

9. Border Carbon Adjustments and Climate-change Policy

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At Copenhagen in December 2009, the world's governments failed to reach a binding international arrangement to limit greenhouse-gas (GHG) emissions. Unless some new collective global agreement emerges in the next couple of years (which seems unlikely), the outlook for the next decade is that individual countries or blocs of countries will 'go it alone' in policy responses to global warming. In some cases, this will mean fairly stringent restrictions on emissions, which will increase costs for those firms that use emission-intensive production processes. Offsetting those cost increases for polluters will be greater profit opportunities for low-emission producers of the goods and services required to operate a low-carbon economy.

As economies restructure away from high carbon dependency, there will be winners but also losers, and because losers tend to be more vocal than winners, politicians in many countries feel under pressure to appease the complaints of their large pollution-intensive firms and sectors.

Prominent amongst those complaints is the claim that trade-exposed home producers, such as agriculture in New Zealand or oil refining in the US, are placed at a competitive disadvantage vis-à-vis producers located in 'pollution haven' countries which have chosen not to implement emission-reducing policies. Closely linked is the spectre of 'carbon leakage',¹ that emissions-intensive industries will relocate their activities to countries offering them pollution havens. As governments look for ways to address these problems of leakage and 'unfair' competition, two options come immediately into view. One is to exempt their trade-exposed producers from the policy, whether outright or by free allocations of emission permits. The other is to impose border charges on imports (and possibly rebates on exports) to 'level the playing field' between home and overseas producers.²

Such measures at the border can take the form of direct 'border tax adjustments' (BTAs), or of more indirect measures such as requiring importers to buy and surrender carbon units of some sort. Border measures of this sort

are allowed under the rules of GATT and the WTO, provided that they satisfy either GATT Article III(2) (allowing taxes and charges to be imposed on imports to match those on home production), or Article XX that allows 'necessary' exceptions to protect human, animal or plant life or health and to conserve exhaustible natural resources (of which the atmosphere is arguably one).³

Yan Dong and John Whalley argue that trade policy and environmental policy must now evolve closely in tandem and that this could even 'render the WTO obsolete':⁴

In light of the growing interface between trade and environmental policies, international agreements are critical for countries to avoid destructive policy retaliation Today, given concerns over global warming, the future evolution of the trading system may well be that environmentally motivated arrangements prevail over trade and financial arrangements in the WTO and IMF. The world of global policy coordination may thus move beyond WTO trade negotiations to linked trade and environmental policy bargaining.

Any such realignment seems remote at this stage. However, it is clear that, in designing its own climate-change policy in the new geopolitical environment, each country will be well advised to take account of the possible trade restrictions that its trading partners may put in place, if those trading partners' emission-reducing policies are more stringent and their domestic producers seek protection against 'unfair competition'. As a small trading nation, New Zealand is particularly exposed, and has made itself more so because the Emissions Trading Scheme (ETS) legislated in 2008 and watered down in 2009 is conspicuously less stringent in key respects than policies already in place, or under consideration, in major trading partners including the European Union and the United States. The New Zealand ETS provides massive subsidies to trade-exposed sectors, with New Zealand Units (carbon credits) handed out for free to large industry and agriculture on the basis of their 'emissions intensity'⁵ - a recipe for being identified as a pollution haven and targeted for trade sanctions.⁶

Consequently, an important element in any free-trade negotiation between New Zealand and the US is likely to be latter's assertion of its right at any time unilaterally to impose trade barriers targeted at New Zealand exporters, on the grounds that those products embody greenhouse-gas emissions that have not been subjected to emission charges comparable in stringency to those in the US, or even on the more general basis that New Zealand has not adopted climate-change policies matching those of the US.

Confirming in November 2009 that the US will enter negotiations to join the Trans-Pacific Partnership Agreement, President Obama referred to 'the goal of shaping a regional agreement that will have broad-based membership and the high standards worthy of a 21st century trade agreement'.⁷ The

President did not spell out what a '21st century trade agreement' required or what benchmarks 'high standards' should be measured against.

Climate change is not mentioned in the MFAT 'fact sheet' on the TPPA, but the fact sheet does note that:

In other free trade negotiations the United States has generally pursued a negotiating agenda that extends beyond goods and services into areas such as intellectual property, foreign investment screening and pharmaceuticals services. Similar issues are likely to arise in the Trans-Pacific negotiation.⁸

In both climate change and WTO negotiations over the past decade, the US government has played a central role in the breakdown of international trust and cooperation. In both cases, the failure of attempts to find global cooperative solutions has left the way open for individual countries to pursue their own national interests via bilateral negotiating agendas. The US is unlikely now to offer major trade concessions to the TPP area countries without insisting on its right to impose border adjustments of one form or another to protect the integrity of whatever domestic climate-change policy package eventually emerges from the US Congress under the Obama administration.

US Congressional Approaches to Climate Change

For several years now, the US Congress has been considering how to legislate a federal policy to reduce greenhouse-gas emissions in the US economy. The unsuccessful Lieberman-Warner 'Climate Security Act of 2007' (S.2191) was followed by the Waxman-Markey 'American Clean Energy and Security Act of 2009' (H.R. 2454), which passed the House of Representatives in 2009 but had not proceeded further as of March 2010. In the Senate, John Kerry in 2009 and 2010 sponsored a series of attempts at putting together a similar measure. All of these bills aimed to establish a 'cap-and-trade' system under which emissions-intensive sectors of the US economy would have to underwrite their emissions by holding a matching number of permits. Those permits would have to be acquired from a fixed stock limited to whatever target the US government chose to set for total emissions. In theory, the resulting competition for permits should establish a 'carbon price' for those sectors, and thereby operate to reduce emissions by a least-cost process of squeezing out activities that get less value from their emissions than the social cost represented by the permit price.

In designing their bills, US lawmakers were careful to ensure that their home industries would be protected against competition from countries that lacked comparable emission-reduction policies. The 2008 Lieberman-Warner Bill was drafted to 'set up a system whereby importers of GHG-intensive primary products such as cement, steel, glass and paper from countries which had not made a "comparable action" toward climate change by 2018 would need to

present allowances at the border'.⁹ Similarly, included in the Waxman-Markey Bill were provisions which –

... would require the President, from 2018 and in the absence of an 'equitable' international agreement, to introduce a system of international reserve allowances for imported goods. These provisions would effectively extend the proposed cap-and-trade scheme to designated imports. Under such a scheme, importers would have to acquire allowances before products covered by the scheme could be sold in the US. The price for these international reserve allowances would be set daily so that it was 'equivalent' to the auction clearing price for domestic emission allowances. In this sense, it is similar to an import permit program.¹⁰

The nature of the border adjustment that would have applied in the US, had the Waxman-Markey Bill become law, would have been equivalent to a border tax, even though it was not framed as a tax (the requirement for the importer of any good to incur the cost of acquiring and surrendering US-valid carbon credits amounts to a tax). The Bill in its 2009 form did not specify exactly how the number of units required on any imported good was to be determined; this was left to be set by regulation.¹¹

The cap-and-trade model has a sound pedigree in economic theory but a poor track record in its application to real-world climate-change policy, because of the ability of vested-interest lobbyists to pressure politicians into handing out scarce permits to them for free, instead of requiring all polluters to pay in full for their permits.¹² In the US by early 2009, economist Greg Mankiw's slogan 'cap and trade = carbon tax + corporate welfare' was widely accepted.¹³ By early 2010 the *New York Times* was pronouncing the death of the Waxman-Markey Bill because of this weakness:

... in trying to assemble a majority to pass [their bill], Mr. Waxman and Mr. Markey dished out a cornucopia of concessions and exemptions to coal companies, utilities, refiners, heavy industry and agribusinesses. The original simplicity was lost, replaced by a bazaar in which those with the most muscle got the best deals.

Opponents labeled it a tax-and-redistribution scheme.¹⁴

The criticisms were well founded, but they did not address the carbon-leakage argument used by lobbyists worldwide to muscle their national politicians into handing out emission rights for free. Handing out permits for free often seems the easiest way to address such concerns. Unfortunately, this amounts to reversing the policy itself, by eliminating the emission costs, and hence the incentive to abate, for those producers who gain the concession.

The Waxman-Markey concept failed because its free permit allocations discredited the policy. One implication is that any successor legislation will

have less free allocation of permits, which means greater prominence for border measures to protect the competitive positions of emission-intensive sectors of the US economy. The leading contender to replace the Waxman-Markey framework at the time of writing this (March 2010)¹⁵ was the Cantrill-Collins ‘Carbon Limits and Energy for America’s Renewal (CLEAR) Act’ introduced in the Senate in December 2009,¹⁶ which proposed a cap-and-trade scheme with all permits auctioned, effectively equivalent to a universal carbon tax. Section 4 would have authorised the president to set a maximum volume of emissions for the years 2013 and 2014 and to auction off ‘carbon shares’ equal to that total, with the revenues distributed as a dividend to all individual US residents. From 2015 the cap was to reduce by 0.25 per cent per year, but the president was to be authorised (subject to congressional approval) to change the number of shares auctioned in response to, for example, new scientific information.

The Cantrill-Collins Bill and the GATT Rules

Two GATT/WTO rulings open the way for border carbon adjustments. The first in 1970 established that under Article III, indirect taxes such as the EU’s VAT or New Zealand’s GST can be imposed on imports and rebated on exports, in order to avoid competitiveness effects.¹⁷ This almost certainly applies to carbon taxes (and to policies that are tax equivalents), though there has not yet been a WTO test case. The main limitation of BTAs imposed under Article III is that the tax or tax-equivalent burden imposed on imports must be no greater than the tax on the domestic products with which those imports compete. This is commonly interpreted to mean that the border tax must be calibrated to have the same proportional impact on final price of imports as the corresponding domestic carbon tax has on the price of home products, even though the actual emissions embodied in the imported good may be much higher.¹⁸ Hence, border tax adjustments under Article III may go only a limited way towards offsetting any advantage gained by firms that locate in pollution havens.¹⁹

In common with its predecessors, the Cantrill-Collins Bill would have required emission permits to be presented for all imports to the US on the same basis as that applying to domestic producers. Importers of commodities would have had to compete with home producers to acquire carbon shares from the fixed stock available at each auction, the penalty for non-compliance being five times the auction price. All of this appears consistent with GATT Article III.

The second ruling, the 1998 and 2001 decisions of the WTO Appellate Body in the *US Shrimp/Turtle* case,²⁰ established as a legal precedent that under Article XX a country whose environmental or conservation policy prohibits certain ‘process and production methods’ (PPMs), and which wishes to apply border measures to block imports from countries that do

not match that policy's standards, can do so. The application to climate-change policy seems clear, although again it has not yet been directly tested at law. A joint WTO-UN Environment Programme (UNEP) study in 2009 gave a clear signal that those organisations expect climate-change policies to qualify for Article XX exemption.²¹ In this case, the border measures do not have to be calibrated to match the ad-valorem impact of domestic carbon taxes, but can be set at prohibitive levels. Consequently, it is this part of the GATT that will be central to national policies in the post-Kyoto era of climate-change policy.

In the spirit of GATT Article XX, under the Cantrill-Collins Bill Section 4(6), fees would be imposed on imports of specified commodities to 'adjust' for their production process carbon, subject to any fee being 'compatible with the obligations of the United States with respect to any applicable international trade agreement or treaty', and further subject to the test that 'the country in which the commodity was produced does not impose comparable limits or fees on the use of fossil carbon'. The explicit intent of the fee arrangement is to offset 'the average additional cost per unit output for the [US] industry or economic sector *due to disparate carbon limits among countries*' (section 4(7)(B)(i) (emphasis added)).

The Cantrill-Collins proposal appeared to enjoy early support from the Obama administration, and was politically appealing because of its dividend provision for recycling auction revenue. New Zealand policy-makers, in contemplating any free trade agreement with the United States, will be wise to bear in mind the contingent possibility that this measure, or something like it, is quite likely to become law in the next few years, presenting New Zealand exporters with the prospect of being subject to potentially prohibitive carbon charges at the US border.

New Zealand's trade negotiators would be placed at an immediate disadvantage by the conspicuous shortcomings of the New Zealand ETS when compared with the Cantrill-Collins proposal: the absence of any cap on New Zealand domestic emissions; the large unconditional subsidies to trade-exposed sectors with eighty years of phase-out enshrined in statute; and the allocation of free units to polluters on the basis of their carbon intensity (which allows total emissions and free allocations to rise over time, directly inviting US scrutiny of the competitiveness effects for US producers).

New Zealand Exposure to US Border Carbon Adjustments

In recent years, it does not seem that New Zealand ministers or their officials have given much thought to the threat of border carbon measures when designing climate-change policy. In 2002 to 2005 when a carbon tax was contemplated, officials reportedly noted that such a tax could be presented as an indirect tax and hence subject to the GATT rules for border equalisation;

but in 2009 when official documents advising on the ETS were released, there were none that addressed trade issues.²² Only in 2009 did MFAT commission some general 'scoping research' on border adjustments from NZIER,²³ while MAF commissioned work on emissions embodied in New Zealand's trade, preliminary results from which were reported to MFAT only in 2010 (but not publicly released at the time of writing)²⁴

During 2009 New Zealand's climate-change negotiators, asked about the prospect of border measures in the US market, generally took comfort from the proposition that New Zealand was too small to be caught by the border-adjustment provisions of the Waxman-Markey Bill, which at that time seemed the likely legal framework.

The Waxman-Markey proposal allowed exemption from border adjustments for goods from countries that met any one of three conditions. Either, one, the country must have a greenhouse-gas emission reduction commitment fully equivalent to the US in 'stringency', or be party to an international agreement that includes the US; or, two, it must be one of the UN's least developed countries; or, three, it must 'be responsible for less than 0.5% of total global greenhouse-gas emissions and less than 5% of United States imports of covered goods with respect to the eligible industrial sector'.²⁵

New Zealand had no prospect of meeting either of the first two requirements for exemption; its domestic ETS is dramatically less stringent than the Waxman-Markey Bill (let alone the Cantrill-Collins proposal), and New Zealand is a developed economy. Under the third, however, New Zealand would have qualified, and New Zealand policy-makers accordingly proceeded during 2009 on the presumption that this country would not be targeted for US trade sanctions based on climate concerns.

New Zealand accounts for just over 0.2 per cent of global emissions,²⁶ and less than 0.2 per cent of total US imports by value,²⁷ which at first sight placed it below the Waxman-Markey threshold. In certain categories of imports, however, New Zealand has a much larger share of US imports, which raised the issue of whether the sectors in which New Zealand has more than a 5 per cent share of US import trade were liable to coincide with those likely to be declared 'eligible' under the Waxman-Markey proposal.

US trade data at a five-digit end-use code level shows four sectors in which New Zealand breaks the 5 per cent barrier (see Table 9.1). All are primary commodities, and hence at first sight unlikely to have been 'eligible industries' under the proposed US cap-and-trade scheme - though any move in the US towards bringing agriculture under its cap-and-trade scheme would have immediately exposed New Zealand meat, dairy products and wool to carbon-based trade sanctions. Five other categories in which New Zealand accounts for over 1 per cent of US imports are also shown in Table 9.1; they are headed by timber and wine, neither likely to be declared eligible, and include two

manufactured-goods sectors (textiles and pleasure boats) that have not to date figured in US policy debates.

Table 9.1. New Zealand Share of Some US Import Categories, %

	2005	2006	2007	2008	2009
(00100) Meat products, poultry and edible animals	11.1	9.7	8.5	10.5	10.2
(00110) Dairy products and eggs	20.1	19.7	17.6	19.1	19.8
(12000) Cotton, wool and other natural fibres	18.0	14.7	13.1	13.0	10.8
(12070) Other (tobacco, waxes, non-food oils)	5.3	5.1	6.2	5.5	4.8
(13000) Lumber and wood in the rough	1.8	2.1	2.2	2.6	3.4
(00190) Wine and related products	1.4	1.4	1.8	1.8	2.1
(12110) Wool, silk, and other vegetable cloth and fabric, thread	2.0	1.7	1.6	1.7	1.4
(41110) Pleasure boats and motors	0.9	0.7	1.1	1.1	1.4
(00180) Other (soft beverages, processed coffee, etc.)	1.8	1.9	1.4	0.6	0.9
TOTAL	0.19	0.17	0.16	0.15	0.16

Source: <http://www.census.gov/foreign-trade/statistics/country/>.

Had the Waxman-Markey Bill become law, therefore, New Zealand's main concern would have been that New Zealand primary commodity suppliers might face trade barriers if the US government decided to extend its scheme to agriculture. The situation would have changed if US policy-makers were to treat New Zealand jointly with Australia (or with the TPP partners as a whole) in applying border adjustment measures; and it would change radically if the US were to move from the Waxman-Markey approach of merely using border adjustments to level the competitive playing field for individual goods and services, to more severe trade sanctions aimed to punish countries that fail to sign on to the US's view of appropriate climate-change policy response, along the lines proposed by economist Joseph Stiglitz in 2006.²⁸

This risk increased sharply with the advent of the Cantrill-Collins Bill, for two reasons. First, the Bill contained no threshold size limits below which countries' exports to the US were to be exempt from surrendering US carbon shares equivalent to those required from US producers; the 5 per cent shelter provision of the Waxman-Markey proposal was gone. Second, the Bill's fee mechanism to adjust for production-process carbon explicitly brought the WTO's 2001 ruling on PPMs into the picture, and opened the way for targeted and prohibitive border measures to be applied against any or all New Zealand export commodities. The Cantrill-Collins Bill did, however, provide that the fee mechanism would not apply if it were incompatible with 'the obligations of the United States with respect to any applicable international trade agreement or treaty to which the United States is a party' (section 4(6)(C)(i)). Whether New Zealand would be able to negotiate a provision into a

TPPA with the United States granting exemption from PPM-related fees, and from any similar measures retaliating for New Zealand failure to match US domestic climate-change policy, seems highly doubtful. US negotiators will undoubtedly wish to leave the way open for whatever border measures the US Congress eventually settles on.

As the issue of New Zealand's potential exposure comes under more official scrutiny than hitherto, the issue of how emission-intensive the country's economy actually is, relative to trading partners, will become increasingly important. Research into the detailed emissions content of New Zealand's export products has begun to emerge in the past four years. Caroline M. Saunders and her colleagues have produced studies of 'food miles', limited to CO₂ and energy use only and focusing on sectors that were selected in the light of ongoing debates in the United Kingdom.²⁹

A major project using input-output techniques to establish the emissions content of New Zealand products and trade is underway at the Government's environmental research institute, Landcare. A 2008 paper from key members of the research team (Robbie Andrew, Glen Peters and James Lennox)³⁰ found that New Zealand's exports are substantially more emissions-intensive than its imports, and that this holds especially true for trade with the US. The 2008 paper notes:

With most of its main trading regions, NZ is a significant net exporter of embodied emissions. With its near neighbour Australia, NZ is a significant net importer of embodied emissions, while emissions embodied in trade with China are approximately balanced. New Zealand's net embodied emissions in trade are 34% of total NZ industry emissions and 30% of total NZ territorial emissions.³¹

Table 9.2 and Figure 9.1 below are reproduced from the 2008 research paper. Table 9.2 shows that New Zealand exports, in net terms, contain roughly one-third of the national economy's total greenhouse-gas emissions as measured for Kyoto purposes. Figure 9.1 shows that the 'emissions export surplus' applies most dramatically to bilateral trade with the US.

Tracey Epps and Niven Winchester have also used 2001 data from the GTAP international database to compare the emissions-intensity of goods and services produced in New Zealand with that in other countries, and in the world, yielding the figures reproduced in Table 9.3.³⁴

The bilateral comparisons between New Zealand and the US in this data are plotted in Figure 9.2. In pastoral and horticultural production, New Zealand is clearly less emissions-intensive than the US, but in 'resources', metals and manufacturing, the opposite holds true.

New Zealand's emissions-export surplus is unusual amongst OECD and Annex I countries and inevitably must attract attention as international trade negotiators make increasing use of carbon-footprinting and emissions-

Table 9.2. Components of New Zealand’s Overall Greenhouse Gas Balance in 2001³²

	kt CO ₂ -e			
		Imports	Exports	Net
Emissions attributable to:				
New Zealand households	6,939			
New Zealand industry	60,485			
Total territorial emissions	67,424			67,424
Emissions embodied in bilateral trade (EEBT) with:				
Australia		5,612	-2,321	3,291
China		2,263	-2,126	137
Japan		584	-3,372	-2,788
S, SE, and Rest of E Asia		2,217	-7,836	-5,620
North America		2,018	-7,982	-5,963
Central and South America		323	-2,582	-2,259
Europe		1,777	-9,523	-7,746
Russia and Rest of Former USSR		309	-157	152
Middle East		1,522	-1,153	370
Africa		397	-767	-370
EEBT Total		17,022	-37,819	-20,797*
Emissions net of EEBT				46,627

* Evident typographical error in original corrected.

Figure 9.1. New Zealand’s Greenhouse-gas International Trade Balance by Kyoto Protocol Participation Category³³

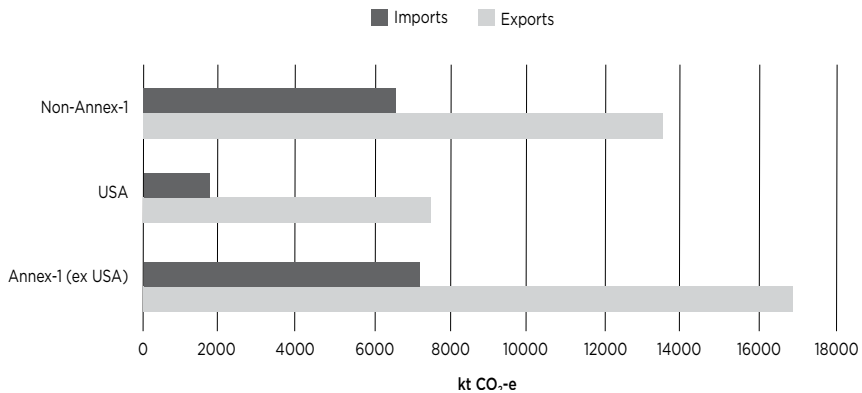
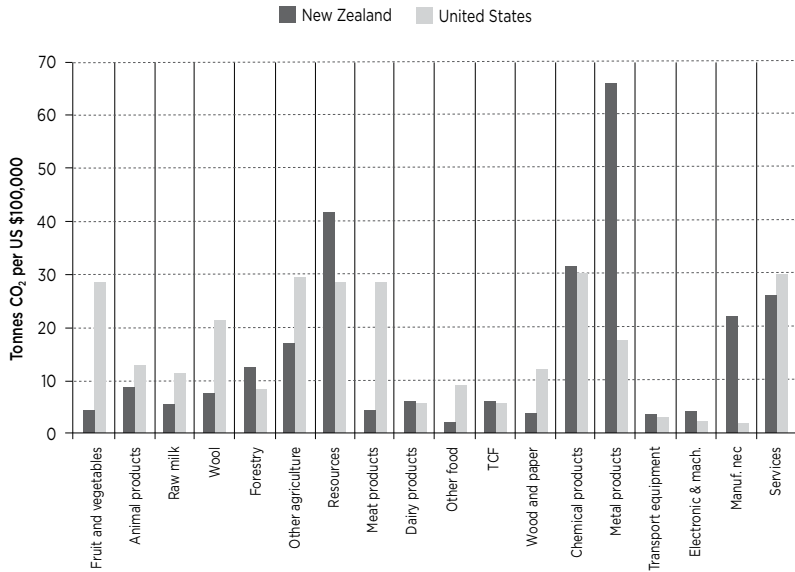


Table 9.3. CO₂ Production Emissions by Commodity (metric tons per 2001 US\$100,000)

Commodity	New Zealand	Australia	China	Japan	United States	Europe	Other Annex I	South East Asia	Rest of World
Fruit and vegetables	4.5	19.4	171	8	28.3	25.4	21.7	9	8.3
Animal products	8.4	15.6	23.9	1.5	12.8	13.5	20.7	5.8	6.2
Raw milk	5.2	8.8	16.1	1.7	11.2	11.2	18.4	4.4	4.2
Wool	7.4	12.3	48	2	21.1	5.7	7.4	16.9	3.1
Forestry	12.2	29.4	42.1	16.1	8.1	19.1	42.8	29.6	7.7
Other agriculture	16.8	18.8	36.5	30.5	29.5	27.2	45.4	23.2	13.2
Resources	41.7	34.8	126.3	10.8	28.4	27	34	68.1	53.4
Meat products	1.5	8.3	7.9	0.7	6.1	2.4	6.1	6.0	4.5
Dairy products	5.9	15.4	17	2.4	5.8	3.2	9.0	4.7	7.5
Other food	1.9	9.5	27.2	1.7	9.0	4.9	10.5	10.6	7.2
TCF	6.0	7.6	10.9	5.9	5.6	2.6	7.9	12.5	7.9
Wood and paper	3.8	12.6	31.3	5.0	12	3.8	13.9	15.5	20.4
Chemical products	31.5	84.9	76.1	3.7	30.2	9.7	41.7	52.8	104.4
Metal products	6.6	57.2	84.3	9.0	17.2	9.8	55	29.7	55.5
Transport equip.	3.3	0.4	14.6	0.1	3.2	1.0	2.8	1.9	3.6
Electronic & mach.	4.0	1.9	8.1	0.6	2.1	0.9	3.6	1.9	9.3
Manuf. nec	22.3	0	1.8	2.4	1.5	0.7	6.2	12.3	24.3
Services	25.9	61.8	174.6	7.4	30	15.5	89.6	44.2	70.8

Figure 9.2. Emissions Intensity of Economic Sectors: NZ and US Compared



intensity estimates. Most developed economies import more emissions than they export, and this pattern has become stronger since the Kyoto Protocol was signed in 1997, partly at least because of the carbon leakage that border adjustments aim to halt.³⁵

Further down the track will come the emissions content of international travel, on which New Zealand relies heavily for its tourism earnings. In rough terms, tourism accounts for 20 per cent of total exports and 10 per cent of GDP. While these emissions have escaped inclusion in the Kyoto accounting procedures, they are likely to become included in measures of emission-intensity of trade as data collection improves. In 2005 international visitors to New Zealand accounted for 7.9 million tonnes of emissions from air transport, and New Zealanders travelling abroad added another 3.9 million tonnes. Adding these to New Zealand’s 2005 total Kyoto-measured emissions raises the annual total by about 10 per cent.³⁶

Conclusion

This chapter has provided only a brief snapshot of the enormous and rapidly growing literature on carbon-related border adjustments and the measurement of emissions embodied in international trade. It nevertheless strongly suggests that in future trade negotiations, New Zealand is likely to face demands from major trading partners such as the US for provisions that allow prohibitive border measures to be applied unilaterally by trading partners as part of their

national or regional efforts to address the problem of reducing greenhouse-gas emissions. GATT/WTO rules will provide no shelter from such measures.

If New Zealand is unable to negotiate exemption from the border provisions of those national policies in a TPPA, it will have to align its climate-change policy with the demands of at least some trading partners in order to retain market access. Because of the prominence of emission-intensive agricultural commodities in New Zealand's export mix, and its unusual (for a rich nation) emissions trade surplus, failure to secure exemptions or to deliver policy alignment could have serious consequences for trade. If alignment is the path taken, in a world where trading partners are grouped into mutually incompatible climate-policy regimes, it will not be easy to decide with which bloc New Zealand ought to align its domestic policy. The negotiation of a TPPA that includes the United States promises to be merely the first of a series of difficult exercises in grappling with the new trade realities of the twenty-first century.

- and strict quarantine with the different profile of *C.difficile* in Australia, see <http://www.couriermail.com.au/news/dont-let-zoonosis-bug-you/story-e6frfo29-1225717907551>.
- 27 J. Webber, *A Comprehensive Integrated Surveillance Program to Improve Australia's Response to Antimicrobial Resistance: A Report Prepared for the NHMRC's Expert Advisory Group on Antimicrobial Resistance (EAGAR)*, JJ Webber Consulting, Booyong, NSW, 2006.
 - 28 B. Coffey, J. Mintert, S. Fox, T. Schroeder and L. Valentin, *The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions*, Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan, KS, 2005.
 - 29 USTR, *2010 Report on Sanitary and Phytosanitary Measures*, United States Trade Representative, 2010a.
 - 30 Adapted from ABARE, Australian Commodity Statistics 2009, ABARE, Canberra, 2009. http://www.abare.gov.au/publications_html/acs/acs_09/acs_09.pdf
 - 31 The National Livestock Identification Scheme tracks all food animals (cattle, sheep, goats and pigs), and statistical declarations are required when animals are domestically transported. See <http://www.mla.com.au/TopicHierarchy/IndustryPrograms/NationalLivestockIdentificationSystem/default.htm>. Other systems exist in the Australian grains industry, see <http://www.abc.net.au/news/stories/2008/04/21/2222442.htm?site=news>.
 - 32 Full text of the United States-Singapore Free Trade Agreement can be found at http://www.ustr.gov/sites/default/files/uploads/agreements/fta/singapore/asset_upload_file708_4036.pdf.
 - 33 Full text of the 'Agreement between the United States of America and the Socialist Republic of Vietnam on Trade Relations' can be found at <http://www.fas.usda.gov/itp/agreements/vt-text.pdf>. The SPS is on page 3 and the issues on food safety are on page 4, each a paragraph long.
 - 34 USTR, *2010 Report on Technical Barriers to Trade*, United States Trade Representative, 2010.
 - 35 New Zealand is also an active participant in disputes regarding the SPS agreements, especially as a third party.
 - 36 USTR, *2010 Report on Sanitary and Phytosanitary Measures*. United States Trade Representative, 2010.
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