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WHEN THE PEACE ENDS: THE VULNERABILITY OF EC AND US AGRICULTURAL SUBSIDIES TO WTO LEGAL CHALLENGE*

*Richard H. Steinberg** and Timothy E. Josling****

ABSTRACT

Article 13 of the WTO Agreement on Agriculture, known as the 'Peace Clause', precludes most WTO dispute settlement challenges against a country that is complying with the Agreement's liberalization commitments – until 1 January 2004, when the Peace Clause will expire. This article evaluates the strength of the main legal theories likely to be used in challenges to EC and US agricultural subsidies after expiry of the Peace Clause, and then employs economic techniques (regression analysis and equilibrium modeling) to meaningfully apply the soundest legal theories to economic data about agriculture trade. We conclude that when the Peace Clause expires, many commodity-specific EC and US agricultural subsidies will be vulnerable to legal challenge under Articles 6.3(a)–(c) and 6.4 of the WTO Agreement on Subsidies and Countervailing Measures. The remedy would require that such subsidies be withdrawn or that appropriate steps be taken to remove their adverse effects. Non-subsidizing developing countries can be expected to bargain in the shadow of this legal vulnerability, demanding that the Community and the United States commit to further subsidy reductions and a shift toward tariffs-and-decoupled-payments systems, in exchange for extension of the Peace Clause.

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INTRODUCTION AND BACKGROUND

Several exceptions to General Agreement on Tariffs and Trade 1947 (GATT)¹ rules, and the exclusion of agricultural subsidy reductions from all but the last of the GATT negotiating rounds, have long permitted the EC² and the United States to maintain high levels of agricultural subsidization. The World Trade Organization (WTO)³ Agreement on Agriculture⁴ (the Agriculture Agreement) required a reduction of agricultural subsidies and banned new export subsidies, but it has permitted the EC and the United States to maintain annual agricultural subsidization at a combined rate of about \$150 billion per year. The WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement)⁵ contains relatively stringent rules – examined more fully below – that apply to subsidies generally, and the WTO Understanding on the Settlement of Disputes (DSU)⁶ established a binding, automatic, and legalized dispute settlement system to enforce WTO rules. However, Article 13 of the Agriculture Agreement, known as the ‘Peace Clause’, precludes most dispute settlement actions against a country that is complying with the Agriculture Agreement’s domestic and export subsidy commitments – until 1 January 2004, when the Peace Clause will expire.

When the Peace Clause expires, the full substantive and procedural legal apparatus of the WTO may be used – for the first time in GATT/WTO⁷ history – to challenge EC and US agricultural subsidies. Several efficient agricultural producing countries, particularly some Cairns Group⁸ and developing countries, have already declared their intention to do so. As explained

¹ General Agreement on Tariffs and Trade (‘GATT’), 30 October 1947, Article XX(b), (g), TIAS No. 1700, 55 UNTS 187.

² EC is used to refer to the European Community, the European Communities, or the European Economic Community. The European Economic Community was ‘seated’ at GATT meetings from about 1960. John H. Jackson, *World Trade and the Law of GATT* (The Bobbs-Merrill Company, Inc, 1969). The European Community became a Member of the WTO at its inception. In various contexts, the European Communities have also been recognized at the GATT and the WTO.

³ Agreement Establishing the World Trade Organization (‘WTO Agreement’), in Final Act Embodying the Results of the Uruguay Round of Multilateral Trade negotiations, Marrakesh, 15 April 1994 (‘FINAL ACT’) at 9.

⁴ Agreement on Agriculture (‘Agreement on Agriculture’), in FINAL ACT, Annex 1A, at 43 (1994).

⁵ Agreement on Subsidies and Countervailing Measures (‘SCM Agreement’), in FINAL ACT, Annex 1A, at 229 (1994).

⁶ Understanding on Rules and Procedures Governing the Settlement of Disputes (‘DSU’), in FINAL ACT, Annex 2, at 353 (1994).

⁷ GATT/WTO refers to both the General Agreement on Tariffs and Trade (GATT), and its organizational successor, the World Trade Organization (WTO).

⁸ The Cairns Group is composed of 17 agriculture-producing countries that maintain little or no agricultural protection or subsidization. The 17 members of the Cairns Group are Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Paraguay, Philippines, South Africa, Thailand, and Uruguay.

below, agricultural subsidies will be subject to DSU challenge under various substantive legal provisions of the GATT 1994⁹ and the SCM Agreement, with important implications for the vulnerability of EC and US agricultural subsidies – and for the agriculture negotiations being conducted in the Doha Round.

Acknowledging that there is uncertainty about the interpretation and application of relevant law, this article assesses the relative strength of the main legal theories likely to be used in challenges to EC and US agricultural subsidies after expiry of the Peace Clause. In addition, it offers some economic techniques (regression analysis and equilibrium modeling) for meaningfully applying those legal standards, then uses those techniques to apply the soundest of the legal theories to economic data about and models of agriculture trade to assess the vulnerability of EC and US agricultural subsidies to WTO legal challenge after expiry of the Peace Clause. It concludes that when the Peace Clause expires, EC and US agricultural subsidies will be vulnerable to a claim that they are causing 'serious prejudice' to non-subsidizing countries within the meaning of SCM Agreement Article 5(c), as demonstrated by effects described in SCM Agreement Article 6.3(a)–(c) and 6.4 – even if those subsidies are in conformity with the Agriculture Agreement. A successful challenge under this 'serious prejudice' theory would require the subsidizing Member to 'take appropriate steps to remove the adverse effects or withdraw the subsidy', pursuant to SCM Agreement Article 7.8.

Part I evaluates the strength of alternative legal theories. It begins by analysing the Peace Clause, identifying the WTO agreements that will apply to agricultural subsidies upon expiry of the Peace Clause, and setting forth principles for interpreting those agreements – particularly in case of conflict between them. It then analyses six alternative legal theories upon which a challenge to EC and US agricultural subsidies might be contemplated – all of which have been mentioned by negotiators and commentators as possible bases for such a challenge. All but one theory – the 'serious prejudice' challenge – offer an implausible or inadequate basis for attack.

Part II argues that the causal showings demanded for a successful 'serious prejudice' challenge are substantial, particularly in the agriculture context, and describes statistical techniques for showing causation. It argues that the only way to give meaning to the demonstration of causation demanded by the relevant SCM Agreement provisions, particularly in light of the remedy contemplated by Article 7.8, is to employ regression analysis or equilibrium models of the relationships. As shown below, these techniques have been employed or endorsed in other substantive contexts by several WTO dispute settlement panels and the Appellate Body.

⁹ General Agreement on Tariffs and Trade 1994 ('GATT 1994'), in FINAL ACT, Annex 1A, at 23 (1994).

Part III presents the results of our quantitative analysis. A subtly different economic test is demanded by each of the different legal standards across subparagraphs (a) through (c) of Article 6.3 and 6.4. Well-tailored regressions offer the best means of testing trade data against the displacement causation standards of subparagraphs (a) and (b), as well as the displacement correlation standard of Article 6.4. Our use of regression equations formulated for each of these legal standards demonstrates statistically significant relationships (i.e., with at least 95 percent confidence) between particular, specific EC and US agricultural subsidies and the distortions contemplated in each of those legal provisions. Partial equilibrium models are more useful in testing the effect of subsidies on prices – the standard set forth in subparagraph (c). The models that we have used show that EC and US agricultural subsidies depress prices for several commodities in Members' markets. Finally, we briefly consider the thick description (i.e., detailed, market-by-market analyses) and defenses (especially those available under Article 6.7) that will be argued in these cases.

We conclude by considering the implications of our findings for WTO agriculture law and policy, particularly the WTO agriculture negotiations now underway in the Doha Round. Several Cairns Group and developing country trade negotiators are likely to begin bargaining in the shadow of law as expiry of the Peace Clause draws nearer. The eventual legal vulnerability of EC and US agricultural subsidies, shown here, will enhance the bargaining power of non-subsidizing countries, which may demand 'payment' in the form of further subsidy reduction commitments and a shift toward tariffs-and-decoupled-payments systems in exchange for extending the Peace Clause. Ultimately, expiry of the Peace Clause will do what it was intended to do: light a fire under negotiations on trade-distorting agricultural subsidies.

I. THE PEACE CLAUSE AND ALTERNATIVE LEGAL THEORIES FOR CHALLENGING EC AND US AGRICULTURAL SUBSIDIES UPON ITS EXPIRY

This part analyses the Peace Clause, identifies relevant legal texts that would apply in cases challenging the WTO-consistency of EC or US agricultural subsidies after its expiry, and considers six legal theories that have been offered as a basis for challenging agricultural subsidies after expiry of the Peace Clause.

A. The Peace Clause and the legal implications of its expiry

The Peace Clause implementation period (the 'peace period') is nine years, rather than six as is the case for the tariff and subsidy reductions under the

Agriculture Agreement.¹⁰ Therefore, while many of the subsidy reduction commitments for developed countries were to have been implemented by 31 December 2000, the Peace Clause does not expire until the end of 2003. More substantively, Article 13 is structured to limit the application of various potential remedies against subsidies under the WTO agreements, with limitations varying according to the type of subsidy program in question. Table 1 summarizes the scope of coverage of the Peace Clause.

Table 1 The Peace Clause: Extent of Protection during the Peace Period

	CVDs	SCM Arts. 5 & 6	GATT 1994 Art. XVI	Non-violation Nullification or Impairment
Green Box	Not Actionable	Not Actionable	Not Actionable	Not Actionable
Amber & Blue Box subsidies that conform	Actionable – ‘Due Restraint’	Not Actionable (if subsidies < or = 1992 Levels)	Art. XVI:1 Not Actionable (if subsidies < or = 1992 Levels)	Not Actionable (if subsidies < or = 1992 Levels)
Export subsidies that conform	Actionable – ‘Due Restraint’	Not Actionable	Not Actionable	–

Green Box measures (i.e., domestic support measures that are considered the least trade-distorting and conform to Agriculture Agreement Annex 2) are largely exempt during the peace period from complaints based on all of the most obvious WTO legal theories. Specifically, Green Box measures are non-actionable for the purposes of imposing countervailing duties, initiating WTO dispute settlement cases based on the subsidy disciplines of GATT 1994 Article XVI or Part III (Articles 5–7) of the SCM Agreement, and challenging subsidies under a non-violation nullification or impairment theory.¹¹

Amber Box and Blue Box measures (i.e., all other domestic support measures) that conform to the subsidy reduction commitments¹² are provided similar but reduced protection from actionability. For example, such subsidies may be subject to countervailing duty actions, although Members are advised to exercise ‘due restraint’ in initiating such actions.¹³ In addition, these subsidies are exempt from WTO dispute settlement actions that otherwise could be based on the subsidy disciplines of GATT 1994 Article

¹⁰ Agreement on Agriculture, Article 1(c). Developing countries generally were given a 10-year reduction period.

¹¹ Agreement on Agriculture, Article 13(a).

¹² I.e., the reduction commitments required in Agreement on Agriculture, Article 6.

¹³ Agreement on Agriculture, Article 13(b)(i).

XVI:1,¹⁴ or SCM Agreement Articles 5 and 6, or based on a non-violation nullification or impairment claim – provided that subsidization levels do not exceed those of the 1992 marketing year.¹⁵

Under the Peace Clause, export subsidies are given more protection than Amber and Blue Box measures in WTO subsidy cases. Specifically, agricultural export subsidies may face countervailing duties during the peace period, subject to the exercise of 'due restraint' – as is the case for Amber and Blue Box measures.¹⁶ Export subsidies are non-actionable for cases that otherwise might be based on the subsidy disciplines of GATT 1994 Article XVI or Part III (Articles 5–6) of the SCM Agreement, but (in contrast to Amber and Blue Box subsidization) there is no limit on this exemption based upon remaining below 1992 levels of support.¹⁷ Finally, during the peace period, scheduled agricultural export subsidies are exempt from actions based on Article 3 of the SCM Agreement, which generally prohibits export subsidies.¹⁸

Upon expiry of the Peace Clause, the ordinary meaning of various WTO texts, applied principles of interpretation of international law,¹⁹ and some past WTO panel and Appellate Body decisions suggest that three substantive WTO agreements will be relevant to analysis of the legal vulnerability of EC and US agricultural subsidies: GATT 1994, the Agriculture Agreement, and the SCM Agreement. WTO jurisprudence and the ordinary meaning of these agreements indicate that they should be read cumulatively, with various elements of all three agreements applying to agriculture simultaneously so as to create a coherent, integrated system – upon expiry of the Peace Clause. This view is consistent with a general theme in WTO Appellate Body decisions that regards the WTO system as an integrated whole,²⁰ with the panel and

¹⁴ Unlike Green Box measures and export subsidies, these domestic support measures are not expressly immune from challenge under GATT 1994 Article XVI:3 during the peace period. However, in practice, it would be difficult or impossible to sustain a challenge to domestic subsidies under an Article XVI:3 theory and no such challenge has ever been sustained.

¹⁵ Agreement on Agriculture, Article 13(b)(ii)–(iii).

¹⁶ In the case of export subsidies, the text specifies that such actions are limited to instances in which injury or threat thereof is based on 'volume, effect on prices, or consequent impact in accordance with' GATT 1994 Article VI and SCM Agreement Part V. However, this standard must be met in all cases in which a countervailing duty is to be imposed, so it may be considered redundant.

¹⁷ Agreement on Agriculture, Article 13(c)(2).

¹⁸ While the Peace Clause does not bar non-violation nullification or impairment cases against export subsidies during the Peace Period, in practice a claim against export subsidies based on that theory would be difficult to sustain and no such theory has ever been sustained.

¹⁹ The WTO agreements are interpreted in accordance with the Vienna Convention on the Law of Treaties and general interpretative principles of public international law. *DSU*, Article 3.2; WTO Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline* ('US – Reformulated Gasoline'), WT/DS2/AB/R, adopted 20 May 1996, at 16. See generally, David Palmeter and Petros C. Mavroidis, 'The WTO Legal System: Sources of Law', 92(3) *AJIL* 398 (1998), at 398–413.

²⁰ See, e.g., WTO Appellate Body Report, *Brazil – Measures Affecting Desiccated Coconut* ('Brazil – Desiccated Coconut'), WT/DS22/AB/R, adopted 21 February 1997, at 10–12.

Appellate Body decisions in *Brazil – Desiccated Coconut* that held that the Agriculture Agreement, SCM Agreement, and GATT 1994 must be read cumulatively, as a 'single undertaking',²¹ and with *Argentina – Footwear* that held that Annex 1A Agreements should apply cumulatively.²²

The real challenge is *how* to read these agreements cumulatively. Two general principles govern. First, in case of conflict between the provisions of different agreements, the more specific agreement or provision prevails over the more general.²³ Second, under the public international law principle of effective interpretation, wherever possible, agreements are to be read so as to give meaning and legal effect to all the terms.²⁴ The principle of effective interpretation has been read to suggest that wherever possible, agreements should be interpreted consistently with each other so as not to trigger the specificity principle (which could render meaningless language in the less specific agreement).²⁵ This view is consistent with the public international law presumption against conflicts among international agreements, which has been adopted in WTO jurisprudence.²⁶

Some diplomats in Geneva, particularly from the EC and US agriculture ministries, have asserted that only the Agreement on Agriculture is relevant to agricultural subsidies issues,²⁷ but this position is untenable. It runs up

²¹ WTO Panel Report, *Brazil – Measures Affecting Desiccated Coconut* ('*Brazil – Desiccated Coconut*'), WT/DS22/R, 17 October 1996, para 227, cited favorably in WTO Appellate Body Report, *Brazil – Desiccated Coconut*, WT/DS22/AB/R, adopted 20 March 1997 at 13.

²² WTO Appellate Body Report, *Argentina – Safeguard Measures on Imports of Footwear* ('*Argentina – Footwear*'), WT/DS121/AB/R, adopted 14 December 1999, paras 79–81.

²³ In the *EC – Bananas* case, the Appellate Body employed this specificity principle to hold that the GATT 1994 and the other multilateral agreements applied to agricultural products, 'except to the extent that the [Agriculture Agreement] contained specific provisions dealing specifically with the same subject matter'. WTO Appellate Body Report, *European Communities – Regime for the Importation, Sale and Distribution of Bananas* ('*EC – Bananas*'), WT/DS27/AB/R, adopted 9 September 1997, paras 155–58.

²⁴ WTO Appellate Body Report, *US – Reformulated Gasoline*, above n 19, at 23; WTO Panel Report, *Indonesia – Certain Measures Affecting the Automobile Industry* ('*Indonesia – Autos*'), WT/DS54/R, WT/DS55/R, WT/DS59/R, WT/DS64/R, 2 July 1998, para 14.28 at 330.

²⁵ See WTO Appellate Body Report, *Japan – Taxes on Alcoholic Beverage* ('*Japan – Alcoholic Beverages*'), WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R, adopted 1 November 1996, at 12; WTO Appellate Body Report, *Korea – Definitive Safeguard Measure on Imports of Certain Dairy Products*, WT/DS98/AB/R, adopted 14 December 1999, para 81; Appellate Body Report, *Argentina – Footwear*, above n 22, paras 79–81.

²⁶ Panel Report, *Indonesia – Autos*, above n 24, para 14.28, and cases cited in nn 649 and 650 of that report.

²⁷ See Didier Chambovey, 'How the Expiry of the Peace Clause (Article 13 of the WTO Agreement on Agriculture) Might Alter Disciplines on Agricultural Subsidies in the WTO Framework', 36(2) *Journal of World Trade* 305 (2002), at 305–52. This interpretation is based partly on the specificity principle: the SCM Agreement and the GATT 1994 subsidies provisions do not apply to agricultural subsidies because the more specific Agreement on Agriculture does so. Moreover, the agriculture negotiations took place separately from those on other sectors, and the final deal on agriculture was discrete from other WTO agreements, conferring upon the Agreement on Agriculture a status akin to *lex specialis*. Chambovey describes this legal stance, but he does not state that it is correct.

against the ordinary meaning of Agriculture Agreement Article 21.1, which provides that the 'provisions of GATT 1994 and of other Multilateral Trade Agreements . . . shall apply subject to the provisions of this Agreement', suggesting that the Agriculture Agreement was not intended to apply exclusively. Moreover, the position cannot explain why the Peace Clause would specify provisions of the GATT 1994 and the SCM Agreement that may not serve as a basis for legal action until 2004 – and so presumably might serve as a basis for legal action upon expiry of the Peace Clause. And it cannot explain numerous cross-references in and between the Agriculture and SCM agreements. Moreover, this position is inconsistent with the negotiating history of the agreements.²⁸

Hence, the GATT 1994, the Agreement on Agriculture, and the SCM Agreement should apply cumulatively to questions about agricultural subsidies. Consistent with the *Brazil – Desiccated Coconut* panel decision, in case of a conflict between a multilateral agreement on goods (such as the Agriculture Agreement) and GATT 1994, the former would prevail. Consistent with Article 21.1 of the Agriculture Agreement and the *EC – Bananas* Appellate Body decision, in case of a conflict between the Agriculture Agreement and the SCM Agreement, the more specific agreement (usually, the Agriculture Agreement) would prevail. However, the Appellate Body is likely to avoid finding conflicts.

B. Five implausible or insufficient legal theories for challenging agricultural subsidies after the peace period

Applied cumulatively, the substantive provisions of the GATT 1994, the Agriculture Agreement, and the SCM Agreement suggest six potential theories for challenging EC and US agricultural subsidies after expiry of the Peace Clause. Five of these theories are likely to fail or to provide insufficient legal bases upon which to successfully challenge those subsidies, despite all of them having been raised by trade negotiators, agriculture ministry officials in our interviews in Brussels, Geneva, or Washington, or commentators as potential bases for legal action. These theories are considered briefly, in ascending order of their likelihood of success.

²⁸ While it may have been unclear early in the Uruguay Round negotiations whether the SCM Agreement would apply to agriculture, the EC and the United States decided definitively at Blair House that it would apply. This is evidenced by the inclusion of cross-references between the two agreements subsequent to the Cartland IV text (November 1990), cross-references that were submitted to the GATT Secretariat by the US delegation immediately following Blair House. Anonymous interview with WTO Secretariat Official in Geneva (5 July 2002). While France initially rejected the Blair House understanding that the Agreement on Agriculture would be read as part of the larger set of Uruguay Round agreements, it acquiesced in 1993 provided that, *inter alia*, the Peace Clause was extended to nine years. John Croome, *Reshaping the World Trading System: A History of the Uruguay Round* (Geneva: World Trade Organization, 1995).

1. *Illegality of agricultural export subsidies under SCM Agreement Article 3*

Some argue that the SCM Agreement Article 3 prohibition on export subsidies will apply to agriculture upon expiry of the Peace Clause.²⁹ This position is advanced by some US trade negotiators, perhaps because the Community provides more than 30 times the level of US agricultural export subsidies. The position is based on a reading of the Peace Clause and its interaction with SCM Agreement Article 3, the latter of which provides that all export subsidies are prohibited 'except as provided in the Agreement on Agriculture'. The Agriculture Agreement, in turn, exempts agricultural export subsidies from actions based on SCM Agreement Article 3 during the peace period.³⁰ In short, the inference is that while the SCM Agreement exempts agricultural export subsidies to the extent established in the Agriculture Agreement, the Agriculture Agreement itself removes that exemption at the end of 2003.

Despite its simplicity, the argument is fatally flawed. It ignores Agriculture Agreement Article 8, which provides, 'Each Member undertakes not to provide export subsidies otherwise than in conformity with this Agreement and with the commitments as specified in that Member's Schedule.' The interaction of this language with the agricultural export subsidy exception to SCM Agreement Article 3 suggests that agricultural export subsidies are not illegal under Article 3 so long as they conform to the Agriculture Agreement, particularly its reduction commitments. The language of neither SCM Agreement Article 3 nor Agriculture Agreement Article 8 is time-limited. Some European negotiators have taken a position opposite to that of their US counterparts, arguing that Agriculture Agreement Article 8, read in conjunction with SCM Agreement Article 3, offers a permanent safe harbor for agricultural export subsidies that conform to the Agriculture Agreement, even after the peace period.

Neither of these polar positions is correct because they fail to distinguish between legality and actionability. The Peace Clause, which is time-limited, constrains actionability through the end of 2003 and does not bear on the question of legality – a distinction that is crucial to some of the theories analysed below. Taking this distinction into account, the proper interpretation of these provisions is that: (1) during the peace period, agricultural export subsidies that exceed the Agriculture Agreement reduction commitments would be subject to legal action under Agriculture Agreement Article 8, but such a violation would not destroy the protection of export subsidies against a claim that they are absolutely prohibited under SCM Agreement Article 3, and (2)

²⁹ See, e.g., Dale McNiel, 'Furthering the Reforms of Agricultural Policies in the Millennium Round', 9 *Minn J Global Trade* 41 (2000), at 72; and Testimony of Barb Determan on Behalf of the National Pork Producers Council, before the House Financial Services Committee, 107th Congress (6 February 2002). A senior USTR official has also taken this position. Anonymous telephone interview with US Government Official, USTR in Geneva (19 November 2001).

³⁰ Agreement on Agriculture, Article 13(c)(ii).

more significantly, after the peace period, agricultural export subsidies that conform with the Agriculture Agreement will be legal, although they may be regulated and actionable under another legal theory.

This interpretation is consistent with other Agriculture Agreement and SCM Agreement references. For example, Agriculture Agreement Article 3.1 refers to the export subsidy commitment schedule of each Member '*limiting subsidization*' (italics added). Similarly, Article 9.1 lists export subsidies 'subject to *reduction* commitments' (italics added). The implication of both provisions is that the Agriculture Agreement – which by the terms of SCM Agreement Article 3.1 provides an exception to the export subsidy ban – contemplates export subsidy reduction, not illegality. At the same time, Part III of the SCM Agreement defines 'actionable subsidies' and expands upon the terms and conditions of actionability.

This interpretation also mirrors the structure of GATT disciplines on agricultural export subsidies. GATT Article XVI:4 makes illegal export subsidies for any product except 'primary products', which includes agricultural goods. Yet agricultural export subsidies have been actionable under other GATT legal theories, such as having caused material injury to an import-competing domestic industry (resulting in the imposition of countervailing measures), and having resulted in a 'more than equitable share of world trade' for the subsidized product.³¹

Finally, this interpretation is supported by the Uruguay Round negotiating history. The EC rejected even the 1991 Dunkel Draft as going too far on agricultural export subsidies, and the Blair House agreement thus represented the most extreme position on export subsidies to which the EC was willing to compromise.³² It simply does not make sense that the EC would have consented to agreements that eliminated export subsidies completely after 2003. Nor does it make sense that the United States and the Cairns Group, which have been more concerned about export subsidies than any other type of agricultural subsidy, would abandon their GATT rights to actionability and consent to a permanent safe harbor for agricultural export subsidies – and not for other types of agricultural subsidies.

2. *Non-violation nullification or impairment*

After expiry of the Peace Clause, some believe that EC and US agricultural subsidies might be vulnerable to a non-violation nullification or impairment claim under GATT 1994 Article XXIII:1(b). Under that provision, a complainant must show that a 'benefit accruing to it directly or indirectly under [the GATT 1994] is being nullified or impaired . . . as the result of . . . the

³¹ GATT Panel Report, *French Assistance to Exports of Wheat and Wheat Flour* ('French Wheat Flour'), GATT Doc. L/924, 20 November 1958, BISD 7S/46.

³² Croome, see above n 28, at 297, 341–44.

application by another contracting party of any measure, whether or not it conflicts with the provisions of [the GATT 1994].’ The *EEC – Oilseeds* Panel Report noted that the provision serves ‘mainly to protect the balance of tariff concessions’. Those who anticipate a non-violation claim upon expiry of the Peace Clause expect it to be brought by a non-subsidizing Member, which would presumably argue that EC or US agricultural subsidies had changed competitive relationships in agriculture so as to undermine a tariff concession that was bargained for and embodied in a GATT Article II schedule – regardless of whether the subsidies violated any WTO rules.

The EC’s concern about such a claim is driven partly by having lost the *EEC – Oilseeds* case during the Uruguay Round negotiations (one of the few successful GATT 1947 claims made against agricultural subsidies), which was based partly on a non-violation theory. The United States claimed that in the 1960s it had made tariff concessions to the EC in exchange for duty-free EC tariff bindings on oilseeds, and that the subsequent introduction of EC oilseeds subsidies was impairing the reasonably expected benefits of the concessions, entitling redress under Article XXIII:1(b). The Panel found that it was reasonable for the United States to expect that the EC would not introduce any subsidy measures directly counteracting the effect of the tariff concessions. In successful non-violation cases, the remedy does not require the impairing party to remove the impairing measure, because the measure is not a GATT violation. Instead it contemplates what may be a more challenging remedy: a ‘mutually satisfactory adjustment’ that either ‘restores the competitive relationship between imported and domestic’ goods or compensates the successful complainant for the impaired concession.³³

Ironically, while no legal theory was more central to EC insistence on including a Peace Clause in the Agriculture Agreement, the non-violation theory is unlikely to be a successful basis for challenging EC or US agricultural subsidies upon expiry of the Peace Clause. The non-violation remedy is considered ‘an exceptional instrument of dispute settlement’, one to be ‘approached with caution’.³⁴ In particular, it is difficult to conclude that the subsidies are vulnerable under a non-violation theory, given the development of the doctrine of reasonable expectation. While Article XXIII does not mention ‘reasonable expectation’, since 1950, panels³⁵ have consistently required

³³ WTO Panel Report, *Japan – Measures Affecting Consumer Photographic Film and Paper* (*Japan – Photographic Film*), WT/DS/R, adopted 31 March 1998, para 6.40.

³⁴ *Ibid.*, para 10.35.

³⁵ GATT Panel Report, *The Australian Subsidy on Ammonium Sulphate*, BISD II/188, adopted 3 April 1950, esp. para 12 (where Australia had bargained for a Chilean duty-free binding on sodium nitrate, Chile’s subsequent withdrawal of subsidies on the product and maintenance of a subsidy for a substitute good – ammonium sulphate – ‘could not reasonably have been anticipated’ by Australia, upset the competitive relationship between the two chemicals, and constituted non-violation impairment); GATT Panel Report, *Treatment by Germany of Imports of Sardines*, G/26, 1S/53, adopted 31 October 1952, esp. para 16 (where Norway had negotiated for German tariff reductions on two types of sardines and the parties at the time discussed equal treatment of the two products, Germany’s

a successful non-violation claimant to demonstrate that at the time it negotiated for the benefit that was subsequently impaired it had no reasonable expectation of application of the measure that caused impairment.

It is hard to see how a WTO Member could argue that at the time the Uruguay Round agreements were concluded it had no reasonable expectation that the EC or US would subsidize agriculture after expiry of the Peace Clause. It is one thing for a panel to have accepted the reasonable expectations argument in *EEC – Oilseeds*, in which the impaired tariff bindings had been made in the absence of any EC subsidies (indeed, before the Common Agricultural Policy had been established); it is quite another to accept that in 1994 there were no reasonable expectations of continued agricultural subsidization after expiry of the Peace Clause. The Agriculture Agreement contains detailed export subsidy and domestic support reduction commitments; the absence of a requirement to eliminate agricultural subsidies shows that the Members knew that agricultural subsidies might well continue – up to levels permitted by the Agriculture Agreement after the reduction implementation period and regulated by the ‘serious prejudice’ provisions in the SCM Agreement after expiry of the Peace Clause (a theory examined in greater detail below). Of course, if subsidies were to exceed those levels, a complainant could prevail on a straightforward argument that commitments in Agriculture Agreement Articles 6 through 9 were contravened, or that the subsidies were causing ‘serious prejudice’ within the meaning of the SCM Agreement.

Other arguments asserting non-violation nullification or impairment seem weak, as well. For example, a complainant might argue that the Agriculture Agreement contemplated further subsidy reduction commitments after the implementation period, as evidenced by Article 20, which requires a continuation of the reform process. But EC and US lawyers should be able to argue successfully that Article 20 contemplated merely renewed negotiations – which are underway – with no guarantee of success. Alternatively, a complainant might argue that agricultural market conditions have changed unexpectedly, making some subsidies more harmful than anticipated to the competitive position of its producers, but it does not seem reasonable to have expected that market conditions would stay unchanged over the nine years

subsequent removal of import quotas on only one type of sardine upset the competitive relationship, which Norway could not have reasonably expected); *Other Barriers to Trade*, Report of the Working Party, 1955, 3S/222 (it is reasonable to expect that the value of a bargained-for tariff concession will not be nullified or impaired by the ‘subsequent introduction or increase of a domestic subsidy’ by the party that granted the concession), cited favorably in GATT Panel Report, *European Economic Community – Payments and Subsidies Paid to Processors and Producers of Oilseeds and Related Animal Feed Proteins* (*EEC – Oilseeds*), GATT Doc. L/6627, 14 December 1989, BISD 37S/86, para 147; Panel Report, *EEC – Oilseeds*, esp. para 147 (United States could not have reasonably anticipated that the EEC would offset any benefit of the tariff concession by initiating a domestic subsidy on oilseeds); and Panel Report, *Japan – Photographic Film*, *ibid*, para 10.72–10.81 (US required to show no reasonable expectation of measures).

that the Peace Clause was in effect. Moreover, that argument suggests that the alleged change in market conditions – not the subsidies – caused nullification or impairment. Finally, a complainant might argue that new types of subsidies (for example newly introduced amber- or blue-box subsidies) were introduced unexpectedly since 1995, with effects on competitive conditions that were worse than those of previous types of subsidy. But empirically, neither the EC nor the United States has introduced new types of subsidies with such effects since conclusion of the Uruguay Round.

3. *A strategy based on countervailing duty cases*

Some trade lawyers have suggested the possibility of attacking agricultural subsidization after the expiry of the Peace Clause by filing many countervailing duty claims against imports of subsidized agricultural products. This would be an ineffective and incomplete strategy for attacking agricultural subsidies. Such a strategy would not help non-subsidizing Members whose exports have been displaced from third country markets by subsidized exports from another Member.³⁶

Moreover, the limited utility of this approach is suggested by the low frequency of initiating such actions during the peace period. The Peace Clause does not preclude imposing countervailing duties against products that receive Amber Box, Blue Box, or export subsidies. It constrains them, perhaps, by requiring national authorities to exercise 'due restraint' in initiating countervailing duty investigations³⁷ – although this is a weak discipline. The Peace Clause does preclude countervailing duty investigations against Green Box subsidies until the end of 2003, but such claims will be difficult to sustain when permissible because Green Box subsidies are the least trade distorting agricultural subsidies, many Green Box measures are non-actionable because they are nonspecific (such as General Services, as defined in Annex 2 of the Agriculture Agreement), or considered so legitimate that national countervailing duty laws preclude actions aimed at them (such as support to relieve natural disasters).³⁸ Hence, few countervailing duty cases have been brought during the course of the peace period and it is difficult to see how expiry of

³⁶ GATT Article VI:6(b) and (c) establish a process by which an importing country may levy a countervailing duty to offset subsidization which injures a domestic industry in a foreign, non-subsidizing country. However, it appears that these provisions have never been used. *GATT Analytical Index: Guide to GATT Law and Practice* (6th edn, Geneva: WTO Secretariat, 1994) 248. See also, Jackson, see above n 2, §16.4, at 420. Few Members' countervailing measures law offers such a remedy.

³⁷ Agreement on Agriculture, Article 13(b)(1).

³⁸ For example, the US countervailing duty statute precludes the imposition of countervailing duties against certain subsidies for environmental purposes, relief from natural disaster, or income safety-net programs. See 19 United States Code Annotated (USCA) §1677 et seq. The US statutory definitions map fairly well onto the Green Box subsidy definitions in Agreement on Agriculture Annex 2.

the Peace Clause will open a floodgate to countervailing duty claims around the world.

4. *GATT 1994 Article XVI:3 – 'more than equitable share of world trade'*

Some have argued that after the peace period, GATT 1994 Article XVI:3 might serve as a basis for legal action. The second sentence of that paragraph provides:

If, however, a contracting party grants directly or indirectly any form of subsidy that operates to increase the export of any primary product from its territory, such subsidy shall not be applied in a manner which results in that contracting party having more than an equitable share of world export trade in that product, account being taken of the shares of the contracting parties in such trade in the product during a previous representative period, and any special factors that may have affected or may be affecting such trade in the product.

A challenge to EC and US agricultural subsidies might be based on an argument that such subsidies pass the three-part test suggested by the ordinary meaning of Article XVI:3. Under that theory, a complainant would need to show that the agricultural subsidies have: (1) operated to increase agricultural exports, (2) increased the world market share of the subsidizing country, and (3) resulted in a world market share that is 'more than equitable'.

Three difficult problems would be encountered in challenging EC and US agricultural subsidies under GATT Article XVI:3. First, the subsidizing Members could argue that Article XVI:3 is no longer effective, having been superseded by the more specific provisions and pervasive scheme of the Agriculture and SCM agreements. Article 32.1 of the SCM Agreement provides: 'No specific action against a subsidy of another Member can be taken except in accordance with the provisions of GATT 1994, as interpreted by this Agreement.' Just as the Appellate Body ruled in *Brazil – Desiccated Coconut* that GATT Article VI could not be applied independently of the SCM Agreement,³⁹ it could be argued that neither can GATT Article XVI:3 be read independently of the SCM Agreement. Domestic agricultural subsidies may be challenged under specific tests such as those provided in Part III of the SCM Agreement, and agricultural export subsidies may be challenged under Part III of the SCM Agreement and various provisions of the Agriculture Agreement, which are elaborated through a series of cross-references in the two agreements. Taken together, these two agreements could effectively preempt the application of GATT Article XVI:3 to agricultural subsidies. Moreover, SCM Agreement Article 6.3(d) parallels the language of GATT Article XVI:3 and related jurisprudence. Under the doctrine of specificity, to the extent that SCM Agreement Article 6.3(d) may apply to products covered by

³⁹ Appellate Body Report, *Brazil – Desiccated Coconut*, above n 20, Part IV(B)(2).

the Agriculture Agreement,⁴⁰ it could replace GATT Article XVI:3 as the basis for a challenge that a subsidy caused an increase in world market share of the subsidized agricultural product.

Second, if the complainant were to prevail on the question of the continued applicability of GATT Article XVI:3, debate would ensue over the scope of subsidies disciplined by the provision. Subsidizing Members would likely assert that Article XVI:3 applies only to agricultural export subsidies (i.e., subsidies contingent on export), as suggested by the title of section B ('Additional Provisions on Export Subsidies'), the first sentence of Article XVI:3 (which applies to 'subsidies on the export of primary products'), the interpretation of Article XVI:3 in Article 10 of the Tokyo Round Subsidies Code (which could be read as interpreting Article XVI:3 to regulate only 'export subsidies on certain primary products'),⁴¹ and by the fact that every GATT action based on Article XVI:3 involved an export subsidy. Moreover, the Peace Clause does not preclude an Article XVI:3 action against Amber and Blue Box subsidies (i.e., domestic subsidies), yet no such actions have been initiated during the peace period, so it is difficult to see why a flood of Article XVI:3 actions against domestic subsidies would be initiated after the peace period.

Third, even if the complainant were to prevail on the questions of the continued applicability of GATT Article XVI:3 and its scope, it would be difficult to prove the elements required by the provision. In showing that a subsidizing country has attained a 'more than equitable' share of world trade, panels have consistently demanded a successful complainant establish that the challenged subsidy *caused* displacement of the complainant's share of world trade.⁴² The challenge is particularly difficult because of the requirement to demonstrate causation across the world market, not simply an individual country market. Complainants usually have been able to show that the subsidizing country's exports and share of world trade in the subsidized product increased, and the complainant's exports or share of world trade decreased, following introduction of the challenged subsidy. But since the 1958 *French Wheat Flour* decision, subsidizing countries have been able to cast doubt on causal claims by showing, for example, that the complainant actually gained market share in one country or that the subsidizing country lost market share in a single

⁴⁰ This is a contested proposition, discussed in greater detail below at 386-87.

⁴¹ Agreement on Interpretation and Application of Articles VI, XVI and XXIII of the General Agreement ('Tokyo Round Subsidies Code'), Article 10, 1980, BISD 26S/56.

⁴² See, esp., GATT Panel Report, *European Communities Refund on Exports of Sugar* [case brought by Australia] ('EC - Sugar [Australia]'), L/4833, GATT BISD 26S/290, adopted 6 November 1979; GATT Panel Report, *European Communities Refund on Exports of Sugar* [case brought by Brazil] ('EC - Sugar [Brazil]'), L/5011, BISD 27S/69, adopted 7 October 1980; and GATT Panel Report (unadopted), *European Economic Community - Subsidies on Export of Wheat Flour* ('EEC - Wheat Flour'), SCM/42, 21 March 1983. Displacement was also adopted in Article 10 of the Tokyo Round Subsidies Code, *ibid*, as the central basis for Article XVI:3 challenges.

country.⁴³ More commonly, however, subsidizing countries have conjectured all sort of factors other than subsidies that might explain the shift in market shares – special trade relationships, ‘prevailing market prices’, the operation of commodity agreements,⁴⁴ competition from other exporters,⁴⁵ concessional exports, political embargoes, shifts in productive capacity in third countries, cultural relationships between some trading countries, or preferences for different shipping abilities.⁴⁶ After such possibilities have been raised, panels have been unable to conclude that subsidies caused the shifts in market shares, given the complexity of agricultural markets and the interplay of many special factors, the relative importance of which they found impossible to assess.

Plausible legal and factual arguments could be marshaled in rebuttal to each of the foregoing barriers to successful application of GATT Article XVI:3. Nonetheless, taken together these barriers to prevailing on an Article XVI:3 case would be difficult to surmount. Moreover, SCM Agreement Articles 6.3 and 6.4 offer legal theories that are more easily provable than a claim under GATT Article XVI:3.

5. Injury caused by subsidized imports: a claim under SCM Agreement Article 5(a)

After expiry of the Peace Clause, a Member could claim injury to its domestic industry resulting from exports of EC or US subsidized agricultural products. SCM Agreement Article 5(a) was drafted primarily to offer an alternative to countervailing duty investigations for Members whose domestic industries were injured by subsidized imports.⁴⁷ It provides, in relevant part:

No Member should cause, through the use of any subsidy [as defined by the Agreement], adverse effects to the interests of other Members, i.e. . . . injury to the domestic industry of another Member.

SCM Agreement Article 7 provides that a Member found to be causing ‘adverse effects’ under Article 5 ‘shall take appropriate steps to remove the adverse effects or shall withdraw the subsidy’, and contemplates referring to a dispute settlement panel complaints based on Article 5 that cannot be resolved through consultations.⁴⁸ Footnote 11 to Article 5 specifies that

⁴³ See, e.g., Panel Report, *EC – Sugar (Australia)*, *ibid.*, para 4.21.

⁴⁴ These three factors were used in Panel Report, *EC – Sugar (Brazil)*, above n 42, para 4.13 and § IV(d)(iii).

⁴⁵ Panel Report, *EC – Sugar (Australia)*, above n 42, para 4.21; and Panel Report, *EC – Sugar (Brazil)*, above n 42, para 4.13.

⁴⁶ The last five possibilities were raised by the European Community in *EBC – Wheat Flour*, above n 42, paras 2.14–2.18.

⁴⁷ WTO Secretariat, *Guide to the Uruguay Round Agreements* (The Hague, Boston: Kluwer Law International, 1999) 95.

⁴⁸ SCM Agreement, Article 7.8.

'injury to domestic industry' is used in Article 5(a) 'in the same sense as it is used in Part V' (Articles 10–23) of the SCM Agreement, which defines injury for purposes of countervailing measures investigations. The Agreement is silent as to whether injury to domestic industry could include injury from displaced exports in third country markets.

It could be hard to establish the causation of injury needed to sustain a claim under SCM Agreement Article 5(a). The SCM Agreement requires a successful Article 5(a) claim to demonstrate that 'the subsidized imports are, through the effects of subsidies, causing injury . . . based on an examination of all relevant evidence', including 'any known factors other than the subsidized imports which at the same time are injuring the domestic industry'.⁴⁹ Even if causation could be shown, a claim based on Article 5(a) would be harder to sustain than a claim based on Article 5(c), which speaks of 'serious prejudice to the interests of another Member' rather than 'injury to the domestic industry of another Member'. This claim of serious prejudice can be shown by satisfying the conditions of SCM Agreement Article 6.3, which provides lower thresholds than for an Article 5(a) claim. In SCM Agreement Article 5(a) cases, panels must examine the effect of the volume of the subsidized imports on 'prices in the domestic market for like products', and the consequent impact of these exports on the producers of such products.⁵⁰ A successful claim under Article 6.3(c) demands demonstration of only the first part of this causal chain, the impact on price – and offers alternative criteria of displacement in the subsidizing Member's market or in third markets. It does not require the demonstration of injurious effect on unsubsidized producers that is required by an Article 5(a) claim.

C. The most plausible legal theory: "serious prejudice" under SCM Agreement Article 5(c) via operation of Articles 6.3(a)–(c) and 6.4

Upon expiry of the Peace Clause, a claim that EC or US agricultural subsidies were causing 'serious prejudice' within the meaning of SCM Agreement Articles 6.3(a)–(c) and 6.4 would appear to stand a greater chance of success than any of the legal theories considered above.⁵¹ Articles 6.3 and 6.4 were intended by negotiators to offer clearer legal standards than those used in the past for regulating the operation of subsidies, and to make it easier than in the past for non-subsidizing countries to make a *prima facie* case.⁵² By the terms of the SCM Agreement Article 5 cross-reference to the Peace Clause,

⁴⁹ SCM Agreement, Article 15.5.

⁵⁰ SCM Agreement, Article 15.1.

⁵¹ Article 6.1 of the SCM Agreement would have provided the easiest basis for a claim against agricultural subsidies, but it has lapsed pursuant to Article 30. See WTO Secretariat, 'Subsidies and Countervailing Measures: overview', http://www.wto.org/english/tratop_e/scm_e/subs_e.htm (visited 23 February 2003), nn 1 and 2.

⁵² Anonymous interview with senior WTO Secretariat official, in Geneva (5 July 2002).

and by operation of the Peace Clause, actions against any type of agricultural subsidy based on SCM Agreement Articles 5 and 6 are precluded until the end of the peace period (provided those subsidies conform to specified caps and reduction commitments). But after the Peace Clause expires, action could be taken by application of Agriculture Agreement Article 21.1 and the end of the suspension implied by the SCM Agreement Article 5 cross-reference. We consider first the legal basis and parameters of such a challenge, then briefly some evidentiary and causal showings that would be demanded under such a theory.

SCM Agreement Article 5(c) provides that '[n]o Member should cause, through the use of any [specific subsidy not excepted by the Agreement], adverse effects to the interests of other Members, i.e. . . . serious prejudice to the interest of another Member.' Article 6.3 provides:

Serious prejudice in the sense of paragraph (c) of Article 5 may arise in any case where one or several of the following apply:

- (a) the effect of the subsidy is to displace or impede the imports of a like product of another Member into the market of the subsidizing Member;
- (b) the effect of the subsidy is to displace or impede the exports of a like product of another Member from a third country market;
- (c) the effect of the subsidy is a significant price undercutting by the subsidized product as compared with the price of a like product of another Member in the same market or significant price suppression, price depression or lost sales in the same market;
- (d) the effect of the subsidy is an increase in the world market share of the subsidizing Member in a particular subsidized primary product or commodity as compared to the average share it had during the previous representative period of three years and this increase follows a consistent trend over a period when subsidies have been granted.

In the absence of such circumstances, the existence of 'serious prejudice' may still be determined on the basis of all information submitted to the dispute settlement panel.⁵³ SCM Agreement Article 7.8 provides that a Member maintaining a subsidy that causes serious prejudice 'shall take appropriate steps to remove the adverse effects of the subsidy or shall withdraw the subsidy'.

Footnote 17 may be read to suggest that subparagraph (d) may not be applied to agricultural products. Footnote 17, which appears after 'commodity' in subparagraph (d), excludes application of the subparagraph to cases in which 'other multilaterally agreed specific rules apply to the trade in the product or commodity in question'. This could be read to preclude application of subparagraph (d) to agricultural subsidies, because the Agriculture Agreement is a set of 'multilaterally agreed specific rules' that applies to all agricultural commodities.⁵⁴ Alternatively, it could be argued that the footnote is a reference to multilateral agreements on particular commodities, such as dairy,

⁵³ SCM Agreement, Article 6.8.

⁵⁴ Chambovey, see above n 27, at 328-30.

and does not preclude application of subparagraph (d) to most products covered by the Agriculture Agreement. This interpretation is consistent with the footnote's reference to 'the product or commodity' in the singular. Moreover, subparagraph (d) mirrors the language of GATT Article XVI:3, which applies to primary products, so it would be odd to find that subparagraph (d) does not apply to agricultural products. We conclude that whether subparagraph (d) applies to products covered by the Agriculture Agreement is a close question; hence, it does not offer as strong a legal basis as subparagraphs (a)–(c) for challenging EC and US agricultural subsidies.

Article 6.4 potentially makes it easier than otherwise to establish a *prima facie* case under subparagraph 3(b). Article 6.4 provides in relevant part:

For the purposes of paragraph 3(b), displacement or impediment of exports includes any case in which . . . it has been demonstrated that there has been a change in relative shares of the market to the disadvantage of the non-subsidized product (over an appropriately representative period sufficient to demonstrate clear trends in the development of the market for the product concerned, which, in normal circumstances, shall be at least one year). 'Change in relevant shares of the market' shall include any of the following situations: (a) there is an increase in the market share of the subsidized product; (b) the market share of the subsidized product remains constant in circumstances in which, in the absence of the subsidy, it would have declined; (c) the market share of the subsidized product declines, but at a slower rate than would have been the case in the absence of the subsidy.' [Italics added.]

Indeed, a *prima facie* claim based on SCM Agreement Article 6.3(b) 'arguably' might be made by showing only a correlation between subsidization and market share.⁵⁵

Despite demonstration of the effects described in SCM Agreement Article 6.3(a)–(b), 'serious prejudice' may not be found to have arisen under any of the six conditions enumerated in SCM Agreement Article 6.7, which provides:

Displacement or impediment resulting in serious prejudice shall not arise under paragraph 3 where any of the following circumstances exist during the relevant period:

- (a) prohibition or restriction on exports of the like product from the complaining Member or on imports from the complaining Member into the third country market concerned;
- (b) decision by an importing government operating a monopoly of trade or state trading in the product concerned to shift, for non-commercial reasons, imports from the complaining Member to another country or countries;
- (c) natural disasters, strikes, transport disruptions or other *force majeure* substantially affecting production, qualities, quantities or prices of the product available for export from the complaining Member;
- (d) existence of arrangements limiting exports from the complaining Member;

⁵⁵ Panel Report, *Indonesia – Autos*, above n 24, para 14.209. This would suggest a standard similar to the simple displacement correlation approach used in *French Wheat Flour*, above n 31.

(e) voluntary decrease in the availability for export of the product concerned from the complaining Member (including, *inter alia*, a situation where firms in the complaining Member have been autonomously reallocating exports of this product to new markets);

(f) failure to conform to standards and other regulatory requirements in the importing country.

However, to have such legal effect, these circumstances 'must not be isolated, sporadic or otherwise insignificant'.⁵⁶ The provisions help rule out cases where conditions other than subsidies can affect market shares.

In applying SCM Agreement Part V (which includes Article 6), the SCM Agreement's definition and characterization of types of actionable subsidies must be used – not the Agriculture Agreement's. Hence, only those agricultural subsidies that meet the definition of a 'subsidy' in SCM Agreement Article 1, and that are 'specific' within the meaning of SCM Agreement Article 2, would be actionable. Subject to those requirements, SCM Agreement Articles 5 and 6 potentially may be applied to all types of agricultural subsidies addressed in the Agriculture Agreement – export subsidies, Amber Box, Blue Box, and Green Box measures. As argued above, agricultural export subsidies are WTO-legal if they are in conformity with the Agriculture Agreement and its scheduled commitments.⁵⁷ Similarly, Green Box subsidies are immune from reduction commitments under the Agriculture Agreement, and safe from actions specified in Article 13(b) during the peace period. But nothing in that Agreement saves them from regulation and actionability under the SCM Agreement after expiry of the Peace Clause. Hence, all of these types of agriculture subsidies are actionable – whether or not they are legal – upon expiry of the Peace Clause, pursuant to Agriculture Agreement Articles 21.1 and 13, and SCM Agreement Article 6.9.

Importantly, in applying the tests under SCM Agreement Article 6.3(a)–(c), the complainant may aggregate specific, actionable subsidies from the subsidizing country, which could make it easier than otherwise for the complainant to establish a *prima facie* case that the aggregate subsidy caused serious prejudice. SCM Agreement Articles 5 and 6 use the term 'subsidy' in the singular, and the term is used in the singular throughout the SCM Agreement. Nonetheless, it is well established that aggregation of various forms of subsidies for like products is permitted in a case challenging subsidization.⁵⁸

⁵⁶ SCM Agreement, fn 18.

⁵⁷ By virtue of Agreement on Agriculture, Article 8.

⁵⁸ See, e.g., Panel Report, *Indonesia – Autos*, above n 24, paras 2.2–3, 2.31–32, 14.155, and 14.207–14.234 (several measures, including import duty and luxury sales tax exemptions on 'completely built-up' Indonesian cars imported from Korea, import duty exemptions on parts and components, and luxury sales tax exemptions on certain cars built in Indonesia, constituted specific subsidies within the meaning of the SCM Agreement, and the subsidy – i.e., these measures taken together – caused 'serious prejudice' to the EC within the meaning of Article 6.3(c)); and Panel Report, *EEC – Oilseeds*, above n 35, paras 12–15 (the panel aggregated a diverse range of support measures – a system of maximum/minimum prices for oilseeds in France, with related intervention

II. THE PROBLEM OF CAUSATION IN SCM AGREEMENT ARTICLES 6.3(A)–(C) AND 6.4 CASES – AND SOME ECONOMETRIC SOLUTIONS

The foregoing formal analysis suggests that, upon expiry of the Peace Clause, EC and US agricultural subsidies would be most vulnerable to claims based on SCM Agreement Articles 6.3(a)–(c) and 6.4. In practice, the biggest challenge would be to credibly and reliably establish that agricultural subsidies are *causing* serious prejudice as defined by those provisions.

A. The problem of causation

To establish a *prima facie* case, the complainant will bear the burden of establishing that the respondent's specific, actionable agricultural subsidies are causing one of the effects described in SCM Article 6.3(a)–(c), perhaps by operation of Article 6.4.

A challenge under Article 6.3(a) requires showing that imports of the product are displaced or impeded in the market of the subsidizing country, whereas a challenge under subparagraph (b) requires showing displacement or impediment in a third country market. By their own terms, a claim based on either subparagraph requires showing that the 'effect' of the subsidy is displacement or impediment. The complainants must show 'that they have lost export sales that they would otherwise have made and that those export sales were lost as a result of the subsidies provided'.⁵⁹

Article 6.3(c) also would appear to require demonstrating causation. A successful challenge based on the 'price undercutting' standard of subparagraph (c) must be based on a comparison of prices of subsidized and non-subsidized products, taking 'due account' of 'any other factor affecting price comparability'⁶⁰ – which implies showing that the subsidy caused price undercutting. Empirically, it is more difficult to show that subsidies cause price movements than that they change market shares.

Of course, the subsidizing Member will try to defend against these claims by showing that the subsidies are not having the asserted effects or are not responsible for the effects. GATT Article XVI:3 cases suggest factors other than subsidies (described above) that might explain displacement of non-subsidized imports. Moreover, establishing a *prima facie* case under subparagraph (a) or (b) would require showing either the absence of circumstances listed in Article 6.7 during the period in which adverse effects are alleged, or that the effects of the Article 6.7 circumstances were 'insignificant'.⁶¹ A *prima*

purchasing arrangements; Italian mixing regulations and stocking arrangements; a Dutch disparity allowance; and a Community intervention price – in evaluating claims of GATT 1947 Article XXIII:1(b) nullification and impairment).

⁵⁹ Panel Report, *Indonesia – Autos*, above n 24, para 14.209.

⁶⁰ SCM Agreement, Article 6.5.

⁶¹ SCM Agreement, n 18.

facie case established under SCM Agreement Article 6.3(b) by operation of the Article 6.4 displacement correlation standard (specified changes in the non-subsidized or subsidized products' market share) would 'arguably' shift the burden to the respondent to show that an Article 6.7 circumstance existed and was significant⁶² – so the panel would still have to consider causation. Hence, in any Article 6.3(a)–(c) case, a panel must ultimately consider whether the subsidy caused the specified effects.

Finally, any meaningful challenge under SCM Agreement Article 6.3(a)–(c) or 6.4 would likely also require showing that *particular types of subsidies* have caused the effects enumerated in those subparagraphs – a considerably more detailed showing. While aggregation may be permissible for making the complainant's *prima facie* case, disaggregation would likely be necessary to determine the appropriate remedy, which is to 'take appropriate steps to remove the adverse effects' of or to withdraw the subsidy.⁶³ If subsidies were aggregated to make the *prima facie* case, it would not be clear which types of subsidies were responsible for the trade-distorting effects. After losing a case, the subsidizing Member could claim compliance by reducing, restructuring, or withdrawing one of the aggregated subsidies that had little effect on trade. Even in a case resting on SCM Articles 6.3(b) and 6.4, in which mere correlation established the *prima facie* case, causation would need to be established along with the disaggregation in order to fashion the remedy. Eventually, a panel (wherever possible the original panel) would have to be convened under DSU Article 21.5 to determine precisely which subsidies need to be reduced, restructured, or withdrawn to 'remove the adverse effects'.

In a strong Article 6.3(a)–(c) or 6.4 case, a robust correlation between introduction of a subsidy and reduced market share or prices of non-subsidized product would serve as an ideal starting point for an argument that the subsidy caused an adverse effect. However, as suggested above, such a correlation alone would not be enough to establish the causation necessary to both establish a *prima facie* case and fashion an appropriate remedy. In particular, agriculture trade poses two difficulties for establishing the requisite causal relationship.

First, an observed correlation such as that described above may be spurious. In GATT/WTO cases demanding establishment of a causal relationship between agricultural subsidies and displacement of sales of non-subsidized products, correlation typically has been insufficient. Except for the 1958 *French Wheat Flour* case,⁶⁴ in every GATT Article XVI:3 case, and in the context of the *Indonesia – Autos* claims based on SCM Agreement Article 6.3(a),⁶⁵ respondents were able to raise factors other than subsidies that might

⁶² Panel Report, *Indonesia – Autos*, above n 24, para 14.209.

⁶³ SCM Agreement, Article 7.8.

⁶⁴ Panel Report, *French Wheat Flour*, above n 42.

⁶⁵ Panel Report, *Indonesia – Autos*, above n 24, paras. 14.214–222.

have caused displacement, so panels concluded that the complainant had not been able to establish a *prima facie* case.

Second, in the world of agriculture trade, correlations between subsidies and adverse effects may be hidden or weakened by the predominance of other factors affecting trade. For example, if agricultural subsidies increased at the same time that gross domestic product (GDP) rose in a particular country, then that country might import an increased volume of non-subsidized product; in other words, a correlation consistent with the displacement effect of the subsidy would be hidden unless holding constant for GDP change. Such hidden correlations are common in agriculture trade: in the periods during which the EC and United States, respectively, have maintained agricultural subsidies, the types and extent of subsidization have varied, but so have dozens of other factors that may have influenced prices and market shares, making it difficult to conclude by simple observation whether subsidies have been causing adverse effects.

Hence, the need to show causation for a successful case based on Article 6.3 poses a challenge. Reflecting on the WTO's agricultural subsidies rules, Robert Hudec concluded that causation will be very difficult to establish: 'In the hands of a clever advocate, there is always some alternative explanation for events that have occurred, and even more ways to explain events that haven't.'⁶⁶ Similarly, Didier Chambovey has recently concluded of the Article 6.3 rules: 'It appears that such a standard would be difficult to reach in practice' and that a 'speculative approach does not fit a quasi-judicial system entitled to return verdicts that are binding on the parties to a dispute'.⁶⁷ But we would maintain that such conclusions are too pessimistic. Causation holds the key to a successful case, but there are ways of proving causation that may survive the rebuttal of Hudec's 'clever advocate' and not be dismissed as merely a 'speculative approach' as suggested by Chambovey.

B. Tools for demonstrating causation

Economic analysis offers two useful tools for showing causation in such circumstances: the use of regression analysis on subsidy and trade data and the simulation of the effect of subsidies by models.

1. Regressions

Regression analysis, where the estimating equation is one suggested by causal relationships deduced from economic theory, can determine to a chosen statistical degree of confidence (for instance, 95 percent or better) whether a

⁶⁶ Robert E. Hudec, 'Does the Agreement on Agriculture Work? Agricultural Disputes after the Uruguay Round' (Working Paper No 98-2, International Agricultural Trade Research Consortium, April 1998, at 10).

⁶⁷ Chambovey, see above n 27, at 324 and 351.

dependent variable (for example market displacement) is explained by a set of independent variables (for example subsidies, crop yield, etc.). By estimating the statistical relationship between a dependent variable and a posited independent variable, while holding constant for other posited independent variables, regression analysis can solve the two problems identified above (spurious correlations and hidden correlations) that might otherwise plague SCM Agreement Article 6.3 cases.

Robust regression analysis in the context here requires three steps. First, the regression estimating equation has to be established based on the variables demanded by the express legal standard set forth in a particular subparagraph and a credible narrative (based on economic theory) that traces the causality. The second step is that of fitting data to the equation and running the statistical regression analysis. Problems here have to do largely with data collection and transformation, and with the choice of a functional form (for example whether to lag relationships, test them as linear or curvilinear, etc.). The third step is interpreting the results.

2. *Models*

Economic models are constructed on the basis of accepted economic relationships, and simulation 'experiments' can be conducted to ascertain the likely impact of changing the levels of one variable on others included in the model. A model, like the formulation of an estimating equation in regression analysis, states a relationship among variables based on theory. But unlike most regression equations, the model is explicit about the equilibrium process that links these variables in a specific way. Hence, the key to most models is the establishment of an equilibrium system, so that the simulation plots the return to equilibrium after a shock. General equilibrium models include, conceptually, an entire economic system, whereas partial equilibrium models separate a part of such a system, trading off generality for the ease of being more specific on the relationships between a subset of variables. Models can either be constructed with parameter values (i.e., the quantitative relationships among the variables) imposed from previous studies, discovered by validation against past values, or estimated from data through such techniques as multiple regression. When used as a device for policy analysis, the parameter values quantitatively link the variables. Changes in some exogenous variable (a 'shock') are then traced through the model to give an indication of the impact on other (endogenous) variables. In the case of a challenge to an agricultural subsidy, a model that specified the relationship between subsidies and trade flows based on chosen parameters would allow simulation of changes in the subsidy variables.

3. *Regressions and models compared*

Despite their common grounding in economic theory, models and regression analyses are different in consequential ways. Models work better when the

market itself is well understood than when it is not, because they demand specification of parameters and processes of equilibration based on prior knowledge of the reaction of the market. In such cases, however, a model gives a more complete analysis of the impacts of the policy than does a regression analysis: the policy impact (i.e., from the hypothetical removal of the policy in question) can be traced to the variables endogenous to the model. And in such cases, models may give a better estimate than regressions of the precise *extent* of a given effect. Finally, models are more useful than regressions in situations where the number of variables is high relative to the number of observations: the lack of degrees of freedom (which constrains the usefulness of regressions) is no longer relevant, as no estimation is involved.

However, models may have problems in establishing a convincing relationship between actual subsidies and their adverse trade effects. Each parameter estimate is subject to uncertainty. Moreover, as explicit representations (and simplifications) of markets, they are vulnerable to the charge that the actual market behavior has not been adequately captured, and that actual entrepreneurs and consumers may not react in a way predicted by the model. This can be countered by testing the model against historical data (verification) and by the overall plausibility of the simulation results. But the possibility always exists that there were special circumstances at the time the model parameters were determined, or that the underlying structure has changed since that time.

Unlike simulation experiments with constructed models, regressions use fresh data in the estimation to test the likelihood of a given hypothesized causal relationship to a specific level of certainty. In contrast to models, regressions do not depend on parameter estimates that are subject to uncertainty or assumptions about equilibration processes that are subject to debate. Thus, where there are a substantial number of observations relative to the number of independent variables, regressions may be less vulnerable to challenge than models for purposes of confirming the hypothesized existence of a causal relationship.

C. Employing models and regressions in WTO cases

The WTO dispute settlement system is increasingly employing and encouraging the use of quantitative approaches. There are examples of using simple economic analysis in older panel cases, but modeling and regressions were not used widely in agricultural policy analysis until the mid-1980s.⁶⁸ More recently, every WTO arbitration about nullification or impairment under

⁶⁸ Over the course of the 1980s, agricultural policy models and regressions were used with increasing frequency by the OECD, the European Commission's Agriculture Directorate-General, the USDA Economic Research Service, and EC and US trade negotiators. The state of modeling at the end of that period was described in 'Modelling the Effects of Agricultural Policies', a special issue of OECD Economic Studies, No 13 (Winter 1989/90).

DSU Article 22.6 since the first one in *EC – Bananas* has made extensive use of partial equilibrium analysis. In determining the appropriate value of concessions that could be withdrawn by the EC for continued US non-compliance with the Foreign Sales Corporations decisions, a DSU Article 22.6 and SCM Article 4.11 arbitrator recently considered alternative partial equilibrium models offered by the parties to the dispute.⁶⁹ In the 1987 *Japan – Alcoholic Beverages* case, the Appellate Body affirmed the legal conclusions of the Panel on, *inter alia*, its consideration of the elasticity of substitution between products to determine their 'likeness', an inquiry that requires regression analysis estimates of the demand elasticities of those products.⁷⁰ Similarly, three recent Appellate Body decisions require that national authorities administering safeguards measures determine the 'extent' of the relationship between increased imports and injury in order to show that the imports (and not other factors) were a 'substantial cause' of the injury.⁷¹ That inquiry has been interpreted by the US government to require extensive quantification and regression analysis. The Appellate Body seems also to have endorsed the use of regression analysis in a recent anti-dumping case.⁷²

There are several reasons why WTO dispute settlement panels have been considering quantitative analyses in recent years, and why they should be willing to consider regression and model-based analyses in cases challenging agricultural subsidies. First, in the case of agriculture, they offer the only effective means of distilling whether subsidies are in fact causing 'serious prejudice'. Without using these techniques, the problems of hidden or allegedly spurious correlations, identified above, would render Article 6.3 virtually useless in its application to agricultural subsidies. For example, unless such methods could be used, how would a panel decide whether the 'market share of the subsidized product declines, but at a slower rate than would have been the case in the absence of the subsidy' (the standard in SCM Agreement Article 6.4(c))? The use of these techniques is therefore necessary if one is to

⁶⁹ *United States – Tax Treatment for Foreign Sales Corporations, Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 14.11 of the SCM Agreement* ('US – FSC Case [DSU 22.6 Arbitration]'), WT/DS108/AB, adopted 30 August 2002, paras 6.43–6.60.

⁷⁰ WTO Appellate Body Report, *Japan – Alcoholic Beverages* (96–3951), AB-1996–2, WT/DS8/AB/R, WT/DS10/AB/R, and WT/DS10/AB/R, adopted 4 October 1996; and WTO Panel Report, *Japan – Alcoholic Beverages*, WT/DS8/R, WT/DS10/R, and WT/DS10/R (96–2651), 11 July 1996.

⁷¹ WTO Appellate Body Report, *United States – Safeguard Measures on Imports of Fresh, Chilled or Frozen Lamb Meat from New Zealand and Australia*, WT/DS177–178/AB/R, adopted 1 May 2001, <http://www.wto.org>; WTO Appellate Body Report, *United States – Definitive Safeguard Measures on Imports of Wheat Gluten from the European Communities*, WT/DS166/AB/R, adopted 22 December 2000, <http://www.wto.org>; and WTO Appellate Body Report, *United States – Definitive Safeguard Measures on Imports of Circular Welded Carbon Quality Line Pipe from Korea*, WT/DS202/AB/R, adopted 1 February 2002, <http://www.wto.org>.

⁷² WTO Appellate Body Report, *United States – Antidumping Measures on Certain Hot-Rolled Steel Products from Japan*, WT/DS184/AB/R, adopted 24 July 2001, para 226.

abide by the principle of effective interpretation and give meaning to the language of the SCM Agreement Articles 5(c) and 6.3(a)-(c).

Second, the information and expertise necessary to use these techniques is readily available to panels. The SCM Agreement contemplates the possibility that a party to a dispute under Articles 4 through 6 may undertake a 'detailed market analysis' and provides procedures for developing information that could be used in such an analysis.⁷³ Those procedures require cooperation from the subsidizing Member in providing information for the analysis, and exhort panels to draw adverse inferences from non-cooperation by one of the parties to the dispute.⁷⁴ The WTO Secretariat has been providing (and may continue to provide) support to the process of educating panels and helping them interpret quantitative analyses offered by disputing Members. The Development and Economic Research Division of the WTO regularly employs the economic methods contemplated here in analyzing and predicting developments in world trade, as do other multilateral institutions such as the World Bank, the International Monetary Fund, the Organization for Economic Cooperation and Development, the Food and Agriculture Organization, and the United Nations Conference on Trade and Development.

Third, the EC and US governmental agencies, and European and North American courts, routinely employ these methods, in common with many other countries. The appropriate authorities in both governments have considered regression analyses and models in determining causation in antidumping, countervailing measures, and safeguards investigations.⁷⁵ The US Department of Agriculture and the European Commission's Agriculture Directorate-General routinely use both partial and general equilibrium models to predict the effects of alternative subsidy schemes and reduction commitments.⁷⁶ US courts, the European Court of Justice, and the courts of the Member States use regression analysis in complex litigation, particularly in competition law litigation to help determine causation and damages.⁷⁷ Legal

⁷³ SCM Agreement, Annex V, esp. para 3.

⁷⁴ SCM Agreement, Annex V, para 7.

⁷⁵ The Department of Commerce publishes a regression formula that is used often by petitioners to calculate wage rates in non-market economy cases. Parties to US countervailing measures and antidumping investigations frequently submit regression analyses in arguments over the causal relationship between imports and injury. Petitioners sometimes use Granger causality models to explain lags between import surges and price changes. These analyses are often referred to in International Trade Commission opinions and staff reports, which are part of the administrative record.

⁷⁶ In the Uruguay Round, models and regressions were used by the US delegation in preparing for the Brussels Ministerial and the Blair House negotiations to assess the market share effects of different proposals. See also, e.g., Commission of the European Communities, 'Study on Alternative Strategies for the Development of Relations in the Field of Agriculture between the EU and the Associated Countries with a View to Future Accession of These Countries' (*Agricultural Study Paper*), CSE (95) 607, 12 December 1995, esp. pp 17-24.

⁷⁷ See generally, John E. Kwoka, Jr, and Lawrence J. White, *The Antitrust Revolution* (2nd edn, New York: Harper Collins, 1994).

commentators have supported the use of such techniques in complex litigation and have offered refinements of those techniques to address problems particular to specific types of litigation.⁷⁸

This use of such techniques by the Commission and the US government in a host of legal and policy contexts is so pervasive that WTO complainants may ask that the EC and the United States be estopped from objecting to their use in WTO dispute settlement.⁷⁹ While panels are unlikely to accept a formal estoppel argument, the use of quantitative methods by the Commission and the US government will make it difficult for them to argue successfully that the techniques should not be used in WTO dispute settlement. In *US – FSC Case (DSU 22.6 Arbitration)*, the panel gave considerable weight to a partial equilibrium model that the US Treasury had employed as a basis for estimating the effects of the subsidy in question.⁸⁰ At the very least, the EC's and US's persistent use of these techniques to estimate the effects of proposed subsidies policies may be sufficient to counter the concern of some commentators⁸¹ that an effects-based test like that used in SCM Agreement Article 6.3 deprives WTO Members of predictability.

Hence, when complainants offer quantitative analyses in cases challenging agricultural subsidies under SCM Agreement Article 6.3 or 6.4 – as was recently done⁸² it is difficult to see how a panel would refuse to consider them. Panels are obliged to 'make an objective assessment of the facts of the case and the applicability of and conformity with the relevant covered agreements'.⁸³ In doing so, they should consider the best available evidence and employ rigorous means of analyzing that evidence. While any particular model or regression may be subject to challenge, and panelists may be confronted with daunting econometric complexity, the adversarial nature of the WTO dispute settlement system assures that panels will have the benefit of extensive argumentation about the operation, strengths, and weaknesses of each model or regression so that the panel can distill the best analysis. Of course, a complaint based on Article 6.3 that uses quantitative methods would benefit greatly by being complemented with the kind of detailed description of trade flows, markets, and reports from industry that are employed traditionally in GATT/WTO cases in which subsidies are alleged

⁷⁸ Franklin M. Fisher, 'Multiple Regression in Legal Proceedings', 80 Colum L Rev 702 (1980); and David W. Peterson, Special Editor, 'Statistical Inference in Litigation', 46(4) Law & Contemp Probs 1 (Autumn 1983), at 1–348.

⁷⁹ See generally, I. C. MacGibbon, 'Estoppel in International Law', 7 Int'l & Comp LQ 468 (1958); D. W. Bowett, 'Estoppel before International tribunals and Its Relation to Acquiescence', Brit Yearbook of Int'l L 176 (1957).

⁸⁰ Arbitration Report, *US – FSC Case (DSU 22.6 Arbitration)*, above n 69, para 6.43–6.60.

⁸¹ Chambovey, above n 27, at 349–50.

⁸² See *United States – Subsidies on Upland Cotton, Request for Consultation by Brazil*, WT/DS267/1, 3 October 2002, esp. at 7–9.

⁸³ DSU, Article 11; see also, Articles 3.2, 3.3, 12, and 13.

to cause displacement. But quantitative analysis has become increasingly important in WTO dispute settlement and will be important in cases challenging agricultural subsidies under SCM Agreement Articles 6.3 and 6.4.

III. APPLYING LAW TO FACTS: EMPIRICAL TESTS OF THE SCM AGREEMENT ARTICLE 6.3 AND 6.4 CASES

To illustrate the argument that agricultural subsidies will be vulnerable to challenge under each of the legal standards in SCM Agreement Articles 6.3(a)–(c) and 6.4 on the expiry of the Peace Clause, this part reports the results of some empirical tests of the way in which a causal argument could be established. The success of a case based on the legal arguments advanced above will not, of course, rest alone on the success of these empirical tests, but if the tests show promise then the legal case is certainly more plausible. After presenting below preliminary information relevant to our empirical analysis, we present the results of our empirical analysis under each legal standard.

A. Preliminary methodological issues

Before turning to the empirical results, it is necessary to explain briefly the quantitative method used under each legal standard, the subsidies examined, sources of data, how data was pooled, and how cases were eliminated from analysis.

1. *Quantitative method used under each legal standard*

A strong *prima facie* case under each legal standard could be made if regression analysis, partial equilibrium modeling, or general equilibrium modeling confirmed each of the relationships being tested, and those analyses were complemented by a confirmatory narrative about the relationships in particular markets (for example if a convincing, detailed story could be told about particular markets). The argument would be strongest, of course, if *all* of the quantitative methods confirmed the relationships. We are not attempting to present a full empirical case such as might be made in an actual challenge. Therefore, we used only the most straightforward empirical test under each legal standard. As suggested above, where there are enough observations available relative to the number of independent variables that must be considered, regressions offer a simpler and less vulnerable technique than modeling for testing a hypothesized causal relationship. Based on those criteria, regressions were used in the application of the market displacement standards in SCM Agreement Article 6.3(a), (b), and 6.4. However, modeling was used in the application of the price effects standard in Article 6.3(c), because price is affected by a large number of independent variables that would diminish degrees of freedom in a regression analysis.

2. Subsidies examined

For purposes of exploring the relationship between agricultural subsidies and trade flows, it is appropriate to consider primarily those products where subsidies are recognized as greatest. Our empirical analyses focused on subsidies to barley, beef, corn, dairy, rice, and wheat because they are heavily subsidized and sufficient data was readily available on them. These cases do not, of course, exhaust the list of possible actionable subsidies, but if none of the policies on this list of commodities were vulnerable then the conclusion would have to be drawn that the expiry of the Peace Clause was not of great significance.

3. Data sources

Data sources are summarized and variables are defined in Appendix 1. We used data on bilateral and total trade flows from the UN COMTRADE database, supplemented by statistics from the Organization for Economic Cooperation and Development (OECD), the USDA, and the FAO, each of which base their own trade data on the COMTRADE source.

We based the selection of subsidy data partly on two legal considerations. First, to be actionable, the subsidy must be current: past violations are not considered in the WTO, as all countries are presumed to be in compliance unless it is established to the contrary by the Dispute Settlement Body (DSB). Second, the subsidy must be 'specific' as defined by SCM Agreement Article 2. Where the granting authority explicitly limits access to an industry or a group of enterprises, the subsidy is specific.⁸⁴ While it may be argued that all agricultural subsidies are specific within the meaning of Article 2, that position is subject to debate. However, commodity-specific subsidies that are not generally available to all farmers in a country or region are clearly specific within the meaning of Article 2. Accordingly, we restricted our regression analyses to the effects of current, commodity-specific subsidies. We used data on specific subsidies compiled by the OECD, which has closely monitored agricultural policies in OECD countries for the last 20 years. We decided to use data from the 15-year period that began with the Uruguay Round – 1986 to 2001 (the latest available data). The OECD calculates a Producer Subsidy Equivalent (PSE), now renamed Producer Support Estimate, which divides commodity-specific support into that which is given through the market (Market Price Support) and that which comes through Direct Payments. Non-specific support (i.e., not related to commodity production) is allocated by the OECD to a different category. Table 2, below, details the categories of commodity-specific subsidies used by the OECD.⁸⁵ All the policy measures

⁸⁴ SCM Agreement, Article 2.1(a).

⁸⁵ Import barriers and export subsidies both contribute to the Market Price Support (PSE part A), whereas most of the domestic support is contained in the payments (PSE parts B to H). Amber Box domestic support is roughly matched by payments in categories Ba, Ca, E and H. Blue Box payments

Table 2 Classification of Specific Subsidies in the OECD Producer Support Estimate (PSE)

A		Market Price Support
	a	Based on unlimited output
	b	Based on limited output
	c	Price levies
	d	Excess feed cost
B		Payments based on output
	a	Based on unlimited output
	b	Based on limited output
C		Payments based on area planted or animal numbers
	a	Based on unlimited area planted or animal numbers
	b	Based on limited area planted or animal numbers
D		Payments based on historical entitlements
	a	Based on historical plantings, animal numbers, or production
	b	Based on historical support programs
E		Payments based on input use
	a	Based on use of variable inputs
	b	Based on use of on-farm services
	c	Based on use of fixed inputs
F		Payments based on input constraints
	a	Based on constraints on variable inputs
	b	Based on constraints on fixed inputs
	c	Based on constraints on a set of inputs
G		Payments based on overall farming income
	a	Based on farm income level
	b	Based on established minimum income
H		Miscellaneous payments
	a	National payments
	b	Sub-national payments

Source: OECD, *Agricultural Policies in OECD Countries: Monitoring and Evaluation 2000* (Paris: OECD, 2000) at 143.

included in the PSE calculations are arguably specific in the SCM sense, in that they are related to a particular commodity.⁸⁶

4. Pooling data in the regressions

In the regression analyses, we pooled time series and cross-section data (i.e., aggregating ten potential complainants). The main reason for doing so was

would mainly come under Bb, Cb, D, F and G. Green Box measures would therefore tend to be included in categories D and G. However, this lack of easy correspondence is of limited legal importance because subsidies subject to the SCM Agreement must be specific and actionable within the meaning of that agreement.

⁸⁶ To reinforce this distinction, the OECD includes an estimate for 'general services support' (GSSE) for each country, but does not divide this into commodities. The GSSE includes estimated payments for research and development, education, inspection, infrastructure, marketing, public stockholding, and miscellaneous services. The PSE excludes this GSSE. OECD, *Agricultural Policies in OECD Countries: Monitoring and Evaluation 2000* (Paris: OECD, 2000) at 142.

to greatly increase the number of observations, thereby increasing degrees of freedom and the number of independent variables that could be considered.⁸⁷ Without pooling, the availability of continuous time series data would have limited each regression to 15 observations; with pooling, the number of observations per regression increased to about 150. Thus, the underlying model in the regressions is that the subsidy causes a diminution of the market share (or export volume) of competing non-subsidizing exporters in a similar way over time in a particular import market, even though the share can itself vary among exporters. The equations used for each regression are specified in Appendix 2.

5. Import markets selected for study

To counter the argument that one or more of the ten pooled complainant countries may have been affected differently by the subsidies, we included only those commodity import markets for which an analysis of variance (ANOVA) showed that there were no significant differences in market share or quantity changes of the ten, pooled non-subsidizing countries. The ANOVA compared within group (each non-subsidizing country's market share) variance to between group (aggregate of non-subsidizing countries' market share) variance, showing whether the relationship between the respondent's subsidies and each complainant's market share varies by country. This analysis could not tell us how non-subsidizing countries differed from one another, but only whether it would be appropriate to distinguish between countries in a subsequent regression. Since we did not have enough data (even when pooled) to include interaction terms in subsequent regressions that could show how non-subsidizing exporters differ from one another,⁸⁸ we limited the cases selected for regression analysis under the various legal standards to those import markets for which the ANOVA showed no differences between the non-subsidizing countries. The import markets that we selected for study (i.e., those that were appropriate for testing after conducting the ANOVA) are listed in Appendix 3.

B. The SCM Agreement Article 6.3(a) case: regression analysis of causation of displacement in the subsidizing Member's market

In this section we test the hypothesis implied by the legal standard in SCM Agreement Article 6.3(a): That specific subsidies have caused displacement or impediment of exports of a non-subsidizing Member to the subsidizing country's home market.

⁸⁷ Statistical solutions other than pooling (such as stepwise regressions and factor analysis) are possible, but each weakens the linkage between the theoretical model and the empirical reality.

⁸⁸ There was not enough data to generate useful results after adding country dummy variables and interaction terms between the non-subsidizing countries and the subsidies.

In this illustration, we attempted to run regressions for the EC and US markets on each of six commodities (barley, beef, corn, milk, rice, and wheat). For each commodity market, the initial dependent variable was the market share of the ten largest exporting non-subsidizing Members (the potential complainants). The ANOVA showed that there were no significant differences among potential complainants in any of these EC or US commodity markets. The independent variables included: (1) the level of specific agricultural subsidies of either the EC or the United States (depending upon which Member's subsidies were being tested as the subject of complaint); (2) the level of specific agricultural subsidies of the other large-subsidizing Member (for example US subsidies in cases where EC subsidization was being tested as the subject of the complaint) – so as to hold constant for the possibility that the other large-subsidizing Member's subsidies were responsible for non-subsidizing Members' market share changes; and (3) the complainants' production level – so as to hold constant for the possibility that changes in market share were explained by supply-side shifts in the complainants' territory.

In each case, we then ran a second regression in which the dependent variable was the aggregate export volume of those same potential complainants. We considered volume here (along with market share in the first regression) partly to counter the potential argument that change in a non-subsidizing country's market share does not alone prove an actual loss of export sales, which is the showing demanded under Article 6.3(a): in *Indonesia – Autos*, the panel accepted the respondent's argument that a complainant's showing of reduced market share alone was not enough to carry the burden under Article 6.3(a) because reduced market share might have been explained by increased market size attributable to increased sales volume of the cheaper, subsidized goods.⁸⁹ The independent variables were the same as in the market share regression, except that volume replaced market share wherever appropriate, and two additional independent variables were considered: (1) the importing country's production level; and (2) the importing country's stock change over the preceding year.⁹⁰

For each commodity market, we considered first *aggregated* specific subsidies granted by the EC or the US (depending on which Member's subsidies were being tested) as the central independent variable being tested – as might be appropriate in the establishment of a *prima facie* case. Next, *disaggregated* subsidies (i.e., subsidies in each of the categories identified in the OECD PSE subsidy database, described above in Table 2) were treated as the central independent variables being tested – as might be appropriate for establishing

⁸⁹ Appellate Body Report, *Indonesia – Autos*, above n 24, paras 14.217–22.

⁹⁰ These two variables were included as they are likely to be more directly significant as determinants of import volume than of market share. Moreover, their inclusion in the market share equations would create colinearity problems.

a *prima facie* case or for understanding the appropriate remedy. In both sets of regressions, OECD PSE Category A (including import barriers and export subsidies) was excluded because import restrictions in the importing market are not covered by the SCM Agreement and there is no theoretical reason why a subsidizing Member's export subsidies would diminish its imports of non-subsidized product.

This analysis was constrained by a lack of sufficient observations, but some results did confirm significant negative relationships between subsidization and displacement of non-subsidized product. Data for several factors that comprise 'market share' were necessary for the calculations and that data was unavailable for testing the effects of EC subsidization of barley, beef, milk, and rice and of US subsidization of wheat. Table 3 summarizes the results. It reports each commodity in the US and EC markets, respectively, for which there were sufficient observations to run the regressions and whether there are significant negative coefficients (at the .95 level of confidence) between aggregate subsidies (or disaggregated subsidy-types) and *both* market share and volume, for each of ten largest non-subsidizing exporting Members to that market. In two US commodity markets (barley and milk) the subsidy appeared to have a negative impact on *both* market share and volume of potential complainants. As the ANOVA F-test for each potential complainant was insignificant, we conclude with 95 percent confidence that each potential complainant was similarly displaced from those US commodity markets.

Table 3 The Article 6.3(a) Case – Confirmation of Both Market Share and Quantity Displacement in US Markets Due to Commodity-Specific Subsidies (95% Significance Level)

Subsidizing Member	Commodity	Displacement by OECD Subsidy Type
US	Barley	Aggregated (B-H)
US	Beef	None
US	Corn	None
US	Milk	B, E, F
US	Rice	None
EC	Corn	None
EC	Wheat	None

Source: Authors' calculations. 'Aggregated' denotes the summation of OECD subsidy categories B-H.

C. The SCM Agreement Article 6.3(b) case: regression analysis of causation of displacement in a third country market

In this section we test the hypothesis implied by the legal standard in SCM Agreement Article 6.3(b): That specific subsidies have caused displacement or impediment of exports of a non-subsidizing Member to a third country market.

In this illustration, we ran regressions for third country import markets (other than the EC and the United States) for which data was available and for which the ANOVA showed no significant differences among each potential complainant's changing market share, for each of six commodities. For each of these third country commodity markets, the initial dependent variable was the aggregate market share of the ten biggest exporting non-subsidizing Members (the potential complainants). The independent variables were the same as those used in the regression tests (above) of the effects of subsidies on market share in the subsidizing country under Article 6.3(a), except that OECD PSE subsidy category A (including import measures and export subsidies) was included in the regressions here because of the expectation that such measures and subsidies could affect third country market share.

We then ran a second regression in which the dependent variable was the aggregate export volume to each third country commodity market of the ten largest exporting non-subsidizing Members. As in the Article 6.3(a) tests, for each case we considered volume here (along with market share in the first regression) partly to counter the potential argument that change in a non-subsidizing country's market share does not alone prove an actual loss of export sales. The independent variables were the same as in the Article 6.3(a) export volume regressions, except that OECD PSE subsidy category A was included.

We tested *aggregated* specific subsidies for the EC or the US (depending on which Member's subsidies were being tested) as the central independent variable. And in a second set of regressions, the central independent variable was *disaggregated* into each of the categories of subsidies identified in the OECD PSE subsidy database.

Table 4 summarizes the results of regressions on the effects of EC and US aggregated and disaggregated specific subsidies on non-subsidizing Members in third markets. A sizable number of cases were found where subsidies appeared to have a negative impact on market share *and* volume of potential complainants in third markets. As the ANOVA F-test for each of these potential complainants was insignificant, we conclude with 95 percent confidence that each of the potential complainants was similarly displaced from the third country market specified in the Table. For each commodity, between nine and 33 percent of the regressions generated significant results for both market share and quantity, suggesting that the results were not random. For each commodity subsidized by the EC and United States, respectively, Appendix 3 marks with an asterisk the third country import markets in which displacement is confirmed.

D. The SCM Agreement Article 6.4 case: regression analysis of correlation of displacement in a third country market

In this section we test the hypothesis implied by the legal standard in SCM Agreement Article 6.4: That specific subsidies are correlated with the dis-

Table 4 The SCM Agreement Article 6.3(b) Case – Number of Third Country Markets in Which Regressions Confirm Market Share and Quantity Displacement Due to Commodity-Specific Subsidies (95% Significance Level)

Subsidizing Member	Commodity	OECD Subsidy Category	Number of Third Country Markets Tested							
		Aggregated (A–H)	A	B	C	D	E	F	G	H
EC	Barley	0	1	0	1	2	0	0	2	0
EC	Beef	1	1	0	2	0	0	0	0	1
EC	Corn	1	3	1	2	2	2	1	0	1
EC	Milk	3	0	3	1	1	0	1	1	1
EC	Rice	0	1	0	1	0	1	2	0	0
EC	Wheat	1	1	0	0	1	0	1	1	0
US	Barley	1	1	2	1	0	2	0	0	x
US	Beef	1	2	0	2	0	2	1	0	x
US	Corn	6	0	6	2	5	3	4	3	x
US	Milk	1	1	1	3	0	2	0	2	x
US	Rice	5	4	2	3	3	1	1	4	x
US	Wheat	4	4	3	4	1	4	4	5	x

Source: Authors' calculations; x denotes that the subsidizing Member does not offer subsidies in that category.

placement or impediment of exports from a non-subsidizing Member to a third country market. As shown above, Article 6.4 offers a complainant the opportunity to establish a *prima facie* case that subsidization has caused lost exports in a third country market based on showing only a correlation between subsidization and a change in relative shares of the market to the disadvantage of the non-subsidized like product over an appropriately representative period of at least one year. The results of a properly formulated regression equation could show (by definition) the correlation demanded by Article 6.4.

We ran regressions for third country import markets (other than the EC and the United States) for which data was available and for which the ANOVA showed no significant differences among each potential complainant's changing market share, for each of six commodities. For each of these third country commodity markets, the dependent variable was the aggregate market share of the ten largest exporting non-subsidizing Members to each market over the 15-year period (the potential complainants). We chose 'an appropriately representative period' of three years, which is the length of representative periods most commonly used in analogous GATT/WTO cases in the past. Accordingly, the dependent variable in each third country commodity market was the market share of the potential complainants in a given year minus their average market share in the three preceding years. The independ-

ent variables were the same as those used in the regression test of the effects of subsidies on market share in the Article 6.3(b) case, described above.

Table 5 summarizes the results of regressions on the effects of EC and US aggregated and disaggregated specific subsidies on non-subsidizing Members in the third markets that were tested. A sizable number of cases were found where subsidies were correlated with a negative impact on market share of potential complainants in third markets compared to a previous representative period of three years. As the ANOVA F-test for each potential complainant was insignificant, we conclude with 95 percent confidence that subsidization correlates with displacement of each potential complainant from the third country market specified in the Table. For each commodity market, between 16 and 57 percent of the regressions generated significant results, suggesting that the results were not random.

Table 5 The Article 6.4 Case – Number of Significant Correlations between Subsidization and Market Share Displacement in Third Countries (95% Significance Level)

Subsidizing Member	Commodity	OECD Subsidy Category	Number of Third Country Markets Tested							
		Aggregated (A-H)	A	B	C	D	E	F	G	H
EC	Barley	1	1	0	1	1	1	0	2	1
EC	Beef	1	2	0	1	2	0	2	0	1
EC	Corn	1	2	0	1	0	1	0	1	2
EC	Milk	1	3	2	4	4	3	0	5	1
EC	Rice	2	0	0	1	0	2	3	0	2
EC	Wheat	0	0	1	2	1	2	1	2	1
US	Barley	0	1	0	2	2	2	0	2	x
US	Beef	1	0	0	0	0	1	1	1	x
US	Corn	0	0	3	4	4	3	3	0	x
US	Milk	1	0	2	0	0	1	1	0	x
US	Rice	4	4	2	2	2	2	2	3	x
US	Wheat	2	1	4	2	0	1	2	2	x

Source: Authors' calculations; x denotes that the subsidizing Member does not offer subsidies in that category.

E. The SCM Agreement Article 6.3(c) case: model estimates of price effects

This section illustrates the use of both partial and general equilibrium models for estimating the effect of agricultural subsidies on world prices and prices in particular Member markets. A brief summary of the available models is presented and then results from selected models are interpreted in terms of the trade impact of subsidies.

A number of *partial* equilibrium models are in use by economists in and

out of government to examine the impact of policy variables on markets and on consumers and producers. In all cases country markets are represented by consumer demand and producer supply relationships. The net trade from a country contributes to the world market balance, and an equilibrium price is established that equates the total excess supply and demand from individual markets. A shock to the market in one country, generated for example by a policy change, causes adjustment in all related markets and a new world price.

The growth in popularity of *general* equilibrium models is due in part to the wider range of questions that can be answered by such models and in part by the theoretical completeness of their specification. The fact that they include household sectors, which provide labor and capital as well as consuming goods, and specify input-output relations among sectors, makes them more versatile for some purposes. It is not clear, however, that tracing the impact of subsidies is one of the most compelling uses for CGE models. The added complexity of their specification can lead to a lack of scope for detailed policy description.

Three models are used here to demonstrate their potential for testing the effect of subsidies under the legal standard set forth in SCM Agreement Article 6.3(c). One such illustration comes from the AGLINK model widely used by the OECD Secretariat. A recent study considered the impact of the removal of *export* subsidies on world market prices. As most export subsidies are used by the EC (see Table 6), this can be taken as an approximation of the impact of EC export subsidies on world market prices. The results are summarized in Table 7.

Table 6 EC and US Export Subsidies – 1998 Notifications and 2000 Limits (Thousand Metric Tons)

	EC-1998	EC-2000	US-1998	US-2000
Wheat	14,017	14,439		
Coarse grains	14,775	10,400		
Rice	144	145		
Butter	165	399	0	21
Skim-milk powder	222	273	130	68
Cheese	226	321	3	3
Whole-milk powder	951	951	5	0
Beef	722	822		
Pig meat	743	402		
Poultry	343	290	4	28

Source: OECD, 2002

To establish the link between the world price effect and the actual impact on the price of goods sold by competing suppliers, one need only look at the relationship between prices on different markets. Though there are obvious discrepancies between prices in different markets, most reflect the same broad changes from year to year. The reliability of this relationship is confirmed by

Table 7 World Price Changes Resulting from Elimination of Export Subsidies, 2001–5 average and 2005 (percent)

	2001–05	2005
Beef (Pacific)	2	1
Beef (South American)	0	-1
Butter	11	26
Skim-milk powder	11	9
Whole-milk powder	16	15
Wheat	2	-1
Coarse Grains	3	1
Oilseeds	-2	-2

Source: OECD, 'A Forward-Looking Analysis of Export Subsidies in Agriculture', in *Agriculture and Trade Liberalization: Extending the Uruguay Round Agreement* (Paris: OECD, 2002)

the results reported in Table 8, which shows that the domestic price of a commodity in each of over a hundred Members is a function of the average price of that commodity across all Members. Thus, there is a strong presumption, that would however need verifying in any particular instance, that the EC depresses prices for certain commodities (in particular dairy products) in each market with its export subsidy policies.

Table 8 Domestic Price as a Function of the Average Price of All Members (.99 Level of Significance)

Commodity	Coefficient	R Squared
Barley	1	0.9085
Beef	1	0.4663
Corn	1	0.9730
Milk	1	0.4071
Rice	1	0.9571
Sugar	1	0.7211
Wheat	1	0.9528

Source: Authors' calculations.

A recent general equilibrium analysis by Diao, Somwaru, and Roe,⁹¹ which is one of a number that have looked at changes in world price arising from subsidy removal, is interesting in another respect. It specifically calculates the impact of removal of domestic as well as export subsidies. Table 9 shows the change in world price attributable to these changes. Considerable price increases in grains and oilseeds are indicated by the model from the elimina-

⁹¹ X. Diao, A. Somwaru, and T. Roe, 'A Global Analysis of Agricultural Trade Reform in WTO Member Countries', Economic Development Center, Bulletin No 01-1, University of Minnesota, January 2001.

tion of domestic subsidies in developed countries. Export subsidies (mostly in the EC) have a lesser effect on world prices. This suggests that focusing on the world price effect of export subsidies may miss considerable trade impacts of domestic subsidies on competitive suppliers.

Table 9 Impact on World Price of Subsidy Removal in Developed Countries

	Increase in World Price from removal of:	
	Domestic Support percent	Export Subsidies percent
Wheat	12	2
Rice	2.4	1.5
Other Grains	12.2	0.6
Fruit and Vegetables	-0.1	3
Oils and oilseeds	7.8	0.1
Sugar	1.6	3.3
Livestock	5.5	3.1

Source: X. Diao, A. Somwaru, and T. Roe, 'A Global Analysis of Agricultural Trade Reform in WTO Member Countries', Economic Development Center, Bulletin No 01-1, University of Minnesota, January, 2001.

Finally, a new model that has been developed specifically to account for developed country policy changes can give quite specific answers to the question about the impact of subsidies on world markets (the ERS/Penn State model⁹²). Table 10 shows the impact on world market prices of the removal of EC export subsidies on a range of commodities. As indicated by the other models, there is a considerable impact on the price for milk products and for some cereals.

F. Detailed market analysis and defenses under Article 6.7

We have generated several robust regressions that have confirmed hypothesized causal relationships between subsidies and displacement, and established correlations between subsidies and displacement, both with 95 percent or better confidence. We have also shown that models have established a relationship between subsidization and price. Nonetheless, a claim based on Article 6.3 or 6.4 should be accompanied by detailed analysis of developments relating to the markets, commodities, subsidies, producers, consumers, and states at issue. Such detailed analysis is beyond the scope of this article, but

⁹² As described in D. Abler, D. Blandford, M. Bohman, P. Dixit, and J. Stout, 'Development of and Initial Results from the ERS/Penn State WTO Model', paper presented to the International Agricultural Trade Research Consortium meeting, Washington (May 2001); and J. Stout, S. Leetma, and M. A. Normile, 'Evaluating EU Agricultural Policy Reform Using the EU WTO Model', paper presented to the European Association of Agricultural Economists Congress, Zaragoza, Spain, 2002.

Table 10 Impacts on World Price of the Removal of EC Export Subsidies

	Change in World Price percent
Rice	0.7
Wheat	0.1
Corn	1.2
Other coarse grains	5.8
Sugar	2.1
Beef	1.4
Butter	7.7
Cheese	5.4

Source: J. Stout, S. Leetma, M. A. Normile, 'Evaluating EU Agricultural Policy Reform Using the EU WTO Model', paper presented to the European Association of Agricultural Economists Congress, Zaragoza, Spain, 2002.

its importance is suggested by GATT/WTO tradition in cases like these. Moreover, if the relationships are as robust as suggested by the quantitative analysis, then a detailed discussion would buttress the claims.

A detailed analysis will also be necessary to show that nothing about the markets, commodities, or subsidies has changed in the recent past that could suggest that the regression results are not indicative of the present effects of subsidies. Time series analysis implies that the relationship that is being estimated stays constant over time. A successful WTO case based on SCM Agreement Article 6.3. or 6.4 would require showing that the adverse effects were contemporaneous with the filing of the complaint and continuing; it would not be sufficient to show only that subsidies caused adverse effects in the past. We used data from 1986 to the present and the estimates appear robust. There is no reason to believe that the relationships are not continuing to operate at this time, but this would have to be addressed in detailed discussion.

Finally, detailed discussion would be important in rebutting various defenses that might be offered. The conditions under which an Article 6.3(a)–(b) claim may be established are limited by SCM Article 6.7, which enumerates six conditions under which a subsidy would not be actionable, in some cases because the exporting country is deemed to have contributed to the 'injury', and in other cases because various non-subsidy market factors are likely to obfuscate the subsidy impact. Most of these conditions are amenable to relatively simple factual or statistical examination, and require no causality analysis. But that does not mean that such conditions are without significance in the determination of the impact of subsidies.

The condition that there is no prohibition or restriction on exports of the product from the complaining Member, or on imports from the complaining

Member into the third country market (Article 6.7(a))⁹³ would appear to be a matter of record. Such restrictions are not rare. This condition could imply that displacement under the terms of Article 6.3(a) or (b) cannot arise where there are tariff-rate quotas (TRQs) in the importing country market. A number of developed countries have such TRQs in the most sensitive markets and this restriction suggests that domestic subsidies that displace imports might be defensible when TRQs that are embedded in the importing Member's WTO schedules restrict imports. However, TRQs are not common in developing countries, and so the scope of possible challenges based on third country market displacement – SCM Agreement Article 6.3(b) – is still considerable.

Displacement also cannot be shown when there is a state trading entity in the importing country that has shifted the source of supply for non-commercial reasons to another exporter. Developing countries in many cases have employed state trading entities to regulate the flow of imported goods onto the domestic market. If the state-trading agency in the importing Member decided for reasons other than price, quality, and availability to reduce imports from a particular supplier, the existence of subsidies in that country or in other exporting countries could be defensible. This defense would seem to involve an assessment of the intent of the parastatal entity – a difficult inquiry. To the extent that the complainant was able to establish a *prima facie* case under SCM Agreement Article 6.3(b) by operation of Article 6.4, the subsidizing country would arguably bear the burden of proving that 'non-commercial' motives were involved.

Similarly challenging may be the need to show that the displacement was not as a result of *force majeure* reductions in export capacity in the complaining country. Obviously any major disruption in the exporting country, such as a drought or a dock strike, would weaken the case that the displacement was due to subsidized production or exports from the respondent. In practice, a challenge would not be brought if such obvious factors played a major, long-running role in the displacement or loss of market share.

Displacement would also not arise if there has been voluntary diversion of supplies to another market by the complaining exporter. This may on the face of it cause a problem of interpretation, as diversion to another market is often the consequence of competition from subsidized exports. Switching markets may be a 'voluntary' reaction to the actions of the subsidizing country. But the context of the term 'voluntary' clearly implies that the diversion onto other markets is not a reaction to the subsidy but would have happened in the absence of that subsidy.⁹⁴

⁹³ The condition in Article 6.7(d), that there is no arrangement limiting exports from the complaining Member, appears to overlap with this condition.

⁹⁴ The final circumstance in Article 6.7 refers to imports from the complaining country that fail to conform to 'standards and other regulatory requirements'. This condition would also seem to be a matter of record and is unlikely to be disputed.

Despite the breadth of circumstances described in Article 6.7, footnote 18 of the SCM Agreement makes clear that none of these defenses would be successful if the circumstances described were 'isolated, sporadic or otherwise insignificant'. The models we have cited are based on parameter estimates that have reliability over a time span of at least a decade, and the time series data that is used in the regressions runs for a period of 15 years. Hence, it seems likely that any of the circumstances described in Article 6.7 that might have existed during those time periods were 'isolated, sporadic or insignificant', unless they emerged at key moments in the last 15 years that would explain the model and regression results.

CONCLUSIONS: IMPLICATIONS FOR WTO LAW AND AGRICULTURAL POLICY

In the event that the Peace Clause is not renewed, there exists a plausible avenue open to WTO Members that consider the subsidy policies of the EC and the United States (and other countries) detrimental to their export interests. Strong legal arguments can be made that EC and US agricultural subsidies are vulnerable to challenge under SCM Agreement Articles 6.3(a)–(c) and 6.4 after the peace period. Fairly robust techniques can be used to establish causation and correlation, within the meaning of these provisions, particularly Article 6.4. This section reviews some implications of the application of WTO law to agricultural subsidies after expiry of the Peace Clause.

A. WTO legal standard for agricultural subsidies upon expiry of the Peace Clause

The legal standard for agricultural subsidies boils down to whether specific, actionable subsidies have caused any 'adverse effects' on trade resulting in 'serious prejudice' (identified in SCM Article 6.3(a)–(c)) to the interests of another WTO Member. The difficulty faced by complainants in most GATT Article XVI:3 cases was showing causation, holding constant for all other possible factors. The Uruguay Round negotiators tried to diminish that difficulty via SCM Agreement Articles 6.3(b) and 6.4, which – upon demonstration of a correlation between subsidization and displacement – appears to shift the burden to the subsidizing Member to persuade a panel that factors other than subsidization caused the displacement. Of course, those legal changes do not directly address – and so do not fully solve – the causation-demonstration problem. The best solution to the problem of causation is methodological – using models and regression analysis in applying SCM Agreement Articles 6.3 and 6.4.

From an economic perspective, such a conclusion is welcome. The economic argument against subsidies is that they cause distortions in trade patterns and hurt the agricultural sector in low-cost countries by preventing them

from competing either in the market of the subsidizing country or in third markets where both high- and low-cost suppliers compete. If no such causation can be established empirically, then the economic case for reining in those subsidies is diminished: it may still be a dubious use of public funds, but the negative implications are confined to the subsidizing Member.⁹⁵

From a political perspective, such a conclusion is also desirable. First, expiry of the Peace Clause was intended to have teeth so as to stimulate further agricultural reform negotiations. Second, it follows the trend toward the integration of agriculture into the mainstream of the WTO, a development still resisted in some agricultural ministries but generally welcomed in trade policy circles.

B. Impacts on the Dispute Settlement System

The vulnerability of the EC and the United States to legal action taken by other WTO Members is dependent on the extent to which a panel would find arguments such as those we have laid out to be convincing. If the legal arguments were acceptable, then one would expect a test of these arguments as soon as the Peace Clause expires, unless those that might seek to press such cases deemed it more advantageous to withhold the challenges voluntarily (in circumstances discussed below).

Some may be concerned that there could be such a flood of cases that the dispute settlement system would become clogged. If many specific agricultural subsidies could potentially be shown to displace imports, increase market share, or depress world market prices (as our analysis has suggested), then there would be many possible dispute settlement cases. However, there are several possible ways to ensure that these potential cases do not overwhelm the dispute settlement system. All complaints against a particular Member's subsidies on a particular commodity could, for instance, be consolidated. Alternatively, more resources could be devoted to the DSB. Or the Agriculture Committee could perhaps pre-sort cases, much as the WTO Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) Committees do at present when countries challenge each other's health, safety and technical regulations and standards.⁹⁶

The bigger potential problem is that the large subsidizing Members might simply ignore adverse dispute settlement decisions. In light of experience with the response to DSB-adopted reports on the EC's ban on the use of hormones in beef production and the EC's system for allocating bananas, one could

⁹⁵ The domestic justification of such subsidies, often in terms of support for rural incomes, is not directly relevant to the enforcement of WTO rules.

⁹⁶ See T. Josling, D. Roberts, and D. Orden, *Food Regulations and Trade: Toward a Safe and Open Global System*, IIE (forthcoming 2003) for a discussion as to how the SPS and TBT Committees have pre-sorted potential conflicts in the food regulation area.

raise the question as to whether 'success' in the dispute settlement system would indeed result in any change in subsidy policy.⁹⁷ It is possible that some Members would choose to face the sanctions (withdrawal of concessions) that might be imposed on them following an unsuccessful defense of an agricultural subsidy. This could have significant implications for the WTO and for the credibility of the dispute settlement process. Trade tensions, such as those between the EC and the United States, or between the transatlantic powers and the Cairns Group, would be exacerbated.

C. Implications for agricultural policy and the Doha negotiations

The question of whether complaints about agricultural subsidies might be successful after the expiry of the Peace Clause has obvious significance in the light of the current negotiations in the WTO. Negotiations on the further reform of agricultural trade were started in March 2000 under the mandate of Agriculture Agreement Article 20,⁹⁸ and were given a boost by the decision at the Doha Ministerial to initiate a new round of trade talks.

The main areas of contention in the negotiations are directly relevant to the issue of the implications of expiry of the Peace Clause. A Background Paper published on the WTO website by the Secretariat sums up the ambiguity of the negotiating parties in this respect:

Some countries want it extended so that they can enjoy some degree of 'legal security', ensuring that they will not be challenged so long as they comply with their commitments on export subsidies and domestic support under the Agriculture Agreement. Some others want it to lapse as part of their overall objective to see agriculture brought under general WTO disciplines that deal with governments' ability to take action against subsidies. Some countries have proposed variants. Canada would like to see 'green box' domestic supports freed from the possibility of countervailing action under the Subsidies Agreement. India proposes something like the peace clause should be retained but

⁹⁷ Although the reports were adopted in both cases, subsequent changes in EC domestic policy have proven difficult. The EC changed its banana quota regime in response to the report, but that change proved to be inadequate and the EC had to make further adjustments. In the case of beef hormones, the EC has not made any changes to its regulations and appears reconciled to facing Canadian and US retaliatory tariffs against EC exports. *EC – Bananas*, above n 23; and WTO Appellate Body Report, *European Communities – Measures Concerning Meat and Meat Products ('Hormones')*, WT/DS26/AB/R, WT/DS48/AB/R, 13 February 1998.

⁹⁸ Article 20 states that 'negotiations for continuing the process . . . of substantial progressive reductions in support and protection . . . will be initiated one year before the end of the implementation period [2000]'. Negotiators were to take into account the experience of the period since the Uruguay Round, the impact on world markets, and the objectives mentioned in the preamble to the Agreement on Agriculture, including 'non-trade concerns' and the establishment of a fair and market-oriented trading system. For a full discussion of the agenda items in the agricultural talks, see Stefan Tangermann and Timothy Josling, 'Issues in the Next Round of WTO Agricultural Negotiations', in J. A. McMahon, *Trade and Agriculture: Negotiating a New Agreement?* (London: Cameron May, 2001).

only for developing countries, so that some subsidies are free from the possibility of countervailing duty.⁹⁹

The importance of the Peace Clause is related to both the timing and the substance of the agricultural talks. If – as our conclusions suggest – the expiry of the Peace Clause is seen as a significant threat to the subsidy policies of major countries, then there will be more incentive for competing exporting countries, such as those in the Cairns Group, to bargain in the shadow¹⁰⁰ of its expiry to get agreement on further subsidy reduction. Given that expiry of the Peace Clause comes between the Cancun Ministerial and the end-point of the negotiations, one would expect that progress in the last phase of the talks will be significantly impacted by the view taken of the degree of legal protection of farm programs provided by the Peace Clause. If talks were stalled over this period (and the Uruguay Round talks were slowed considerably by lack of progress in agriculture), one would not be surprised to see the Cairns Group – in particular – using expiry of the Peace Clause to pressure the EC and the United States to continue the process of agriculture liberalization.

Developing countries have taken a renewed interest in the subsidy levels of developed countries in the last year. Many leaders have pointed to the apparent disjunction between high levels of assistance going to farmers in the EC and the United States and the level of official aid, both in the form of commodities and grants. Most countries in the developing world have indicated that they favor the termination of export subsidies. It is not inconceivable that some developing countries might therefore attempt to use the expiry of the Peace Clause as a way of putting pressure on the EC and the United States to reduce subsidies and open markets.

There is of course the possibility that the Peace Clause will be renewed. Both the EC and Japan have argued for this in their submissions to the WTO Agriculture Committee. This is likely to be resisted by those who see the Peace Clause as a potential way of increasing pressure on these countries. But if negotiations are progressing satisfactorily, it is possible that some extension of the Peace Clause could be included in a package of further agricultural trade reforms.

Our analysis shows that the Peace Clause does have teeth and so the pro-

⁹⁹ The WTO Background Paper lists the following proposals submitted in Phase 1 as referring to the Peace Clause: EU: comprehensive negotiating proposal G/AG/NG/W/90; Canada: domestic support G/AG/NG/W/92; Mauritius: proposal G/AG/NG/W/96; India: proposal G/AG/NG/W/102; Turkey: proposal G/AG/NG/W/106; Nigeria: proposal G/AG/NG/W/130; Kenya: proposal G/AG/NG/W/136; Mexico: proposal G/AG/NG/W/138; African Group: joint proposal G/AG/NG/W/142; Namibia: proposal G/AG/NG/W/143 (WTO, 2002).

¹⁰⁰ On bargaining in the shadow of law, see Robert H. Mnookin and Lewis Kornhauser, 'Bargaining in the Shadow of the Law: The Case of Divorce', 88 Yale L J 950 (1979), 950–97; and Richard H. Steinberg, 'In the Shadow of Law or Power? Consensus-Based Bargaining and Outcomes in the GATT/WTO', 56(2) Int'l Org 339 (Spring 2002), 339–74.

spect of its expiry may drive countries to protect farm incomes through tariffs-and-decoupled-payments systems, which are less likely to cause the displacement and price effects associated with the current system and are arguably non-specific. Such a shift may also be agreed upon in the current negotiations as a *quid pro quo* for extending the Peace Clause. In either case, all participants in the trade regime could gain substantially from the reduction of the distortions to trade that agricultural subsidies appear to cause.

APPENDIX ONE: DATA SOURCES AND VARIABLES DEFINED

The table below lists the variables in this study with their sources and descriptions. All are available from 1986–2001. Some of the data sources did not contain information for the EC as such, but rather for all countries in the EC. We calculated values for the EC as the sum of the values for the 15 member states from 1986 through 2001, even though some of these countries were not members for the entire period. The quantity of EC imports is equal to the sum of imports for the EC15 minus the trade between them. Variables preceded with C refer to the potential complainant. M refers to an importing market.

Variable	Abbreviation in Equations in App. 2 & 3	Source	Description
Quantity of Imports to M	Mimp	COMTRADE	Metric tons
Quantity of Exports from M	Mexp	COMTRADE	Metric tons
Quantity of Imports from Complainant to M	Cimp	COMTRADE	Metric tons
Production	prod	FAO	Metric tons
Stock Change	stock	FAO	Metric tons
Subsidy	sub	OECD	\$US, Euros (millions)
Market Share	mshar		$Cimp / (Mprod + Mimp - Mexp - Mstock)$
Difference in market share	$\Delta mshar$		$mshar(t) - (mshar(t-1) + mshar(t-2) + mshar(t-3))/3$

APPENDIX TWO: REGRESSION EQUATIONS

In the equations below, variables preceded with C refer to the potential complainant, R refers to the respondent, O refers to the other major subsidizer (either the US or the EC), and M refers to an importing market. The 's' subscript refers to the subsidies of the respondent. The 't-1' subscript refers to the previous year. Aggregated subsidies are always summed from A through H except in tests under the SCM Agreement Article 6.3(a) standard, where the respondent subsidies are summed from B to H. Each equation labeled (1) tests the aggregated subsidies. The second equation in each pair, labeled (2), tests the disaggregated subsidies.

Regressions applying the SCM Agreement Article 6.3(a) and 6.3(b) standard

Testing the effect of subsidies on potential complainants' market share in a specified market:

- (1) $Cmshar = B1Cprod + B2\Sigma Osub + B3\Sigma Rsub + b0$
- (2) $Cmshar = B1Cprod + B2\Sigma Osub + \Sigma BsRsub + b0$

Testing the effect of subsidies on potential complainants' quantity of exports to a specified market:

- (1) $Cimp = B1Cprod + B2Mprod + B3Mstock + B4\Sigma Osub + B5\Sigma Rsub + b0$
- (2) $Cimp = B1Cprod + B2Mprod + B3Mstock + B4\Sigma Osub + \Sigma BsRsub + b0$

Regressions applying the SCM Agreement Article 6.4 standard

Testing the effect of subsidies on potential complainants' average market share of the previous three years subtracted from that of the current year:

- (1) $C\Delta mshar = B1Cprod + B2\Sigma Osub + B3\Sigma Rsub + b0$
- (2) $C\Delta mshar = B1Cprod + B2\Sigma Osub + \Sigma BsRsub + b0$

APPENDIX THREE: THIRD COUNTRY IMPORT MARKETS STUDIED AFTER ANOVA ELIMINATED CASES

There was a significant relationship between subsidization and displacement in each third country market marked by an asterisk (*).

Third country markets studied under the SCM Agreement Article 6.3(b) standard

US as subsidizer

Barley – Canada*, Cyprus*, Japan*, Mexico*

Beef – Colombia*, Japan*, Jordan, Nicaragua*, Saudi Arabia*

Corn – Algeria*, Argentina*, Canada*, Chile, Costa Rica*, Ecuador*, Egypt*, El Salvador*, Grenada, Guatemala*, Honduras*, Indonesia*, Jamaica*, Japan, Republic of Korea*, Mexico, Nicaragua*, Panama*, Philippines*, Senegal*, Trinidad and Tobago*, Venezuela*

Milk – Algeria*, Australia*, Chile*, China*, Ecuador*, Nicaragua*, Venezuela

Rice – Argentina*, Australia*, Brazil*, Chile*, China*, Colombia*, Costa Rica*, El Salvador*, Guatemala, Honduras, Madagascar, Mexico*, Nicaragua*

Wheat – Algeria*, Bolivia, Canada, China*, Colombia*, Cyprus*, Ecuador*, Egypt*, Guatemala, Honduras*, Japan*, Jordan, Kenya*, Republic of Korea*, Morocco*, Pakistan*, Poland, Tunisia*, Turkey, Venezuela

EC as subsidizer

Barley – Cyprus*, Poland*, Saudi Arabia*
Beef – Canada, China, Egypt, Jordan*, Saudi Arabia*, Tunisia*
Corn – Argentina*, Chile*, Japan*, Poland*
Milk – Chile*, Ecuador*, Egypt*, Saudi Arabia, Uruguay*, Venezuela*
Rice – Australia*, Brazil, Morocco*, Senegal*
Wheat – Morocco*, Poland*, Tunisia

Third country markets studied under the SCM Agreement Article 6.4 standard

US as subsidizer

Barley – Canada*, Mexico*
Beef – Egypt, Japan*, Jordan*
Corn – Algeria*, Brazil, Canada*, Costa Rica*, El Salvador*, Grenada*, Guatemala*, Honduras*, Japan, Mexico*, Philippines*, Senegal*
Milk – Canada*, Nicaragua*, Venezuela*
Rice – Chile*, Colombia*, Costa Rica*, El Salvador*, Honduras*, Indonesia*, Mexico*, Nicaragua*
Wheat – Algeria*, Bolivia*, China*, Colombia*, Ecuador, Guatemala, Japan, Morocco*, Pakistan*, Venezuela*

EC as subsidizer

Barley – Cyprus*, Poland*, Saudi Arabia*
Beef – Canada*, Egypt, Japan*, Saudi Arabia*, Tunisia*, Turkey
Corn – Argentina*, Japan*, Poland*
Milk – Algeria*, Australia*, Ecuador*, Egypt*, Nicaragua*, Poland*, Saudi Arabia*, Tunisia*, Uruguay*, Venezuela*
Rice – Brazil*, Morocco*, Nicaragua*, Senegal*
Wheat – Republic of Korea*, Morocco*, Poland*, Tunisia*