

IS THERE A ROLE FOR TRADE MEASURES IN ADDRESSING CLIMATE CHANGE?

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INTRODUCTION

International efforts to address climate change have been constrained by the problem's underlying nature. Addressing climate change requires the combined efforts of all states that currently emit large amounts of greenhouse gases (GHGs), as well as those that will be major emitters in the future. It is difficult to get states to commit to emission reduction or to meet those commitments once made. The current principal international framework, the Kyoto Protocol, does not have all the major emitters committed to reductions, the commitments that have been made are not large enough to adequately address climate change, and there is no credible system for ensuring those commitments are met.¹

Concerns about lack of participation and compliance have led to calls for linking climate change efforts and trade measures. The French Prime Minister, for example, has called for a tax on imports from the United States in order to force it to join the Kyoto Protocol. The Canadian opposition leader has made similar statements,² while Nobel Prize winning economist, Joseph Stiglitz, has argued for trade sanctions against the United States on the basis that its lack of climate change action constitutes an illegal subsidy under international trade rules.³ Countries that are not joining in the fight against climate change and allowing others to bear the costs of reducing emissions, the argument goes, should be forced to bear costs until they stop free-riding off the efforts of others. On the other hand, Barrett argues that linking climate change action and trade measures may not be a good idea. He suggests that while the use of trade measures is 'seductive,' there are

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¹ See SCOTT BARRETT, *WHY COOPERATE?: THE INCENTIVE TO SUPPLY GLOBAL PUBLIC GOODS* 91-93 (Oxford Univ. Press 2007), for a discussion of some of the limitations of the Kyoto Protocol.

² Bill Curry, *Dion Touts Tariffs on Countries That Are Free-Riders*, *GLOBE AND MAIL*, July 24, 2008.

³ *M. de Villepin Propose une Taxe Sur Le CO₂ des Produits Importés*, *LE MONDE*, Nov. 14, 2006; see also Joseph Stiglitz, *A New Agenda for Global Warming*, *ECONOMISTS' VOICE* 2-3 (2006).

“probably good reasons why trade restrictions were not incorporated in the Kyoto Protocol from the beginning.”⁴ Others have warned that the use of trade measures to force action on climate change could negatively impact global economic growth⁵ and even lead to a trade war.⁶

This paper addresses some of the key legal and theoretical issues behind these arguments. Part II begins with a discussion of the additive public goods problem underlying climate change and the difficulty of reaching an effective international agreement to overcome this problem. Part III follows with a discussion of how trade measures may be used to foster participation in and compliance with a climate change agreement and considers the legality of doing so under international trade rules. It identifies two key means of introducing trade measures: first, states that are parties to a climate change agreement could unilaterally introduce measures against either non-parties or those who are not complying with their commitments under the agreement. Unilateral in this context means the action is not taken in accordance with the climate change agreement. Second, trade measures could be taken multilaterally by being included within a climate agreement, for example, by specifying that the parties must ban imports of certain goods from non-parties.

Part IV then addresses the critical issue of whether trade measures are likely to be effective. We argue, among other things, that the effectiveness of any such measures must take into account the actual institutional framework of the WTO rather than an idealized version that seems to underlie some discussions of trade measures. We find that the current structure of WTO institutions limits the likely effectiveness of trade measures in addressing the public goods problem underlying climate change. Part V concludes.

I. BUILDING AND ENFORCING A CLIMATE CHANGE REGIME

The Intergovernmental Panel on Climate Change (IPCC) recently came out with a very strong statement concerning the existence and cause of climate change. It stated, “Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.”⁷ Further, the increase in GHGs in the industrial era is

⁴ BARRETT, *supra* note 1, at 100.

⁵ See, e.g., Thirteenth Session of the Conference of the Parties to the UN Framework Convention on Climate Change, Bali, Indonesia, Dec. 9, 2007, *Informal Trade Ministers Dialogue on Climate Change Issues*.

⁶ *Id.* at 14; see also *Green Protectionism*, ECONOMIST, Nov. 15, 2007.

⁷ Int’l Panel on Climate Change [IPCC], *Climate Change 2007: Synthesis Report: Summary for Policymakers* 30, IPCC Doc. 3a(XXVII)/AR4.

“unprecedented in more than 10,000 years” and is “very likely” (i.e., greater than 90% certainty) due to human activity.⁸ These GHG emissions mostly result from the burning of fossil fuels.

Addressing climate change through reducing GHG emissions is an “additive public good” – that is, a public good that depends on the aggregate reductions of GHG emissions by countries.⁹ As with other public goods, the risk with additive public goods is that some parties will free-ride off the efforts of others. They will refrain from reducing emissions in the hopes that they can continue to obtain the benefits of emissions and others will bear the costs of addressing climate change. There may be free-riders even when the costs and benefits are evenly distributed across all parties.

The problem, however, is much more difficult in the case of climate change as the costs and benefits of climate change will be distributed unevenly both geographically and inter-temporally. Some countries, such as developing countries, face much larger costs than others (such as many developed countries) do. Some may even “win,” in a very narrow economic sense.¹⁰ Further, countries that take steps to mitigate the risks of climate change will not only incur direct costs (such as of adopting new technology), but also fear a negative impact on the competitiveness of their local industries.

One means of overcoming the free-rider problem is through an international agreement that commits parties to reducing GHG emissions. However, even with an international agreement, parties may still free ride, particularly where some countries “win” from climate change at least in the short-term. For example, countries may refuse to sign on to the agreement, may not make any substantial commitments under the agreement, or may fail to meet the commitments they have made.¹¹ The Kyoto Protocol provides an example of all of these types of free-riding. Some countries, such as the United States and Australia, refused to sign on. Others, such as many developing countries that are major emitters, signed on but did not

⁸ *Id.* at 37-39.

⁹ A public good is a good that is non-excludible (one party cannot stop others from enjoying the benefits of the good) and non-rival (one party’s enjoyment of the good does not reduce the amount for others). See BARRETT, *supra* note 1, at 2-7, describing reducing concentrations of GHG in the atmosphere as an additive or “aggregate efforts” public good as opposed to a “single best efforts” public good (such as stopping an asteroid from hitting the earth) which can rely on unilateral action or a “weakest link” public good (such as stopping the spread of a disease) which depends on every country being involved).

¹⁰ Daniel H. Cole, *Climate Change and Collective Action* 17 (Ind. Law Sch. Pub., Working Paper, 2007), available at <http://ssrn.com/abstract=1069906>; Cass Sunstein, *The Complex Climate Change Incentives of China and the United States* 31 (U. Chi. Law Sch. Pub. John M. Olin Law & Economics, Working Paper No. 352, 2007).

¹¹ BARRETT, *supra* note 1, at 92-93.

commit to any reductions. Still others, such as Canada, committed to reductions but will likely not meet their commitments.¹²

The question that then arises is whether stronger compliance and enforcement mechanisms can persuade the free-riders to join an international agreement and to comply with any associated commitments. Any answer to this question must take into account the distribution of costs and benefits, including the fear of loss of competitiveness from taking measures to reduce GHG emissions. One of the difficulties with international law is that countries cannot be forced to sign onto treaties and accept commitments. Even if they do sign on, there is no general international body that enforces such commitments. Countries must be willing to sign on to international agreements and accept the enforcement mechanisms. There is, therefore, an interplay between countries' willingness to enter into an agreement, the level of commitments they accept, and the strength of the enforcement mechanisms to which they are willing to agree. This self-enforcing nature of international agreements makes for difficult trade-offs in designing effective treaties.¹³

Another important aspect of many international agreements is that they deal with multiple complex and uncertain issues that cannot be fully specified in advance. For example, in the trade context, countries can negotiate over tariff reductions but it is much more difficult to specify many of the rules around non-tariff barriers to trade *ex ante*. This is the case because there are so many products and so many ways in which government measures can impact trade and because there is so much uncertainty about future economic and political conditions. As a result, trade agreements are in effect incomplete contracts.¹⁴

The self-enforcing and incomplete nature of treaties was evident in negotiation of the Kyoto Protocol. First, in order to get as many signatories as possible, the Kyoto Protocol only contains commitments from certain developed countries. These commitments were not sufficient to stabilize GHG concentrations in the atmosphere at levels deemed necessary to avoid

¹² National Round Table on the Environment and the Economy [NRTEE], *Getting to 2050: Canada's Transition to a Low-Emission Future* (Ottawa: NRTEE, 2007); Environment Canada, *Canada's 2006 Greenhouse Gas Inventory: A Summary of Trends* (Ottawa: Environment Canada, 2007), available at http://www.ec.gc.ca/pdb/ghg/inventory_report/2006/som-sum_eng.cfm (last visited Jan. 24, 2009).

¹³ For a discussion of this trade-off in environmental agreements, see BARRETT, *supra* note 1, at 13, 93, 100-01; SCOTT BARRETT, ENVIRONMENT AND STATECRAFT: THE STRATEGY OF ENVIRONMENTAL TREATY-MAKING 318 (Oxford Univ. Press 2003). In the context of trade agreements, see Henrik Horn & Petros Mavroidis, *International Trade: Dispute Settlement*, in THE LAW AND ECONOMICS OF THE WTO DISPUTE SETTLEMENT SYSTEM 183 (Edward Elgar Publishing 2005).

¹⁴ Horn & Mavroidis, *supra* note 13, at 183.

significant increases in global temperature. Moreover, developing countries, even large and growing GHG emitters, were not required to commit to a reductions target.¹⁵

Second, the Kyoto Protocol is incomplete in the sense that it does not place any limits on how emission reduction targets are to be met. It indicates a preference for domestic emissions reduction policies but also puts in place a series of “flexibility mechanisms” that allow parties to meet their commitments by reductions in other countries. This incompleteness may be due to the high costs of reaching commitment agreements and other issues (including the negotiating costs) but these costs of delay, and reduce the probability of, reaching an agreement.

Finally, even in the context of the limited scope of commitments, the parties could not reach agreement on significant monitoring and enforcement mechanisms.¹⁶ The main enforcement mechanism was developed at subsequent meetings of the parties and is known as the 1.3 penalty rule. If a party fails to meet its initial commitments under the Kyoto Protocol, its emissions cap in the subsequent compliance period will be reduced by 1.3 times the emission reductions it committed to but failed to reduce.¹⁷ Furthermore, the non-complying party cannot participate in the flexibility mechanisms in order to meet its commitments until it meets its targets.¹⁸ While this seems a severe sanction, a country that is not in compliance may not enter into re-negotiations and even if it does so, it may not be willing to take on as significant of reductions.¹⁹ Enforcement or motivation for a country’s compliance may therefore come largely from the damage to its

¹⁵ This issue of the scope and existence of reduction commitments is covered in many sources, including BARRETT, *supra* note 1, at 91-93; and Cole, *supra* note 10.

¹⁶ Compliance procedures were left to subsequent amendment (Kyoto Protocol art. 18).

¹⁷ See Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December, 2005 (FCCC/KP/CMP/2005/8/Add.3 30 March 2006), para. 92 (27/CMP.1 Procedures and mechanisms relating to compliance under the Kyoto Protocol); see also Robert N. Stavins & Scott Barrett, *Increasing Participation and Compliance in International Climate Change Agreements* 20 (Fondazione Eni Enrico Mattei Working Paper No. 94, 2002; Kennedy School of Gov’t, Working Paper No. RWP02-031) (describing the penalty as: “If an Annex I party were to emit, for example, 100 tons more than allowed in the first compliance period (2008-2012), then the party’s emission cap for the next compliance period (possibly 2013-2017) would be reduced by 130 tons – 100 tons to offset the excess plus an additional 30 tons as a penalty for non-compliance.”).

¹⁸ See Stavins & Barrett, *supra* note 17, at 20.

¹⁹ BARRETT, ENVIRONMENT AND STATECRAFT, *supra* note 13, at 386; see also Stavins & Barrett, *supra* note 17 (arguing that the enforcement mechanism in the Kyoto Protocol can be expected to fail because it does not require sacrifice and punishment is forever delayed; the magnitude of punishment depends not just on an agreed penalty rate, but on future emission limits and a country must agree to its future emission limits otherwise it would not choose to participate).

reputation for not complying with its commitments. Such damage may not be sufficient to ensure compliance given the high costs of addressing climate change.²⁰

The Kyoto Protocol therefore contains a series of relatively weak commitments (which only apply to a subset of countries) and does not include any effective monitoring or enforcement mechanisms. Even then, as noted above, a number of key countries (such as the United States) did not sign on and others (such as Canada) will not meet their commitments. It is in this context that the potential for trade measures to aid in reaching climate change objectives must be evaluated. Agreements require an enforcement mechanism to ensure compliance, but any effective enforcement system may reduce the numbers of parties willing to sign on to the agreement, thereby reducing its overall effectiveness.²¹ According to Barrett, “a treaty that sustains real cooperation must deter non-compliance *and* non-participation.”²² He argues that deterring both, but particularly non-participation, is essential because states are free to avoid or abandon

²⁰ See Andrew Guzman, *Reputation and International Law* (UC Berkeley Pub. Law Research Paper No. 1112064, 2008), for a discussion of reputation and international agreements. In this paper, we take an essentially rational choice/realist perspective that strong enforcement mechanisms are necessary to obtain compliance and the decision on whether to join or comply will depend on the particular set of incentives acting upon a country (including the costs and benefits of climate change as well as any potential trade measure). There are other aspects that are important to compliance that arise from the compliance literature. For example, ROGER FISHER, *IMPROVING COMPLIANCE WITH INTERNATIONAL LAW* (1981), discusses the importance of the role of domestic courts; Peter M. Haas, *Choosing to Comply: Theorizing from International Relations and Comparative Politics*, in *COMMITMENT AND COMPLIANCE: THE ROLE OF NON-BINDING NORMS IN THE INTERNATIONAL SYSTEM* (Oxford Univ. Press 2000), discusses the unwillingness of countries to discipline self-interested elements of domestic politics; Robert C. Bird, *Procedural Challenges to Environmental Regulation of Space Debris*, 40 *AM. BUS. L.J.* 635 (2003), describes the role of epistemic communities; Jutta Brunnée, *A Fine Balance: Facilitation and Enforcement in the Design of a Compliance Regime for the Kyoto Protocol*, 13 *TUL. ENVTL. L.J.* 223 (2000), queries whether compliance with legal regimes is inversely related to the extent to which substantive commitments require states to depart from the conduct in which they would have engaged absent the regime; Jonas Tallberg, *Paths to Compliance: Enforcement, Management, and the European Union*, 56 *INT'L ORG.* 609 (2002), argues for a holistic approach to compliance. Specifically in the context of developing countries, see ABRAM CHAYES & ANTONIA HANDLER CHAYES, *THE NEW SOVEREIGNTY: COMPLIANCE WITH INTERNATIONAL REGULATORY AGREEMENTS* (Harvard Univ. Press 2005), discussing the need for enhancement of capacities of weaker and poorer states; Peter M. Gerhart, *Reflections: Beyond Compliance Theory – TRIPS as a Substantive Issue*, 32 *CASE W. RES. J. INT'L L.* 393 (2000), arguing for the need for the rules to be seen as legitimate (linking to notions of justice and equity including the idea that as developing countries did not cause this problem, there are concerns with the fairness of imposing measures on them now).

²¹ BARRETT, *supra* note 1, at 82-83.

²² BARRETT, *ENVIRONMENT AND STATECRAFT*, *supra* note 13, at 355.

agreements if they are worried about compliance.²³

Trade measures therefore may play a role in addressing climate change by fostering participation in and compliance with a climate change agreement. The next section examines the types of trade measures that might be used and considers their likely legality under WTO rules.

II. USING TRADE MEASURES TO FOSTER PARTICIPATION AND COMPLIANCE

There are at least three ways in which countries might use trade measures to foster participation and/or compliance with a climate change agreement. First, countries might offer positive incentives or ‘carrots,’ such as preferential market access, to other countries to persuade them to participate and or meet their obligations. Second, countries could use trade measures as ‘sticks’ to enforce participation and/or compliance. For example, some countries may impose trade sanctions on countries that do not take on emission reduction commitments. Third, as an intermediate measure between ‘carrots’ and ‘sticks’, trade measures (such as border tax adjustments and regulations) may eliminate any competitive advantage held by other countries that is acting as a disincentive to the participation and/or compliance of the country in question.

These trade measures may be undertaken unilaterally or as part of a multilateral environmental agreement. Whatever type of trade measures are employed, questions will arise as to both their legality under WTO rules and their likely benefits. In this section, we briefly canvass the legal issues that will arise and note the uncertainties and difficulties they present.²⁴ The section begins with a discussion of the abilities of countries to undertake these measures unilaterally and then discusses multilateral approaches. Part IV discusses the potential benefits of these measures for addressing climate change, given the limits under trade law.

²³ See also Eric Dannenmaier & Isaac Cohen, *Promoting Meaningful Compliance with Climate Change Commitments*, Pew Center on Global Climate Change (2000) (arguing that non-participation is compliance issue as non-participation prompts other states to withdraw).

²⁴ For further analysis of WTO rules, see generally Thomas L. Brewer, *The WTO and the Kyoto Protocol: Interaction Issues* 4 CLIMATE CHANGE 3 (2004); Andrew Green & Tracey Epps, *The WTO, Science and The Environment: Moving Towards Consistency*, 10 J. OF INT’L ECON. L. 285 (2007); Joost Pauwelyn, *US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law* (Nicholas Inst. for Envtl. Policy Solutions, Duke Univ., Working Paper No. 07-02, 2007), available at <http://www.env.duke.edu/institute/internationaltradelaw.pdf>.

A. *Unilateral trade measures*

1. 'Carrots'

Various 'carrots' may be employed to foster participation and/or compliance in trade agreements. Examples include the granting of preferential trade concessions, increased investment, technology transfers, and capacity building in environmental matters.²⁵ In providing 'carrots', countries must ensure that they do not violate Article I of the GATT (the most-favored-nation obligation), which precludes a country from discriminating among its trading partners to the benefit of one at the expense of another. This will be particularly problematic in the case of trade preferences, such as reduced tariffs on imports.

In terms of developing countries, the GATT's Enabling Clause allows preferences to be granted to such countries as part of a country's 'generalized scheme of preferences' (GSP). However, the extent to which preference-giving countries may differentiate among beneficiaries is unclear. In *EC – Tariff Preferences*,²⁶ the Appellate Body found that preference-giving countries may differentiate between developing countries with different (objectively-assessed) development needs.²⁷ However, it is difficult to see that conditioning preferences on a country's participation in or compliance with a climate change agreement would fit this criteria. Climate change is, as noted, a public good. Thus, action is required to advance global welfare, not the development objectives of particular countries. If this conclusion is correct, any preferences scheme that discriminated between countries by their participation in or compliance with a climate change agreement would most likely be an Article I violation. It would then have to be justified under Article XX, which allows measures that are otherwise in violation of the GATT's rules to be justified where they are, *inter alia*, necessary to protect human, animal, or plant life or health, or are related to conservation of natural resources.²⁸

2. 'Sticks'

The most severe unilateral trade measures involve an outright import prohibition or restrictive quota on certain products. Only slightly less severe

²⁵ See Howard Chang, *An Economic Analysis of Trade Measures to Protect the Global Environment*, 83 GEO. L.J. 2131(1994) (discussing 'carrots' and 'sticks' in promoting environmental protection).

²⁶ Appellate Body Report, *EC – Conditions for the Granting of Preferences to Developing Countries*, WT/DS246/AB/R (Apr. 7, 2004).

²⁷ *Id.* ¶¶ 162-63.

²⁸ See discussion of Art. XX *infra* Part III(a)(iv).

would be the imposition of punitive tariffs. In either case, countries may select products based on either their characteristics (such as the emissions from a car) or their process and production methods (PPMs) (such as the amount of energy used in producing the car). Either approach would face difficulties under WTO rules. Any import prohibition or quota would be a violation of GATT Article XI, which prohibits quantitative restrictions. Where a country has bound its tariff rate, punitive tariffs would violate a country's Article II obligation not to exceed their bound tariff rate (unless the punitive tariff did not result in an Article II violation because the country's applied tariff was significantly less than their bound tariff). A ban or a punitive tariff that violates tariff commitments would only survive scrutiny if it could be justified under one of the Article XX exceptions (discussed below). This will be particularly difficult where the measure is based on the PPMs of the product in question.

3. Elimination of disincentives

Within countries that have taken on emission reduction commitments, the prospect of paying environmental taxes or complying with climate change related regulations may cause concern among industries that they will lose their competitive advantage to competitors from countries that have not taken on commitments. Countries that have not taken on reduction commitments will recognize the subsequent competitive advantage gained by their own industries due to their lack of emissions obligations. They may therefore be reluctant to commit, as doing so would negate this competitive advantage. One way to persuade these countries to take on emission responsibilities would be to eliminate this advantage. Countries that have agreed to such reductions might therefore impose border tax adjustments (BTAs) and/or internal regulations that impose costs on foreign producers that are equal to those faced by their own producers. In this way, they not only keep their own competitors on a 'level playing field,' but they remove any competitiveness-related disincentive for non-joining countries, thus reducing the opportunity costs of future participation and compliance. This section will discuss the scope of BTAs and internal regulations under WTO rules.

a. Border tax adjustments (BTAs)

BTAs may be used by importing countries to impose a tax that is equal to the amount payable had the products had been produced in that country ('BTAs on imports'). They may also be used by exporting countries to provide an exemption or refund to exporters on the climate change related taxes they incurred during production ('BTAs on exports').

BTAs on imports: BTAs on imports are expressly permitted by GATT

Article II.2(a) that allows countries to impose a ‘charge equivalent to an internal tax’ on the importation of any product in respect to: a) the ‘like’ domestic product; or b) an article from which the imported product has been manufactured or produced in part. It should be noted, however, that only indirect taxes may be adjusted, not direct taxes.²⁹ Indirect taxes are those that are levied on products, while direct taxes are those imposed on producers (such as payroll, income taxes, and taxes on profits).

BTAs on imports are subject to the most-favored nation and national treatment obligations.³⁰ The national treatment obligation in Article III prohibits a country using domestic policies (taxes or regulations) that discriminate in favor of its domestic producers at the expense of foreign producers. BTAs will fall foul of its requirements where an imported product is taxed ‘in excess’ of a ‘like’ domestic product.³¹ The key issue to be assessed is whether the imported and domestic products are ‘like’. To make this determination, panels look at a non-exhaustive list of characteristics including (i) the properties, nature, and quality of the products, (ii) the end-uses of the products, (iii) consumers’ tastes and habits; and (iv) the tariff classification of the products.³²

This ‘likeness’ determination is particularly likely to cause contention in the climate change context where products are alike with respect to these criteria, but differ in their PPMs. For example, will two washing machines be considered ‘like’ if one consumed a higher amount of energy during the course of its production? According to Goh, it is unlikely that goods that are otherwise ‘like’ in physical properties, characteristics, and end uses will not be considered “like” because of differences in embodied energy used in the production process.³³ On the other, these products could be viewed as not ‘like’ where consumers differentiate between them based on the perceived environmental properties of the product arising from its manner of production.³⁴ No clear answer has yet emerged from the jurisprudence,

²⁹ Report of the Working Party, *Border Tax Adjustments*, ¶ 14, L/3464 (Dec. 2, 1970), GATT B.I.S.D. (18th Supp.) at 97 (1971) [hereafter BTA].

³⁰ General Agreements on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194, art. 3. [hereafter GATT]

³¹ *Id.* art 3.2.

³² For a discussion of the national treatment principle, see Michael J. Trebilcock & Shiva Giri, *The National Treatment Principle in International Trade Law*, 2 HANDBOOK OF INT’L TRADE 185 (E. KWAN CHOI & JAMES C. HARTIGAN, EDS., Blackwell Publishing 2005).

³³ Gavin Goh, *The World Trade Organization, Kyoto and Energy Tax Adjustments at the Border*, 38 J. WORLD TRADE 408 (2004).

³⁴ In the context of regulatory (not tax) measures, the Appellate Body in *EC-Asbestos* found that asbestos containing materials differed from non-asbestos containing materials used for similar purposes in part because of differences in the health effects of the two different products and the impact such differences would have on consumers in an ideal market. Appellate Body Report, *European Communities – Measures Affecting Asbestos and Asbestos-*

although it is likely that much may depend on whether or not the products are treated differently by consumers.

There are further difficult issues that arise where a country wishes to impose BTAs not on the product itself, but on inputs such as energy or carbon incorporated during the production process. First, given that BTAs are only permitted on indirect taxes (those on products), the question arises whether or not such a tax would be considered an indirect tax. It is not clear that it would.³⁵ Second, the ordinary meanings of the words ‘in respect of the like domestic product’ and ‘an article from which the imported product has been manufactured or produced,’ as used in Article II.2(a), do not suggest prima facie that they refer to anything other than the final product. The last time the matter was expressly considered in the context of the GATT was in 1970 when the Working Party on BTAs left unanswered the question of whether hidden or process taxes can be adjusted at the border.³⁶ A disputes panel touched on the issue in *US - Taxes on Petroleum and Certain Imported Substances* (the *Superfund* case).³⁷ There, the Panel allowed BTAs on chemicals contained in products, but did not make it clear whether the substance had to be physically present in the final product.

There is a precedent in practice, however, for such an adjustment. In the late 1990s, the US introduced an excise tax on certain ozone-depleting chemicals (ODCs) in order to implement the Montreal Protocol on Substances that Deplete the Ozone Layer. Imports of ODCs were charged with a tax equal to the domestic tax. For exports, the tax was rebated. The tax was adjusted on imports of either the substances themselves or products containing or produced with them.³⁸ While its legality under WTO rules is not certain, the tax was never challenged.³⁹

Even where BTAs are allowed, if likeness of imported and domestic products has been established, the imported product must not be subject to any tax in excess of the domestic product, even where the trade effects of the tax, such as on trade volumes, are non-existent.⁴⁰ This limits the ‘punishment’ effect of BTAs, as they are not likely to be severe enough in

Containing Products, WT/DS135/AB/R Part VI (2001).

³⁵ Zhong Xiang Zhang & Lucas Assunção, *Domestic Climate Policies and the WTO*, 27 *WORLD ECON.* 359 (2003).

³⁶ BTA, *supra* note 29.

³⁷ Report of the Panel, *United States – Taxes on Petroleum and Certain Imported Substances*, ¶¶ 5.2.8-5.2.10, L/6175 (June 17, 1987), 34S/136, GATT B.I.S.D. (34th Supp.) at 136 (1987).

³⁸ See DUNCAN BRACK ET AL., *INTERNATIONAL TRADE & CLIMATE CHANGE POLICIES* (Earthscan 2000).

³⁹ For a case for accepting BTAs on inputs, see Pauwelyn, *supra* note 24, at 20.

⁴⁰ Appellate Body Report, *Japan – Taxes on Alcoholic Beverages*, WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R at 24 (Oct. 4, 1996).

themselves to force participation or compliance. However, they do have the potential to remove obstacles in the form of competitiveness concerns. Further, even if they do violate the national treatment rule, BTAs may still be justified under the GATT's Article XX exceptions (discussed below).

BTAs on exports: Like BTAs on imports, only indirect taxes may be exempted or remitted at the border under WTO rules.⁴¹ BTAs on exports must not constitute an illegal subsidy under either Article XVI of the GATT or Article I.1(ii) of the Agreement on Subsidies and Countervailing Measures (SCM Agreement). Both Agreements prohibit subsidies (including tax credits) for exports, but provide that BTAs will not constitute subsidies where they: exempt an exported product from duties or taxes borne by the like product when destined for domestic consumption, or remit duties or taxes borne by the like product when destined for domestic consumption in amounts not in excess of those which have accrued.⁴²

A BTA will violate these provisions and thus be illegal if: a) the domestic and foreign products being compared are 'like'; and b) the amount of tax exempted or remitted exceeds the amount levied on the like domestic product. The same issues regarding PPMs and likeness will arise as under Article III. Regarding the latter requirement, as with BTAs on imports, there is no *de minimus* requirement, meaning that even the smallest difference in tax levels would support a finding that a BTA is an illegal subsidy. Further, the GATT Article XX exceptions are not available to justify BTAs that violate the SCM Agreement. Thus, the question of whether BTAs on exports that are only equivalent to the tax charged on the foreign product would be severe enough to induce participation and/or compliance becomes particularly salient, as there is no possibility for justifying a BTA of greater severity. However, like BTAs on imports, export BTAs have the potential to remove obstacles in the form of competitiveness concerns.

Again, a critical issue is whether BTAs are permitted where the tax is imposed not on the final product, but on an input incorporated or exhausted in the production process (the PPMs). The situation in this regard is different from for BTAs on imports. Annex I(h) of the SCM Agreement allows a member to exempt or remit 'prior stage indirect cumulative taxes' on inputs consumed in the production of the exported product, making allowance for waste.⁴³ 'Inputs consumed' are defined to include not only

⁴¹ BTAs on direct taxes, not being permitted, constitute an illegal subsidy under the SCM Agreement.

⁴² *Agreement on Subsidies and Countervailing Measures, article 1.1(ii)*, in WORLD TRADE ORGANIZATION, THE LEGAL TEXTS: THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL NEGOTIATIONS 231 n.1 (1999) [hereafter SCM Agreement].

⁴³ "Prior-stage" indirect taxes are defined as "those levied on goods or services used directly or indirectly in making the product." SCM Agreement, *supra* note 42, at Annex I n.58.

those inputs physically incorporated but also energy, fuels and oils used in the production process.⁴⁴

On its face, therefore, the SCM Agreement appears to provide significant flexibility for BTAs on exports in relation to inputs consumed during the production process. The US Trade Representative has suggested otherwise, stating that paragraph (h) resulted from an informal agreement between developed countries that was “never intended to fundamentally expand the right of countries to apply border adjustment for a broad range of taxes on energy, especially in the developed world.”⁴⁵ However, it is not clear to what degree the United States would support its previous statement.

Further, a closer examination of the terms used in the Agreement reveals that the term used, ‘prior-stage indirect cumulative taxes,’ may not in fact apply to taxes on inputs or emissions. ‘Prior-stage indirect taxes’ are defined in the Agreement as ‘those levied on goods or services used directly or indirectly in making the product;’ while ‘cumulative’ taxes are ‘multi-stage taxes levied where there is no mechanism for subsequent crediting of the tax if the goods or services subject to the tax at one stage of production are used in succeeding stages of production.’⁴⁶ Based on these definitions, Brack *et al* argue that taxes on energy inputs or emissions are not cumulative taxes because, even though energy is used in every stage of the manufacturing process, it is taxed only once – at the point of inclusion in the production process.⁴⁷ They compare this to the ‘archetypal prior-stage cumulative indirect’ tax which they consider to be a ‘cascade tax’ that cumulates – inputs are taxed, and the outputs are taxed as well. Thus, Brack *et al* argue that the definition does not in fact apply to taxes on energy inputs or emissions. While this argument has strong merits on a textual approach, it is more questionable from a policy or contextual perspective, in that there is no immediately evident rationale for limiting the ability to adjust taxes on inputs to cascade taxes.

Cap-and-trade system: Emissions trading (or cap-and-trade) is an administrative system that involves setting a cap on the amount of pollutants (such as carbon) that may be emitted together with the issuance of emissions permits giving companies the right to emit a set amount.⁴⁸ Companies that

⁴⁴ SCM Agreement, *supra* note 42, at Annex II n.61. BTAs will, however, violate the SCM Agreement if the exemption or remission of prior-stage cumulative indirect taxes is *in excess* of the amount of such taxes actually levied on inputs that are consumed in the production of the exported product.

⁴⁵ WTO Secretariat, *Taxes and Charges for Environmental Purposes - Border Tax Adjustment*, Article IV § E(b) (Geneva: WTO Secretariat, 1997).

⁴⁶ SCM Agreement, *supra* note 42, at Annex I n.58.

⁴⁷ BRACK, *supra* note 38, at 85-86.

⁴⁸ See, e.g., Lieberman-Warner Climate Security Act of 2007, S. 2191, 110th Cong. (2007); *EU Emissions Trading: An Open System Promoting Global Innovation* (2007),

need to increase their emissions must buy permits from those who pollute less. The disincentive to join or comply with a climate change agreement arises from the competitive advantage enjoyed by companies in countries that do not maintain an emissions trading system vis-à-vis those in countries that do. The question then arises as to whether emission permits would qualify as an 'internal tax or other charge'. If they did, then countries with emission trading systems would be able to impose a tax on imports (or require the importer to hold an emissions permit).⁴⁹ However, it is not at all clear that permits can be so defined. While a permit is unlikely to be classified as a tax, it may, however, be considered an 'other charge' under Article III if it provides for the imposition of a charge and creates a liability.⁵⁰

b. Internal regulations

Instead of border adjustments, countries might attempt to use regulatory measures to ensure that, in competing on their market, foreign companies face the same competitive conditions as domestic industries. Under GATT Article III.4, regulations might be considered trade-restrictive and discriminatory if they effectively favor domestic companies at the expense of foreign competitors. Whether or not they do so will depend on their design and manner of application, with key issues being whether the domestic and imported products are 'like' each other; and if so, whether the imported product was accorded 'treatment no less favorable' than the domestic product.⁵¹ The Appellate Body has held that "like" in Article III.4 relates to "the nature and extent of a competitive relationship between and among products" and has relied on the same non-closed list of four factors as for taxes.⁵²

The Agreement on Technical Barriers to Trade (TBT Agreement) also places obligations on members. It requires that they base their technical regulations on international standards, unless they would be either ineffective or inappropriate to fulfill the legitimate objectives pursued.⁵³ In

available at http://ec.europa.eu/environment/climat/pdf/bali/eu_action.pdf; *Emissions Trading Bulletin: A Guide to Climate Change (Emissions Trading and Renewable Preference) Bill as reported back to Parliament by the Finance and Expenditure Committee: Emissions Trading*, No. 5 (June 2008), available at <http://www.mfe.govt.nz/publications/climate/emissions-trading-bulletin-5/emissions-trading-bulletin-5.pdf>.

⁴⁹ See generally Pauwelyn, *supra* note 24, at 21-23.

⁵⁰ Panel Report, *Argentina – Measures Affecting the Export of Bovine Hides and the Import of Finished Leather*, WT/DS155/R (Dec.19, 2000).

⁵¹ For a discussion of the MFN obligation, see Pauwelyn, *supra* note 24, at 31.

⁵² Appellate Body Report, *European Communities–Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/AB/R (2001).

⁵³ *Agreement on Technical Barriers to Trade*, art. 2.4, in WORLD TRADE ORGANIZATION,

addition, countries not using international standards must comply with certain procedural constraints. Article 2.1's national treatment obligation is similar to that found in GATT Article III; while Article 2.2 requires countries to ensure that their technical regulations and voluntary standards are not "prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade." This involves ensuring that the measures in question are "not more trade restrictive than necessary to fulfill a legitimate objective." This is essentially a 'necessity test' requirement, similar to that in GATT Article XX, which we discuss below.

4. The GATT's Article XX exceptions

Article XX may save a unilateral measure that violates the GATT. This requires panels to determine, first, whether the measure falls under an exception specified in Article XX. Those relevant in the climate change context are Article XX(g) ('related to the conservation of exhaustible natural resources') and XX(b) ('necessary to protect human, animal, or plant life or health'). Second, panels must determine whether the conditions of the introductory paragraph or 'Chapeau' apply.⁵⁴

Article XX(g) has not yet been considered by a panel or the Appellate Body in the climate change context and uncertainties exist as to its interpretation. One question is whether the term 'exhaustible natural resources' can properly be read to encompass the climate. The Appellate Body has, however, ruled that the term is to be applied by reference to evolving global concerns and international agreements, suggesting that this question would be answered in the affirmative.⁵⁵ Also important is whether the 'related to' requirement has been met. This requires a close relationship between the means and the end,⁵⁶ and interpretation difficulties will arise in the face of uncertainties over the various causes and effects of climate change.

THE LEGAL TEXTS: THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL NEGOTIATIONS 122 (1999).

⁵⁴ Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline (US – Reformulated Gasoline)*, WT/DS2/AB/R (adopted May 20, 1996).

⁵⁵ See, e.g., Matthias Buck & Roda Verheyen, *International Trade Law and Climate Change – A Positive Way Forward*, FES ANALYSE ÖKOLOGISCHE MARKTWIRTSCHAFT (2001), available at <http://library.fes.de/pdf-files/stabsabteilung/01052.pdf>; G. Sampson, "WTO Rules and Climate Change: The Need for Policy Coherence" in *Global Climate Governance*, www.geic.or.jp/climgov (last visited Jan. 24, 2009).

⁵⁶ Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline (US – Reformulated Gasoline)*, ¶¶ 13-19, WT/DS2/AB/R (adopted May 20, 1996); Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products (US – Shrimp I)*, ¶ 36, WT/DS58/AB/R (adopted Nov. 6, 1998).

Article XX(b) is relevant to the extent that climate change is not only an issue of environmental conservation, but also one of human, animal, and plant health.⁵⁷ A determination that measures that otherwise violate the GATT are nevertheless necessary under Article XX(b) requires that the objective be seen as important, and that alternative measures be neither as effective at reaching the objective nor, significantly less trade restrictive.⁵⁸ These factors will vary enormously depending upon the measure in question. For example, regulatory measures might range from those that have relatively low trade impact (e.g., eco-labeling⁵⁹) to those with a high impact (e.g., product bans). Taxation is usually regarded as an effective tool to tackle environmental problems, but it will still be necessary to look at the extent to which the measure contributes to the realization of the end pursued.⁶⁰ The question of efficacy will be particularly difficult given the scientific and economic uncertainty surrounding the impacts of climate change and the most effective means of addressing those impacts.⁶¹ The Appellate Body has, however, recently moved towards an interpretation of ‘necessary’ that is fairly deferential to state regulatory decisions, implying that this hurdle may be reasonably readily met.⁶²

The Chapeau prohibits measures that are “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.” Among the factors that the Appellate Body has focused on in assessing compliance with the Chapeau is whether there have been good faith attempts to reach a multilateral agreement on the particular issue

⁵⁷ For a full discussion see Lisa Heinzerling, *Climate Change, Human Health, and the Post-Cautionary Principle* (Georgetown Univ. Law Ctr., Research Paper No. 4, Sept. 2007).

⁵⁸ See Panel Report, *Korea – Measures Affecting Imports of Fresh, Chilled and Frozen Beef*, ¶¶162-164, WT/DS161/R, WT/DS169/R (July 31, 2000); Appellate Body Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, ¶172, WT/DS135/AB/R (2001); Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, ¶156, 178, WT/DS332/AB/R (2007).

⁵⁹ Buck & Verheyen, *supra* note 55.

⁶⁰ BARRETT, ENVIRONMENT AND STATECRAFT, *supra* note 13, at 355.

⁶¹ Douglas A. Kysar, *Climate Change, Cultural Transformation and Comprehensive Rationality*, 31(3) Boston College Environmental Affairs L.R. (forthcoming); see also Daniel A. Farber, *Adapting to Climate Change: Who Should Pay?* (UC Berkeley Public Law Research Paper No. 980361, 2007).

⁶² Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres*, WT/DS332/AB/R (Dec. 3, 2007); see also Robert Howse & Elizabeth Tuerk, *The WTO Impact on Internal Regulations – A Case Study of Canada – EC Asbestos Dispute*, in THE EU AND THE WTO: LEGAL AND CONSTITUTIONAL ISSUES 283 (Grainne de Burca & Joanne Scott eds., 2001); Andrew Green, *Was That Really Necessary? Some Implications of Trade Law for Alternative Energy* (Univ. of Toronto Faculty of Law, Faculty Workshop, FW-10 (2007-08), April 2008).

through serious negotiations.⁶³ Developed countries wishing to use trade measures to force compliance by others (including developing countries) might argue that the Kyoto Protocol (or other post-Kyoto agreement) constitutes such an attempt and that the failure of those other countries to make reduction commitments justifies the imposition of trade measures. However, fairness considerations will arise in the case of developing countries who may raise some kind of estoppel argument given that the outcome of the Kyoto negotiations was that they were not required to take on the same commitments as Annex I countries.

B. Multilateral trade measures

Given the difficulties in using unilateral trade measures, the question arises as to whether there are any benefits from including trade measures in a climate change agreement. In particular, would this approach be beneficial in reducing the uncertainties and risks surrounding the use of unilateral measures? Trade measures have been included in a number of MEAs, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Montreal Protocol on Substances that Deplete the Ozone Layer, and the Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal. The most common use of trade measures in these and other agreements has been to impose restrictions or conditions on the ability of states to import or export certain products, whether they be harmful to the environment themselves (e.g., hazardous chemicals) or where trade itself is harmful to the things sought to be conserved (e.g., endangered species). Trade measures have also been used to deter free-riding and thereby eliminate disincentives to joining an agreement. For example, the Montreal Protocol seeks to ensure that environmental gains made are not undermined by activities of non-parties by providing an exception to a ban on trade with non-parties where the country in question is determined to be in full compliance with the Protocol's control measures.⁶⁴ Trade measures have generally only been used as a 'stick' as a last resort. For example, the CITES makes provision for suspension of trade with a non-complying Party, but the focus is on working with the non-complying party to achieve remedial action. A recommendation for a suspension of commercial or all trade in specimens of one or more CITES-listed species tends to be used as a last resort where a Party's non-

⁶³ Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R (Oct. 12, 1998) (adopted Nov. 21, 2001).

⁶⁴ UNITED NATIONS ENVIRONMENT PROGRAMME [UNEP], *Trade Related Measures and Multilateral Environmental Agreements*, ¶14, UNEP, Economics and Trade Branch, Division of Technology, Industry and Economics (2007), at 12.

compliance is unresolved and ‘persistent.’⁶⁵

The Montreal Protocol is commonly referred to as being one of the most successful multilateral environmental agreements (MEAs) and is cited as a possible model for a future climate change agreement. In particular, much has been made of its reliance on trade measures, both to restrict trade in certain products, and its use of trade measures to enforce compliance. However, the inclusion of trade measures in the Montreal Protocol does not provide much guidance for a multilateral climate change agreement in terms of the legality of such measures. While the Montreal Protocol’s trade measures – particularly those relating to PPMs – may have been incompatible with WTO rules, the issue has not been tested in dispute settlement.⁶⁶

Further, the question of WTO compatibility may not be a practical problem for the Montreal Protocol because its membership is larger than that of the WTO. Where an MEA’s membership is larger than the WTO’s, and all parties agree to inclusion of the measures, then the risk of a trade dispute is greatly minimized. It is unlikely that two WTO members that are also parties to an MEA would bring a dispute to the WTO over trade measures contained in the MEA.⁶⁷ However, a likely problem with including trade restrictions in a climate change agreement is that not all countries would be parties to that agreement, thus the issue of how the WTO ought to deal with rules in MEAs is likely to arise.⁶⁸

The question of the relationship between the WTO and MEAs has been the subject of long-running and as yet unresolved discussions in the WTO’s Committee on Trade and Environment (CTE). Article 31(3)(c) of the Vienna Convention on the Law of Treaties provides that in interpreting treaties, reference must be had to “any relevant rules of international law applicable to the parties.” In *EC-Biotech*, the Panel took a narrow approach to Article 31(3)(c) and found that a rule of international law would only apply where it was applicable to *all* WTO Members. In this case, the US was not party to the treaties in question (the Convention on Biological Diversity and the Biosafety Protocol), so the Panel rejected the EC’s call to take them into account in interpreting the WTO rules at issue in the dispute.

This approach has been criticized and it is not clear to what extent, if at all, it will be followed in future cases.⁶⁹ In other instances, the Appellate

⁶⁵ *Id.* at 26.

⁶⁶ Of course, even if in violation of the Agreement’s non-discrimination provisions, such measures may be justified under the Article XX exceptions.

⁶⁷ See also, Risa Schwartz, *Trade Measures Pursuant to Multilateral Environmental Agreements – Developments from Singapore to Seattle*, 9 RECIEL 63 (2000).

⁶⁸ See Stavins & Barrett, *supra* note 17, at 21-22.

⁶⁹ See, e.g., Caroline Henckels, *GMOs in the WTO: A Critique of the Panel’s Legal Reasoning in EC-Biotech*, 7 MELB. J. INT’L L. 278 (2006). Nathalie Bernasconi also critiqued

Body has suggested that non-WTO legal norms have legitimate uses in WTO dispute settlement. For example, it has used international environmental law to interpret the scope of the Article XX(g) exception to the GATT (*Shrimp/Turtle*) and to establish whether a species is endangered (*Shrimp/Turtle*) as required by Article XX(g).⁷⁰ Also in *Shrimp/Turtle*, the Appellate Body referred to international law (the Rio Declaration) as being reflective of broader agreement in the international community, even where not all parties were bound by that law.⁷¹

As a result, the inclusion of trade measures within a climate change agreement does not provide an easy solution to the difficulties associated with unilateral measures. The relationship between the WTO and MEAs is, despite ongoing discussions in the CTE, largely unresolved. As will be discussed in the next part, there are potential benefits from the use of trade measures in multilateral agreements but the uncertainty surrounding their legality may limit the willingness of parties to incorporate them.

III. WILL TRADE MEASURES WORK?

Thus, there are a range of measures, both unilateral and multilateral, that would potentially comply with WTO rules, depending on their manner of application. Will such measures help address the public goods/collective action problem that lies behind climate change? In order to assess the use of trade measures and the form they should take, it is necessary to return to their purpose. As noted above, the general purpose of trade measures in the climate change context is to overcome free-riding. They should “deter” both non-participation and non-compliance in order to be effective. This section will assess the effectiveness of the three types of trade measures described in Part II, namely (i) ‘carrots;’ (ii) overcoming disincentives (in particular, loss of competitiveness); and (iii) sticks.

A. ‘Carrots’

As noted above, states could use unilateral trade measures as positive incentives to induce countries to participate in or comply with a climate change agreement. The most likely type of measure would be tariff preferences for specific products (such as more energy efficient products) or

the decision during a presentation to the 7th Annual WTO Conference, British Institution of International and Comparative Law, Grey’s Inn, London, (May 21-22, 2007) (unpublished comment, on file with author) (Bernasconi argued that the Panel’s interpretation has the capacity to lead to increased fragmentation of international law).

⁷⁰ Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, ¶¶ 129-31, 132, WT/DS58/AB/R (Oct. 12, 1998).

⁷¹ *Id.* ¶ 154.

more generally for products from a particular country. Given the MFN obligation, these preferences would have to be justified under Article XX, except potentially in the case of conditions to developing countries that could fit under the Enabling Clause. Trade measures in the form of carrots are less likely to be utilized on a multilateral basis; incentives within a climate change agreement are more likely to take the form of capacity-building and other forms of assistance towards meeting emission reduction commitments.

In theory, unilateral trade preferences would provide some incentive for countries to refrain from free-riding. A further advantage is that, unlike straight cash payments, they may have beneficial effects in terms of economic growth from trade liberalization.⁷² However, there are a number of concerns with the use of trade measures as ‘carrots.’ First, the actual incentives (absent other measures) would have to be sufficiently large to overcome the difference between the costs and benefits of climate action for a particular country. However, this difference at least in the short term appears very large for some countries, and it would be difficult to tailor sufficiently large incentives to induce their participation and compliance.⁷³ Positive incentives may, however, have some impact where the difference is not large, or in fact is negative, (the benefits exceed the costs) but the country needs resources (or in this case revenue) to finance change.

Second, Stavins and Barrett note that in many cases, positive incentives such as monetary transfers are zero sum – that is, there is a loser and a winner – which makes them difficult to sustain.⁷⁴ Carrots in the form of trade preferences in one sense reduce this risk as reducing trade barriers actually increases national welfare in the compensating state, thereby insuring that both parties ‘win’ in terms of increased welfare from reduced barriers. However, there remains an underlying political risk or potential loss to the compensating state that faces a loss of political support from the industry that was formerly protected by the trade barrier. On the other hand, it also potentially gains from the benefit to consumers/citizens in the form of cheaper imports due to the lower trade barriers and satisfaction of any ‘green’ preferences from aiding in addressing climate change. The gain in terms of either welfare or political support from consumers (both from cheaper ‘green’ products and from action on climate change) must be greater than the loss to the industry that is no longer protected.

Second, countries have different reasons for not entering into a climate change agreement. For some developed countries, such as the US, the

⁷² See ROBERT HUDEC, *DEVELOPING COUNTRIES IN THE GATT LEGAL SYSTEM* 151 (Gower 1997).

⁷³ Sunstein, *supra* note 10, at 35.

⁷⁴ See Stavins & Barrett, *supra* note 17, at 18.

benefits (at least in the short term) from taking climate change action may seem to be outweighed by the costs.⁷⁵ For others, particularly developing countries, there are significant benefits from action, but they are either resource constrained or face a large cost in terms of loss of economic opportunities. Providing positive incentives in the form of trade preferences may be difficult politically where the proposed recipient is a country is a large economy such as the US or China. Any system of preferences may need to be primarily aimed at developing countries in order to overcome resource constraints, which will reduce their overall effectiveness.

Finally, Chang argues that the use of ‘carrots’ to foster environmental protection actually creates incentives to harm the environment, at least in the short run.⁷⁶ Countries that are potentially eligible for incentives may be induced to pollute in new ways in order to gain eligibility (for example, engaging in an activity such as coal-fired electricity production in order to gain the preferences).⁷⁷ Further, if the size of the incentive depends on the amount of pollution, the eligible countries may be induced to pollute more to gain a greater benefit. The costs of identifying and monitoring potential recipients could be very large. This concern about the incentive effects of preferences may have greater resonance for preferences relating to PPMs than for products that they emit (GHG), as the former are likely more open to manipulation.

Increasing participation and compliance with climate change agreements may therefore be aided by using trade measures as ‘carrots.’ However, they have only limited potential due to concerns about their level, distributional impacts, and incentive effects. They will likely be insufficient on their own and should be based on direct product characteristics (such as GHG emission levels or energy efficiency) rather than PPMs.

B. Reducing Disincentives: Bans and Internal Measures

One of the greatest concerns expressed domestically about a country adopting climate change commitments is that the country may face a loss of competitiveness.⁷⁸ The fear is often expressed as a concern about ‘leakage’, where an industry moves from (or does not locate to) a jurisdiction with

⁷⁵ Sunstein, *supra* note 10, at 3.

⁷⁶ See Chang, *supra* note 25, at 2155-59.

⁷⁷ See Michael W. Wara & David G. Victor, *A Realistic Policy on International Carbon Offsets* (Freeman Spogli Institute for Int’l Studies, Stanford Univ., PESD Working Paper No.74, 2008), for recent discussion of offsets.

⁷⁸ For a survey of competitiveness issues see Aaron Cosbey & Richard Tarasofsy, *Climate Change, Competitiveness and Trade* (A Chatham House Report, The Royal Inst. of Int’l Affairs 2007); Pauwelyn, *supra* note 24, at 2.

strong climate change laws because the cost of production is too high.⁷⁹ They will instead, it is argued, move to jurisdictions that do not impose such costs.

Trade measures can help overcome these competitiveness concerns through either border measures (such as BTAs) or internal measures (such as taxes or regulations). Measures aimed at the characteristics inherent in the product itself (such as the level of GHG emissions or energy efficiency) can help to ensure that purchases in the domestic market are not distorted by differential costs from standards based on those characteristics. Measures related to PPMs will also aid in reducing distortion. For example, a BTA on imported cars made with coal-fired electricity could equalize the impact of a domestic tax on the carbon emissions of locally generated electricity. More severe would be an import ban on a product that cannot be produced domestically, or a regulation that bans the use of a product whether produced domestically or imported. As with carrots, these types of measures are most likely to be taken on a unilateral basis.

There a number of concerns with this approach. First, there is a potentially high cost associated with sorting among the various imported products to determine the appropriate tax adjustment.⁸⁰ Some requirements may be easier than others, such as certain product standards that are more easily monitored (for example, an automobile emission limit). It would be particularly difficult to attempt to get credible information on PPMs in some countries. The lessons from the Montreal Protocol in this regard may be of limited value. The Montreal Protocol dealt with a group of identifiable products that could be targeted by specific trade measures. On the other hand, any comprehensive climate change agreement will inevitably cover an enormous range of goods and services. The manufacture of almost all goods results in GHG emissions and even some services (e.g., tourism) – it would thus be virtually impossible to draw up a list. For measures to be targeted to specific products, an assessment would have to be made of the levels of carbon emitted in production and distribution processes, similar to the idea of determining the carbon footprint for products. However, this raises questions as to how the carbon emissions for any given product would be measured and this is likely to be extremely contentious and costly.⁸¹

Second, the impact of these measures on the domestic market will depend on the extent of the market and the nature of the measure. A BTA

⁷⁹ Jonathon B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV. 1961, 1967-68 (2007).

⁸⁰ See Stavins & Barrett, *supra* note 17, at 21 (arguing that it is very costly to attempt to use BTAs on all relevant products and attempting to impose them on a subset of products would be ineffective).

⁸¹ For a discussion of possible means of calculation, see *id.* at 22.

on imports would make the domestic products competitive with imports, while a BTA on exports would make it competitive in other markets. However, non-tax measures such as regulations work only on the domestic market if the country has no market power. For example, if a standard (as opposed to a tax) were used to influence emissions from domestically produced goods, an equivalent standard for all imported products would ensure that all products in the domestic market face similar constraints. However, if the standard was applied to a product which is exported and is costly to tailor for export markets, the domestic industry may lose out in international markets if its competitors in those markets are not required to meet similar standards. Moreover, a standard that affects the cost of an input such as electricity (in effect a PPM) would not be able to be recovered at the border and would disadvantage the domestic producer on the world market. As was seen in Part 3, whether an emissions trading system can be adjusted at the border remains an open question.

Finally, this discussion has assumed that the government applying the measure seeks to increase either domestic or global welfare. However, if political officials may take actions which benefit themselves (such as in terms of funds for re-election or future employment opportunities) rather than those that explicitly aim at increasing national, let alone global, welfare. This public choice view of state action may mean that states do not impose sanctions to merely offset the costs of climate action. They will do so to protect (favor) certain domestic industries.⁸² Distinguishing such protectionist action from legitimate environmental measures is difficult for panels and the Appellate Body. This difficulty arises, for example, in determining whether a measure violates the national treatment principle or if it violates the principle but is saved as a legitimate environmental measure under Article XX. To the extent panels and the Appellate Body cannot draw such a distinction, and protectionist measures slip through, trade may be unnecessarily reduced or distorted.

Further, even if a panel or the Appellate Body can determine that certain measures are illegitimately protectionist, the remedies for violation of WTO agreements may be too weak to adequately deter such protectionism. If measures are found to violate WTO agreements, the party that took the measure is supposed to bring itself into compliance with the WTO rules. If it fails to do so (and if the parties cannot agree on compensation), the complaining party is permitted to retaliate by suspending trade concessions or other obligations against the responding country.⁸³

⁸² See generally, Jide Nzelibe, *The Case Against Reforming the WTO Enforcement Mechanism*, U. ILL. L. REV. 319 (2008); Alan Sykes, *The Economics of Public International Law* (U. Chi. L. & Econ., Olin Working Paper No. 216, 2004).

⁸³ Understanding on Rules and Procedures Governing the Settlement of Disputes, Apr. 15,

The first concern with this mechanism for addressing violation of WTO agreements is the level of retaliation. The complaining state may suspend concessions or obligations equivalent to the nullification and impairment of benefits caused by the illegal trade measures. This level of sanction may be viewed as a form of liability rule – that is, a rule that allows the responding (violating) party to determine if the harm it is causing is greater or less than the benefits it receives. Such a level appears to allow for efficient breach – that is, violation where it is efficient – rather than a strict prohibition against violation. The latter would require high penalties for violation designed to induce compliance.⁸⁴ The use of liability rules to back WTO obligations means that those countries using climate change as an excuse for protectionist measures will not necessarily be forced to remove them. They may decide that bearing the suspension of concessions or other obligations is worth the cost. On the one hand, retaliation may provide incentives for exporters and consumers to pressure their (violating) government to remove the illegal measures. On the other hand, however, it may be ineffective where, for example, political officials in the protectionist country are acting in a self-interested fashion, and suspension of concessions does not impose costs on sufficiently powerful domestic interests.⁸⁵

This analysis so far is typical for any type of protectionist measure. However, with climate change there may be an even greater tendency towards protectionism. In general, protectionist action has a negative welfare effect on the country that is taking the protectionist measure.⁸⁶ Producers gain, but consumers lose, although because the losses to individuals are smaller and more diffuse, consumers tend to face a collective action problem that limits their ability to pressure government not to take action.

However, in the climate change context, even the limited pressure from consumers may be negated. If the public supports action on climate change,

1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, Legal Instruments – Results of the Uruguay Round, 33 I.L.M. 1125 (1994), art. 22.

⁸⁴ See, e.g., Warren Schwartz & Alan O. Sykes, *The Economic Structure of Renegotiation and Dispute Resolution in the World Trade Organization*, 31 J. LEGAL STUD. S179 (2002); Joel P. Trachtman, *The WTO Cathedral*, 43 STAN. J. INT'L L. 127 (2007). But see John H. Jackson, *International Law Status of WTO Dispute Settlement Reports: Obligations to Comply or Option to 'Buy Out'?*, 98 AM. J. INT'L L. 109, 123 (2004); Joost Pauwelyn, *Optimal Protection of International Law: Navigating Between 'European Absolutism' and 'American Voluntarism'* (U. of St. Gallen L. & Econ., Working Paper No. 27, 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1019415.

⁸⁵ But see Nzelibe, *supra* note 82 (arguing that current enforcement mechanisms do ensure pressure is placed on political officials even under public choice version of state action).

⁸⁶ P. KRUGMAN & M. OBSTFELD, *INTERNATIONAL ECONOMICS: THEORY AND POLICY* 184-86 (7th ed. 2005) (discussing loss of welfare from tariffs, particularly if country is small in sense of not being able to affect world price of good).

its opposition to protectionist measures may be muted. The public may not realize the measure is protectionist and not object as they view it as furthering environmental goals. Further, the public may even call for protectionist measures. In such a situation, there is a heightened risk of a country taking protectionist measures – political officials can respond to protectionist pressures with little risk of political backlash from the general public. They may thus make a politically advantageous decision to implement measures despite (and even in the event of) retaliation by a third country.

Developing countries may face a particularly strong likelihood of their trading partners imposing protectionist measures. This is because developing countries may not be able to use the WTO enforcement system effectively. They tend to lack the resources to effectively identify and challenge protectionist measures by other countries. Moreover, they may be unwilling to challenge measures by more powerful countries due to fear of retaliation either in trade or in other areas such as foreign aid. Finally, even if they can use the system, developing countries will often lack the power to actually force change. As noted, the WTO enforcement mechanism involves the complaining party responding to violations of WTO obligations (such as illegitimately protectionist measures) through the removal of trade concessions. For this mechanism to be effective, the complaining party must have the ability to harm exporters in the protectionist country. However, developing countries do not have sufficiently large or valuable enough trade volumes to be able to cause such harm in developed countries. As a result, developing countries tend to use the WTO enforcement system much less than would otherwise be expected.⁸⁷ This reduced use of the WTO dispute settlement mechanism may mean that developed countries may not be as constrained in taking protectionist measures against developing countries, as they would be in taking such measures against other developed countries.

Trade measures can therefore be used to overcome the disincentive to taking climate action that arises because of the fear of loss of competitiveness. However, these measures work best for taxes rather than other measures because of the possibility of using BTAs. Further, there is a significant risk that they open the door to protectionist action, which leads to its own loss to global welfare. This loss to welfare may be reduced to the extent that the states adhere to international standards for products, as are fostered under the TBT Agreement. This loss may also be reduced to the

⁸⁷ For discussions of the difficulties of developing countries using the dispute settlement system, see, e.g., Chad P. Bown & Bernard M. Hoekman, *Developing Countries and Enforcement of Trade Agreements: Why Dispute Settlement is Not Enough*, 42 J. WORLD TRADE 177 (2008); Andrew T. Guzman & Beth A. Simmons, *Power Plays and Capacity Constraints: The Selection of Defendants in World Trade Organization Disputes*, 34 J. LEGAL STUD. 557 (2005).

extent that panels or the Appellate Body are able to sort between protectionist measures and legitimate environmental measures. The latter may not be significantly reduced by the measures being specifically adverted to in a climate change agreement unless the agreement limits the discretion permissible for such actions (in which case the rules are likely either to be weak or the costs of negotiating very high).

C. 'Sticks'

Trade measures as 'sticks' may be used unilaterally but there is also the possibility, as noted above, of incorporating them into a multilateral agreement. Stavins and Barrett argue that cooperation in an international agreement always requires a threat of punishment.⁸⁸ To be effective, these threats must be both severe and credible. They must be severe enough to make states want to join the agreement. However, if they are too severe, there is a risk they will not be credible because they will also impose a high cost on the sanctioning states.⁸⁹

In terms of whether trade measures are capable of constituting a sufficiently severe threat, they must be costly enough to the non-participating state such that it is better off bearing the costs of participating and reducing emissions. It will be difficult to make trade measures this severe. Simply put, it would be administratively costly to do so, as it would be difficult to determine which goods contain or are made with GHGs and to design a tax or other measure to balance out these costs.⁹⁰

However, perhaps a more important issue is whether trade measures will be effective given the actual WTO institutions and how they operate. The theory behind trade sanctions is for the sanctioning party to impose costs on the non-participating/non-complying state. The hope is that this sanctioning state will act with global welfare in mind (although, as we discuss below, it may not act if the sanction is sufficiently costly to itself). As we noted in the last section, however, government officials may not act to further national, let alone global, welfare but instead in their own self-interest, favoring concentrated interests that can provide them with some form of benefit. The result may be protectionism, in this case in the guise of fostering participation or compliance with a global agreement.

In the discussion of alleviating the impacts on competitiveness, we noted that there was a potential bias in favor of strong action where it has benefits for domestic industry. In one sense, such a bias in favor of strong

⁸⁸ See Stavins & Barrett, *supra* note 17, at 19.

⁸⁹ BARRETT, ENVIRONMENT AND STATECRAFT, *supra* note 13, at 278.

⁹⁰ *Id.* at 100-01 (discussing use of Montreal Protocol type mechanisms in context of climate change).

action could be argued to be beneficial. Measures against non-participants are likely to be more severe (and, as noted below, credible, as they do not impose a major cost on the sanctioning country, at least politically). The difficulty is that such measures hinder trade liberalization more than is necessary. They impose at least short-term costs that are higher than necessary until the non-participants join or comply with the agreement.

Further, states that are parties to a climate change agreement may use protectionist measures not only to aid their own producers but to essentially aid all members of the agreement – that is, there is a risk of the creation of a trading block (with the attendant trade diversion) of the type that the MFN obligation attempts to avoid.⁹¹ The parties may set the terms of participation in the agreement sufficiently high that it is extremely costly for the non-participants to join, perhaps even more costly than for the original parties (including in terms of competitiveness). The non-participants then have a choice of bearing the high costs of protectionist trade measures or joining an agreement that imposes disproportionately high costs on it. As noted, below, these risks may be even greater for developing countries lacking the ability to deter even blatantly protectionist measures.

The risks from protectionist measures are even greater for developing countries. As noted in the last section, they lack the ability to effectively enforce WTO rules concerning protectionist measures. While severe measures may induce developing countries to participate, they may impose high short-term costs until they do so. However, there are potentially greater long-term costs if they are forced to sign on to an agreement that does not fairly distribute the burden of reducing emissions.

Trade measures must not only be sufficiently severe, they must also be credible. Stavins and Barrett argue that “to be credible, countries threatening to impose restrictions must be better off when they carry out their threats than when they do not, given that non-participation has occurred.”⁹² For example, while the Montreal Protocol provides for suspension of trade in cases of non-compliance, trade restrictions have not actually been imposed.⁹³ Stavins and Barrett suggest that this is due mainly to reasons of feasibility. However, they also suggest that the Protocol’s success was in part due to the fact that the threat of trade restrictions was credible because the parties believed that there was a significant possibility of leakage of industry to non-members. The benefits of curtailing this

⁹¹ For a discussion of the purpose of the MFN provisions, see MICHAEL TREBILCOCK & ROBERT HOWSE, *THE REGULATION OF INTERNATIONAL TRADE* (3d ed. 2005).

⁹² See Stavins & Barrett, *supra* note 17, at 19.

⁹³ Stavins & Barrett, *supra* note 17, at 21 (indicative list of measures that might be taken by a meeting of the Parties in respect of non compliance with the Protocol, Non-compliance Procedure, Annex V of the report of the Fourth Meeting of the Parties).

leakage provided the parties with sufficient credibility that they would bear the costs of sanctioning non-participating countries.

There is a significant concern about leakage in the climate change context as well. However, such sanctions may still be considered too painful for the sanctioning country. First, there are the high administrative costs of any such trade-related measures as discussed in the previous section. Second, any such measures may not be credible in straight trade terms as, in general, the more extensive the trade measures the greater the costs to the country in the sense of loss of consumer surplus.⁹⁴ The Montreal Protocol had little in the way of negative welfare impacts due to trade restrictions on ODS because despite the many useful functions of ODS, there was a viable alternative to them. There are currently no alternative products or production processes for many of the products and services that result in carbon emissions, giving rise to a greater risk of welfare loss if trade restrictions were imposed. However, as noted above, in public choice (and perhaps welfare) terms, the loss to consumers from higher prices will be offset where the public perceives a benefit in the sense of addressing climate change.

Finally, the cost of trade measures to the countries imposing them will depend on the number of countries inside and/or complying with the agreement, as well as the identity of these countries. As Barrett notes, if the number of countries inside the agreement and attempting to impose trade bans on other countries is low, the countries outside the agreement prefer to remain that way. However, participation in the agreement becomes more beneficial when the number of countries joining reaches a critical mass.⁹⁵ There are a large number of countries inside the UNFCCC. The Kyoto Protocol also has a large participation rate, yet not all countries are equal. The absence of the US makes a large difference not only for the effectiveness of the treaty but also to the willingness of countries to agree to impose trade sanctions as part of any agreement.

As a result, trade sanctions may be both sufficiently severe and credible to address both the participation and compliance issue, although there are concerns about the cost of such measures. The key concern, however, is not whether the sanctions could be made sufficiently severe or credible, but whether they can be contained. The WTO dispute settlement mechanism may not be able to limit the use of these measures for protectionist purposes, either because it is difficult for the panels/Appellate Body to police for discrimination in such areas or because some developing countries cannot effectively use the system. The existence of an international agreement would at least aid panels or the Appellate Body in identifying the extent of

⁹⁴ See BARRETT, ENVIRONMENT AND STATECRAFT, *supra* note 13, at 314.

⁹⁵ *Id.* at 318.

the concern and if it included permissible trade measures against non-participants/non-compliers. However, there remain concerns about those inside the agreement using trade measures that aid in creating a trading block (with the resulting trade diversion).

CONCLUSION - IS THERE A ROLE FOR TRADE MEASURES?

There is some scope for both unilateral and multilateral use of trade measures to improve participation in and compliance with any climate change regime. However, any such measures face significant uncertainties and difficulties. Using trade measures as ‘carrots’ has some potential but countries wishing to do so must ensure that they do not fall foul of the GATT’s MFN obligation. Moreover, there are risks of countries actually increasing emissions to obtain the carrots. Conversely, using trade measures as ‘sticks’ is likely to prove even more problematic; a certain level of severity is required to ensure their effectiveness, but such severity will lead to a likely violation of WTO rules and make them difficult to justify pursuant to Article XX.

The unilateral use of trade measures such as BTAs to neutralize the competitive advantage gained by non-participating, non-complying countries has more promise. While they may be less severe, and therefore less effective at forcing other countries to act, they are more credible and reduce domestic political barriers to climate change action. The greatest difficulty concerning such measures lies in the uncertainties surrounding the use of both BTAs and regulations where the tax or regulation in question is on inputs or emissions rather than the final product itself.

However, some combination of these roles for trade measures is most likely both to occur and to be effective. Ensuring both participation and compliance will require overcoming domestic political concerns, enforcement of any deals as well as assistance to developing countries.⁹⁶ Stavins and Barrett note, for example, that some combination of positive and negative incentives is required to sustain cooperation. The positive incentives either ratchet up cooperation or legitimize the use of negative incentives while the negative incentives promote compliance and participation.⁹⁷

Finally, the debate about the appropriate post-Kyoto approach to climate change centers around fairness as well as efficiency. Stavins and Barrett argue that trade restrictions under the Montreal Protocol were fair because no country could gain from ozone depletion and those that would

⁹⁶ BARRETT, *supra* note 1, at 101.

⁹⁷ See Stavins & Barrett, *supra* note 17, at 22.

gain least from the Protocol were compensated.⁹⁸ There are significant concerns in the climate change context about the fairness and impact of climate change measures on developing countries. Trade restrictions without compensating measures (perhaps such as ‘carrots’ of the type referred to above) may place an unfair burden on many developing countries. However, the use of trade measures to enhance climate change action also has the potential to enhance the fairness of global action by permitting greater trade by developing countries.

One of the greatest difficulties with the use of trade measures lies in the potential for countries to use such measures as a means of protecting their domestic industries. Panels will face difficulties in attempting to sift out unwanted protectionist measures. The risk of protectionism going unchecked will be heightened with the use of unilateral measures for encouraging participation or compliance with a climate change agreement. This risk can in part be overcome through multilateral negotiations but not completely given concerns about interpretation and enforcement of trade measures in a multilateral environmental agreement. Trade measures have great promise to aid in both efficient and fair approaches to climate change. However, both assessing unilateral measures and designing trade measures for inclusion in a climate change agreement require greater attention to how trade institutions actually operate to fulfill this promise.

⁹⁸ *Id.*