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What Role for Trade in a Post 2012 Global Climate Policy Regime

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What Role for Trade in a Post 2012 Global Climate Policy Regime

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Abstract

This paper discusses the role that trade can potentially play in both negotiating and operating a post Kyoto/post 2012 global climate policy regime. As an addition to the bargaining set for a global climate negotiation, trade in principle widens the range of jointly beneficial potential outcomes and can in this sense be a potential facilitator of an agreed global climate regime. The reverse is also true, that in a linked climate-trade-finance global policy coordination structure that goes well beyond what was envisioned at Bretton Woods, climate now added to the global policy bargaining set also offers the prospect of potentially stronger trade disciplines (and even beyond WTO disciplines being negotiated). Trade policy can as well be an instrument for the implementation of a global climate regime, since trade provides a mechanism for achieving an internalization outcome for the global externality that climate change represents, and that provides a potentially more efficient outcome and also helps meet distributional objectives. In short, trade added to the emerging post 2012 climate regime can both expand the bargaining set for both (effectively linked) negotiations, and additionally provide an instrument for the implementation of an agreed outcome.

Keywords: Climate; Trade; Policy /// **JEL Classification**: Q54; Q56; F13; F18

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1. INTRODUCTION

This paper discusses the role that trade can potentially play in both negotiating and operating a post Kyoto/post 2012 global climate policy regime. What such a regime may be will hinge on the outcome of the UNFCCC negotiations initiated in Bali in 2007 and to be concluded in Durban later this year. If little materializes in Durban, the commitments made in Copenhagen in 2009 under the Copenhagen Accord will largely define the regime for the immediate period going forward from 2012, with no formal role for trade policy. However, trade policy linked to climate policy commitments lurks in the background.

Here I argue that as an addition to the bargaining set for a global climate negotiation, trade in principle widens the range of jointly beneficial potential outcomes and can in this sense be a potential facilitator of an agreed global climate regime. But the reverse is also true, that in a linked climate-trade-finance global policy coordination structure that goes well beyond what was envisioned at Bretton Woods, climate now added to the global policy bargaining set also offers the prospect of potentially stronger trade disciplines (and even beyond WTO disciplines being negotiated). Furthermore, trade policy can as well be an instrument for the implementation of a global climate regime, since trade provides a mechanism for achieving an internalization outcome for the global externality that climate change represents, and that provides a potentially more efficient outcome and also helps meet distributional objectives. In short, trade added to the emerging post 2012 climate regime can both expand the bargaining set for both (effectively linked) negotiations, and additionally provide an instrument for the implementation of an agreed outcome. Whether this added linkage can be successfully exploited in the seemingly short time remaining for the UNFCCC post 2012 negotiation (as in the WTO Uruguay Round which expanded the trade bargaining set by adding intellectual property and services) is unclear. But, currently there is pessimism

as to whether any significant outcome from Durban can emerge, even before trade policy is added to the negotiation.

I then go on to suggest that it may also be useful to acknowledge what trade cannot do for a global climate policy outcome. First, trade offers nothing that will help resolve the property rights issue of who has rights to do what, and who should be compensated by whom and by how much for actions that follow aiming to internalize the global externality that climate change represents. But at the same time property rights remain the critical (if not the central) issue for the developing countries in a global climate negotiation since they both assert historical responsibility for emissions of individual countries (and especially developed countries) and hence in emissions reduction, and also seek preferential treatment under the Common but Differential Responsibilities (CBDR) doctrine enshrined in the 1994 United Nations Framework Convention on Climate Change (UNFCCC). In the classical development of externality literature, Pigou (1932) argued for the use of internalizing Pigouvian taxes. Later, Coase (1960) argued that once rights to do what are assigned (by courts) bargaining will achieve internalization, and if achieved in this way, Pigouvian taxes will only worsen outcomes. Relative to this discussion, climate stands as a trans border global externality over which courts have no jurisdiction to award rights, and hence power and political process determine implicit property right outcomes. Trade cannot help directly in this process of internalization, but will potentially play a role in the exercise of transnational power via threatened or actual trade measures if proposals for cooperation made towards others are not met.

Trade, in my view, also cannot assist to any significant degree in providing the compensation (in cash or in kind) that will be needed for full developing country participation in global emissions reduction arrangements. The size of compensation needed for developing

countries, implicitly discussed in Copenhagen, would seem to be too large to be met by an accommodation in trade policies in developed countries towards developing country exports.

I also note that as an instrument for achieving internalization of the global externality that climate implies trade policy remains only a second best instrument. The first best internalization mechanism is full global carbon pricing (achievable with an equivalent carbon tax). Trade policy comes into the picture if such a mechanism is unachievable due to nonparticipation by a subset of countries, and/or differentiated commitment levels by countries in terms of implied joint global emissions reduction under global projection of national commitments. Trade policy will inevitably distort production and consumption of goods both internally and will do so globally, but these costs may be justified by the benefits of the higher emissions reduction achieved in their absence.

I finally note that the unilateral commitments that have been made by both developed and developing countries, both in the run up to Copenhagen and since I suggest that as far as a commitment period out to 2020 (or even 2030) is concerned, these are such that the additional commitments needed to achieve an outcome jointly acceptable to all countries and consistent with IPCC (or some such as proposed G20) temperature change targets may be modest. If this is the case, the extra work that trade would need to contribute to a globally agreeable outcome could be less than some suppose. Put differently, trade can perhaps be considered in terms of what is needed to add to the multilateral negotiating process to take it over a threshold starting from sizeable unilateral commitments, rather than from a de novo zero commitment situation.[2]

In what follows, I first discuss the UNFCCC process thus far and the potential roles that have been proposed or have potentially emerged for trade. Next I evaluate trade's potential role as both a facilitator of global bargaining and an instrument of execution for a post Kyoto

[2] The contribution of unilateral commitments is also commented on in Stern and Taylor (2010).

regime. I then discuss trade's role in property rights, transfers, and potentially achieving efficiency improvements. I then offer some additional concluding remarks, including on unilateral commitments.

The Stern report labeled climate change as the largest externality yet encountered by either global or national economic policymakers. The change to the post Bretton Woods global policy coordination structure that coordinated globally internalizing country climate policies implies is equally large. The challenges that these new linkages imply between climate and trade and finance are, in my view, only just beginning to be understood and my aim here is primarily to help delineate them rather than in any way resolve them. They are an inevitable part of our 21st century global economy.

2. HOW ARE TRADE AND CLIMATE POLICIES LINKED?

a. Institutional Evolution of Linkage

Trade and climate change mitigation policies both form part of the policy coverage of global economic policy coordination that now links national economies globally. In 1944 at Bretton Woods when the post war architecture of global policy coordination was discussed and later agreed to in the form of the World Bank/IMF/GATT-WTO triad which has shaped the post war economy ever since, national economies were conceived of as only linked through trade and finance (including aid flows). The objectives of global policy coordination were to achieve sustained global growth, prevent any return to a major global depression (as in the 1930s), and to facilitate the growth and development of developing countries (and with it alleviate global poverty). In this structure, physical interactions between national economies in the form of external effects related to environmental issues did not enter.

But in the last 40 or 50 years, environmental issues have emerged and grown in prominence globally to the point that the original Bretton Woods architecture and

environmental issues are now inextricably linked, even if the formal structure of the Bretton Woods institutions does not explicitly accommodate this linkage. From its beginning as a localized set of concerns involving such issues as pesticides and impacts on bird populations as in Rachel Carson's Silent Spring (1960), to more global issues involving thinning of the ozone layer in the 1980s environmental issues progressively moved from a local to a global stage. Later in the 1990s, and following the then GATT dispute settlement case involving Mexican and other tuna catches and incidental dolphin kills, the interactions between trade policy and environment policies became a preoccupation in the WTO (after its 1994 emergence from its GATT origins). The 1990s also saw the first Earth Summit in Rio in 1992, the emergence of climate mitigation as a central global environmental issue, and the 1994 agreement on the United Nations Framework Convention on Climate Change (UNFCCC). Climate change thus increasingly assumed a central position as a quantitatively dominant global environmental issue in a global policy coordination structure that formally excluded environmental issues, but one into which de facto environmental issues were proliferating as dominant political concerns.

This is what I take as the starting point for my discussion of trade and climate policy linkage. They both impact on areas of joint economic activity involving nation states and both define areas of mutual gain and potential loss both globally for the world economy, and also individually for nation states. But the sequencing involved in the evolution of this now de facto linked regime established sub-regime precedence. Trade and finance came first, and their rule structure in global interaction was agreed in the early post war years and in isolation from environmental issues. This created the precedent that trade and finance rules were a commitment which was taken as given and hence would constrain subsequent global environmental agreements. In 1947 the world had a GATT with GATT articles, which was to evolve into the WTO. The world is still waiting for a World Environmental Organization.

b. Elements of Linkage

What then are the major elements of de facto linkage between trade and climate mitigation policies within this implicitly linked global policy structure? I will focus on three broad forms of linkage and then elaborate on each.

Firstly is the direct linkage that mutually agreed actions in one area directly affect economic activity in the other. This can be, for instance, that climate mitigation agreements raise the price of emitting carbon and hence energy costs, and as a result directly affect trade flows by changing relative product prices and country incomes. Or it can be that new trade barriers affecting, say, transfers of technology make the achievement of climate mitigation goals more difficult to achieve.

Second comes linkage in global policy bargaining. China, for example, may be more willing to undertake climate mitigation policies if, at the same time, there is agreement on trade arrangements which gives China more security over market access (say, through more restricted use of antidumping actions against China). Or, financial transfers between wealthier and poorer countries may induce poorer country participation in global climate change mitigation negotiations.

Third comes linkage in the implementation of agreements in the two subareas. Climate mitigation agreements, for instance, may cover only a subset of countries, and if so concerns arise among participants over leakage (increases in emissions in non participant countries) and possible noncompetitive effects acting against domestic companies in participant countries. Border tax adjustments (tariffs based on carbon content applied to imports from non participant countries and export rebates for exports to them) then arise as trade based instruments supporting the implementation of a subglobal climate agreement.

c. Direct Interactions Between Trade and Climate

Direct interactions between trade and climate mitigation policies arise in a number of dimensions. One is the effect on trade flows from carbon mitigation policies based on the full carbon pricing required to meet a target emission reduction globally of a given per centage as the internalization vehicle in participating countries. Under full carbon pricing, energy input costs rise and these flow through into the prices of internationally traded goods and services. Price rises will be largest for the most energy intensive commodities. These prices increases will tend to reduce the exports of participant countries in a subglobal climate mitigation agreement and also change the composition of trade. Importantly, one of the major substitution effects that will occur will be substitution out of traded manufactured goods into non traded services. Piggott and Whalley (1992) used a multi country general equilibrium trade model in which energy entered as a substitutable input along with capital and labor in production in all major world trading areas. Calibrating their model to 1986 data and introducing carbon pricing required to reduce emissions by 80 per cent of 1990 levels in their model implied a reduction in the level of world trade of 50 per cent. Some countries who were previously exporters of energy intensive manufactures became importers under this carbon pricing. Importantly, this large trade impact from climate mitigation is something which if it were to occur the framework of WTO would offer no remedy through WTO disciplines and the resulting change in trade flows is in no way incompatible with WTO rules and something over which the WTO cannot directly intervene. This size of impact also implies a reversal of trade growth from possible eventual global climate policy perhaps of a similar order of magnitude to the stimulus to world trade attributed to trade liberalization through WTO/GATT disciplines since 1947. These impacts occur most dramatically under full carbon

pricing for a major emissions reduction. Under cap and trade carbon limitation arrangements cost effects on average are much reduced, although at the margin they still apply.[3]

Another area of direct linkage occurs with the trade and other adaptations needed to ensure full execution of climate mitigation policies. Thus, for effective mitigation of carbon emissions in lower income countries transfer of technologies would make the process more efficient and effective. Trade barriers which remain in place against technology products (or now contemplated as under the recent section 301 Clean Technology investigation in the US[4]) make this process more difficult. Equally, there is concern that intellectual property arrangements in lower income countries can operate to impede the import of greener technology and related carbon emission mitigation actions that countries could commit to.[5]

d. Bargaining Interactions

A second broad area of climate-trade interactions occurs through the impacts on global policy bargaining which involves both trade and climate mitigation policies when they are jointly undertaken. For now these are separate policy bargaining areas under the WTO (for trade) and UNFCCC (for climate) in which linkage does not formally enter.[6] Implicitly there are several areas of such linkage and in the years ahead the pressures will likely be for this linkage to grow and to be explicitly incorporated in institutional arrangements. This could be some decades off for a post-post Kyoto negotiation, but the pressures for such formal linkage

[3] Bohringer et al. (1998) present a general equilibrium model capturing the different impacts in the EU of different arrangements for emissions limitation policies. Distributional impacts vary substantially.

[4] Utterback & Liang (2010)

[5] See Nanda and Srivastava (2009) and Barton (2007)

[6] Except under WTO negotiations on environmental goods and services which were mandated at Doha.

seem likely to grow. Broadly speaking, most economists would agree that broadening bargaining to allow for more cross over possibilities in the bargaining set expands the range of bargaining and hence is a good thing. An enlarged bargaining set offers more gains from bargaining (also see the discussion in Abrego et al (2001)).

One clear area of cross over between the two elements of bargaining would seem likely to occur for countries for whom trade access for exports is a major preoccupation, and for whom stronger disciplines in trade might make it easier for them to accept climate commitments which harm their own economic performance. One such case is China for whom export growth in recent years since the 2008 Financial Crisis runs at nearly 30 per cent/year and for whom continued export growth is central to maintaining high GDP growth. China, by some counts, is subject to around 25 per cent of all global antidumping measures and WTO disciplines offer little or effectively no relief. Moving trade disciplines beyond current WTO arrangements could thus be a Chinese interest which would require new disciplines beyond those currently in the WTO. China also faces trade actions in safeguards (Chinese tires) and unilateral trade remedy (US Section 301/Clean Technology) which they would wish to restrain. China may be more willing to contemplate firmer and more substantial climate mitigation commitments if firmer disciplines were to apply over trade measures against her.

At the same time, however, linkage in bargaining across areas may be a negative in allowing for the explicit use of penalties or threats of measures in one area to achieve country negotiating objectives in the other. Excluding formal linkage could help partially block these; and thus may help poorer countries. Such a situation potentially arises with border tax adjustments and their potential use as a threat against countries choosing not to fully participate in global climate mitigation negotiations. Here, linkage in bargaining could make

some countries worse off, and raise the potential global costs of non achievement of climate negotiating objectives if threats were actually implemented.

e. Linkage in Implementation

A final broad area of climate-trade linkage arises through linkage in implementation of agreements. Border tax adjustments are seen by OECD countries as necessary to achieve what they see as efficient and fair outcomes from a sub-global agreement that only a subset of countries might sign onto (see Hauser et al. (2008), and Lockwood and Whalley (2010)). Concerns centre on leakage (elevated emissions by nonparticipants) and competitiveness effects against domestic firms. The inherent inefficiencies arising from trade diversion effects involving products produced in participant countries, where companies bear the costs of emission reducing measures, and non participant countries it can be argued are partially counteracted by the use of border adjustments. Whether such border adjustments will achieve their intended effects is discussed by Lockwood and Whalley (2010), and was an earlier issue with border adjustments accompanying the VAT in Europe in the 1960s.

Another example of this linkage involves financial transfers. Under the 1994 UNFCCC, developing countries were granted a special status in climate negotiations under an agreed rubric referred to as “Common but Differentiated Responsibilities” (CBDR). This implied that developing countries would accept responsibility for climate mitigation along with developed countries, but that their responsibility was to be different. This was later interpreted that developing countries should be recipients of compensation both for climate related damage to help then adapt to climate change, and for foregone growth and development as a result of taking on climate related commitments. In the UNFCCC negotiations which followed both in Kyoto in 1997 and in Copenhagen in 2009, the size of the adaptation fund to accompany

climate commitments became a major issue in negotiation, implicitly reflecting financial transfers to developing countries through linkage of finance to climate arrangements.

3. TRADE IN INTERNATIONAL CLIMATE NEGOTIATIONS THUS FAR

Despite all the discussion of how trade can potentially play a role in global climate change mitigation negotiations, thus far there is a relative absence of trade considerations in the formal proceedings of UNFCCC negotiations on climate policy. Rather, trade lurks both on the fringes and in the future as an element to be factored in, rather than thus far as a central element at the heart of negotiation on concrete commitments.

The current UNFCCC climate change negotiations effectively began globally with the Rio Earth Summit of 1992, where the United Nations Framework Convention on Climate Change (UNFCCC) was drafted and opened for signing. Following this summit, the UNFCCC was ratified in 1994 and emerged as the founding global constitutional arrangement to focus subsequent negotiation on climate change mitigation. In this Convention, all signatories jointly committed themselves to discuss climate change and also meet periodically to develop global measures directed to containment and adaptation to damage from climate change. Unlike the 1947 GATT which laid out 35 Articles specifying limitations on how member countries could use trade policies, the UNFCCC contained little by way of specifics, either on rules or on process for future negotiation and how to deal with climate change. The one tangible commitment (other than to commit to discuss the issue) was a joint commitment by all members to the principle of Common But Differentiated Responsibilities (CBDR). Under this it was agreed that developing countries along with developed countries accepted joint responsibility for the human component of climate change, but that responsibilities for alleviating damage would in some way be differentiated between developed and developing

countries. The interpretation of this commitment was left for future clarification, a matter which still lies at the heart of negotiation today. Trade as a central issue thus did not arise with the creation of the UNFCCC. Trade is only mentioned once in the original 1994 UNFCCC text as also, in the most recent Cancun documents, as an area that should not be 'arbitrarily or unjustifiably discriminated against or restricted' by climate policy. The uses of trade policy as supporting instruments for a climate regime, or linked trade and climate bargaining do not arise and are not mentioned.

After 1994 the mandate to continue discussions on climate change among UN members (signatories to the Convention) provided the institutional momentum for a series of sequential meetings labeled "committee of parties" or COPs. At each COP, discussion of climate related matters occurred around an agreed agenda, with agreement also reached on both the timing and location of the next COP. COPs thus began their advance; but 'trade and climate change' did not feature as an issue.

Under this COP process, the first significant advance occurred in COP3 in 1997, which was to conclude the negotiation of the Kyoto Protocol; the first substantive agreement on climate change policies[7]. Under this agreement, the world was divided into two groups: Annex 1 countries (effectively developed countries plus Russia) who agreed to take on commitments on emission reduction out to 2012 (relative to a 1990 base); and non-Annex 1 countries (developing countries) who took on no commitments. The form and depth of commitment varied by Annex 1 country. A range of accompanying measures were also agreed to which focused on flexibility in the implementation of commitments.

More concretely these allowed for the trading of emissions reduction commitments both among Annex 1 countries in the form of Joint Implementation (JI) and between Annex 1

[7] The Kyoto Protocol was subsequently opened to signing 16 March 1998 and, after Russia signed, entered into force 16 February 2005.

and non-Annex 1 countries in the form of the Clean Development Mechanism (CDM). As such, trade appears in the Kyoto Protocol, but not in reference to international trade in goods and services, and rather in relation to trading of emissions reduction commitments.

The Kyoto Protocol effectively became the first round of global climate policy negotiations in an ongoing sequential process guided by the COPs, much as negotiating Rounds in the GATT (and then the WTO) characterized an ongoing negotiating process from 1947 up to the present Doha Round. Relative to GATT/ WTO, however, the Kyoto Protocol is widely regarded as weak discipline since penalties are almost absent and determinations of (non-)compliance are virtually lacking. For example, current expectations are that a number of Annex 1 countries could well be in significant violation of their Kyoto Protocol commitments by 2012, when the Protocol is scheduled to conclude, but the penalties against them would seem meagre and would also take considerable time to define and implement.

After Kyoto, the position of the US became a major topic of discussion since successive US administrations did not take the Protocol to the US Congress for ratification, and so US commitments entered into Kyoto by the Executive Branch had no legal foundation in US law. But as earlier, international trade in goods and services did not enter into subsequent COP discussions.

A departure in this pattern arose with COP13 in Bali in December 2007[8]. This COP meeting had as its objective to lay the foundation for a negotiation on the global climate policy regime to follow on after Kyoto in 2012. In two weeks of negotiation in Bali a "Bali Road Map" was agreed as the framework to guide a global negotiation to follow. This was a negotiation to conclude in Copenhagen in December 2009, and was to focus on four so-called "pillars" of negotiation. One was to be 'mitigation' (or emissions reduction commitments), another was to be 'adaptation' to climate change (a fund to finance adjustment, largely by

[8] UNFCCC (2007)

developing countries), another was to be 'innovation' (a fund to finance new technologies to combat emissions), and a final one was labeled 'trade and finance'. The latter was to allow negotiations to also focus on the financing of climate change mitigation, following a calculation produced by the International Energy Agency (IEA) that $45 trillion of resources would be needed to facilitate climate change mitigation out to 2050[9] (with that amount increasing by $500 billion with each year of inaction). There was also reference to the need for trade policy to support climate change mitigation by reducing or eliminating trade barriers which impeded needed transfers of technology. But no other form of trade-climate linkage either appeared in the Bali documents or entered the negotiations that preceded these, with no mention of border tax adjustments.

Between Bali in 2007 and the 2009 Copenhagen meeting relatively little was decided on to advance to the specifics needed to implement the Bali Road Map, and the associated COP meetings also did not touch directly on trade. But international trade considerations different from those foreseen as part of the Bali Roadmap instead began to enter discussions outside the formalities of the UNFCCC process, and seemingly in a major way. Discussion began to center on trade policy as a mechanism that could be used to achieve implementation by sub-groups of countries of emissions reduction through the use of border tax adjustments based on the carbon content of goods crossing international borders. These would be against either non-participant countries in negotiations, or countries which participated less than fully.

What was envisaged was a series of tariffs on imports and rebates on exports reflecting the higher costs of production for domestic producers in countries undertaking emissions reductions relative to producers in countries where emissions reductions were not to occur. The objective was to deal with two interrelated issues, so-called 'leakage' (nonparticipant

[9] IEA (2008)

countries increasing emissions when participant countries reduced theirs) and anti-competitiveness effects against domestic producers in participant countries.

Formal discussion of such measures accelerated in 2007 in Europe and in 2008 in the US. This was to lead to draft legislation in the EU being advanced to the Commission in 2009 and in the US the incorporation of border tax adjustments into the House version of the Waxman Markey bill in 2009. This latter legislation involves border adjustments working via emissions allowances to be purchased by importers on a basis comparable to those bought by domestic producers per unit of production, and to be refunded as allowances to exporters reflecting the amount purchased per unit of production by domestic producers. EU legislation in contrast to the US system is instead based on measured carbon content of production in exporting countries.

This discussion of border tax adjustments inevitably provoked strong negative reaction from developing country exporters who voiced fears of a global economy becoming decarbonized and protectionist at one and the same time. Their characterization was of border tax adjustments being used as a threat, formally outside of the UNFCCC negotiation, but implicitly entering as a potential penalty for nonparticipation. Their view was that this implied that their participation or nonparticipation was to be accompanied by both financial transfer as carrots (the adaption fund as part of the UNFCCC negotiations) and trade policy as a stick (border tax adjustments formally outside the UNFCCC process). Debate on these measures continued throughout Copenhagen until today.

The meeting in Copenhagen in December 2009 at COP15[10] was convened in high hopes of a conclusion to negotiations on a substantive post-2012/ post-Kyoto regime but floundered in some disarray before its conclusion. In the first week there were multi-bracketed ill-defined draft texts which in the second week, with high level political

[10] UNFCCC (2009a)

involvement, were put on one side. It then reached a conclusion in the form of the Copenhagen Accord driven by a late US-China bilateral negotiation subsequently extended to the so-called BASIC countries (Brazil, ASEAN, South Africa, India, China). The Copenhagen Accord reflects an outcome in which countries first pledge to honor unilateral commitments on emissions reduction entered into before Copenhagen. They then agreed to a yet to be defined mutual verification procedure (which respects national sovereignty with no entity to enforce or make site visits), and commit to 'work towards' a new Climate Fund to assist developing countries of $100 billion/year by 2020.[11] Trade policy as such did not appear in the Copenhagen Accord.

In some ways this is a minimalist outcome. But a more positive interpretation of Copenhagen is that it did represent a consensus outcome and it also established a framework for subsequent negotiations to finalize a post-2012 arrangement. Also, the size of unilateral commitments entered into prior to Copenhagen in some people's minds are close to the order that a multilateral negotiation might have anyway achieved for 2020 implementation, and so unilateral commitments may anyway have achieved much of the intended outcome.

Following Copenhagen have come subsequent UNFCCC meetings in Tianjin in the summer of 2010 and Cancun in December of the same year. The outcome from Cancun has been portrayed as positive relative to Copenhagen in that both developed and developing countries commit to make reductions in emissions post-2012, and advances occurred on the verification component of Copenhagen and in specific areas such as deforestation.[12] But details of what joint commitments might be are few. The specifics of what a post-2012 regime may look like are however left for the 2012 Durban UNFCCC meeting, and trade continues to play no significant direct role in negotiations, while continuing to lurk in the background as a

[11] See UNFCCC (2009b), article 5 (verification), 8, 9 and 10 (Climate Fund)

[12] UNFCCC (2010)

major issue. With time seemingly running out, and seemingly little engagement between developed and developing countries on the deep but substantive issues of historical responsibility and the interpretation of CBDR, current expectations for a Durban outcome remain minimal. This situation is complicated by likely non-compliance with Kyoto commitments by some developed countries (especially Canada), and also the seeming lack of political commitment to major emissions limitation in the US.

4. WHAT ROLE CAN TRADE POTENTIALLY PLAY IN HELPING ADVANCE THE UNFCCC PROCESS?

Given both the linkage between trade and climate change mitigation policies listed above and the, thus far, limited formal role that trade has played in UNFCCC negotiations, it seems worthwhile asking what role can trade potentially play in helping advance the UNFCCC process both to conclusion in Durban and beyond in subsequent negotiation rounds. In this discussion I will mainly focus on international trade in goods and services and their linkage to global climate mitigation arrangements more so than trade in emissions permits under JI and CDM. In passing, I will also note that issues of trade rules for trade in goods (such as MFN and national treatment) that apply to trade in goods under GATT/ WTO equally arise for trade in emissions permits, and as yet have been little discussed. Non discriminatory trading in emissions permits would seemingly yield gains from removal of cross-country distortions, much as for trade in goods.

As I noted above, at the time of writing substantial pessimism surrounds the prospects for a positive outcome from Durban, and the issues and differences seem sufficiently major that seemingly trade policy can contribute only small opportunities for conclusive bargaining

in Durban. Indeed, the perceived risk by developing countries of border tax adjustments emerging parallel to a UNFCCC agreement and outside the legal framework of such an agreement could even be an impediment to a conclusion in Durban. Developing countries would want to discipline the use of such measures beyond what may be possible in the WTO.

A contribution, however, that trade policy can make in advancing UNFCCC negotiations on a post-2012 global climate policy regime is in expanding the bargaining set to allow crossovers to non-climate issues. In also introducing a trade based penalty structure into the negotiation to support participation through trigger strategies (see Rubinstein (1979)) trade policy can potentially help, but could also hinder. The idea is that trade policy and climate change can be formally linked so that improvements in security of access for trade in goods relative to what is currently in place in the GATT/WTO structure can be achieved, then countries who see trade benefits resulting could be more forthcoming with climate commitments so as to speed agreement.[13]

Nowhere is this more so the case than with China, but it also applies to other high (or higher) growth economies such as India and Brazil. China's high growth in the last few decades has been fueled by rapid export growth (nearly 30 per cent/ year 2004-2007) and FDI inflows which, in part, seek to take advantage of lower costs of exportation from China. China's high export growth rates have, despite China's WTO membership, resulted in large numbers of anti-dumping actions (and increasingly so from other developing countries such as India, Brazil and Turkey). China by some counts now faces around 25 per cent of anti-dumping actions globally. China has also been the object of selective safeguard actions on

[13] As Jim de Melo points out in his introductory remarks to the conference papers, there is also a role for trade policy in supporting a credible time path for carbon emissions (and pricing) where there is dynamic inconsistency.

clothing (admittedly consistent with China's WTO accession terms), as well as a recent US Section 301 initiation involving clean technology products.

China's export access receives some degree of protection from existing WTO disciplines, but it is incomplete. Enforcement in WTO involves lengthy process, and only weak bilateral penalties. Coverage of WTO disciplines is thus incomplete from a Chinese standpoint in terms of guaranteeing export access. China would benefit from strengthened trade rules beyond those in the WTO as part of a broad climate deal; but institutionally how such an outcome can be delivered is the issue. Similar arguments could be made for India and Brazil, but in these cases export growth rates have been lower and the contribution of international engagement in the country growth process is arguably less.

Contingent trade policy measures can also provide a penalty system to apply by participants in a global regime against potential non-participants in the form of border adjustments, even if their efficacy can be questioned. Carrots may apply through financial transfers, while sticks can be brought to bear through such trade measures.[14] The outcome of such measures is however unclear from the viewpoint of performance of the global economy. If higher participation levels result, this can be globally good. If they do not, the result can be heightened distortion of trade and impaired global economic performance.

Substantial debate has focused on both the efficiency and fairness of using these measures in this way, as well as their potential WTO compatibility. WTO compatibility will remain as an issue to be resolved though WTO dispute settlement process. No GATT panel ruling resulted from the EU adoption of the Value Added Tax (VAT) in the 1970s, with similar border tax adjustment measures, which differed in being across to board rather than differentiated by product, and also selective by source/ importing country. This time around

[14] The conference paper by Scott Barrett argues that the most important role for trade policy in climate policy is achieve full participation in global arrangements given the difficulty of using credible sanctions policies.

there would thus almost certainly be the added feature of country discrimination at the border in trade involving participant and nonparticipant countries. Reference to WTO panel process would likely follow swiftly were such measures to be used, and the non-discrimination test would likely fail, although they would likely be defended as necessary measures under GATT article 20 (b), representing a threat to human health.[15]

The fairness of these measures is equally contentious. Developing countries argue that such measures would slow their growth and development, and this outcome would be unfair because they are poor. Developed countries argue that they are a necessary accompaniment to a sub global climate regime to prevent leakage and improve efficiency. But seen against the theoretical literature on externalities there would seem to be no clear position on fairness, only an indication that their use would reflect an assertion of political power by those imposing them.

Pigou (1932) in his initial statement of the externality problem called for correction through externality correcting Pigouvian taxes. But later, Ronald Coase (1960) argued that all externality situations involve issues of property rights, but that who had the right to do what is inevitably arbitrary and issues of fairness do not arise. Put differently, should polluters be allowed to produce and they should be compensated for foregone profit from externality correcting measures, or do consumers have rights to clean air and water and they should be compensated for environmental damage? Coase argued that for localized externalities, property rights would be allocated through court process, but once allocated bargaining between the parties would achieve internalization. In such cases, Pigouvian taxes would make things worse. However, for climate change the externality is transborder and there is no global court structure to determine who has the rights to do what. The outcome thus reflects the

[15] GATT (1947)

See the discussion in the conference paper by Henrik Horn and Petros Mavroidis

assertion of power, and power not fairness (which will, of course, be argued for) will determine who is affected and in which way.

The efficiency of climate related trade actions is also debated since trade measures are very much second-best in this situation. Full internalization of the global externality from climate change involves full carbon pricing. Only in the absence of full internalization measures will trade measures come into play, and being second-best one can always construct cases in which efficiency impairments result. Most economists' intuition, however, is that this will be an unlikely outcome, but the positive net effects of trade measures in such situations have to be demonstrated for each case.

Trade policy can also play a role in providing the vehicle for both economic adjustment to the resulting climate policy measures through impacts on trade and investment flows, and as a facilitator for the adjustments needed to ensure climate mitigation (such as trade in technology needed for technology transfer). For now trade's formal role in UNFCCC negotiations remains limited, but in the background its shadow lurks in the future in potentially major ways. And as the global economy moves beyond 2012 and if climate change is further elevated as an issue due to growing physical damage, then more explicit incorporation of trade into climate policy debate seems likely to follow.

5. THE POTENTIAL IMPACTS OF BORDER TAX ADJUSTMENTS

What the potential impacts might be of border tax adjustments (BTAs) to accompany a global climate regime is something which has been debated in recent literature. BTAs are seen (especially by developed countries) as mechanisms to both prevent leakage of emissions reductions by participant countries in a new global regime through increased emissions by non-participant countries, and also as a way of addressing concerns over anti-competitive effects against domestic producers in participant countries. BTAs are effectively a series of

tariffs on imports and rebates on exports based on the carbon content of goods traded and the applicable carbon price in the importing country. They can, in principle, be applied directly at the border based on measured carbon content or involve a required purchase by importers of domestic emissions allowances equivalent to what domestic producers would face. The former is effectively the EU scheme; the latter is the US scheme. Also, carbon content can be based on that in the exporting country (as in the EU proposals) or the carbon content in importing countries (the US scheme). As carbon content per dollar of GDP differs between China and the US by around four times, this is a very significant issue with BTAs.

Lockwood and Whalley (2010) discuss carbon based BTAs from the vantage point of the earlier debates on border adjustments in the EU at the time of the introduction of the VAT as a common harmonization instrument. In the late 1950s as part of the phased implementation of the Treaty of Rome it was agreed that a tax union among the original six EU members should follow the initial customs union. Indirect taxes were agreed to be the first element in tax harmonization and the VAT was agreed to be the harmonization instrument. Debate ensued on whether to use a destination basis under which imports were taxed and exports left countries tax free, or an origin basis which taxed exports and left imports tax free. An EU committee was established and the destination basis was chosen.

The initial reaction of US business was hostile on the grounds EU exports would leave the EU tax free, while US exports to the EU would have to cross a tax barrier. Pressure thus mounted for a GATT negotiation on BTAs as part of the emerging Tokyo Round. This pressure was defused, however, by a series of academic papers (discussed in Lockwood and Whalley) which pointed out that in the broadly based tax case the difference between an origin and destination basis is effectively that between a production and consumption tax and in the broadly based tax case there should be no real effects in moving between them. Exchange rates would adjust in the flexible exchange rate case, or price levels or wage rates

across countries would adjust in the fixed exchange rate case. These arguments carried the day. There was no GATT negotiation on border adjustments, nor has there been any dispute settlement case in either GATT or WTO since.

Lockwood and Whalley note the similarities of issues in the original VAT debate and now with carbon motivated BTAs. They note the product specificity in BTA rates involved for both imports and exports in the carbon case, and to argue that in appealing to earlier literature one would likely need to distinguish between variance and levels of BTA rates in assessing their impacts. The level component would have no real effects, appealing to earlier literature, while the variance in tax rates would. They also highlight the country discrimination in carbon motivated BTAs compared to the VAT case. This would seem to make a WTO dispute case focus on the potential Article 1 (MFN) violation, a case likely to be defended on Article 20 (general exceptions) grounds.

Other recent work has focused on the use of numerical simulation general equilibrium models to assess the potential impacts of BTAs. Mattoo et al (2011) use a World Bank based model known as the Environmental Impact and Sustainability Applied General Equilibrium Model (ENVISAGE). This is a recursive dynamic multisector multiregional model with the carbon emission and climate module. The model has no capability of providing welfare analysis and so the impacts on trade flows are the main focus. Their results suggest that BTAs by OECD countries would address competitiveness and leakage effects, and outputs and exports of energy-intensive manufactures by developing countries are expected to decline. They highlight the key issue of whether BTAs apply to carbon content in exporting or importing countries. Under the latter they show significant effects against China's manufacturing exports which can fall by a fifth. All lower and middle income country exports decline by 8 per cent. BTAs on carbon content in importing countries have much less impact.

Dong and Whalley (2009) in a related study use a multicountry general equilibrium model covering the EU, the US, China, and a residual rest of the world. In this model, countries produce commodities of varying emissions intensities using substitutable fossil fuel-based oil and non-oil inputs. Unlike in conventional general equilibrium trade models in which there is a fixed endowment of factor inputs for each country, here there is a supply a function for energy exporting countries with increasing extraction costs. Since emissions are directly related to energy use in production, emissions levels are endogenously determined and can change with policy change. They calibrate their model to 2006 data.

The results show generally small effects for BTAs, but as with Mattoo et al, results depend on assumptions (particularly the level of carbon pricing). They focus on BTAs based on carbon content of production in exporting countries. They also emphasize how carbon pricing maps through into small differences in trade barriers for produced goods. They are able to analyze welfare effects and find they are also small.

Taken as a set these papers and literature would seem to emphasize that the impacts of BTAs will depend it intrinsically on the levels of carbon pricing (and emissions reduction) involved, as well as how BTAs are administered. For developing countries compared to the direct effects implied by such issues as historical responsibility for emissions reduction and the interpretation of Common but Differentiated Responsibility, BTAs may prove to be a less serious issue.

6. CONCLUDING REMARKS

Globally, the elevation of concern over potentially accelerated climate change has injected a new element into the nexus of global economic policy coordination that since the 1940s has been overseen by the triad of the World Bank, the IMF, and the WTO/GATT. The global economy up to the 1940s saw a global structure in which country economies were

thought to be linked only by trade and finance, not physically. Climate changes this view of the economic world, which was anyway in flux from the 1990s after WTO debates on broader trade and environment linkage (which now relative to climate seems quantitatively smaller). How the world responds to this challenge is really at the heart both of UNFCCC negotiation on a post-Kyoto climate regime, and their potential second round completion in Durban in 2012.

The argument I make here is that we should view climate more as an addition to the pre-existing global economic policy nexus of trade, investment, and finance, rather than as a separate stand-alone policy negotiation. Institutionally where this will lead us may be one of the keys to global economic architecture for the 21st century. We have no World Environment or World Climate Organization. There is, for now, no serious discussion of how we might link the WTO and IMF to emerging climate institutions. And, communication between the WTO and UNFCCC secretariats is limited, but now growing from limited beginnings. We need to advance institutionally if we are to both bring climate into global center stage in economic policy and achieve significant mitigation, and this is the challenge. Here I have tried to spell out the dimensions of trade-climate linkage, and how these might grow over time. The institutional challenges this poses and resolving them in a timeframe which does not mirror international negotiations of the past (as in WTO negotiating rounds) is the further element needed.

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