Incomplete Information and WTO Review of Domestic Climate Change Policies

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I Introduction

Countries around the world have either started or are gearing up to take action on climate change. They have proposed or put in place a wide range of carbon taxes, emissions trading regimes, subsidies and regulatory measures. These policies may explicitly and purposely impact international trade such as in the case of US proposals to impose costs on imports from countries which the US feels are taking insufficient action on climate change. They may also impact trade in a more indirect way. For example, some measures such as a tax on car emissions may appear evenhanded on their face but actually impose higher costs on imports than on domestically produced goods. Countries are potentially constrained in taking climate measures that impact trade by their commitments under World Trade Organization (WTO) agreements. The central difficulty for the WTO is to sort out whether in imposing particular measures, a country is legitimately attempting to address climate change or in fact its purpose is to provide an advantage to its domestic industry at the expense of imports. The WTO will increasingly face this challenge as countries expand the scope of their climate measures.

How the WTO should review domestic policies which implicate both trade and the environment (or more generally science-based risks) has long been a source of controversy.[1] Too stringent a review by the WTO in the sense of second guessing choices made by domestic regulators raises concerns about whether WTO panels or the Appellate Body can determine the true purpose or legitimacy of a climate measure. Too deferential a stance by the WTO, on the other hand, may lead to both reduced economic growth (since protectionist measures may be left in place) and weaker action against climate change.[2] While it is tempting to argue that decisions about appropriate climate change policies should be left solely to individual states, climate policy

[1] Much has been written about the role of the WTO in reviewing domestic regulation, particularly environmental regulation. For a recent review, see Steve Charnovitz, "The WTO's Environmental Progress" (2007) 10(3) *Journal of International Economic Law* 685.

[2] Robert Howse, "Democracy, Science and Free Trade: Risk Regulation on Trial at the World Trade Organization" (2000) 98 *Michigan L.R.* 2329 and Alan O. Sykes, "Domestic Regulation, Sovereignty and Scientific Evidentiary Requirements: A Pessimistic View" (2002) 3(2) *Chicago J. International Law* 353.

suffers from a collective action problem. There is, in particular, an incentive for countries to free ride off of climate change action of others by either not enacting climate change policies or, more importantly for this paper, taking measures which appear to be addressing climate change but either in fact are designed in whole or in part to impose costs on imports to the benefit of domestic industries. These wholly or partially protectionist policies harm trade for no legitimate purpose and may harm climate change efforts by, for example, raising the cost of more climate friendly imports.

The question of how the WTO should review these policies can be framed in a number of different ways. It could, for example, be discussed in terms of the amount of deference the WTO should provide to the decisions of individual members if a measure is challenged and the member argues that the measure is a legitimate climate change policy. This paper focuses primarily on a related but slightly different question – should the WTO undertake a substantive or procedural review of members' climate policies when these measures are challenged? A substantive review would involve a WTO panel reviewing and determining whether a challenged climate measure was legitimate and acceptable under WTO agreements based on the substantive policy choices made by the domestic government. A procedural review would involve the WTO panel assessing whether the domestic government has taken the necessary procedural steps in deciding to adopt a particular measure. If so, the panel would not review the substance of the decision, leaving the domestic government to make any trade-offs it felt necessary after going through the required process.

A potential benefit of substantive review is that it allows an impartial panel to oversee these decisions by domestic governments.[3] However, in undertaking substantive reviews, panels may lack the information necessary to review the policy or the expertise to understand the information. Mistakes by the WTO introduce inefficiencies into climate policies by rejecting legitimate policies. In the context of SPS measures (measures related to risks to and from plants, animals and food) which are akin to climate measures in that they raise concerns about scientific uncertainty and risk preferences, Trebilcock and Soloway argue that the WTO panels should adopt a much more deferential stance so as "to avoid becoming both a global science court and

[3] Andrew Guzman, "Determining the Appropriate Standard of Review in WTO Disputes" (forthcoming) *Cornell J. International Law*.

potential de novo global health and safety regulator".[4] Similarly, Guzman argues that the risk of errors from a substantive review of health and safety policies by the WTO and that as a result the WTO should not review these assessments at all but limit itself to determination of whether the measure is arbitrary or discriminatory.[5]

Further, individual panel members may not be completely unbiased or at least may be subject to their own attitudinal biases which can impact the nature of the substantive review. Climate change has at its core a range of ethical issues as well as scientific and other forms of uncertainty. Formulating climate policy involves making distributional choices across both time and space. Decisions made today impact both the economic opportunities of current generations in developed and developing nations and the environmental and economic possibilities for future generations. Who makes these decisions and the constraints imposed on these decisions will determine how the balance is struck. Substantive review may involve WTO panel or the Appellate body members making these determinations in accordance with their own policy preferences, overriding decisions of particular countries.

One response may be that substantive review is not necessary or appropriate and that the WTO can ensure that domestic decisions are legitimate by imposing procedural safeguards on the decisions to put measures in place. If governments must follow fair procedures (including potentially specific forms of risk assessments), decisions may be improved in welfare terms and the opportunity for protectionist decisions may be decreased.[6] For example, in the health and safety area, Trebilcock and Soloway argue for a relatively deferential form of WTO review focusing on "certain minimum objectively verifiable characteristics of the regulatory process (which we characterize as form and process review, rather than substantive review)".[7] The risk

[4] Michael Trebilcock and Julie Soloway, "International Trade Policy and Domestic Food Safety Regulation: The Case for Substantial Deference by the WTO Dispute Settlement Body under the SPS Agreement" in Daniel L.M. Kennedy and James D. Southwick, eds., *The Political Economy of International Trade Law: Essays in Honor of Robert E. Hudec* (Cambridge: Cambridge University Press, 2002), at 553.

[5] Andrew Guzman, "Dispute Resolution in SPS Cases" in Horovitz, Moulis and Steger, eds., *Ten Years of WTO Dispute Settlement* (London: International Bar Association, 2007).

[6] For example, see Howse (2000) (arguing that procedural constraints imposed by the WTO may promote deliberative democracy in regulating states).

[7] Trebilcock and Soloway (2002), at 543.

from procedural review is that governments will follow the required procedure but these procedures will not make any difference to the resulting decision. Trebilcock and Soloway attempt to mitigate this concern by requiring that any measures be "based on a plausible (not patently unreasonable) scientific risk assessment and a plausible (not patently unreasonable) risk management (cost-effectiveness) analysis of alternative regulatory responses."[8]

This paper examines the choice between substantive and procedural review by the WTO of decisions. It takes account of both informational asymmetries between the WTO and the country taking the measure which cannot be readily overcome and attitudinal biases of WTO panel or Appellate Body members towards the underlying risk. In particular, it focuses on how the WTO reviews climate policies of members. Part II sets the context for this concern. It briefly discusses how WTO agreements can be seen as incomplete contracts raising questions about the costs of information, rigidity and enforcement. It then sets out how these agreements address environmental issues, focusing in particular on the basic requirements under Article XX of GATT. Article XX permits members to adopt measures which otherwise not compliant with GATT requirements. It explains why climate change in particular is so difficult for the WTO given the ethical, scientific and economic decisions that need to be made in formulating climate change policy.

Part III sets out the analysis of the effects of adopting substantive and procedural review. There has been some work on the nature of the relationship between domestic courts and regulating agencies and, in particular, how courts can monitor the work of agencies in the face of incomplete information. In addition, there is a growing literature on how judges make decisions and the role judicial attitudes play in how they vote in particular appeals. This Part draws on these sets of literature to discuss the impact of adopting substantive or procedural review on the decisions of the regulating member. In particular, it examines how the choice of type of review impacts the level of environmental benefit from a measure and the willingness of the member to engage in protectionism. Part IV concludes by expanding on the analysis to discuss some of the concerns with the current form of WTO review.

[8] Trebilcock and Soloway (2002), at 551.

II The WTO, Incomplete Contracts and Climate Change

(a) The WTO and Enforcement Costs

The purpose of trade agreements is largely to overcome a prisoners' dilemma through states agreeing to constrain their use of certain trade measures in order to gain the benefits of trade liberalization.[9] However, as with all prisoner's dilemma, parties may cheat on their commitments. There are many ways to cheat on trade commitments including not only by raising border measures but also by using internal regulatory or tax measures to impose added costs on imports. Making detection even more difficult, these internal measures may appear neutral on their face but in fact impose a burden on imports. For example, a tax on car emissions which is dependent on a vehicle's gas mileage may fall disproportionately on imports depending on how it is devised. Such a burden may or may not violate international trade obligations but if it does, it more difficult for other members to monitor than facially discriminatory measures.

Given the variety of industries, economic conditions and potential measures that could arise, any international agreement seeking trade liberalization is going to be incomplete. Horn, Maggi and Staiger argue that trade agreements can be viewed as endogenously incomplete contracts with the level of incompleteness depending on the level of uncertainty in different circumstances and the contracting costs.[10] They examine whether as contracting costs increase, the optimal contract becomes rigid (with contractual obligations insensitive to changing economic and political conditions) or discretionary (providing governments with leeway to set policies). They find that discretion is better where domestic instruments are less useful at manipulating the terms of trade and the importing country has less power in the market for the imported good and therefore less incentive to use protectionist measures.

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[9] See, for example, Kyle Bagwell and Robert W. Staiger, *The Economics of the World Trading System* (Cambridge: The MIT Press, 2002) (discussing prisoner dilemmas and trade agreements).

[10] Henrik Horn, Giovanni Maggi and Robert W. Staiger, "Trade Agreements as Endogenously Incomplete Contracts" (NBER Working Paper 12745, December 2006). The incomplete contract view tends to focus on the manners in which these gaps are created and may be filled and the potential for parties to find efficient solutions to trade disputes. For the opposite view that WTO agreements are mandatory and that they must be complied with in all cases, see John H. Jackson, 'International Law Status of WTO Dispute Settlement Reports: Obligations to Comply or Option to "Buy Out"?', 98(1) *The American Journal of International Law* 109 (2004).

The costs discussed by Horn, Maggi and Staiger are in effect a subset of those raised by Kaplow in his examination of rules versus standards. Kaplow argues that the optimal form and content of legal commands will depend on relative costs and benefits.[11] First, there are the costs of promulgating a law and, in particular, the information costs related to identifying and specifying the various aspects of a rule prior to its being applied.[12] Second, rules and standards may raise different costs for the parties subject to the legal command obtaining information about what the command requires. Third, different forms of legal commands raise potentially different enforcement costs including the costs of monitoring compliance and litigating any enforcement action. There may also be costs from bargaining between the affected parties after a violation has occurred.[13] Finally, there may be benefits from the complexity of the legal command or conversely, costs from having too simple or rigid a legal command which does not allow adjustment to changing conditions.

Determining the optimal degree of rigidity of an international agreement will depend on the relative levels of these costs and benefits in a variety of circumstances. This optimal degree may vary depending on the issue including the frequency with which a circumstance will occur or uncertainty as to the size of its effects. These costs depend in part on the various institutions and parties that are involved in trade disputes including the WTO membership acting as a body in negotiating and drafting agreements, the panels and/or Appellate Body in hearing complaints and the individual members involved or affected by the dispute. For example, the rigidity costs of a discretionary standard in an agreement will depend, in part, on the likelihood of error by the party exercising the discretion.[14]

In the case of climate change, measures that members may take will engage fairly discretionary or standard-like obligations under WTO agreements. The primary obligation in

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[11] Louis Kaplow, 'Rules Versus Standards: An Economic Analysis', 42(3) *Duke Law Journal* 557 (1992).

[12] See, for example, in the trade context Horn, Maggi and Staiger (2006) at 2-3 (formalizing the costs of contracting and discussing WTO agreements as incomplete contracts) and Schwarz and Sykes, above n 1.

[13] See, for example, Warren Schwartz and Alan O. Sykes, "The Economic Structure of Renegotiation and Dispute Resolution in the World Trade Organization", 31 *Journal of Legal Studies* S179 (2002) and Joel P. Trachtman, "Building the WTO Cathedral" (SSRN) http://ssrn.com/abstract=815844 (updated 17 February 2006).

[14] Kaplow (1992), at 608-11.

this regard is the national treatment principle which applies to internal taxes and regulatory measures.[15] The national treatment principle requires in essence that a member cannot impose higher taxes or less favourable regulatory measures on imports than it imposes on like domestically produced goods. For example, a carbon tax that is set at a higher level for imported oil than domestically produced oil that in every way is identical to the imported oil would violate national treatment. The AB has stated that the core concern under the national treatment principle is to avoid protectionist domestic measures and "towards this end, Article III obliges Members of the WTO to provide equality of competitive conditions for imported products in relation to domestic products."[16] However, how to determine whether there is a relevant form of discrimination has been very controversial for the WTO.

A member may challenge a measure of another member claiming, for example, that the measure violates the national treatment principle. The dispute goes before a WTO panel (with the possibility of a further appeal to the Appellate Body). If the panel finds that the measure violates a substantive requirement of GATT, the measure may be saved under another set of standards that are applicable to climate measures. The regulating country may claim that the measure is principally to aid in the fight against climate change. However, climate measures may either (i) not have any environmental protective effect; (ii) have reduced environmental effect than otherwise would be the case if the measure were not protectionist; or (iii) have the same effect on the environment but could have been done with less impact on foreign producers. The panel must sort out which is the case.

These standards to undertake this sorting are found in Article XX of GATT. Article XX has two parts – a list of categories of exceptions and a "chapeau" (the opening words of Article XX). The two most relevant categories of exceptions for climate change and alternative energy policies are that the measures must be "necessary to protect human, animal or plant life or health" (Article XX(b)) or "relating to the conservation of exhaustible natural resources if such

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[15] GATT, Article III.

[16] WTO Appellate Body Report, *EC-Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/AB/R, adopted 5 April, 2001 (*EC-Asbestos*) at para 97, quoting an earlier Appellate Body decision: WTO Appellate Body Report, *Japan-Taxes on Alcoholic Beverages*, WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R, adopted 1 November 1996.

measures are made effective in conjunction with restrictions on domestic production and consumption" (Article XX(g)). The Chapeau then requires that even if the measure fits within a listed category, it not "be applied in a manner which would constitute a means of arbitrary discrimination between countries where the same conditions prevail or a disguised restriction on international trade."[17]

Given that the WTO agreements have taken a discretionary approach to trade and environment issues, this paper examines the impact of enforcement of the agreement. Rather than focus on negotiation costs, it therefore examines the costs of enforcement and the manner in which the institutions of the WTO interact with the decisions of domestic governments. Climate change measures raise, in particular, issues about information costs of both the regulating government and the WTO, uncertainty about the underlying externality and preferences and potential for the WTO to induce certain forms of action from the regulating members. As climate measures will in all likelihood raise issues under Article XX, the next sections briefly discuss the information required by Article XX and the nature of the informational concerns raised by climate change. Part 3 will then examine the effects of different forms of WTO review given these concerns.

(b) Article XX and Information

As noted in the previous section, the determination of whether a measures is "saved" by Article XX will depend on whether it fits under the two principal environmentally related exceptions (Article XX(b) and (g)) and, if so, whether it meets the requirements of the Chapeau. Article XX(b) provides an exception for measures that are "necessary to protect human, animal or plant

[17] The issues raised by Article XX, and in particular Article XX(b), are very similar to those raised by the Technical Barriers to Trade (TBT) Agreement. The TBT Agreement also includes a requirement that technical regulations "not be more trade-restrictive than necessary to fulfill a legitimate objective, taking account of the risks non-fulfillment would create" (Article 2.2). This requirement is similar to at least an aspect of the interpretation of Article XX(b) by the Appellate Body. See A. Sykes, "The Least Restrictive Means" (2003) 70(1) *University of Chicago Law Review* 403, G. Marceau and J. Trachtman, "The Technical Barriers to Trade Agreement, The Sanitary and Phytosanitary Measures Agreement and the General Agreement on Tariffs and Trade: A Map of the World Trade Organization Law of Domestic Regulation of Goods" (2002) 36(5) *J. World Trade* 811 and A. Green, "Climate Change, Regulatory Policy and the WTO: How Constraining Are Trade Rules?" (2005) 8(1) *J. International Economic Law* 143.

life or health". The test for "necessary" is central to Article XX(b). In the context of Article XX(d) which also uses the term "necessary", the Appellate Body has stated that:

> As used in Article XX(d), the term "necessary" refers, in our view, to a range of degrees of necessity. At one end of this continuum lies "necessary" understood as "indispensible"; at the other end, is "necessary" taken to mean as "making a contribution to." We consider that a "necessary" measure is, in this continuum, located significantly closer to the pole of "indispensible" than to the opposite pole of simply "making a contribution to."[18]

Measures therefore do not have to be "indispensible" to be necessary. It went on to state that determining whether a measure is necessary:

> involves in every case a process of weighing and balancing a series of factors which prominently include the contribution made by the compliance measure to the enforcement of the law or regulation at issue, the importance of the common interests or values protected by that law or regulation, and the accompanying impact of the law or regulation on imports or exports.[19]

The determination therefore depends on at least three factors: the importance of the objective; the measure's contribution to the objective; and the trade impact of the measure. At the same time the Appellate Body held that each country has the right to set its own public health or environmental objective and the level of protection related to that objective.[20]

The inclusion of the importance of objective in the weighing and balancing of "necessity" seems to provide scope for the Appellate Body to permit the Member greater scope to take action if the goal is more important. In the context of Article XX(d) the Appellate Body has stated that "the more vital or important those common interests or values are, the easier it would be to accept as 'necessary' a measure designed as an enforcement measure."[21] Sykes has argued that this creates a "crude cost-benefit analysis" with the importance of the interests standing in for the

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[18] Appellate Body, *Korea-Measures Affecting Imports of Fresh, Chilled and Frozen Beef*, WT/DS161. WT/DS169/AB/R, adopted January 10, 2001, para. 161. These statements were made by the Appellate Body in the context of Article XX(d) but in general have been applied to Article XX(b).

[19] Appellate Body, *Korea-Beef*, para.164.

[20] Appellate Body, *United States-Standards for Reformulated and Conventional Gasoline*, WT/DS2/AB/R, adopted 20 May 1996 and Appellate Body Report, *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/AB/R, adopted April 5, 2001, para. 168.

[21] Appellate Body, *Korea-Beef*, para. 162.

cost of error – that is, the more important the goal, the more the Appellate Body will defer to the member in the analysis because the cost of improperly finding that a measure does not fall within Article XX(b) is so high.[22]

Regan, on the other hand, argues that this role for objectives may be taken not as a form of cost benefit balancing but as providing a "margin of appreciation" for the balancing between the contribution and the trade effects.[23] He argues that the right of the Member to sets its own level of protection is inconsistent with full cost-benefit analysis. According to Regan, "there is no logical space left for cost-benefit balancing with the underlying goal."[24] In the most recent decision in this area, *Brazil-Tyres*, the Appellate Body appears to agree that the test is not a strict cost-benefit analysis. It stated that in determining "necessity", "a panel must assess all the relevant factors, particularly the extent of the contribution to the achievement of a measure's objective and its trade restrictiveness, in the light of the importance of the interests or values at stake."[25]

Even if the objective is important and the measure is reasonably related to this objective in some fashion, there is the further question of how the measure fits with other potential policies. The measure may be effective but create more significant impacts on trade than another equally or more effective policy. According to the Appellate Body, if a measure passes the initial "weighing and balancing" under Article XX(b), the measure still has to be compared with possible alternatives.[26] There are three key requirements. First, the alternative must "preserve for the responding Member its right to achieve its desired level of protection with respect to the

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[22] Sykes (2003).

[23] Donald Regan, "The meaning of 'Necessary' in GATT Article XX and GATS Article XIV: The Myth of Cost-Benefit Balancing" (2007) 6(3) *World Trade Review* 347, at 356 (arguing though that the Appellate Body did not write the Korea-Beef judgment in terms of the importance of the goal providing a margin of error but instead as a cost-benefit test which they never actually apply).

[24] Regan (2007), at 352.

[25] Appellate Body, *Brazil – Measures Affecting Imports of Retreated Tyres*, WT/DS332/AB/R, 3 December 2007, para. 156.

[26] Appellate Body, *Brazil-Tyres*, para. 156. The complaining party must identify possible alternatives and the responding party has the opportunity to show that these are not reasonable.

objective pursued."[27] Second, the alternative must be less trade restrictive than the impugned measure.[28] Combined with the first condition, this requirement of less trade restriction makes the test in effect one of cost effectiveness, where the cost is the cost to other members. Third, even if the measure provides the same benefit and is less trade restrictive than the impugned measure, it must also be "reasonably available". The Appellate Body stated that "an alternative measure may be found not to be 'reasonably available' … where it is merely theoretical in nature, for instance, where the responding Member is not capable of taking it, or where the measure imposes an undue burden on that Member, such as prohibitive costs or substantial technical difficulties."[29]

The test for the connection between the measure and the objective is in general even less strict in the context of Article XX(g) than Article XX(b). Article XX(g) requires that the measure be "related to" the conservation of exhaustible natural resources. While the Appellate Body initially interpreted "related to" to mean "primarily aimed at"[30], it broadened the interpretation in *US-Shrimp I* to mean "reasonably related to the ends."[31] The AB found that this latter test involved an examination of the "general design and structure" of the measure and its relationship to the objective.[32] There is, however, an additional element to the test. The Appellate Body noted that given the design of the measure, it was "not disproportionately wide in its scope and reach in relation to the policy objective … The means are, in principle, reasonably related to the ends. The means and ends relationship … is observably a close and real one."[33] While the Appellate Body did not expand on the "disproportionate" test, it does appear to provide some scope for examining the nature of the measure and its relation to the end with

[27] Appellate Body, *US-Gambling*, para. 308.

[28] Appellate Body, *Brazil-Tyres*, para. 156.

[29] Appellate Body, *US-Gambling*, para. 308.

[30] Appellate Body, *US-Reformulated Gasoline*, pp. 18-19.

[31] Appellate Body, *US-Shrimp I*, para. 141.

[32] Appellate Body, *US-Shrimp I*, para. 141. Steve Charnovitz, "The WTO's Environmental Progress" (2007) 10(3) *Journal of International Economic Law* 685, at 701.

[33] Appellate Body, *US-Shrimp I*, para. 141.

the possibility of rejecting a measure that appears to the Appellate Body as too broad for the given end.

Article XX(g) has a more limited form of review of alternatives than Article XX(b). It requires that the measure be "made effective in conjunction with restrictions on domestic production or consumption." The Appellate Body has set a low threshold for this provision, requiring only "even-handedness" in restrictions between domestic and foreign producers. The treatment does not have to be identical as long as some measures are imposed on domestic products.[34]

Under Article XX(b) and (g), the focus is on the nature of the measure itself. However, measures can be justified on their face but applied in a protectionist manner. Article XX(b) and (g) relate to the measure itself while the chapeau of Article XX addresses how the measure is applied. The chapeau prohibits measures 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". The Appellate Body has held that the chapeau is focused on abuse of the exceptions and that it requires good faith between the parties. The chapeau involves a search for "a line of equilibrium between the right of a member to invoke an exception under Article XX and the rights of the other members under varying substantive provisions (e.g. Article XI) of GATT 1994, so that neither of the competing rights will cancel out the other and thereby distort and nullify or impair the balance of rights and obligations constructed by the Members themselves in the Agreement."[35]

The Appellate Body has found two key elements to satisfying the Chapeau. First, in *US-Shrimp I*, the Appellate Body examined whether there was flexibility in the US measure that was applied such that the measure was not rigidly applied to other countries. As part of this finding, the Appellate Body found that there was "arbitrary discrimination" as the US certification processes did not comport with "basic fairness and due process".[36] In particular it noted that the

[34] Appellate Body, *US-Reformulated Gasoline*, pp 20-22. This approach was followed in Appellate Body, *US-Shrimp I*, paras 143-45.

[35] Appellate Body, *US-Shrimp I*, paras. 158 and 159.

[36] Appellate Body, *US-Shrimp I*, para. 181.

exporting countries were not provided certain procedural requirements such as an opportunity to be heard, to respond to arguments, to receive reasons and to have an avenue of appeal.[37] It found that under GATT there were "certain minimum standards for transparency and procedural fairness" that were not met.[38] Second, the Appellate Body in *US-Shrimp* found that there was a need for good faith efforts to reach an agreement between the parties to the dispute. It noted that the requirement was not that agreement be reached but that the regulating party must engage in "serious and good faith efforts" to reach an agreement.[39]

The Appellate Body has therefore read a number of the requirements under Article XX broadly such that panels and the Appellate Body in many ways defer to the decisions of domestic governments on the appropriate policies. The main restrictions relate to ensuring that the measure is as least trade restrictive as possible given the objective and that there be certain procedures in place to reduce the possibility of protectionist application of the measure. However, it requires certain information to determine whether a policy is saved under Article XX including:

- The importance of the goal – which can signify a cost of error by the panel and may include the size of the externality and the importance of the goal to the citizens of the regulating member;
- The trade impact of the measure;
- The effectiveness of the measure at meeting the goal – both in the short and long term; and
- The alternatives – including information about their effectiveness, their trade impact, their cost and any other risks they raise.

[37] Appellate Body, *US-Shrimp I*, para. 180 and Charnovitz (2007).

[38] Appellate Body, *US-Shrimp I*, paras. 182 and 183.

[39] Appellate Body, *United States – Import Prohibition of Certain Shrimp and Shrimp Products – Recourse to Article 21.5 of the DSU by Malaysia*, WT/DS58/AB/R, 22 October 2001, at para. 134.

(c) Climate Change and Article XX

Climate change provides a good example of the difficulties that WTO panels and the Appellate Body have in reviewing domestic policies. Given that climate change is an additive public good (a public good that depends on the efforts of each state)[40], members may attempt to free ride off of the efforts of others to reduce climate change. The WTO will therefore likely face claims that climate change measures are not legitimately aimed at climate change and, even if so, that the measures is not the least restrictive means of reaching its particular goal in this area.

Challenges to the WTO concerning climate measures could arise in a variety of ways. For example, consider domestic alternative energy policies. First, these policies could be challenged based on their effects on foreign producers of the same type of energy (or technology) to which the measure applies. For example, a US subsidy on ethanol could be challenged by Brazil because of the effects of the measure on Brazilian ethanol producers. Second, they could be challenged based on their effects on foreign producers of other forms of alternative energy (including of the technology related to these forms (such as wind turbines)). For example, the US subsidy on ethanol could be challenged by the EU based on the effect of the subsidy on EU producers of biodiesel. Third, the policies could be challenged based on their effects on more conventional forms of energy such as fossil fuels. For example, the US subsidy on ethanol could be challenged by Canada based on its impacts on Canadian producers of oil.

Each of the elements of information required to determine whether the policy is saved under Article XX present challenges in the context of climate change:

- The importance of the goal: This information on the importance of the goal of addressing climate change feeds into the "necessary" test, either as a "margin of appreciation" or in the nature of an error cost. Either way it will depend on some information on the potential costs of climate change to the country[41]. A country could claim that it will be

[40] See, for example, Scott Barrett, *Why Cooperate? The Incentive to Supply Global Public Goods* (Oxford: Oxford University Press, 2007).

[41] The costs and benefits of addressing climate change vary considerably across countries, with developing countries facing some of the greatest potential harms from climate change. Barrett (2007) and E. Posner and C. Sunstein, *Climate Change Justice* (University of Chicago Law School, Olin Law and Economics Working Paper no. 354, 2007).

particularly impacted by climate change in which case the panel will have to determine the extent to which this is true.[42] Alternatively, the member may claim that it is concerned about international impacts of the climate change and the panel will need to understand the scale and nature of these impacts.

- The preferences of the citizens of the regulating country: The importance of the goal will depend not only on its actual effects but also on how the citizens of the regulating member view these effects. The regulating member may claim that the goal is legitimate and important because its citizens are particularly fearful of the effects (and possibly the source of these fears), care deeply about the effects or care about the effects of climate change on other countries or other generations.[43] Even in the absence of free riding, differences in such preferences can lead to different approach to climate change. In each case, if the "importance" of the goal is to have any real role, the panel will have to determine these preferences.

- The effectiveness of the measure: The panel will need information on how effective the measure is likely to be to determine whether the measure is 'necessary' or 'related to' the goal. In the area of climate change, there is considerable uncertainty about such issues as how effective particular measures will be and what is the optimal timing (that is, how stringent measures should be over time).

- Trade effects of the measure: In many ways, this information may the easiest for the panel or the Appellate Body to obtain, particularly if the measure has already been in

[42] Chad Bown and Joel Trachtman, "*Brazil – Measures Affecting Imports of Retreaded Tyres*: A Balancing Act" (2009) 8(1) *World Trade Review* 85 (discussing the interaction of Article XX and domestic environmental externalities (that is, externalities whose impact is felt within the regulating member)).

[43] The effects of climate change are likely to be spread both across countries and across time. Determining the appropriate response will involve ethical judgments about these distributional effects. See N. Stern, *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press, 2007), at xv. Stern used a particular discount rate to account for intergenerational equity, acknowledging this choice was based on an ethical determination. For criticisms of the discount rate chosen by Stern, see for example, M. Weitzman, "The Stern Review of the Economics of Climate Change" (2007) 45(3) *J. Economic Literature* 703 and W. Nordhaus, "The Stern Review on the Economics of Climate Change" (2007) 45(3) *J. Economic Literature* 686.

place when it is challenged. However, there are difficulties with defining and obtaining this information as well.[44]

- The feasibility of alternatives: The regulating member may argue that alternatives are either not as effective or not feasible. Such arguments require considerable information about what else the member is doing and could be doing to address climate change. The search for alternatives will be difficult even if this notion of alternatives is read fairly narrowly such as the effectiveness of a tax versus emissions trading program. It will be even more challenging if the notion of alternative could be expanded to address such issues as the value of adaptation versus mitigation.

This information is not necessarily known by any of the parties, let alone the WTO panel. The review process raises concerns not only about getting the regulating party to reveal the information it has but also possibly to obtain more information about its measure. It also involves issues of the ability of the WTO panels and Appellate Body to interpret the information it receives from the parties. The next part will examine not the rules themselves directly but how the type of review (either substantive or procedural) may impact the information a member obtains, the environmental benefits from the measure and the willingness of the member to engage in protectionism.

III Information, WTO Review and Climate Measures

(a) Information, Oversight and Attitudinal Measures

What form of review should panels or the Appellate Body take in analyzing measures, such as those aimed at climate change, which involve scientific and other forms of uncertainty and require information about the preferences of individuals of different members? The WTO may take either a procedural or substantive review of domestic decisions. Under a procedural review,

[44] Chad Bown and Michele Ruta, "The Economics of Permissible WTO Retaliation," in Chad P. Bown and Joost Pauwelyn, eds., *The Law, Economics and Politics of Trade Retaliation in WTO Dispute Settlement* (Cambridge, UK: Cambridge University Press, forthcoming).

the WTO could require the regulating member to undertake certain procedural steps prior to putting the measure in place. These measures can be more or less onerous. They may include notice of the proposed measure, opportunity of the public and other states to respond, a requirement to provide reasons for the decision and some avenue of appeal. More onerous requirements may involve the completion of a specified form of risk assessment as is required under the SPS Agreement.[45] These assessments can entail extensive scientific analysis and data collection. While the Appellate Body has required such procedural requirements under the Chapeau for the application of a measure, they may also be required for the establishment of the measure itself.

Procedural requirements may aid in overcoming the principal-agent problem underlying all regulatory measures. The principal-agent problem arises because the executive of a particular government takes actions on behalf of legislators or the public more generally.[46] It may use this power to fulfill its own policy preferences as opposed to those of the 'principal' – that is, take the action that it feels is best rather than the action which the principal would have chosen. It may also use the power to obtain rents from regulated parties, obtaining personal benefits rather than regulating in the public interest. Requirements such as transparency and reason giving can go some way to overcoming these concerns. They increase the probability that the executive actor making the decision gets information from the public on their preferences and that interest group pressure will be exposed to public scrutiny.[47] Further, depending on the manner in which the regulating state fulfills these procedural requirements, the deliberation on the measures may aid

[45] For an overview of these requirements under the SPS Agreement, see for example Chang (2004) and A. Guzman, "Food Fears: Health and Safety at the WTO" (2005) 45 *Virginia J. International Law* .

[46] Guzman (2005) (arguing that panels and the Appellate Body are not likely to be as good at identifying the preferences of the citizens of a state as the domestic government and arguing for the benefits of procedural review and not substantive review under the SPS Agreement) and A. Green, "Regulations and Rule-Making: The Dilemma of Delegation" in Colleen Flood and Lorne Sossin, eds., *Administrative Law in Context* (Emond Montgomery, forthcoming) (discussing the benefits of such procedural requirements in the domestic context).

[47] Howse (2000) and Green (forthcoming). See also A. Green and T. Epps, "The WTO, Science and the Environment: Moving Towards Consistency" (2007) 10(2) *J. International Economic Law* 285 (arguing that there is no principled justification for scientific requirements for SPS measures and not for environmental measures and that review of such scientific evidentiary requirements should focus on minimum procedural requirements) and Guzman (2005).

in building collective values on the issue at the core of the measure.[48] Under these theories of procedural requirements, then, the decisions of the agency are improved.

There has been some work on the manner in which procedural review may aid regulatory decision-making. Bueno de Mesquita and Stephenson, for example, examined the impact of oversight on the quality of regulatory decision-making where the overseer can observe some forms of effort but not others.[49] They find that while oversight may increase the quality of regulation, it can also induce over-investment in observable as opposed to unobservable effort. They argue that improving efficiency under this model does not require compelling disclosure of information to the overseer but investing in the expertise of the overseer or lowering costs of disclosure by the regulator. Stephenson has also examined how agencies' willingness to obtain information (which he calls expertise) depends on decision-costs imposed by an overseer (such as a legislator or a court).[50] He finds that the agency would obtain more information if it would have regulated without the information but not if it would have retained the status quo if uninformed. The overseer will set the decision-costs taking into account these effects along with its desire to directly influence agency decisions.

In addition to improving the decisions of the regulating member, the procedural requirements may also provide information on the nature of the chosen measure. Stephenson, for example, develops a model in which courts can use the quality (as opposed to the informational content) of agency explanations of their regulatory decisions as a signal of the level of benefits from the decisions. The model requires that agency and court preferences are somewhat aligned

[48] A. Green, "Creating Environmentalists: Environmental Law, Identity and Commitment" (2006a) 17 *J. Environmental Law and Practice* 1.

[49] Ethan Bueno de Mesquita and Matthew Stephenson, "Regulatory Quality Under Imperfect Oversight" (2007) 101(3) *American Political Science Review* 605.

[50] Matthew Stephenson, "Bureaucratic Decision Costs and Endogenous Agency" (John M. Olin Center for Law, Economics and Business, Harvard University, Discussion Paper No. 553, 2006). For more general discussions of the use of decision-costs to control agency behavior, see Matthew McCubbins, Roger G. Noll and Barry Weingast, "Administrative Procedures as Instruments of Political Control" (1987) 3(2) *J. Law, Economics and Organization* 243.

and that when the court cannot evaluate substantively the agency's reasons, the quality of the reasons given provide evidence that the agency views the measure as of high value.[51]

However, general procedural requirements do not provide complete protection against protectionism. Regulating members may fulfill these procedural requirements and not attend to the information obtained in them. This may occur if the accountability mechanism thought to underlying the procedural requirements, such as public pressure, are not effective. If the public is boundedly rational (such as being unable to fully understand a small risk of large harm) or are subject to fears created by particular interest groups, the use of procedural requirements may not lead to improved regulations.[52]

An alternate approach to review by the WTO relies on some form of substantive evidentiary review. Substantive review is controversial, in part because there seems to be a significant risk that panels will make errors either in the review of the science or in relating the science to the underlying preferences of the citizens of the state (such as preferences for risk).[53] The panels either may not have the information required to make these decisions or be unable to appreciate fully the evidence that has been provided to it. This concern therefore is about the error costs given that the panel or the Appellate Body is attempting to determine the true reason for the policy measure.

However, there is another potential concern raised about substantive review of climate measures by panels or the Appellate Body. If the measures are at least in part based on ethical considerations or require some form of threshold consideration about the proportionality of the measure, the panels or the Appellate Body may substitute their views on these issues for those of the regulating member – that is, there is a principal-agent problem involved in having these decisions made by a set of particular panel or Appellate Body members. There has been considerable empirical and theoretical work undertaken about the extent to which judges in

[51] Matthew Stephenson, "A Costly Signaling Theory of 'Hard Look' Judicial Review" (2006) 58 *Admin.L.R.* 753.

[52] See Chang (2004), Sunstein (2005) and A. Green, "You Can't Pay Them Enough: Subsidies, Environmental Law and Social Norms" (2006b) 30(2) *Harvard Environmental Law Review* 407 discussing the underlying rationality issues as well as public fear.

[53] See Guzman (2005) (arguing against any substantive review of risk assessments under the SPS Agreement in part because of the error costs from mistakes by panels or the Appellate Body).

domestic courts vote in accordance with their own policy preferences or "attitudes".[54] While the extent of such attitudinal decision-making depends on the underlying institutional structure, there may be concerns about the preferences of panel or Appellate Body members such as where, for example, they tend to be drawn from trade circles. These preferences may represent a particular view of the importance of trade versus other values.

(b) Substantive and Procedural Review

Based on the discussion in the previous section, the form of review by panels or the Appellate Body could impact domestic climate measures by:

- Increasing the cost of protectionist regulation by imposing procedural requirements that expose protectionist decisions to review by other domestic or international parties (such as consumers who are hurt by the decision);[55]
- Allowing panels or the Appellate Body to directly decide on the appropriateness of a particular policy allowing for a potentially unbiased review of trade-impacting measures, with the attendant risk that panel or Appellate Body members will decide in accordance with their own policy preferences.

This section sets out a simple model to aid in separating out these different potential effects of procedural and substantive review. The basic form of the model stems from Stephenson but as that model is in the domestic context, the model is adapted to take account of the international aspects of the payoffs and oversight.[56]

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[54] There is a large and growing literature examining whether justices vote in particular cases in line with their own personal policy preferences (for example, for discussion of these models in the US context, see J. Segal and H. Spaeth, *The Supreme Court and the Attitudinal Model Revisited* (Cambridge: Cambridge University Press, 2002)).

[55] Procedural review could also potentially increase the quality of the domestic regulation in terms of increasing the benefits from any measure or provide a signal to panels about the quality of the regulation. See Stephenson (2006) and Bueno de Mesquita and Stephenson (2007). This paper focuses on the impact of review on the political costs and benefits of protectionism as these are central to the literature on protectionism.

[56] See Stephenson (2006a), Stephenson (2006b) and Bueno de Mesquita and Stephenson (2007).

(i) Substantive Review and Perfect Information

Begin by assuming that the WTO undertakes substantive review and has perfect information – or at least as good information as the regulator. This analysis provides a good baseline for analyzing the impacts of review itself and of different forms of review. Let b be the environmental benefit as perceived by the citizens of the regulating country. Assume b takes into account both direct costs and benefits from the measure (other than the cost of information and net benefits of protection discussed below) as well as the preferences of the citizens for environmental protection and the distribution of costs and benefits (including environmental costs and benefits). Let the legislators (A) in the country taking the measure receive a benefit from the measure of b.[57]

Assume the level of benefit from the measure depends on A's level of information (a_o) so that b= b(a_o) – that is, the function b represents how the information is transformed into environmental benefits and how the citizens of the country evaluate those benefits (that is, their preferences for the environmental effects). The citizens may, for example, care only about the domestic impacts of climate change or about international or intergenerational effects but it is their preferences (as opposed to the actual effects outside the countries alone) that are important here. Assume also initially that the information that A obtains is observable to all (and therefore has the subscript o). As a_o increases, b increases but at a decreasing rate (that is, $b'>0$ and $b''<0$). A bears a cost of obtaining this information of c(a_o) which increases as a_o increases at an increasing rate (that is, $c'>0$ and $c''>0$).

Further, assume that there is some political benefit to the legislators from the protectionist effect of the measure. The net political benefit (P) is the different between the (positive) political benefits of protecting the particular industry and the political cost to legislators because of the harm imposed on others (such as domestic consumers) who face higher costs because of the protective effect of the measure. Although the welfare effects of a protectionist measure are negative since the costs of protection in general outweigh the benefits to the protected industry,

[57] In this model, we are assuming that the legislators make the decision about whether to take the measure and that their preferences for environmental benefits are aligned with those of the citizens of the country. It is possible to examine the choices of regulatory agencies, although this adds another layer of principal-agent concerns into the analysis which is unnecessary at this stage.

the net political benefits may be positive in the presence of a collective action problem.[58] We assume that there is a net political benefit to the measures as we are examining Article XX which only arises if there is a substantive violation of a provision of GATT.

There is also a corresponding negative global welfare effect from the protectionist measure. This global cost (G) is the sum of the harms from the protectionist measure for all countries from this measure (the harm to producers in exporting countries along with the harm in the regulating country) – that is, $G=\Sigma C^{P}_{i}$ for n=1 to 153 (as there are 153 WTO members).

A chooses a_o and then chooses to regulate (t_A=1) or not (t_A=0). Once it has made this choice, there is oversight by the WTO dispute settlement Body (D).[59] D must decide whether to uphold the tax (t_D =1) or declare it non-compliant with WTO obligations (t_D = 0). Let $t = t_A \times t_D$. In making its decision D takes into account the environmental benefits of the measure but has its own view of the nature of the benefits. In the model D takes into account b as under the Article XX(b) and (g) tests, panels are to allow the members to set their own environmental goal and are to take into account the importance of that goal. Let s be the divergence from b of D's view of the benefits. The level of s is fixed and so D's evaluation of the measure depends on b along with s. As b takes into domestic preferences over the environment, s can be viewed as the extent to which the preferences of the panel members of D differ from those of citizens of the country including possibly a different view of whether the benefits of the measure exceed the costs. If D is more skeptical of the environmental benefits, then s>0. Also as it is a WTO panel, assume that in making its decision it takes into account the global costs of protection (G).

The payoff from the measure for A is: $U_A = t \times (b(a_o) + P) - c(a_o)$

The payoff from the measure for D is: $U_D = t \times (b(a_o) - s - G)$

[58] Paul Krugman and Maurice Obstfeld, *International Economics: Theory and Policy (7th ed.)* (Boston: Addison Wesley, 2005).

[59] This analysis abstracts initially from the issue of the probability of the measure being challenged in order to examine the effect of oversight itself on A's decisions. It is possible to build in the fact that the likelihood of challenge is also potentially dependent on the level of b and the level of the harm in other countries (and in particular the challenging country).

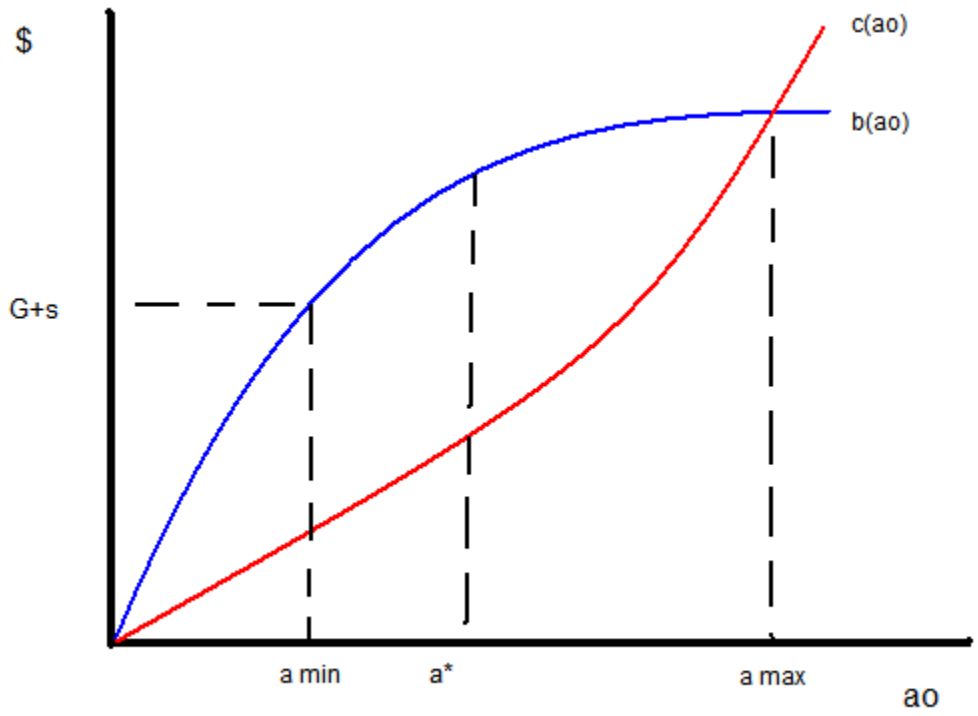
Note that A will not regulate if it believes that D will strike down the measure.[60] To see this, note that if A proposes a regulation and it does not pass, it obtains no benefit and bears the cost of regulating $c(a_o)$ – that is, if $t_D = 0$ then t=0 and $U_A = - c(a_o)$.[61] This means that A chooses a_o so as to maximize $(b(a_o) + P) - c(a_o)$. It will therefore choose a^* such that $b'(a^*)=c'(a^*)$. This is simply that it will choose a_o such that the marginal benefit from added information equals the marginal cost.

The dispute panel will only uphold the measure if there is a positive payoff such that $U_D=t(b(a^*) - s - G)>0$ or $b(a^*) – s>G$. This means there is a lower bound to a_o chosen by A (called a_{min}) – the a_o chosen by A must be sufficient to ensure that $b(a_o) – s>G$. There are then three possibilities. First, $a^*> a_{min}$ in which case there is no constraint on A and it chooses its optimal a and b regardless of review (see Figure 1). This could occur if G or s are small relative to $b(a^*)$. This accords with the proportionality test or the "crude cost-benefit analysis" as the greater the trade effects, the harder it is to justify the measure unless it is very important.

[60] This point assumes that there is no benefit to A from proposing and even implementing a measure that is subsequently struck down. However, in the WTO context this may not be entirely accurate. There may be a protectionist benefit gained from having the measure in place for the time it takes for another member to recognize the harm from the measure, bring a challenge and have the dispute decided (including appeals). The remedy for any violation is prospective – that is, the regulating party is to remove the measure and if it does not do so, the challenging party may put in place countermeasures but only to the extent that there is harm going forward. The prospective aspect to the remedy may be at least partially offset by any reputational harm from the regulating member being found to have violated its obligations. On the nature of remedies, see Andrew Green and Michael Trebilcock, "Enforcing WTO Obligations: What Can We Learn from Export Subsidies?" (2007) 10(3) *Journal of International Economic Law* 653.

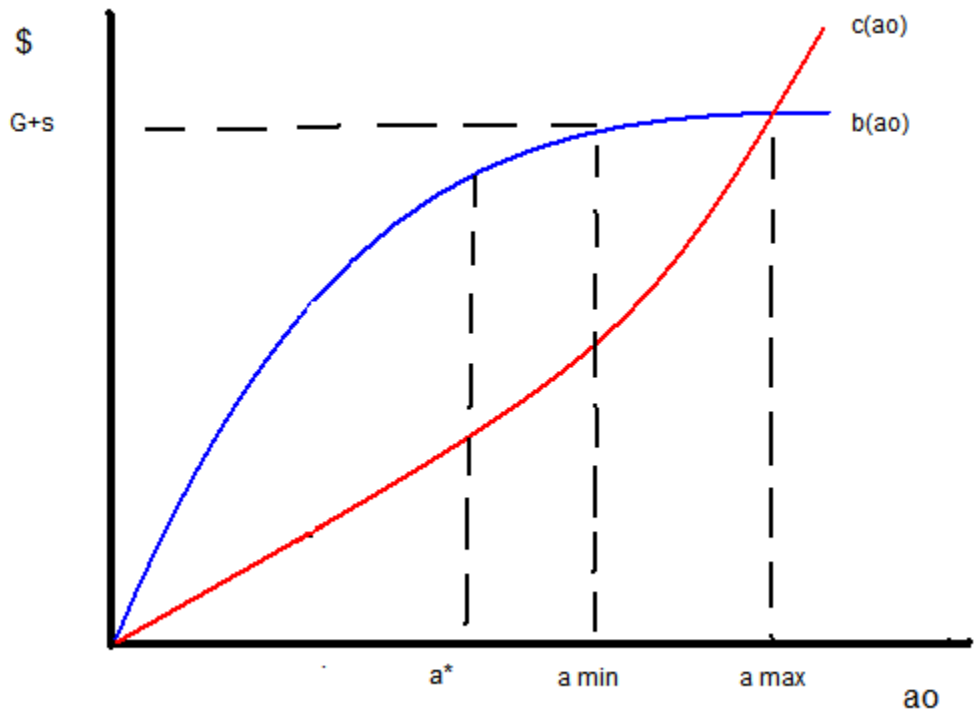
[61] See Bueno de Mesquita and Stephenson (2007).

Figure 1: Substantive Review, Full Information with Unconstrained Decision



Second, there may be an a_{max} beyond which A will not take any action. At that point, $c(a_o) = b(a_o)$. If $a^* < a_{min} < a_{max}$, A will regulate but it will increase the information it obtains until the benefits from the measure are sufficiently large to ensure that the measure will pass review (see Figure 2). Obtaining the information is still advantageous to A but will be less efficient for it than an unconstrained decision. The result would be that substantive review by a skeptical WTO dispute settlement body would push A to obtain more information and therefore adopt measures with greater environmental benefits to overcome the difficulty with the trade impacts.

Figure 2: Substantive Review, Full Information with Constrained Decision



Third, it could be that $a_{min} > a_{max}$ in which case A will not regulate. At levels of a greater than a_{max} there are benefits to the environment but they are not worth the information costs for A. It could be at this point that the trade costs (G) are very high or that the WTO dispute body is so skeptical of the environmental benefits (s is very high), that it is not worthwhile for A to get further information. Note that at this level, there could be substantial environmental benefits but that either the trade costs are very high as well or the WTO panel has a strong preference against environmental regulation.

The impact of substantive review with complete information therefore depends both on the size of the global impact on trade and on the divergence between the preferences of the regulating country and the members of the panel. These differences may push the regulating

country to obtain more information and therefore have a higher environmental benefit than it otherwise would prefer. It may also, of course, mean that the member no longer takes any measure.

(ii) Substantive Review and Incomplete Information

What happens if we now assume that the WTO panel is undertaking a substantive review of the measure but does not have complete information? Assume that the panel knows a_o but that there is another set of information (a_u) which the dispute body cannot see but would aid in determining the benefit from the measure. The benefit is now defined by $b(a_o, a_u)$ with b increasing in a_u but at a decreasing rate. D therefore can know something about b but its determination of b depends on the information it knows (a_o) and its expectations about the information it does not know (a_u). For example, suppose D knows or be given certain information that A is relying on such certain costs or benefits to the country but does not know other information such as the preferences of the population about environmental harm or risk. They therefore make assumptions about this other information.

Assume for now that the panel needs a certain level of a_u but that it can obtain this at a fixed cost (such as living in the country). Assume also that the levels of a_u vary by member country and that they are drawn from a distribution F with a mean μ. The payoffs for A and D therefore are:

$$U_A = t \times (b(a_o, a_u) + P) - c(a_o + a_u)$$

$$U_D = t \times (b(a_o, a_u) - s - G)$$

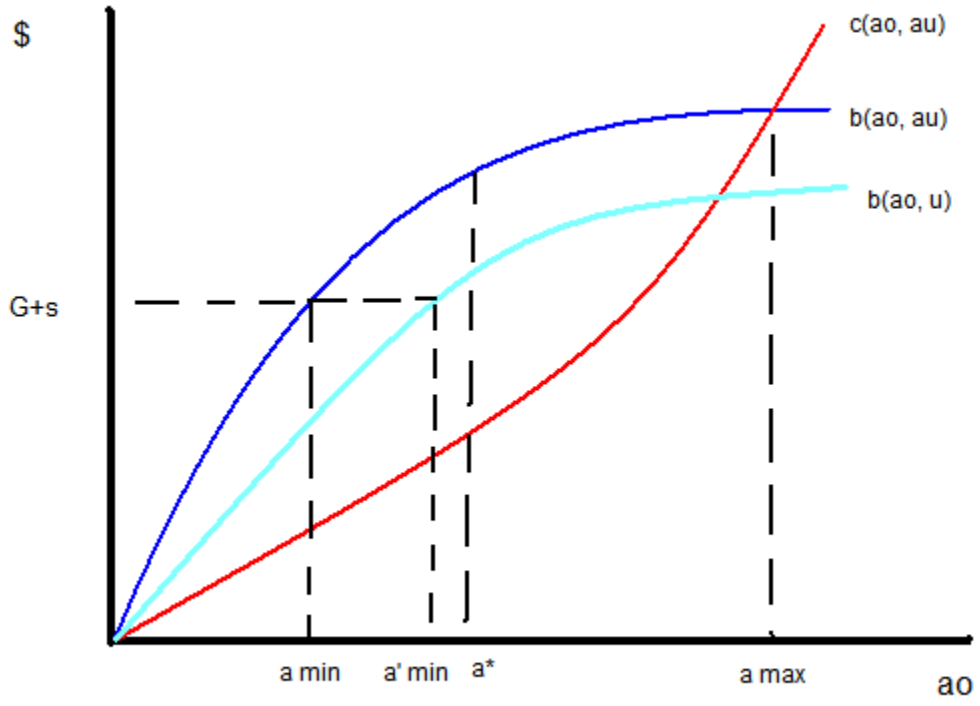
A will still not regulate if D will not uphold the measure. A therefore chooses a_o to maximize $b(a_o, a_u) + P) - c(a_o + a_u)$ for any given level of a_u. It therefore chooses a_o at a level a^* such that $b'(a^*, a_u)=c'(a^*, a_u)$. This again is simply that it will choose a_o such that the marginal benefit from added information equals the marginal cost.

The difference from the full information situation, however, arises because D does not observe $b(a_o, a_u)$ but bases its decision on a_o and an expected value of a_u which we will assume is

the mean of the distribution μ.[62] The impact of basing a decision on μ depends on its relationship to the actual value a_u. If $a_u>\mu$, D will base its decision on an expected $b(a_o, a_u)$ that is less than the actual, with the difference increasing but at a decreasing rate as the actual a_u for a particular country moves further from μ (see Figure 3). As was the case in the previous section, D will only uphold the measure if $U_D=t(b(a^*, \mu) - s - G)>0$ or $b(a^*, \mu) – s>G$. This means there is a lower bound to a_o chosen by A (again called a_{min}). As $b(a^*, \mu)< b(a^*, a_u)$ then a low estimate of the unknown factor will yield an a_{min} that is larger than in the full information case. Returning to the possibilities discussed in the prior section, there will be a greater range of cases which are constrained by the decisions of the panel (or conversely, fewer unconstrained cases where $a^*> a_{min}$) for any given s or G. Second, all else equal there will be fewer cases in which $a^* < a_{min} < a_{max}$ such that A will regulate but it will increase the information it obtains until the benefits from the measure are sufficiently large to ensure that the measure will pass review. There may even be no cases in which this holds if the difference between the expected and actual value of the unknown information is sufficiently large.

[62] The assumption that D expects $a_u=\mu$ may be unrealistic. There are different sets of expectations that panels may have, or be instructed to have, about the level of a_u such as that it is equal to the average for similar countries (e.g. if the responding member is a developed country, the average for all developed countries) or that it is equal to zero if there is no evidence as to its actual level. The issue of expectations is discussed further in Part 4.

Figure 3: Substantive Review, Incomplete Information with $a_u > \mu$



The nature of the error by the dispute panel will therefore impact the decisions of the regulating party and it will depend in part on expectations. For example, suppose the citizens of a country have a significant preference for intergenerational equity or for a more even distribution of environmental costs from climate change. This preference would mean that the benefit from any measure which reduces the effects over time of climate change would be greater in that country than in a country whose citizens have a lesser preferences in these areas. This country would face greater constraints on its preferred policy than a country with average or less than average preferences (that is, its a^* which would be more likely to be constrained by the a_{min} which is higher because of the panel takes into account the wrong level of a_u). Further, there will be a lesser chance that its measure will survive review even with a higher than optimal level of information since the space between a_{min} and a_{max} will have been reduced.

Interestingly, the converse is also true. There will be members for whom $a_u<\mu$. These members have less than average preferences over intergenerational equity in our example. In such a case, all other things being equal, this member is more likely to obtain its preferred policy. The other way of thinking about this is that for any given level of benefit, this country will be able to pass a greater level of protectionism since the panel will believe that it has a greater benefit to the measure than it actually does. The country with less than average preferences over the environment will be able to get regulations passed with a greater proportion of protection to environmental benefit.

Once the panel is no longer assumed to have complete information, then, substantive review has differential effects depending on the difference between the preferences of the regulating member and the average for all members. If the member has greater than average preferences, it becomes more constrained in its policies than under the full information case to the extent panels cannot determine its true preferences. However, for members with lower environmental preferences, their ability to protect domestic industry increases.

(iii) Procedural Review and Protectionist Benefits

Now suppose that the panel does not want to undertake substantive review because it does not believe it can accurately assess the benefits of the measure – that is, cannot assess whether it is a legitimate policy. Instead it imposes a set of procedures that the regulating member must follow in order for the measure to be upheld. As noted above, there are at least three possible effects of these measures. They could increase the cost of protectionist regulation, increase the quality of domestic regulation or signal the nature of the measure to the panel.

We will begin by discussing the use of procedural requirements to increase the cost of protectionist regulation. They could do so by imposing procedural requirements that expose protectionist decisions to review by other domestic or international parties who are hurt by the measure. For example, when a protectionist measure is put in place, it provides a benefit to the protected domestic industry but harms other domestic parties such as consumers by increasing the cost of the good. A government may be willing to do this if the political benefits the public officials receive from the protected industry (such as funds for re-election or future job opportunities) outweigh the political cost of harming particular constituencies. The usual story is

that this will be the case because of a collective action problem where the benefits accrue to concentrated interests with resources and the costs are spread across a diffuse public which is unwilling or unable to combine to bear the costs of fighting the measure. One possibility for overcoming this is imposing procedural requirements (such as notice and comment or public participation requirements) that expose the harms of the measure to the public and/or reduce the costs of fighting the measure.

To examine this we need to slightly change the model. Suppose now that the panel D can impose a set of procedures (d) on the regulating members such that the panel will not uphold the measure unless the procedures are followed. Recall that P is the net protectionist benefit to the regulating member from the measure – that is, the political benefits from the measure minus the political costs. Assume now that P is a function of d (i.e., P=P(d)) where P is decreasing in d at a decreasing rate (P'<0 and P"<0). Further assume that the level of actual protection of the measure changes as the net political benefits change. This relationship between P and d means, for example, that as the level of d imposed by the panel increases, the net protectionist benefit declines because the costs from the protectionist element are exposed to the public. The government has to reduce the level of protection as the level of support falls (or opposition increases). The impact of these procedures, however, declines as more and more procedures are added. In fact, it could be that at some point adding more and more procedures actually begins to increase the level of protectionism again if the number of procedures overwhelms the ability of the public to participate.

The imposition of d has two further effects. First, this relationship between P and d (including that it can change the level of protectionism) means that G will also be a function of d (that is, G=G(d)) where G also decreases as d increases but at a decreasing rate (that is, G'<0 and G">0). This result occurs because G is the global protectionist effect of the measure which should decrease as the measure becomes less protectionist. Second, the regulating member bears a cost from implementing d so its costs are now $c(a_o + a_u, d)$. The panel, however, does not bear any costs from imposing these procedural requirements.

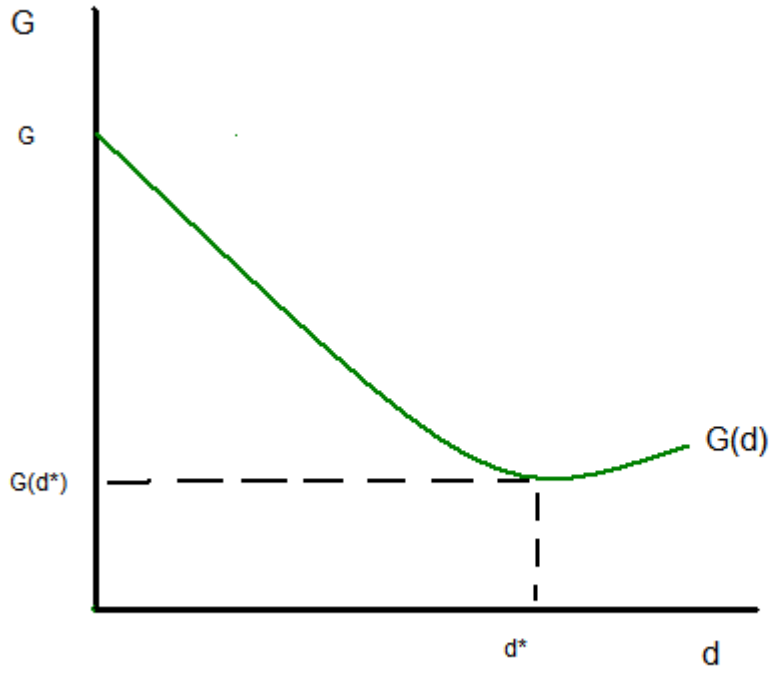
The payoffs to A and D are now:

$$U_A = t \times (b(a_o, a_u) + P(d)) - c(a_o + a_u, d)$$

$U_D = t \times (b(a_{o,} \mu) - s - G(d))$

Assume that D first chooses d, then A chooses its level of information (a_o) to maximize its payoff and finally D decides whether to uphold the measure. D will attempt to minimize G(d) given that $U_D = t(b(a_{o,} \mu) - s - G(d))$ and provided $U_D>0$. D attempts to minimize G(d) because its mandate under Article XX is to in effect minimize trade impacts of measures given the level of benefits. As its estimate of b does not depend on d, it will set G'(d*)=0 (see Figure 4). This means that as D bears none of the costs of d, it will impose the maximum set of procedures (up to the point where any more procedures actually increase protectionism). It does so regardless of what it thinks are the benefits of the measure (understanding, for example, that it cannot truly understand the level of benefits). It is only attempting to make sure that the protectionist effect is as small as possible. The extent to which procedural requirements are successful will of course depend on the nature of the G(d) curve which will depend on such factors as the nature of domestic accountability of regulators to the public.

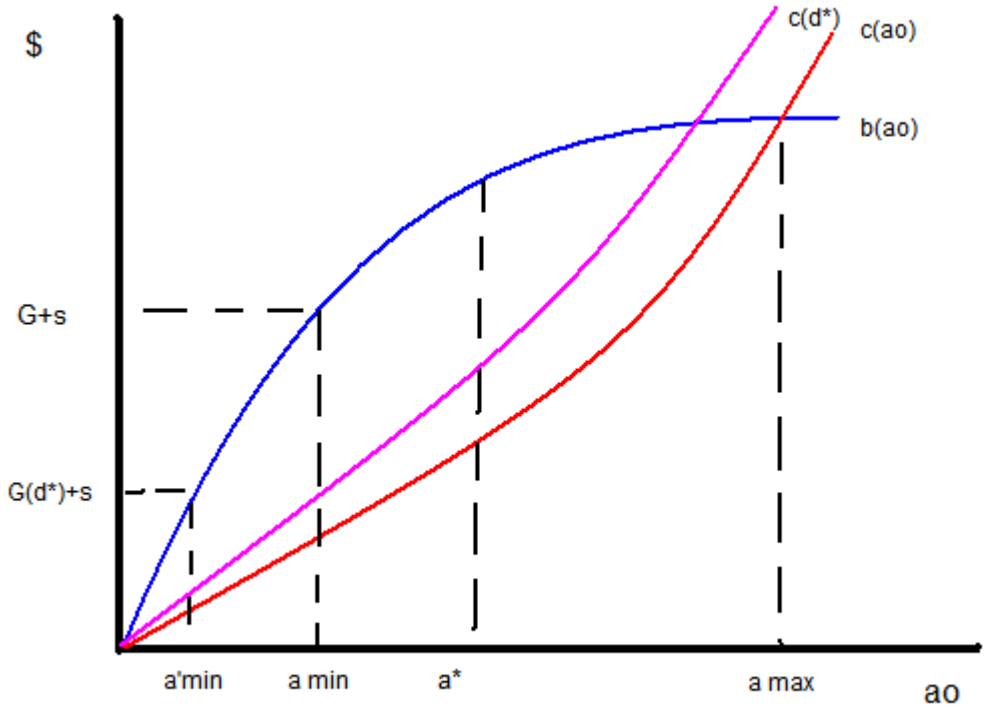
Figure 4: WTO Procedural Requirements and Global Trade Costs



A will then attempt to maximize $U_A = t(b(a_o, a_u) + P(d^*)) - c(a_o + a_u, d^*)$. It will therefore want to set a_o at a^* such that $b'(a^*, a_u) = c'(a^* + a_u, d^*)$. Given that for d, c'>0 then the cost curve shifts up as the panel adds on procedures. While the panel does not substantively review the decision of the member, if the increase in the cost of undertaking the procedure is small it may not make any difference in the optimal policy chosen by the member but may provide confidence to the panel that the environmental benefits are greater than the (now reduced) global trade costs. However, if the increase in cost is large enough relative to b (or in fact to the difference between the benefit and the cost at the optimal level), it could be that the member will no longer adopt the measure – that is, the cost curve shifts up sufficiently that the cost curve lies above the benefit curve. Moreover, if the costs increase as d increases and the impact of this cost effect of procedures increases as the information acquired increases (that is, the effect on c of d is greater as a_o increases), the level of a* and therefore b(a*) may decrease (see Figure 5 where $c(a_o + a_u)$ shifts to $c(a_o + a_u, d)$).

There is, of course, no guarantee in the case of a purely procedural review that there is any environmental benefit. The panel, however, could use a mix review with some procedural and some substantive elements. If D will only uphold the measure if there is some benefit based on its estimate of b but still wanted to put in place procedural requirements to reduce the level of protectionism, it would only uphold the measure if $b(a_o, \mu) - s - G(d) > 0$ (see Figure 5). This means that as d increases, G(d) decreases such that a_{min} declines which has the valuable feature of increasing the range for a member to take a measure unconstrained by oversight. However, as noted above, increases in d increase costs and therefore may lower a_{max} (the level at which the costs of taking the measure equal the benefits). It may then be the case that if the costs increase sufficiently, as noted above, adding procedural requirements may increase the cost to such an extent that it is no longer worthwhile for the country to take the action or that a_{min} exceeds a_{max}.

Figure 5: Mixed Substantive and Procedural Review



IV WTO, Discretion and Climate Change

The type of review by WTO panels can impact the extent to which countries can obtain optimal climate policies. Under Article XX(b) and (g), the WTO engages in a weak form of cost-benefit or proportionality analysis. WTO decisions have found this analysis should be based in large part on the benefits as determined by the regulating country. As we have seen, even if WTO panels could have complete information about the member country (including the costs and benefits of the measure and the preferences of the citizens of the country for climate measures), members may be constrained in their preferred policy by the level of trade impacts and the extent of divergence of the preferences of the citizens and those of panel members.

With incomplete information, substantive review has more negative effects. To the extent that countries have greater preferences than average for other members, substantive review by panels will have an even greater constraining effect on domestic policies. This effect

is troubling in the context of climate change where countries which are taking more aggressive action claim that they have greater preferences for not only the environmental effects in their own countries but also international and intergenerational effects. There has been criticism of international review to the extent it does not sufficiently take account of these collective preferences.[63] As the preferences that countries claim they are basing their policies on move further from preferences that can, for example, be determined by market choices, the more difficult it will be for panels to determine whether the claims for greater preferences are actually true and the more likely they are to have expectations closer to the average for all countries. It also provides room for countries with below average preferences to claim at least average if not greater preferences for environmental protection. As we have seen, this provides them with greater ability to claim environmental benefits but in effect indulge in greater protectionism and potentially free ride off of the climate action of others.

This incomplete information of course may not be limited to the preferences of the citizens of the regulating member. The effectiveness of many of the measures to address climate change is also uncertain. To what extent will a carbon tax actually reduce current emissions and spur innovations that will decrease future emissions? This uncertainty is exacerbated to the extent that the chosen measure is part of a larger climate plan where the impact of the individual components is difficult to sort out. In the recent *Brazil-Tyres* decision, in fact, the Appellate Body went out of its way to be flexible in these evidentiary requirements. It found that the analysis did not have to be quantitative but could be qualitative[64] and the selection of the method for determining the contribution depends on the "nature, quantity, and quality of evidence existing at the time the analysis is made."[65] Further, it stated that "the results obtained from certain actions – for instance, measures adopted in order to attenuate global warming and climate change, or certain preventive actions to reduce the incidence of diseases that may manifest themselves only after a certain period of time – can only be evaluated with the benefit of time."[66] These statements provide room for regulating states to argue that the measures at issue may

[63] Douglas Kysar, "Regulating from Nowhere" (2008).

[64] Appellate Body, *Brazil-Tyres*, para. 146 and Appellate Body, *EC-Asbestos*, para. 167.

[65] Appellate Body, *Brazil-Tyres*, para. 145.

[66] Appellate Body, *Brazil-Tires*, para. 151.

make a contribution. Further, it stated that "certain complex public health or environmental problems may be tackled only with a comprehensive policy comprising a multiplicity of interacting measures. In the short-term, it may prove difficult to isolate the contribution to public health or environmental objectives of one specific measure from those attributable to the other measures that are part of the same comprehensive policy."[67] These evidentiary standards make it both easier for a country to provide evidence to support its claim and harder for the panel to decipher the claims to an environmental benefit. To the extent the panels' expectations of the impact of these measures is more liberal because of these standards, it may have the effect of providing greater scope for protectionism.

Given the difficulties in assessing the benefits of a measure, panels could impose procedural requirements to reduce the ability of countries to engage in protectionism. The Appellate Body's interpretation of the chapeau of Article XX has taken this approach. Such a procedural approach has the benefit of expanding the scope of action for countries – in fact, they need only meet the procedural requirements and their measures pass review. However, there is no guarantee that the environmental benefits even exist or are sufficiently large to overcome the trade impacts. The usefulness of these procedural requirements will depend on the relationship between these procedural requirements and the accountability mechanisms in the individual country or between countries (that is, to the extent other countries can determine that there are protectionist measures and put pressure on the regulating member). These accountability mechanisms will differ significantly between WTO members such between developing and developed countries or democratic and non-democratic governments. Further, the increased costs from these procedures may either lead to reduce environmental benefits or, if they are sufficiently large or the benefits and costs are sufficiently close may lead to the country to not regulate. These costs will also differ significantly between various WTO members.

The value of substantive versus procedural review therefore depends on a number of factors including the extent of divergence between the preferences of panels and regulating countries, the relationship between the expectations of panels as to information it cannot obtain and the actual information and the extent to which procedural requirements actually impact the

[67] Appellate Body, *Brazil-Tyres*, para. 151.

ability of members to provide protectionist benefits to domestic industry. In the end, some form of mixed strategy may be preferred. As noted above, Trebilcock and Soloway argue for a mixed form of review – that is, a form of procedural review that retains a minimal review of the "plausibility" of the underlying claims of risk or policy objectives.[68] They envisage a limited role for experts, not in sitting in judgment on the decisions of members but in ensuring the decisions are within some realm of plausibility. Further, panels need to find other information to make its expectations more accurate such as any international environmental agreements in which a country has indicated its preference for environmental action.

[68] Trebilcock and Soloway (2002).