussed the government provision of goods and services. It found that the Canadian provincial governments provide a 'financial contribution' to tree harvesters though their stumpage programs. Contrary to Canada's arguments, standing trees are 'goods' as that term 'should not be read so as to exclude tangible items of property, like trees, that are severable from land'.[51] The Appellate Body found that a narrower reading would defeat the purpose of the SCM Agreement where standing timber is provided 'for the sole purpose of severing it from land and processing it'.[52] It further found that granting a right to harvest standing timber constitutes 'providing' the good. This decision is relevant to subsidies fostering carbon sinks such as where government provides land or areas containing forests in exchange for commitments from private parties regarding 'sinks'. Providing land to be used as sinks may not be considered a financial contribution as, even though the government is providing trees, the trees are specifically intended not to be inputs to be severed and harvested. However, exchanging land with harvestable trees for a commitment about 'sinks' may be a financial contribution.

In order to be a 'subsidy' under the SCM Agreement, the financial contribution must also confer a 'benefit'. In *Canada–Aircraft*, the Appellate Body found that '[I]n our view, the marketplace provides an appropriate basis for comparison in determining whether a 'benefit' has been 'conferred', because the trade-distorting potential of a 'financial contribution' can be identified by determining whether the recipient has received a 'financial contribution' on terms more favorable

action was encompassed within the term 'subsidy'. See, for example, Trachtman (1993) discussing the possibility of lax environmental regulations being considered a subsidy under GATT rules.

49 WTO Panel Report, *United States – Subsidies on Upland Cotton* (*US–Cotton*), WT/DS267/R, circulated 8 September 2004, upheld in Appellate Body Report, *United States – Subsidies on Upland Cotton* ('*US–Cotton*'), WT/DS267/AB/R, adopted 21 March 2005.

50 WTO Appellate Body Report, *United States – Tax Treatment for 'Foreign Sales Corporations'* (*US–FSC*), WT/DS108/AB/RW, adopted 29 January 2002.

51 Appellate Body Report, *US–Final Determination Softwood Lumber*, para. 59.

52 Appellate Body Report, *US–Final Determination Softwood Lumber*, para. 64.

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than those available to the recipient in the market.'[53] For example, in terms of a government loan, the reference point should be the prevailing market rates for similar loans.[54] The benefit in question must be examined from the perspective of whether the recipient receives a benefit and not from the perspective of the government, as Canada argued.

The definition of 'subsidy' under the SCM Agreement then establishes a boundary line around what measures are and are not subject to discipline. Because of its breadth, it seems likely that most of the subsidies related to climate change discussed above would fall within the definition of 'subsidy' under the SCM Agreement.[55] The term would likely include most tax incentives and grants to foster the use of renewable energy by industry (wind, ethanol), increases in research and development, reduction in energy use by industry, and promotion of carbon sinks.

While the 'financial contribution' requirement is not overly controversial (other than in how it applies to particular measures), the 'benefit' requirement is not optimal from either an economic or an environmental standpoint. It is arguably overly narrow, in that it does not capture a range of government actions that could be construed as protectionist such as, potentially, lax environmental laws. However, it is not clear that there would be a definable limit or basis for WTO jurisdiction if it had what would in effect be an unfettered discretion to compare states' environmental laws in this manner (Trebilcock and Howse, 2005).

More importantly for climate change policy, the term 'benefit' is also over-inclusive in a number of ways. First, Sykes notes that it does not take account of the entire tax and regulatory system. The financial contribution provided by the government may not actually confer a 'benefit' once all the other costs imposed by the government are netted out (Sykes, 2003a). It may simply be offsetting these other costs. Sykes argues that economically, it is difficult to define a subsidy other than in theory. In theory, a subsidy is a government measure that alters the market equilibrium that would exist without government intervention. However, no such pure market equilibrium exists as any market is based on a variety of government actions from property rights to tax and regulatory programs (Sykes, 2003a). As a result, the Appellate Body instead takes the broad view that the term benefit is made in comparison to what would occur in the marketplace as it exists.[56]

53 WTO Appellate Body Report, *Canada – Measures Affecting the Export of Civilian Aircraft*, WT/DS70/AB/R, adopted 20 August 1999, para. 157. The benefit must be examined with reference to the prevailing market conditions in the subsidizing country and not the exporting country (WTO Panel Report, *United States – Preliminary Determinations with Respect to Certain Softwood Lumber from Canada*, WT/DS236/R, adopted 1 November 2002).

54 WTO Panel Report, *Canada – Export Credits and Loan Guarantees for Regional Aircraft* (*Canada–Aircraft*), WT/DS222/R, adopted 19 February 2002.

55 See also Forcese (2004) arguing that most climate change subsidies would fall within the definition of 'subsidy' under US countervailing duty laws, which have similar definitions to those in the SCM Agreement.

56 Appellate Body Report, *Canada–Aircraft*.

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Such a definition of 'benefit' under the SCM Agreement is administratively simple but its overbreadth may be harmful to attempts by governments to introduce environmental subsidies. For example, a government may provide a grant to a company to help with the costs of implementing an environmental regulation. More controversially, if governments fail to take action on fossil fuel electrical generating plants (such as a tax to completely internalize the costs of environmental harm from their GHG emissions), they may instead use subsidies to renewable energy sources to provide them with a 'level playing field'.[57] It is at least arguable that in either case the government action is not a subsidy in the sense that is detrimental to international trade as it is attempting to correct or adjust for market imperfections.

Second, Sykes notes that the definition does not require that there be any impact of the subsidy on the output of the subsidized product (Sykes, 2003a).[58] The 'subsidy' may have no or minimal impact on the market for the foreign goods and yet can be found to fall within the SCM Agreement. The concern about subsidies from a WTO perspective is that they will impact international trade. If they do not impact production, they should not be found to be subject to international trade laws. It seems a weak argument for limiting domestic sovereignty that the subsidizing country would be better off if it did not subsidize on the basis that any subsidies distort resource allocation. These concerns should fall within the domestic political realm.

The issue becomes one of administrative simplicity weighed against reducing intrusions on domestic sovereignty. In one sense this overbreadth may not in and of itself be unacceptable but it must be examined in combination with the other provisions relating to subsidies (Chalifour, 2004). However, combined with the limitations in the other tests under the SCM Agreement and the lack of a public interest exception, as discussed below, it unacceptably captures beneficial subsidies along with both internationally harmful and harmless subsidies.

Prohibited subsidies

Given that most of the measures taken to address climate change set out above will constitute 'subsidies' under SCM Agreement, the next step in the analysis is to determine whether they are permissible or not. A subsidy will fall within the provisions of the Agreement if it is 'specific'.[59] However, the SCM Agreement established three categories of subsidies: prohibited subsidies, actionable subsidies

57 Chalifour (2004) raises this argument in the case of financial incentives designed to offset the costs of forest companies taking sustainable forestry practices where it does not force the industry in general to internalize the environmental costs of unsustainable forestry practices.

58 Sykes notes that there is a limited exception as a complaint of 'serious prejudice', as discussed below, may be overcome where the responding country proves that the program did not increase output (Sykes, 2003a).

59 SCM Agreement, Article 1.2.

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and non-actionable subsidies. Subsidies that fall within the prohibited category are deemed to be specific.[60]

Prohibited subsidies are subsidies that are contingent on export performance and/or require use of domestic goods over imports.[61] Subsidies contingent on export performance raise a host of economic issues that are not specific to the climate change context. Any climate change subsidy that on its face or in fact was provided based on export of the subsidized good is prohibited. Such subsidies are unlikely to address a market failure related to climate change and are unlikely to stem from a legitimate issue related to distribution.[62]

The more interesting question for the purposes of climate change subsidies is whether any of the subsidies addressing climate change would be found to be prohibited as contingent on the use of domestic over imported goods. The use of domestic goods does not have to be the sole condition on the subsidy but can be one of many conditions. Unlike Article 3.1(a) which refers to subsidies 'contingent, in law or in fact,' on export performance, Article 3.1(b) of the SCM Agreement does not specifically state whether it encompasses both conditions 'in law and in fact' related to use of domestic goods. However, the Appellate Body in *Canada–Autos* held that it encompasses both.[63]

The task of the Panel or Appellate Body then is to examine the provisions of the subsidy as a whole to determine whether it is possible for the subsidized party to purchase imports and receive the subsidy.[64] If not, the subsidy (either in fact or in law) will be viewed as contingent on the use of domestic over imported goods and be prohibited. Climate change subsidies aimed, for example, at reducing emissions from the energy industry could involve payments for the purchase of electricity from domestic renewable energy sources (Zhang and Assuncao, 2004). Such subsidies would be prohibited.

However, as Sykes notes, there is an inconsistency within the WTO. Such a per unit subsidy based on the purchase of domestic goods would have the same effects as a per unit subsidy to producers in terms of a lower price for the domestic good and higher output (Sykes, 2003a). Subsidies to domestic producers are permissible, although they may be 'actionable' in certain circumstances (as described below). Subsidies to domestic consumers, on the other hand, are prohibited even though they may have exactly the same impact (Sykes, 2003a). Why is a market imperfection leading the government to reduce the costs of renewable energy suppliers better resolved through a direct payment to the producer than to the consumers? One answer may be that it is not, but that it is easier for the WTO to police direct

60 The content of the term 'specific' will be discussed in the next subsection, below, on actionable subsidies.

61 SCM Agreement, Article 3.

62 Sykes (2003a) discusses the lack of a satisfactory economic basis for export subsidies.

63 WTO Appellate Body Report, *Canada – Certain Measures Affecting the Automotive Industry* (*Canada–Autos*), WT/DS139, 142/AB/R, adopted 19 June 2000.

64 Appellate Body Report, *Canada–Autos*.

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payments to producers. The complaining member may have difficulty obtaining evidence on the explicit or *de facto* impacts of a subsidy to consumers. Further, the WTO may have difficulty assessing such subsidies, particularly as there are other complex determinations that will remain such as those relating to injury (discussed below).

Despite the gain in administrative simplicity, there may be a loss from this prohibition on a measure attempting to address climate change. First, subsidies based on payments to consumers may be more transparent. The consumers know they are buying domestically produced goods and are being paid (with their own money) to do so. Such transparency may make the subsidizing government more accountable for its policy and, hopefully, increase the likelihood that subsidies will actually address market imperfections rather than merely provide rents.

Second, part of the basis of any successful climate change policy will likely be to change the social norms of citizens. Individuals need to understand the environmental consequences of their actions and change their behaviour accordingly. Providing subsidies to consumers and to producers in one sense leads to the same result – the price of the renewable energy source is lower and its output increased. However, there is an expressive function to the law. Making a law or policy that overtly favours purchase of renewable energy sources expresses societal approval and recognition of the importance of such initiatives (Green, 2006). This expressive function is lost, or at least considerably watered down, through less transparent subsidies directly to producers.

However, in neither case is it clear that the objective could not be met by payments for consumption of the favoured goods no matter where they are produced. The subsidies could, for example, be provided to consumers of both domestic and imported goods that use less energy. Such a subsidy policy would be more difficult politically as it would potentially lose the support of domestic industry. The SCM Agreement may therefore achieve the efficient result by prohibiting subsidies contingent on use of domestic products. The puzzle remains, however, why there is not symmetry between these consumption subsidies and the production subsidies discussed in the next section.

Actionable subsidies

Some subsidies are therefore prohibited under the SCM Agreement. Others are termed 'actionable' as they may be challenged under certain circumstances. Actionable subsidies may be challenged if they are specific and if they cause (i) injury to a domestic industry of another member; (ii) impairment of the benefits of a tariff concession for another member; or (iii) 'serious prejudice to the interests of another member'.[65] These harms essentially arise where the subsidy negatively

65 SCM Agreement, Article 5.

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impacts market access to the subsidizing member's markets or to a third country market (such as where a subsidy by one country diverts trade in a third country towards its exports and away from those of another member) or harms domestic producers in the home market of the complaining member (Sykes, 2003a). This section examines the constraints on domestic subsidy policies from WTO requirements related to specificity and harm.

Specificity

A subsidy must be specific to 'certain enterprises'. The SCM Agreement does not define 'certain enterprises' other than as 'an enterprise or industry or group of enterprises or industries'.[66] It does, however, set out the following principles for determining whether a subsidy is specific[67]:

- A subsidy is specific if the granting authority or legislation explicitly limits the subsidy to certain enterprises.
- A subsidy is not specific if the granting authority or legislation governing the subsidy establishes 'objective criteria or conditions' governing the eligibility for and amount of the subsidy, as long as the eligibility is automatic and the criteria or conditions are strictly adhered to and clearly set out in legislation, regulations, or an official document. These criteria or conditions must be 'neutral', must not favour certain enterprises over others, and must be 'economic in nature and horizontal in application, such as number of employees or size of enterprise'.
- Despite being based on objective criteria and not explicitly limited to certain enterprises, a subsidy may still be found to be *de facto* specific based on the following factors: whether the subsidy is used by a limited number of certain enterprises; whether it is predominantly used by certain enterprises; whether a disproportionate large amount of subsidy is granted to certain enterprises; and the manner in which the granting authority has exercised its discretion in relation to the subsidy.
- A subsidy is specific if it is limited to certain enterprises in a designated region of the subsidizing government's jurisdiction.

A key issue in the determination of 'specificity' is how broadly based must a subsidy be for it to avoid being found to be specific. WTO decisions have not clearly answered this question. The Panel in *US–Final Determination Softwood* found that tailoring of a subsidy does not have to be deliberate.[68] Even if the government is providing a good (such as a natural resource) that can only be used by a few industries and does not explicitly limit its use in any way, it will be considered specific. However, while the Panel found the measure at issue (rights to

66 SCM Agreement, Article 2.

67 SCM Agreement, Article 2.

68 Panel Report, *United States – Final Countervailing Duty Determination with Respect to Certain Softwood Lumber from Canada* ('*US–Final Determination Softwood*'), WT/DS257/R, 29 August 2003, para. 7.116. The Panel's finding on specificity was not appealed: Appellate Body Report, *United States–Final Determination Softwood Lumber*.

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harvest standing timber) to be specific, it noted that not all government provision of natural resources would be specific as some natural resources could be widely used (such as oil, gas, or water).

Panel decisions have also found that the term 'certain enterprises' refers to a 'type of product' and not to specific end-products.[69] For example, Canada, in the *US–Final Determination Softwood* case, had argued that the stumpage program was not specific as it had benefits for a range of industries such as the 'wooden kitchen cabinet and bathroom vanity' industry and the 'wooden door and windows' industry.[70] However, the Panel stated that that was not the test – that instead it had to look at the 'type' of products. It found that it was reasonable for the US not to undertake a detailed analysis of end-products, but to examine whether the subsidy was limited to an industry or group of industries. In that case, the subsidy was 'specific' as it was used by 'wood products industries' including the pulp industry, the paper industry, the lumber industry, and the lumber remanufacture industry. A Panel in the recent *US–Cotton* decision used the same test to find that subsidies that went solely to upland cotton were specific as were subsidies that went to other subsets of agricultural products in addition to cotton.[71] It declined to state whether a subsidy to agriculture as a whole would be considered specific.

As a result of these decisions, many subsidies that apply to climate change would likely be considered specific because they may in fact be disproportionately provided to certain industries. Subsidies which are aimed at providing energy efficiency or emission reduction payments across all sectors appear to be non-specific. However, if there are a few industries (large emitters) which 'disproportionately' use these subsidies, such subsidies could be seen as *de facto* specific. The level of use that is 'disproportionate' is not clear. The oil and gas and fossil-fuel-based electricity energy industries constitute a large proportion of industrial emissions of GHGs. They may make significant use of a subsidy based on emissions reduction.[72] Such use may make the subsidy 'specific' to those industries. However, there are a number of sectors (such as the chemical and smelting and refining industries) which make up a significant percentage of emissions but are not as large as the oil and gas sector and fossil fuel electricity generation (Forcese, 2004). The same broad-based subsidy may not be seen as specific to these industries.

A further concern relates to subsidies that focus on research and development in particular industries or that promote the development of renewable energy.

69 Panel Report, *US–Final Determination Softwood*, para. 7.121

70 Panel Report, *US–Final Determination Softwood*.

71 Panel Report, *US–Cotton*.

72 Forcese (2004) noting that of the power generation, fossil fuel, and other industries, power generation comprises approximately 32% of the total emissions, fossil fuel industries 31%, and petroleum refining 6%, making it likely that their use of any subsidies would be significant. See also Zhang and Assuncao (2004).

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Renewable energy subsidies, for example, could be viewed as specific as they apply not to the energy industry as a whole but to a sub-sector. An argument that there are many types of renewable energy such that the subsidy is spread across a range of industries seems unlikely to prevail (although the potential for co-generation sources to use such subsidies attenuates this conclusion somewhat). However, the *obiter* comment set out above by the Panel in *US–Final Determination Softwood* on natural resources makes the likely interpretation somewhat less clear. If governments can provide oil without it being held to be specific because oil benefits many industries, the research and development subsidies to renewable energy could possibly be viewed as non-specific.

The SCM Agreement specificity requirement 'is concerned with the distortion that is created by a subsidy which either in law or in fact is not broadly available.'[73] Broad-based subsidies are argued not to distort, as any effects are spread across the whole economy (Sykes, 2003a; Trebilcock and Howse, 2005). It is in part a means of identifying when a subsidy is likely to be protectionist. However, there is no reason to believe this to be true. For example, Sykes argues that 'where a principled justification for a subsidy exists, it will likely arise narrowly and case-by-case, so that the policy response will often appear specific' (Sykes, 2003a: 20). At the same time, fairly broad subsidies may have distortionary or protectionist impacts (such as subsidies applied to the entire agricultural sector) (Wilcox, 1998; Sykes, 2003a).

Subsidies addressing climate change, whether based on market failures directly or on value choices, may be broadly based (such as widely targeted energy efficiency measures). However, they may be beneficially limited to specific sub-sectors of an industry – such as is the case for subsidies for renewable energy sources or for particular energy-efficient products (such as cars). Limiting states' use of such subsidies may have a significant impact on their ability to efficiently and effectively address climate change. The most that could potentially be argued for the 'specificity' requirement is that, while it is both over-inclusive and under-inclusive, it is easy to apply.[74] However, the case law on 'specificity' illustrates that it is in fact not easy to apply and leads to considerable discretion in drawing the line between specific and broadly based subsidies. Moreover, it is not clear that the benefits of administrative ease outweigh the loss of potentially effective environmental instruments.

Adverse effect

Subsidies must not only be specific to be actionable, they must also cause an 'adverse effect'. The SCM Agreement identifies three types of adverse effects: injury to a domestic industry of another member; impairment of the benefits of

73 Panel Report, *US–Final Determination Softwood*, para. 7.116.

74 Wilcox (1998) (noting that the specificity requirement was largely adopted for administrative ease and that any other measures to limit the reach of subsidies restrictions would require too much information) and Sykes (2003a).

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a tariff concession for another member; and serious prejudice to the interests of another member. How these 'adverse effects' are determined has an important impact on the scope members have to implement subsidy measures.

The rules around adverse effects appear to address the issue of ensuring that a subsidy harms producers in other countries. In terms of 'injury to a domestic industry of another member', the complaining member must prove that the 'subsidized imports are, through the effect of the subsidies, causing injury'. Such a determination requires 'an examination of all relevant evidence', including any other known factors impacting the domestic industry other than the subsidized imports.[75] It also includes an examination of the prices in the domestic market and the impact of these prices on the domestic industry.[76]

'Serious prejudice' appears somewhat easier to prove than 'injury to a domestic industry' (Steinberg and Josling, 2003). A Panel may find 'serious prejudice' where, among other things, it finds: the subsidy displaces or impedes imports of like products into the market of the subsidizing country; displaces or impedes the export of a like product of another country from or into a third country; significantly undercuts product price relative to a like product of another country in a market; or increases the world market share of the subsidizing country in a primary product compared to the past three years.[77] Even without such effects, a Panel may still find 'serious prejudice' on all of the evidence.[78]

While there are significant information costs in gathering the relevant information on harm, the principal difficulty in establishing adverse effect is proving causation.[79] Despite the broad requirements to look to all the relevant evidence, decisions tend to actually focus more on correlation than causation (Sykes, 2003a).[80] They have not sufficiently taken account of or balanced the range of factors that could have led to the harm that the domestic industry is experiencing. This emphasis on correlation and lack of connection or direct relationship between the subsidy and the harm is also true in US countervailing duty context (Trebilcock and Howse, 2005 and Sykes, 2003a).

In the recent *US–Cotton* decision, the Appellate Body reviewed a Panel determination regarding serious prejudice and appeared to place an increased emphasis on causality.[81] The Panel had found that various US programs relating to upland

75 SCM Agreement, Article 15.5.

76 SCM Agreement, Article 15.1.

77 SCM Agreement, Article 6.3.

78 SCM Agreement, Article 6.8.

79 Steinberg and Josling (2003) arguing, however, that panels can use regression analysis to aid in causation determinations related to 'serious prejudice'.

80 Sykes (2003a) notes that there is an exception under 'serious prejudice' in which the subsidizing country has the ability to rebut a claim of serious prejudice by proving the subsidy did not increase output but maintains that the general approach of the WTO does not require proof that the subsidy has increased output.

81 Appellate Body Report, *United States – Subsidies on Upland Cotton* ('*US–Cotton*'), WT/DS267/AB/R, adopted 21 March 2005.

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cotton lead to significant price suppression and therefore serious prejudice to the interests of Brazil. It found that there was a 'causal link' between the price contingent subsidies and the price suppression. It first examined whether or not the price suppression was the effect of the subsidies and then examined whether any other factors may have played a role in the price suppression. The Appellate Body held that the Panel could adopt this methodology. It went on to note that, while correlation between the subsidies and the price suppression was a relevant factor, 'mere correlation between the payment of subsidies and significantly suppressed prices would be insufficient, without more, to prove that the effect of the subsidies is significant price suppression.'[82]

While the Appellate Body appears to emphasize causality, some aspects of its decision are troublesome in this regard. The Appellate Body established a low threshold for explanation by or reasons of the Panel. After reviewing the plausibility of the aspects of the Panel's determinations challenged by the US, the Appellate Body noted that 'the voluminous evidentiary record before the Panel included several econometric studies, and substantial data and information' and that the Panel had posed a 'large number of questions'. However, it also stated: 'we believe that, in its reasoning, the Panel could have provided a more detailed explanation of its analysis of the complex facts and economics arising in this dispute. The Panel could have done so in order to demonstrate precisely how it evaluated the different factors bearing on the relationship between the price-contingent subsidies and significant price suppression.' Despite the lack of such an explanation the Appellate Body found no legal error by the Panel 'in light of the Panel's examination of the relevant evidence, coupled with its legal reasoning'.[83] Moreover, the Appellate Body found there was no error in the Panel not quantifying the amount of the subsidy and relying solely on the finding that the subsidy was 'very large' in its analysis of serious prejudice. It merely stated that the assessment may be relevant in some cases and that 'in the present case, the Panel could have been more explicit and specified what it meant by "'very large amounts"'.[84]

These findings place a low threshold on causality analysis by Panels. They need not necessarily provide detailed explanations of how they reached their causality conclusions and need not even have particularly precise estimates of the amount of subsidies, which seems important in assessing causality in most cases. The analysis of the Appellate Body in future cases will be very important. A focus on correlation rather than causality, or a weak requirement for explaining causality, fails to address the concerns about the effect of review of domestic subsidy policies by the WTO under the SCM Agreement. A focus on correlation may be administratively simple but reduces the ability of the Panels and the Appellate Body to distinguish

82 Appellate Body Report, *US–Cotton*, para. 451.
83 Appellate Body Report, *US–Cotton*, para. 458.
84 Appellate Body Report, *US–Cotton*, para. 468.

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subsidies that are detrimental to international trade from those which are not. It sweeps under the disciplines in the SCM Agreement subsidies that may not legitimately be of concern to international trade.

Permissible subsidies

The SCM Agreement provides that certain subsidies are non-actionable. Non-actionable subsidies are subsidies that are non-specific or are specific but fall within specified exceptions related to research and development, regional development, and environmental compliance costs. The environmental exemption is narrow. The subsidy must provide assistance to 'promote adaptation of existing facilities to new environmental requirements imposed by law and/or regulations which result in greater constraints and financial burden on firms'.[85] It must be a one time subsidy, must be limited to 20% of the adaptation costs, must not cover the cost of replacing and operating the assisted investment, must be 'directly linked to and proportionate to a firm's planned reduction of nuisances and pollution', must not cover any manufacturing cost savings and must be available to all companies which can adopt the new technology.[86]

These provisions did provide a very limited safe harbour for environmental subsidies. However, they expired in 2000 and have not been renewed.[87] As discussed further below, it is important to note that, unlike GATT, there is no general exception provision under the SCM Agreement for subsidies that further a legitimate public purpose (such as protection of the environment). Given that the expiry of the 'non-actionable' category, there is no longer any public interest exception for subsidies that can be viewed as beneficial.

4. Rehabilitating subsidies

In the name of administrative simplicity, WTO subsidy rules are both over-inclusive as they constrain legitimate environmental subsidy policies and under-inclusive in that they do not adequately constrain protectionist policies. As a result, they have the potential to significantly constrain countries' ability to use subsidies legitimately to address climate change.[88] Of course, members can attempt to design

85 SCM Agreement, Article 8.2(c).

86 SCM Agreement, Article 8.2(c). Sykes (2003a) notes that these exceptions may be problematic as a government may provide such subsidies (such as for environmental compliance costs) to increase output with no marginal impact on the environment. Further, subsidies for environmental compliance may abate pollution but at the same time encourage a greater amount of the polluting activity.

87 SCM Agreement, Article 31. Sykes (2003a).

88 In addition, Bagwell and Staiger argue that the SCM Agreement may hinder negotiations towards optimal market access. They undertake a formal economic analysis of both GATT and WTO subsidies rules and conclude that in some cases the new subsidies rules may make countries less willing to grant tariff concessions than under the prior GATT rules. Such a result may occur where in the face of stricter subsidies rules, countries refrain from negotiating limits on tariffs in order to increase the probability that they can use production subsidies without challenge (Bagwell and Staiger, 2004).

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their subsidies to satisfy the conditions of the SCM Agreement. However, they would thereby potentially lose a range of effective subsidies (such as those tailored to allocating resources where they would have the most benefit) and may in addition be hindered by the potential for challenges. This section discusses various options for improving WTO rules concerning subsidies.

Refining the rules

One potential manner in which to improve treatment of subsidies is to refine the existing rules that distinguish good from bad subsidies. As Sykes notes '[i]f WTO law does a poor job at identifying the net impact of government on industries, a poor job of assessing whether government assistance to industry is justified, and a poor job of determining whether it has a significant impact on foreign competitors, it is not clear that adding new remedial options [as under the SCM Agreement] does anything worthwhile.' (Sykes, 2003a: 22) Can we then improve the way in which the WTO makes these determinations?

One option could be to narrow or limit the definition of 'subsidies' covered by the SCM Agreement. For example, the definition of 'benefit' could be narrowed to exclude measures taken by governments to 'level the playing field' between companies which do not internalize environmental costs and those which do (Chalifour, 2004). Such a definition would have to include some notion of what environmental costs were relevant, which industries were competitive, and the degree to which the subsidy levels the playing field. It is likely too much to ask of a definition of 'benefit' and a WTO Panel to engage in such a tailored examination. The information costs would be immense, even assuming there was some manner in which to determine a neutral baseline.[89]

Further, actionable subsidies are based on the specificity of the subsidy. However, as noted above, not all subsidies that promote environmental concerns may be specific but some valuable ones are targeted. There is no reason to suspect that universal subsidies are beneficial and specific subsidies are not. Altering the test to identify specificity as one indicator of potentially harmful subsidies rather than determinative or even necessary may be helpful. Again, however, the costs of such a change may be significant as it would open up a range of formerly permissible, general subsidies (such as potentially education systems) to challenge.[90] It would be a blunt, and not particularly effective, manner in which to address environmental subsidies.

The other potential aspect of the test to focus on is harm. One approach to revising the harm requirement is to focus it on subsidies that reduce the marginal cost of production (that is, whether the subsidy reduces the marginal cost of

89 Howse (2002) arguing there is 'no natural or self-evident baseline or rule' to distinguish between legitimate and illegitimate domestic policies (p. 96) and Sykes (2003a).

90 Trebilcock and Howse (2005) also argue that the specific/general distinction is too static and partial to be useful.

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the subsidized industry, thereby increasing output and notionally harming other producers). However, such an approach is too information intensive and speculative to be of real value (Trebilcock and Howse, 2005). Further, it is not entirely clear that harm is relevant in the case of legitimate climate change subsidies. Is a domestic policy that effectively addresses a global environmental concern to be prohibited solely because it injures some other party's imports into the country or impacts trade in a third country? In one sense, the answer should be no. These collateral impacts should not be relevant to the permissibility of the policy – that is, it should not be prohibited solely because of these impacts.

Tailoring the tests is therefore not a sufficient answer. It is very difficult to establish rules that permit WTO Panels to make a clear determination as to which subsidies are permissible and which are not.[91] More sophisticated tests would be expensive and unlikely to completely identify those subsidies that are harmful from those that legitimately address market failures or give expression to democratic values. As noted above, the most that appears to be hoped for from these particular rules is ease of administration.

Bargaining over subsidies

In the context of commercially oriented (as opposed to environmentally oriented) subsidies, some commentators have argued that instead of searching for better rules specifying permissible subsidies, members should negotiate over subsidies and reduce them on a product-by-product basis (Sykes, 2003a). The WTO has a role to play 'through facilitating negotiation of mutually advantageous concessions among' members but attempts to identify impermissible subsidies should be abandoned (Trebilcock and Howse, 2005: 289). Such an approach would allow members to mutually agree to reductions in subsidies, although it would require better institutions to supervise and permit negotiation (Trebilcock and Howse, 2005).

One concern with this approach is that it eliminates any hope of policing harmful subsidies where 'beggar thy neighbour' policies are adopted. The transactions costs hindering bargaining over subsidies can be quite high and potentially limit the scope for addressing different subsidies, particularly in the context of severe economic adjustments.[92] Without some ability to discipline such subsidies (that is, a threat point), bargaining may not occur in many areas. Further, such an approach is unlikely to be acceptable to major international players such as the US (Trebilcock and Howse, 2005).

In addition, while such an approach may be useful in the context of commercially based subsidies (such as support for declining industries – Trebilcock and

91 See, for example, Schwartz and Harper (1972), 'we are not very sanguine that a useful international standard can be devised' (p. 854) and Sykes (2003a), 'It is by no means clear that general principles to sort unacceptable from acceptable domestic subsidy programs can be devised and administered successfully' (p. 26).

92 Howse (2002) discussing the appearance of a move towards such policies in the 1970s.

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Howse, 2005), explicitly placing commercial and non-commercial subsidies on the bargaining table may lead to environmental subsidies being bargained away in favour of commercial subsidies for more powerful domestic industries. Such an impact depends on the scope and nature of the bargaining process including its transparency. On the other hand, such negotiations could be run, not through the WTO, but through multilateral environmental institutions. However, such international negotiations are very time consuming, can be biased against countries or interests that do not have the resources to be represented effectively in the negotiations, may not take account of variances between countries in terms of values or context, and may lead to adopting a low standard to which all agree (which may be difficult for states to exceed) (Zhang and Assuncao, 2004).

Bargaining on subsidies therefore abandons any attempt at disciplining harmful subsidies in the hope that rational policy will emerge from negotiating over subsidies on a case-by-case basis. Such negotiations may beneficial but are likely insufficient, overly time consuming, and costly (Green, 2005).[93] Parties to the Kyoto Protocol could not, for example, agree on specific measures to be taken under the Protocol and negotiations are on-going as to how it should be implemented. These negotiations are on a specific issue (climate change) that has garnered public attention. The prospect of agreement may be even lower for a wide range of other, less salient environmental issues that will require negotiation under this system.

An environmental exception

The approach to subsidies under the old GATT regime's Tokyo Round Subsidies Code appears to be close to that of the bargaining model. There were very few restrictions on the ability of states to grant subsidies (Sykes, 2003a). It actually recognized that domestic subsidies could be useful and lists permissible objectives such as encouraging research and development and certain actions to address environmental issues.[94] The difficulty was that there was no real power to discipline harmful or inappropriate subsidies.

The system was changed to allow greater control over inappropriate or 'bad' subsidies (Sykes, 2003a). The question becomes why in doing so, did the WTO set up the tests that it did – severely constraining the ability of states to grant beneficial subsidies. In large part, commentators seem to rely on the administrative simplicity of the tests and the notion that any greater refinement would impose too high an informational cost on Panels or the Appellate Body (Wilcox, 1998; Sykes, 2003a). The initial emphasis on wide scope for government subsidies was recognition that it was very difficult, if not impossible to, identify

93 But see Buck and Verheyen (2001) arguing that negotiations over a protocol for energy subsidies (e.g., those that increase consumption of fossil fuels) may be beneficial if they follow the approach of negotiation under the Agreement on Agriculture.

94 Subsidies Code, Article 11.

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permissible subsidies and therefore states should have the ability to adopt them. The situation reversed itself in the Uruguay Round. At that time, the recognition of a lack of a clear line led to rules that limited states' ability to use subsidies, including by significantly limiting (and eventually eliminating) any exception for environmental issues. This shift in approach is likely tied to the relationship Howse has noted between the emphasis of many governments before and during the Uruguay Round on a reduced role for the state and the WTO negotiations (Howse, 2002).

However, it is not clear that this burden of determining permissible and protectionist measures is any higher for subsidies than it is for regulatory measures or taxes. Tax and regulatory measures that are discriminatory may be justified by the regulating or taxing member under Article XX. A Panel or the Appellate Body analyzes Article XX in two steps.[95] First, it must determine if the measure falls within one of the specified exceptions under Article XX. In terms of measures implementing climate change policy, states are most likely to invoke the exceptions under Article XX(g) ('relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption') or Article XX(b) ('necessary to protect human, animal or plant life or health').[96] Second, it must then determine whether the conditions of the prefatory words or 'chapeau' of Article XX are satisfied. The chapeau prohibits measures from being 'applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade'.

An important aspect of the Article XX test for the purposes of this article is the 'necessity' or least restrictive means test. Appellate Body decisions have essentially required that any measure that a party attempts to justify under Article XX to satisfy the least restrictive means test. It has held that determining whether a measure constitutes the least restrictive means involves a balancing of three principal factors: (i) the importance of the objective or common interest that is the target of the measure, (ii) the effectiveness of the measure at meeting the target, and (iii) the impact of the measure on international trade.[97] It therefore involves a detailed examination of the reasoning behind the measure (Green, 2005; Trebilcock and Howse, 2005).

There is a benefit to supplementing disciplines on subsidies with exceptions at least along the lines of the expired non-actionable subsidies category in the SCM Agreement (Trebilcock and Howse, 2005; Charnovitz, 2004). It provides governments scope to use subsidies to address environmental issues

95 Appellate Body Report, *US–Reformulated Gasoline*.

96 Green (2005) discussing the scope of the test and the likelihood that various regulatory measures would fall within Article XX.

97 Appellate Body Report, *EC–Asbestos*.

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if they feel it necessary. However, the non-actionable category under the SCM Agreement was too narrow, unnecessarily cabining governments' ability to act.

Instead there should be an explicit environmental exception along the lines of Article XX of GATT, which provides governments greater ability to act and yet still permits the WTO to police these domestic actions for arbitrariness or discrimination. The only difference should be that the exception for subsidies should relate to environmental protection, broadly defined, rather than the existing Article XX categories. There is no reason why environmental measures should have to squeeze within one of the existing exceptions under Article XX (such as human, animal, or plant life or health). These exceptions are likely broad enough to cover most environmental measures but it is not clear why there should be the risk of a measure legitimately aimed at environmental issues not falling within these provisions. Other WTO Agreements have recognized the explicit importance of the environment in its own right and any exceptions provisions for subsidies should do likewise. The exception should not relate to export subsidies for which there does not appear to be a legitimate environmental rationale (Trebilcock and Howse, 2005).

If such an exception is adopted, the Appellate Body will have significant discretion to determine if subsidy measures fall within the necessity test where there is scientific uncertainty. The scientific uncertainty impacts the decision about the importance of the objective (including whether it is, for example, legitimate to go beyond the Kyoto objectives or to move more quickly or slowly in particular areas) as well as about the relative effectiveness of various subsidies and other measures (Green, 2005). Panels or the Appellate Body will have even greater difficulty where the decision rests not merely on differences in scientific opinion but on 'value judgments' made by governments (such as over the appropriate discount rate to use in the context of climate change). The level of deference by the WTO to decisions of governments will be crucial. If there is complete or very substantial deference to any and all decisions by governments, the WTO loses its ability to police subsidies (Hudec, 2003; Sykes, 2002; both arguing in the context of standards). On the other hand, a lack of deference in the face of scientific uncertainty may mean that domestic governments have no ability to implement policy or at least no certainty or predictability about the impacts (Sykes, 2002). As Hudec notes, the 'necessity' test may come down to a 'smell test' (Hudec, 2003).

Even though the rules under Article XX are not optimal in identifying impermissible and permissible subsidies, they allow some basis for action and for policing protectionism. One of the main arguments against safe harbours appears to be that they can be abused – sheltering subsidies that are merely the result of rent seeking (Sykes, 2003a). However, as Hudec notes, while science and these types of tests are imperfect, in some cases 'imperfect, best-that-we-can-do answers may be good enough, because a demand for perfection will block all regulation'

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(Hudec, 2003: 195). The argument here is that this is exactly what happened for subsidies – the lack of a perfect way to examine or assess environmentally related subsidies led to an easy to administer test (and an eventual lack of an environmental exception) with the result being a greatly reduced ability to use subsidies legitimately.

The necessity test under Article XX provides for a 'crude form of cost–benefit analysis' taking account of the importance of the objective of the domestic policy, the potential effectiveness of the policy and the relative trade-impact of the instrument as opposed to other instruments (Sykes, 2003b). It is not perfect and puts too much emphasis on proving the necessity of the policy. However, even if it is imperfect, it at least provides a basis for reviewing whether a subsidy policy is likely in the aid of environmental goals.

5. Domestic decisions, trade rules and climate change action

Subsidies to address climate change at their best will reflect considered judgments about the environment and our relationship to it. They will address market defects that hinder action reducing GHG emissions and give expression to democratic choices in a particular country. Yet there is real reason to be concerned about rent seeking and harmful subsidies measures under the guise of environmental action.

This concern about the interface between domestic climate change policy and trade rules is not limited to subsidies. In fact, there is an interesting parallel to changes to rules concerning subsidies and regulatory measures resulting from the Uruguay Round. In the case of regulatory measures, the WTO adopted a new regime for controlling domestic action. As noted above, under GATT, if a regulatory measure is discriminatory (such as under the Article III: 4 national treatment principle), it can be justified under Article XX. However, in the Uruguay Round, the WTO adopted the Technical Barriers to Trade (TBT) Agreement, which establishes specific disciplines on regulations and certain voluntary measures. The TBT Agreement imposes a least restrictive means requirement on all regulations – whether or not they are discriminatory. Every 'technical regulation' of every member must not be more trade restrictive than necessary to fulfill its objective (Article 2.2), even if they are not discriminatory. Hudec calls this 'post-discriminatory' WTO law, as it no longer requires a tie to discrimination to allow the WTO to assess the legitimacy (or second guess) national regulators (Hudec, 2003). He criticizes these post-discriminatory laws as a form of second-guessing – that the WTO is sitting on judgments of policy by governments not because they are discriminatory but because of a desire to avoid unnecessary regulation.

The rules for subsidies under the SCM Agreement align with this 'post-discriminatory' WTO approach. The WTO was born at a time when many

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governments favoured a smaller role for government (Howse, 2002). The prevailing attitude in many countries such as the US and the UK was against regulations and in favour of a test that limited 'unnecessary' regulations even if there was no discrimination. The general attitude was also against subsidies (at least by other countries) and as such permitted bright line rules that limited members' ability to subsidize to address market failures or to give expression to legitimate value choices.

However, governments must have the ability to make decisions about the appropriateness of climate change actions and the various underlying trade-offs. A valuable aspect of maintaining some discipline on subsidies but permitting an environmental exception such as is found in Article XX of GATT is that it can promote better domestic decisions. As Howse argues, allowing the WTO system to police regulatory decisions for protectionism can promote deliberative democracy by governments (Howse, 2000 and Howse, 2002). Placing an onus on governments to justify their actions, and including procedural requirements (such as the notice and comment rules under the TBT Agreement) which foster transparency of the domestic process, help improve the inclusion of values of a wider range of parties domestically and may provide some measure of protection against rent seeking. Further, international notice and comment rules improve the bargaining and discussion of measures within and across countries (Trebilcock and Howse, 2005).

This impact of WTO rules on domestic decision making can go a long way to overcoming the issues surrounding economic protectionism and environmental protection.[98] It permits a more flexible approach, particularly in conjunction with the significant steps the WTO Appellate Body has taken towards incorporating other international agreements into its interpretation of WTO agreements and providing opportunities for a broader range of stakeholders and experts to present their views.[99] The current WTO approach to Article XX is imperfect but importing it into the SCM Agreement at least allows some option for justifying environmental policies without completing opening the door to all types of subsidies.

98 Speth (2004) (arguing for the need to improve domestic decisions of governments around the world to aid in addressing global environmental issues).

99 See, for example, Knox (2004), McRae (2004) (arguing significant steps have been taken by the Appellate Body, although more are required) and Estey (2000: 92) (arguing this move to 'broaden the dialogue' allows greater international coordination on issues that transcend state borders, issues that cannot be effectively dealt with by countries on their own). See also Howse (2002) (arguing that the Appellate Body has shown in a number of decisions that it can reach decisions with legitimacy in cases where there are contested values).

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