

Trade Measures and the Design of International Regimes

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This article examines the use of trade measures in international regimes. The catalyst for this research is the high-level international debate on trade and the environment, which is now focusing on the appropriateness of using trade measures in multilateral environmental agreements.¹ The World Trade Organization is expected to consider recommendations on this issue at its first ministerial meeting in December 1996.

Overview

The goal of this article is to present a framework for thinking about the use of trade measures in multilateral agreements. Although there is analytical literature on the role of trade measures in particular regimes (e.g., the United Nations Security Council), very little work has been done to compare the use of trade measures across regimes. Therefore, although this article emphasizes environmental regimes, it also considers the utilization of trade measures in other regimes, such as the trade regime.

The first part presents a conceptual framework for analyzing how trade measures are used. The second part examines 30 cases in which trade measures were incorporated into international regimes. The third part extracts some lessons from these cases and suggests policy implications. The article concludes that trade measures are employed in similar ways in different regimes. Such measures can prevent physical harm from/to a product, physical harm engendered by the market, and economic harm engendered by the market.

The issue of the use of trade measures in environmental treaties has become more salient during the past few years as the General Agreement on Tariffs and Trade (GATT) and its successor, the World Trade Organization (WTO), have questioned such use. The WTO, the Organization for Economic Cooperation and Development (OECD), and the United

1. For example, see World Trade Organization (1995).

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Nations Environment Programme (UNEP) are currently examining environmental treaties that employ trade measures.² The outcome of these discussions may have important implications for the workability of environmental treaties. For example, trade measures may be needed for future agreements on global warming, persistent organic substances, fisheries, or timber.³ If negotiators are instructed not to use trade instruments, achieving effective environmental protection may become more difficult (Barrett, 1994, p. 31).⁴

Framework for Trade Measures

This section considers several fundamental questions about the use of trade measures. First, why would a government want to interfere with private trade? Second, what harms spring directly or indirectly from trade? Third, what exactly is a trade measure, and how does it differ from a domestic measure? Fourth, should trade measures be reserved for trade purposes? Finally, how do trade measures operate within international regimes?

THE SIDE EFFECTS OF INTERNATIONAL TRADE

Being a voluntary transaction, trade in goods (or services) across national borders can be expected to improve the welfare of both the buyer and the seller (Abbott, 1992). But trade can have side effects on others that undermine their welfare. Thus governments may find it appropriate to use trade measures to limit certain cross-border exchanges.⁵

Harm from commerce can be divided into three categories:

1. The traded product causes physical harm.
2. Trade engenders physical harm through the market.
3. Trade engenders economic harm through the market.

By *physical*, I mean a direct, tangible effect. By *harm*, I mean negative impact on people, communities, animals, markets, or an ecosystem anywhere in the world. Each of these three categories will be discussed in turn.

2. For example, see United Nations Environment Programme (1995).

3. On timber, see Sonner (1995).

4. See also Cameron and Arden-Clarke (1996).

5. If there was one worldwide polity, there would be no international trade across borders. There would still be commerce, however, and that commerce would require regulation. For example, phytosanitary measures would be needed, just as they are currently used to monitor goods moving from the mainland to Hawaii.

Physical harm from a traded product may occur in several ways. First, harm can spring from relocation. For example, an innocuous insect in one country can create havoc in another when it arrives as part of cargo. An animal taken from the wild and put in a zoo may die quickly. Second, consumption can have negative side effects. For example, smuggled Freon for automobile air conditioners may reduce the ozone layer (McGrory, 1995; Tyson, 1995). Heroin use may lead to violent crime. Third, disposal can have negative side effects. For example, imported toxic waste may leak after it is buried. Fourth, transportation can have negative side effects. For example, oil may spill from tankers. Fifth, the commodity itself can be harmed in transit. For example, tropical birds may die in transit to receiving nations.

Physical harm engendered by the market may occur in several ways. First, domestic demand for an import can increase production, harvesting, or extraction in other countries. For example, feather fashions in the early 20th century caused the destruction of many birds (Kastner, 1994). Second, trade can strengthen potential adversaries by enabling them to buy weapons of aggression. For example, oil trade can finance terrorism. Physical harm from a traded product differs from physical harm engendered by the market in that with the former, the introduction of the product through trade can directly transmit ill effects. In the latter, the physical harm typically occurs before the trade and can occur again as a result of trade-induced demand.

Economic harm engendered by the market may occur in several ways. First, imports can displace internal production, leading to unemployment and loss of profits.⁶ Second, excessive importing can lead to currency depreciation and excessive exporting can lead to currency appreciation. Third, defective or injurious exports can damage the reputation of producers. Fourth, trade in counterfeit goods can undermine the innovation process in the country of invention. Physical harm differs from economic harm in that the former involves life and health and the latter involves pecuniary concerns. Whereas economic harm is fully remediable by money, physical harm may not be.

It should be noted that for all three categories, these harms are not caused solely by imports. Similar harms can occur from domestic-origin products. In a few cases, however, there is so little demand in the country of origin that certain harms would be sharply lessened without trade. For example, as Harland (1994) has noted, "there is little doubt that the international trade in ivory was largely responsible for the crash in elephant populations between 1979 and 1989" (p. 167).⁷

6. This is not to suggest that trade in both directions causes net unemployment or loss of profits. But imports alone can have that effect on particular individuals or businesses.

7. Harland (1994) notes that habitat loss is also a critical problem.

WHAT ARE TRADE MEASURES?

Before discussing the use of trade measures in international regimes, I should first clarify what trade measures are. A trade measure (or instrument) is the application of a tax or regulation exclusively to a traded good—typically an import but sometimes also an export. This contrasts with a domestic measure, which is the application of a tax or a regulation to an internally produced good or to the like imported good. Some applications of domestic measures to imported goods may resemble trade measures. For example, a domestic product ban (e.g., no unpasteurized cheese) may prevent the entry of a tasty import. To the disappointed exporter, that may look like a trade measure, even though the same rule is applied to internal production.

Following this definition, it is apparent that the WTO has rules not only about trade measures but also about domestic measures.⁸ Domestic measures must meet the test of “national treatment” under the rule of the GATT (GATT, 1947).⁹ National treatment requires that imported goods be treated no less favorably than internally produced goods. Until the Uruguay Round, this was the only substantive requirement for domestic measures. Now the multilateral trade regime has additional requirements for domestic measures, such as the new Agreement on the Application of Sanitary and Phytosanitary Measures.

When used as a trade measure, taxes can be nondiscriminatory (e.g., tariffs) or discriminatory (e.g., antidumping duties). Discrimination means that like products are treated differently. Regulations can be standards or bans. Bans can be absolute, or they can be contingent—that is, contingent on actions by governments or practices of producers.¹⁰

For domestic measures, taxes and regulations can be aimed at production, consumption, or disposal. Although this article will generally focus on trade measures, it is important to remember that international regimes can also utilize domestic measures. For example, an agreement to remove lead from gasoline would not involve trade measures per se, although imported fuel would be held to the same standard as domestically produced fuel.

USE OF TRADE MEASURES IN GENERAL

Because a trade measure, by definition, can only act upon trade, the efficacy of a trade measure depends on the nexus between trade and the harmful behavior being addressed. Although trade measures could be used for purposes wholly unconnected to trade, this is unlikely to occur

8. See WTO (1994).

9. The GATT is now part of the WTO.

10. For further discussion of these categories, see Charnovitz (1994). See also GATT Secretariat (1993).

in a multilateral agreement (as opposed to a unilateral action). Thus, in the prototypical situation, a trade measure in an environmental treaty is used to control trade as part of a program for preventing future environmental harm.

Do trade measures work? It is often said that trade instruments are not likely to be an effective way to deal with environmental problems. Agenda 21 counsels governments to "deal with the root causes of environment and developmental problems" in a manner that avoids unjustified restrictions on trade (United Nations, 1992). Lloyd (1992) points out that in very few, if any, instances is the actual cause of an environmental failure international trade in commodities itself. Petersmann (1995) finds six different approaches for addressing cross-border pollution that would likely be more effective than trade instruments.¹¹ Kirchgässner and Mohr (1996) report that "in most cases trade restrictions are—at best—third-best solutions"¹² because trade restrictions usually attack a problem only indirectly and are much too far away from the source of the problem to be fully effective.

In considering when trade measures should be used, it may be helpful to start by dismissing the simplistic notion (prevalent in the "trade and the environment" literature¹³) that trade instruments should be used to address trade problems, whereas environmental instruments should be used to address environmental problems.¹⁴ There are two difficulties with this matchup. First, as noted above, many environmental problems are trade related. Of course, one can define some problems as "environmental" by pointing to the root cause. For instance, we might say that endangered species trade is not a trade problem because the root cause is harvesting, not trade. But if we do that for the environment, we should also do so for other issues. Thus the root cause of import-induced unemployment is not trade, but, rather, uncompetitive domestic industry (or perhaps overvalued currency). The root cause of injurious dumping is not trade but, rather, unharmonized competition policies. Viewed in this manner, all trade problems melt away. There are no pure trade problems unrelated to nontrade goals.

The second difficulty with the simplistic notion is that the distinction between trade and environment instruments is ambiguous. Is a tax a

11. The six approaches are (a) avoidance of intergovernmental disputes through decentralized international private law solutions, (b) international "coast negotiations" between the private parties affected or their respective home countries, (c) intergovernmental environmental agreements, (d) dispute settlement proceedings on damage prevention or compensation, (e) supranational primary law rules like the Treaty on European Union, and (f) supranational secondary law rules, like European Commission regulations and directives.

12. This chapter considers many of the issues discussed in this article.

13. For example, see Feketekuty (1993). See also Esty (1994).

14. A further difficulty with this notion can be seen if one tries to apply it to the health regime. Should biological weapons be used as an instrument in getting other countries to eradicate disease?

trade instrument or an environmental instrument? How about regulations or quotas?¹⁵ These are instruments of both trade and environmental policy makers. They do not “belong” more to one regime than the other. Of course, a tariff might be viewed as principally a trade instrument. But so far, none of the trade and environment conflicts have involved tariffs.

A related misconception is that trade instruments are used to solve trade problems. Actually, trade instruments are commonly directed at nontrade problems (e.g., unemployment, industry uncompetitiveness, aggressive foreign pricing, etc.) and typically “solve” them only by helping favored groups while hurting consumers, exporters, or unprotected industries.¹⁶ Trade itself is only rarely a real problem. Thus, while the use of a trade instrument for an environmental purpose might indeed be third best, it is important to keep in mind that the use of a trade instrument for a trade purpose may be fourth best (or even first worst).

TRADE MEASURES IN TREATIES

Although many applications of trade measures are unilateral, treaties also utilize trade measures, meaning the treaty requires or authorizes the use of trade measures. An example of a treaty requiring a trade measure is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; 1973), which imposes import bans contingent on foreign and domestic government certification. An example of a treaty authorizing a trade measure is the Wellington Convention, which states that parties “may also take measures, consistent with international law, to . . . prohibit the importation of any fish . . . which was caught using a driftnet” (Convention for the Prohibition of Fishing With Long Driftnets in the South Pacific, 1989, Article 3[2][c]). Another example is the GATT (1947), which states that parties “shall be free” to use trade measures in cases of serious economic injury from imports (Article XIX[1]). In some instances, treaty-based institutions, such as a conference of the parties, will call for the use of trade measures.

Trade measures in treaties can be nondiscriminatory or discriminatory. For example, the phosphorus match convention (Convention Respecting the Prohibition of the Use of White (Yellow) Phosphorus in the Manufacture of Matches, 1906) is nondiscriminatory in banning the importation of phosphorus matches regardless of the source. The Bamako Convention on hazardous wastes (1989) is discriminatory in prohibiting the importation of waste from nonparties.¹⁷ Provisions that discriminate against nonparties are not uncommon. One factor to consider in determining the appropriateness of such provisions is whether

15. For a good discussion of the use of quotas for environmental purposes, see Wilder (1995).

16. See Bovard (1991) and Hufbauer and Elliott (1994).

17. For a discussion, see Ovink (1995).

the treaty has open entry. The Bamako Convention (1989, Article 22:1) is not open to countries outside of Africa. The Montreal Protocol (1987)—which also requires import bans against nonparties—is open to universal membership.¹⁸

An in-between case is the WTO, which permits, but does not explicitly authorize, discrimination against nonparties. The new WTO is technically open to universal membership, but some countries have been denied entry (WTO, 1994).¹⁹ For example, China has sought membership for 10 years. This antimultilateral feature of the WTO has been subject to criticism (Walker, 1995).²⁰

Trade measures are included in environmental treaties in order to facilitate multilateral cooperation.²¹ The aim of trade measures is variously to deflect, halt, reduce, or increase international trade. Some trade measures are aimed at affecting private producer behavior (e.g., the phosphorus match treaty). The rest are aimed at affecting the policies of governments.

Trade measures can be divided into several different categories, some based on purpose and some based on type of harm. These categories are shown below:

Purpose

A. *To encourage governments to join a treaty.* Trade benefits can be used as incentives for membership; penalties can be used as disincentives against nonmembership.

B. *To encourage conformity to the harmonization prescribed by the treaty.* Trade controls can be used to change production practices or government policies.

C. *To encourage parties to comply with a treaty.* Trade sanctions or countervailing duties can be used to police compliance with a treaty. (This category includes only active rather than passive measures.)

D. *To make a treaty more effective by preventing diversion of trade or leakage of traffic.* Trade controls can be used to attain a closed system or to maintain the equilibrium of a regime.

E. *To prevent free riders from gaining economic benefits from nonmembership.* Trade controls can be used to raise the cost of noncooperation (Caldwell, 1994, pp. 173, 178).

F. *To assist other countries in enforcing their laws.* Trade controls can be used by one government to help another government. These are purely consensual arrangements.

18. See also Vienna Convention (1985).

19. Article XII provides that approval of new members shall require a two-thirds vote.

20. China is eager to rejoin to prevent WTO members from discriminating against it in trade. It is interesting to note that China is a signatory to the WTO Agreement.

21. For a good analysis and critique of the use of trade measures in environmental agreements, see Blackhurst and Subramanian (1992).

G. *To prevent relocation through trade.* Trade controls can be used to stop certain transfers.

Type of Harm

X. *Physical harm from/to a product.*

Y. *Physical harm engendered by the market.*

Z. *Economic harm engendered by the market.*

Each specific utilization of a trade measure in a treaty can be described by its purpose and the type of harm it addresses. In many instances, trade provisions involve a mix of purposes. Because treaties are the result of a negotiation, it is sometimes difficult to specify after the fact why the parties wrote a particular provision. Negotiating history tends to be vague or ambiguous. It should be noted that no distinction is made here regarding whether the term *trade* appears in the title of the treaty.

SUMMARY

Trade measures are governmental tools to influence trade. When used in international regimes, they are intended to make the regime more effective. The simplistic argument that trade measures should be reserved for trade treaties must be rejected. Whether trade measures are appropriate for any particular treaty depends on their role in that treaty. This section concludes by proposing 10 ways of categorizing trade measures. The first 7 relate to purpose, that is, why the trade measure is used.²² The last 3 relate to the type of harm that the trade measure seeks to prevent.

Case Studies

This second section examines 30 cases in which trade measures were drawn on in the design of a treaty.²³ All of these cases involve bilateral, plurilateral, or multilateral treaties; no cases of unilateral trade measures are presented. To maintain the clarity of the presentation, this section does not discuss every trade measure included in these 30 treaties. Instead, specific provisions are selected to illustrate how trade instruments can be used. Thus, for example, although the Basel Convention contains multiple trade measures, only one is discussed here. The case write-ups provide some background information, but not a full explanation of the political circumstances surrounding each treaty.

22. Purposes A-E involve the use of trade measures to make a treaty more effective. Purpose G is to prevent trade itself.

23. Although trade measures are not explicitly mentioned in the Whaling Convention (International Convention for the Regulation of Whaling, 1946), it authorizes the IWC to make recommendations to parties on any matters that relate to whales.

The cases presented are neither exhaustive nor random. They were selected to illustrate the broad range of possible uses of trade measures. Thus the reader should not infer that the inclusion of trade measures is typical of multilateral treaties in general or of multilateral environmental treaties.²⁴ Although the final section makes some observations about the frequency of certain types of trade measures, no guarantee is implied about statistical validity.

In explaining the purpose of each trade measure (i.e., categories A-G) and what harms the trade measure aims to address (i.e., categories X-Z), I have tried to select the best category or categories that fit each case. Readers may find other plausible categories, but I hope not more accurate ones.

Phylloxera. The earliest treaty to use trade measures for a health/environment purpose was the Convention on Measures to Be Taken Against *Phylloxera Vastatrix* (1878), an agreement to protect against a plant louse that damages wine vineyards. The treaty called for common internal measures (e.g., delimitation of areas affected by the disease) as well as trade bans.²⁵ Torn vines and dried shoots were excluded from international commerce. All plants and nursery products were to be imported through designated customs offices and had to be accompanied by a certificate stating that they were not infected and had not recently been imported. There were also rules requiring that packaging be sealed yet easily accessible for inspection. Improperly packaged goods were to be returned to their point of origin. The purpose of the trade ban on torn vines was to prevent relocation of *Phylloxera* through trade. The harm addressed was physical harm to the vineyards of other countries.

Sugar bounties. The International Convention Relative to Bounties on Sugar (1902) sought to limit the use of governmental subsidies. As enforcement, the Convention had a provision requiring parties to impose countervailing duties on sugar imports from parties and nonparties that continued to use proscribed bounties on production or export. The purpose of these trade penalties was to encourage parties to comply with the antisubsidy regime and to encourage nonmembers to conform. The harm addressed was economic harm to domestic producers engendered by foreign government action that affects the market.

Birds useful to agriculture. The Convention for the Protection of Birds Useful to Agriculture (1902) provided for common action to protect

24. In the author's view, these cases are representative of treaties that do use trade measures.

25. For a summary of the treaty, see Ruster and Simma (1975, pp. 1565-1566).

certain birds that eat insects.²⁶ This included a prohibition on killing such birds and a ban on the importation and sale of the nests, eggs, and broods of such birds (Rüster & Simma, 1975).²⁷ The main purpose of the import ban was to prevent relocation of birds through trade. The harm addressed was physical harm to bird populations engendered by the market.

Phosphorus matches. The Convention Respecting the Prohibition of the Use of White (Yellow) Phosphorus in the Manufacture of Matches (1906) was established to deal with the problem of "phossy jaw" among match workers, a dread occupational disease (U.S. Bureau of Labor Statistics, 1919).²⁸ The treaty provided for the prohibition of the manufacture, importation, and sale of matches made with phosphorus. Although the dangers of phosphorus were well recognized, many governments were reluctant to forbid the use of that chemical because the substitute production methods were more expensive. The solution found was for governments to act jointly to outlaw the use of phosphorus. The purpose of the import ban was to encourage other governments to forbid phosphorus match production and to prevent any country from increasing its market share by retaining the noxious production method. The harm addressed was physical harm to match workers engendered by the market.

Fur seals. The Convention Respecting Measures for the Preservation and Protection of Fur Seals in the North Pacific Ocean (1911) established the first international environmental regime to protect an endangered species. The four parties agreed to prohibit their nationals from engaging in pelagic sealing. They also agreed to ban the import of sealskins taken from a protected area in the ocean and the import of other sealskins except those marked as taken from approved breeding grounds. In addition, the parties agreed to share the sealskins lawfully taken in order to reduce the incentive to defect (Peterson, 1993). Furthermore, the United States agreed to make advance monetary payments to Canada and Japan to be reimbursed in sealskins. The purpose of the import ban on skins taken from the ocean was to encourage conformity to the pelagic sealing ban. The purpose of the contingent import ban on skins taken on land was to assist parties in enforcing their own laws. The harm addressed was physical harm to seals engendered by the market for seal-skin.

Migratory birds. The Convention for the Protection of Migratory Birds (1916) established a close season for game birds and prohibited all

26. For a summary of the treaty, see Rüster and Simma (1975, p. 1615).

27. See Lyster (1985).

28. A few countries had acted in advance of the treaty.

hunting of insectivorous and nongame birds. The treaty prohibits the export of birds or bird eggs during the close season and prohibits international traffic of birds taken or shipped contrary to municipal law. This treaty was a landmark in North American environmental law in the recognition that joint action was needed to protect shared natural resources (Lyster, 1985). The purpose of the export ban may have been to prevent Canada and the United States from diverting bird trade to other countries. The purpose of the contingent trade ban was to assist both countries in enforcing their laws. The harm addressed was physical harm to birds engendered by the market.

African liquor. The Convention Relating to Liquor Traffic in Africa (1919) was a treaty of colonial powers who agreed to cooperate in keeping distilled beverages out of Africa because they were "especially dangerous to the native populations" (Article 3).²⁹ The treaty forbade the import, sale, or possession of certain "injurious" beverages, such as absinthe. The purpose of the import ban was to prevent relocation of liquor through trade. The harm addressed was physical harm to African natives from the consumption of liquor.

Livestock. The Convention to Safeguard Livestock Interests by Prevention of Infectious and Contagious Diseases (1928) between Mexico and the United States provided for joint measures to prevent the spread of livestock disease. The measures included the maintenance of livestock "sanitary police" at ports of importation, disinfection of vessels, and an import ban on ruminants from countries with a recent outbreak of disease. The purpose of the import ban was to prevent relocation of infectious ruminants through trade. The harm addressed was physical harm to domestic livestock from imported livestock.

Plaice and flounder. The Agreement Regarding the Regulation of Plaice and Flounder in the Baltic Sea (1929) provided for a close season and set minimum size requirements. Fish smaller than the prescribed size were not to be landed in port. The purpose of the import ban was to promote conformity in following the minimum size rule. The harm addressed was physical harm to fisheries engendered by the market.

Ivory. The Agreement for the Control of Illicit Traffic in Ivory and Rhinoceros Horn (1932) between Great Britain and Italy on ivory and rhino horn trade across the frontiers of Kenya and Somalia provided that cross-border trade be contingent on certificates of legal possession from the country of origin. The purpose of the trade ban was to assist countries

29. The United States was a party to this treaty; it had just enacted the constitutional amendment on prohibition.

in enforcing their own conservation laws. The harm addressed was physical harm to species engendered by the market for ivory and horn.

Transit of animals. The International Convention Concerning the Transit of Animals, Meat and Other Products of Animal Origin (1935) provided for international rules relating to sanitary problems and to “unnecessary suffering” of animals. One of the rules was that animals could only be transported in wagons constructed to prevent the dissemination of excreta. The purpose of this rule was to encourage harmonization to salutary sanitary practices. The harm addressed was physical harm to domestic humans and animals from foreign animal waste.

Animal products. The International Convention Concerning the Export and Import of Animal Products (Other Than Meat, Meat Preparations, Fresh Animal Products, Milk, and Milk Products) (1935) provided disciplines on the use of trade measures for sanitary purposes. The Convention also required that listed animal products be imported duty-free from countries that had ratified the International Convention for the Campaign Against Contagious Diseases of Animals.³⁰ This was one of the earliest linkages of trade to social policy—in this case, making tariff benefits contingent on whether other countries had ratified a health treaty. The purpose of the trade preference (which increased trade) was to encourage other governments to join the campaign against contagious diseases. The harm addressed was physical harm to agriculture and human health from disease-laden products. It was not limited to harm in the country granting duty-free treatment.

Property of historic value. The Pan-American Treaty on the Protection of Movable Property of Historic Value (Hudson, 1941, p. 59) restricted the export of monuments unless specimens of similar value remained in the country. In the definition of “natural movable wealth,” the treaty included rare species threatened with extermination. The purpose of the contingent export ban was to stop relocation of rare birds. The harm addressed was physical harm to rare species engendered by the market.

Protection of birds. The International Convention for the Protection of Birds (1950) provided for close seasons and for the elimination of certain hunting practices such as the use of automatic guns and stupefying agents. The Convention bans taking or trade in young, wild birds during breeding season and bans trade in birds captured in violation of the Convention. The purpose of these trade bans is to encourage conformity to the rules in the treaty. The harm addressed is physical harm to birds engendered by the market.

30. See also International Convention for the Campaign Against Contagious Diseases of Animals (1935).

Opium. The Protocol for Limiting and Regulating the Cultivation of the Poppy Plant, the Production of, International and Wholesale Trade in, and Use of Opium (1953) promulgated international rules for opium manufacture and traffic. It provided that if a party failed to carry out its obligations, or a nonparty seriously impeded the administration of the convention, the Opium Board could order parties to embargo the import or export of opium to that country. The purpose of the embargo was to encourage parties to comply with the treaty and to encourage nonparties to conform. The harm addressed was physical harm from products of opium.

Narcotic drugs. The Single Convention on Narcotic Drugs (1961) consolidated international rules on narcotics traffic. The Convention provides that parties shall not knowingly permit the export of drugs to any country except in accordance with the laws of that country. The purpose of this contingent export ban is to assist countries in enforcing their laws. The harm addressed is physical harm from narcotics to the people of another country.

Convention on International Trade in Endangered Species of Wild Fauna and Flora. CITES (1973) provides comprehensive regulation of trade in endangered species (Burgess, 1994). Trade with nonparties is permitted, but only when competent authorities in that government issue "comparable documentation to that required of the parties (CITES, 1973, Article X). This provision removes some incentive for nonmembership but does not provide a disincentive to nonmembership (Favre, 1989, pp. 251-256). The purpose of applying the same trade rules to nonparties was to encourage their conformity with the certification requirements in CITES.³¹ This provision also prevents trade diversion, that is, parties using nonparties as intermediaries. The harm addressed by CITES is physical harm to species engendered by the market.

Polar bears. The Agreement on the Conservation of Polar Bears (1973) commits parties to take action to protect polar bears and their ecosystems. For example, the use of aircraft for hunting polar bears is generally prohibited. The Agreement forbids imports of polar bears (or bear parts) taken in violation of the Agreement (e.g., using aircraft). The purpose of the contingent ban on imports is to encourage governments to conform to the treaty. The harm addressed is physical harm to polar bears engendered by the market.

31. The UN Charter also applies some of its rules to nonmembers. Article 2(6) states that the UN shall ensure that nonmember states "act in accordance" with UN principles so far as may be necessary for the maintenance of international peace and security (Charter of the United Nations, 1945).

Textiles. The Agreement Regarding International Trade in Textiles (ARITT; GATT, 1973) or the Multi-Fiber Arrangement provides a special procedure to deal with countries whose textile exports are causing market disruption. Importing countries begin by consulting formally with exporting countries to seek export restraints or another settlement. If the exporting country prefers to maintain a free-market approach, the importing country "may decline to accept imports" above a certain level (GATT, 1973, Article 3). By permitting such import quotas, the Arrangement gives importing governments leverage to force changes in the domestic policies of exporting governments. The purpose of these quotas is to encourage other governments to conform to the protectionist goals of the Multi-Fiber Arrangement and to prevent diversion of trade. The harm addressed is economic harm to importing-nation producers engendered by the textile market.

Whaling. The International Whaling Commission (IWC; 1978) has directed member nations to take all practicable steps to prevent the transfer of factory ships or gear used in whaling operations to any nation that is not a member of the IWC. The purpose of this export ban is to encourage governments to join the treaty and to prevent nonparties (who would not be adhering to IWC quotas) from free-riding on the conservation efforts of other countries. The harm addressed is physical harm to whales engendered by the market.

Ozone layer. The Montreal Protocol on Substances That Deplete the Ozone Layer (1987) provides a comprehensive regime regarding the production, consumption, and trade of certain controlled substances.³² The treaty requires parties to ban the importation of controlled substances, or products containing them, from nonparties unless those nonparties are determined (by a meeting of the parties) "to be in full compliance" with the production and consumption regime of the Protocol.³³ The main purpose of the import ban on nonparties is to prevent leakage of trade in chlorofluorocarbons (CFCs) and other controlled substances (Lang, 1993).³⁴ The import bans also serve the purpose of encouraging countries to join or, if they remain nonparties, to comply with the regime (Benedick, 1991, p. 91).³⁵ Although the harm addressed

32. For amendments to the Protocol, see 30 ILM 537 and 32 ILM 874.

33. For background on the trade provisions, see Lammers (1988). See also Enders and Porges (1992), Runge (1994), and Brack (1996).

34. Lang (1993, pp. 364-368) notes that the aim was to establish a watertight system and to block evasion. Lang was chairman of the Montreal conference.

35. See Benedick (1991, p. 91). Benedick notes that the United States proposed the trade restrictions to encourage membership, to prevent nonparticipating countries from enjoying competitive advantages, and to discourage the movement of CFC production to those countries.

by the Protocol is a physical harm from CFCs and similar substances, the trade provisions address the physical harm engendered by the market. A CFC is no more harmful in one country than another. Thus the trade bans aim to suppress demand that could stimulate future production of CFCs.

Hazardous waste. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989) provides a comprehensive regime concerning the disposal of waste and its trade.³⁶ Among its numerous trade provisions, the Convention bans the export of wastes (including recyclables) to a nonparty (Article 4:5).³⁷ One purpose of the export ban to nonparties is to encourage nonparties to become members, especially those that desire to engage in reprocessing. Another purpose of this ban is to render the treaty more effective by preventing diversion and, therefore, to reinforce the need for countries to develop better waste control practices. The harm addressed is physical harm from waste to the receiving country. It should be noted that hazardous waste differs from CFCs in that waste can be more harmful in one country than in another. This can occur if the quality of waste treatment differs or if absorptive capacity differs.

Iraq. Following the invasion of Kuwait by Iraq, the UN Security Council imposed a trade embargo on Iraq ("The Iraqi Invasion," 1990).³⁸ The Resolution for Sanctions on Iraq directed UN members to prevent imports of all commodities originating in Iraq. The purpose of the embargo was to encourage Iraq to comply with its UN treaty obligations and a previous Security Council resolution. The harm addressed by the embargo was the potential physical harm to other countries from an economically strong Iraq. The embargo also had nontrade goals, namely, to force Iraq to withdraw from Kuwait.

CITES. According to CITES (1973), when the Secretariat determines that CITES provisions "are not being effectively implemented," it shall communicate that information to the party concerned. Information provided by the party is reviewed at the next CITES Conference, which "may take whatever recommendations it deems appropriate" (Article XIII). Perhaps relying on this authority, in 1991 the CITES Standing Committee recommended that parties prohibit all trade with Thailand

36. For a comprehensive discussion, see, Kummer (1994).

37. But exportation may occur pursuant to an agreement with that country that includes provisions "not less environmentally sound than those in the Basel Convention. See Kummer (1994), Article 11.

38. This case was included because it is well known. Multilaterally agreed economic sanctions have a long history going back at least as early as 1921. See Hufbauer, Schott, & Elliott (1990, pp. 17-19). See also, Martin (1992).

in fauna and flora species covered by the Convention.³⁹ The purpose of this recommendation was to encourage Thailand to comply with the treaty (Petersmann, 1995). The harm addressed was physical harm to monkeys, birds, and reptiles engendered by the market.

Antarctica. The Protocol on Environmental Protection to the Antarctica Treaty (1991) establishes a protective regime for the Antarctic environment. Among its provisions is a ban on the importation of live poultry into Antarctica. The purpose of this trade ban is to prevent relocation of certain microorganisms through trade. The harm addressed is physical harm to the Antarctic ecology.

The North American Free Trade Agreement. NAFTA (1992) directs a phaseout of tariffs and provides for a harmonization of certain policies. Parties are required to "give effect" to the provisions of four treaties relating to phonograms, literary and artistic works, industrial property, and plant varieties. Parties also agreed to make every effort to accede to these treaties. Failure to comply could subject a party to NAFTA enforcement provisions, which could ultimately lead to trade sanctions. Parties are also required to detain goods at the border at the request of holders of property rights. The purpose of such trade enforcement is to encourage parties either to join the four property-rights treaties or to conform to them. The harm addressed is economic harm engendered by the market.

World Trade Organization. The WTO (1994) established a comprehensive regime of rights and duties related to trade policy. To gain the benefits of the various agreements, including market access, nations must become members of the WTO. To do so, nations undertake accession procedures whereby they offer to change their domestic legislation as a "price" for entry. The underlying idea is that a new WTO member receives tariff benefits immediately, under the most-favored-nation rule, and therefore must reciprocate in advance. The purpose of requiring prospective members to undertake trade measures (i.e., liberalization) is to prevent free-riding. The harm addressed is economic harm engendered by the market.

Bananas. The Framework Agreement on Banana Imports (1994) is a trade agreement between the European Union (EU) and developing countries to limit the importation of bananas into the EU and to allocate trade by national quota. In return for large quotas, four nations agreed not to seek adoption of a GATT panel report criticizing the EU's banana

39. 56 C.F.R. 32260 (1991). For a discussion of enforcement provisions in CITES, see Crawford (1995).

regime. One purpose of the quotas is to encourage governments to join the Framework, thus neutralizing opposition to a continuation of the EU's banana restrictions. The harm addressed is economic harm to EU farmers and former colonies engendered by the banana market.

Shipbuilding. The OECD Agreement Respecting Normal Competitive Conditions in the Commercial Shipbuilding and Repair Industry (1994) seeks to eliminate most governmental subsidies granted directly to shipbuilders or indirectly to ship operators. The Agreement contains tough dispute settlement mechanisms to respond to export subsidies and certain kinds of domestic support. Under these mechanisms, a complaining party receiving a favorable judgment by a dispute panel may suspend trade benefits to the defendant government if that government does not take the remedial steps dictated by the panel. Parties forgo their right to complain about this trade sanction under the rules of any other agreement (e.g., the WTO). The purpose of such trade enforcement is to encourage parties to comply with the treaty. The harm addressed is economic harm engendered by foreign governmental action affecting the market.

Fish stocks. The UN Agreement Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995) provides for new methods of international cooperation to respond to dwindling fish stocks. According to the treaty, parties "may" adopt regulations to prohibit the landing or transshipment of fish where it has been established "that the catch has been taken in a manner which undermines the effectiveness of subregional, regional or global conservation and management measures on the high seas" (Article 23). The purpose of this import ban is to encourage conformity to the prescribed conservation and to prevent free riders from undermining the treaty. The harm addressed was physical harm to fisheries engendered by the market.

Table 1 summarizes the trade measures in these 30 cases and lists the most pertinent categories for each. Purpose is shown on the top part of each row in Column 3; type of harm is shown on the bottom of that row.

Lessons and Policy Implications

SUMMARY OF FINDINGS

For more than a century, drafters of treaties have made use of trade measures in the design of international regimes. Trade measures continue to be used (see cases concerning bananas, shipbuilding, and fish stocks above). As the previous part shows, trade measures have been

Table 1
Summary of Case Studies

<i>Year</i>	<i>Case</i>	<i>Categories</i>	<i>Summary</i>
1878	<i>Phylloxera</i>	G X	Bans trade in vines and shoots.
1902	Sugar bounties	B, C Z	Requires countervailing duties against member and nonmember countries using sugar bounties.
1902	Birds useful to agriculture	G Y	Bans import of certain bird eggs.
1906	Phosphorus matches	B, E Y	Bans import of phosphorus matches.
1911	Fur seals	B Y	Bans import of sealskins taken from ocean.
		F Y	Bans import of sealskins when unlawfully taken from land.
1916	Migratory birds	D Y	Bans export of birds during close season.
		F Y	Bans trade in birds caught contrary to local law.
1919	African liquor	G X	Bans import of liquor into Africa.
1928	Livestock	G X	Bans import from countries with a recent outbreak of disease.
1929	Plaice and founder	B Y	Bans import of fish below a minimum length.
1932	Ivory	F Y	Bans trade in ivory without certificate of legal possession.
1935	Transit of animals	B X	Requires that animals be transported in wagons designed to prevent the dissemination of excreta.
1935	Animal products	A X	Requires duty-free treatment of animal products from countries ratifying the Contagious Diseases Convention.
1935	Property of historic value	G Y	Forbids export of irreplaceable objects, including rare species.
1950	Birds	B Y	Bans import of birds caught in prohibited ways.
1953	Opium	B, C X	Authorizes Opium Board to impose embargo on the export or import of opium to a country.

(continued)

Table 1 Continued

<i>Year</i>	<i>Case</i>	<i>Categories</i>	<i>Summary</i>
1961	Narcotic drugs	F X	Bans export of opium except in accordance with law of importing country.
1973	CITES	B, D Y	Applies the same trade controls on endangered species to nonparties.
1973	Polar bears	B Y	Bans trade in polar bears taken in violation of agreement.
1973	Textiles	B, D Z	Authorizes import bans to force countries to adopt export restraints.
1978	Whaling	A, E Y	Directs countries to ban export of whale hunting equipment to nonmembers.
1987	Ozone layer	A, B, D Y	Bans import of controlled substances from nonparties.
1989	Hazardous waste	A, D X	Bans export of waste to nonparties.
1990	Iraq	C Y	UN embargo on Iraq following invasion of Kuwait.
1991	CITES	C Y	Recommends trade ban applying to Thailand on CITES-covered species.
1991	Antarctica	G X	Bans import of live poultry into Antarctica.
1992	NAFTA	A, B Z	Requires parties to give effect to private property treaties and to make every effort to ratify them. Enforces with potential trade sanctions.
1993	WTO	E Z	Requires prospective members to undertake trade measures.
1994	Bananas	A Z	Establishes managed trade in bananas.
1994	Shipbuilding	C Z	Provides for trade sanction against governments found to subsidize shipbuilding.
1995	Fish stocks	B, E Y	Permits import bans on fish catch that undermines treaty.

employed in a wide range of regimes. Of the 30 cases presented, 3 relate to sanitary and phytosanitary matters, 6 relate to commerce, 14 relate to the environment, 6 relate to human health, and 1 relates to security.⁴⁰

The first section of this article outlines seven purposes for which trade measures might be used. I presented at least three examples of each purpose. Environmental treaties employed trade measures for all seven of these purposes. Commercial/trade treaties employed trade measures for five of these purposes.

The first section also outlines three harms from trade to which trade measures could be addressed. I presented several examples of each. Environmental treaties used trade measures to address two harms (X and Y). Commercial treaties used trade measures to address only one harm (Z). There is no overlap here.

There were 21 possible combinations (7×3) of purpose and type of harm. I found examples of 18 of them. There are no cases of EX, FZ, and GZ. Because the cases presented are neither exhaustive nor random, one cannot make any judgments about the distribution of the combinations. One should also not infer that most environmental, commerce, health, or sanitary treaties use trade instruments; most do not.

ARE TRADE MEASURES NECESSARY?

In assessing whether an international regime needs to use a trade measure, one should logically start by asking whether a real problem exists that requires governmental attention. For example, is the ozone layer truly threatened by CFCs? That level of inquiry is beyond the scope of this article. Our focus here is on how treaty designers address problems that they perceive as real.

Assuming that a problem does exist, the next logical question is whether an international regime is needed to address it. For purely local environmental problems (such as noise pollution) or purely local trade problems (such as high domestic tariffs), effective solutions may be accomplishable through national policy alone. For transborder environmental problems (such as air pollution) or transborder economic problems (such as recession), effective solutions may require intergovernmental cooperation. In the 30 cases above, it was assumed by governments that a regional or international regime was either essential or highly desirable. It is beyond the scope of this article to evaluate whether those judgments were in fact correct. Some analysts have suggested that international regimes do not really need to use trade measures. That may often be right. Certainly, many effective international regimes do not draw on trade measures.

40. The Basel Convention (1989) is counted as human health; it is also environment.

In general, it will always be possible to address physical and economic harms by agreement on actions that governments can take as an exercise of their own sovereign jurisdiction. If an appropriate agreement can be reached and if all parties can be relied on to honor it, there is no need for trade measures. For example, in the *Phylloxera* convention, the parties could have agreed to stamp out the plant louse and to prevent any movement on vines and shoots. In the Ivory treaty, the parties could have agreed to upgrade their internal enforcement of ivory commerce.

Yet, although there is always a hypothetical compact that may have been obtainable, trade measures have been used as epoxy where parties were unable to dovetail their positions. The case of CITES is particularly instructive because the parties would never have agreed to harmonize their domestic wildlife conservation policies. CITES is about commerce only because deeper harmonization was unachievable. Because CITES, as designed, does concern trade, it seems appropriate that trade measures are used as a tool.⁴¹

Because perfect treaties are elusive, negotiators use available instruments to cobble together regimes that might work. Trade measures can be helpful in dealing with complications of intentional noncompliance (e.g., shipbuilding subsidies), inadvertent inspection failure (e.g., *Phylloxera*), or transitional periods (e.g., CFC phaseouts). Without trade measures, many of the treaties discussed above may never have been consummated, because the remaining regime might have looked ineffectual or one-sided. International cooperation often stumbles over free riders. Trade measures provide one way of responding to that problem (cases concerning phosphorus matches, whaling, WTO, and fish stocks).

International agreements are typically about transborder issues involving either physical or economic harms.⁴² Because of the transborder nature of the problem, a transborder tool (like a trade measure) may enable a workable remedy. In all of the environmental cases discussed above, the trade tool used was directly related to the perceived harm. For example, the Polar Bear treaty applies only to trade in polar bears. It does not ban trade in widgets as a means of enforcing better conservation behavior. By contrast, some of the commerce treaties do use trade tools unrelated to the perceived harm. For example, NAFTA threatens trade sanctions against parties that do not conform to international treaties on property. The shipbuilding agreement also threatens trade sanctions on unrelated products. This points to a significant difference between the environment and trade regimes.⁴³ The environment regime has never followed the lead of the trade regime in using trade measures merely to punish or to provide restitution.

41. See Lang (1991, pp. 183-185).

42. Some treaties are about physical harms to humans in other countries. For example, see cases 1906 and 1919.

43. See Dam (1970, p. 81). Controlled retaliation is made the heart of the GATT system.

ARE TRADE MEASURES EFFECTIVE?

The short answer to the question of whether trade measures are effective is, *Compared to what?* There is an infinite variety of carrots and sticks that might be substituted for trade measures and that might be more effective. For example, in the Fur Seals treaty, the United States could have agreed not merely to make advance payments but to compensate Canada and Japan for forgoing seal hunting entirely. In the shipbuilding agreement, each country could have posted a \$50 million bond with the OECD to be surrendered if they were caught breaking the antisubsidy rules. But there is little use in comparing politically feasible trade measures to unfeasible carrots and sticks.⁴⁴

It is beyond the scope of this article to present a detailed evaluation of the 30 cases to determine whether the regimes worked and, if so, whether trade measures were critical to the success. Such an evaluation might find many successes, however. For example, the phosphorus match treaty solved the problem of phossy jaw. That import ban proved effective in forcing several countries, such as Great Britain, to join the agreement (Reinsch, 1911). Although it remains a bit leaky, the Montreal Protocol has been an overall success. The trade bans were important in promoting new membership.⁴⁵

Of course, trade measures work in bad treaties as well as good ones. The Multi-Fiber Arrangement continues to prevent "market disruption" 23 years after its inception. Perhaps the WTO will be successful in emancipating textile trade.

Although many of the 30 treaties were unsuccessful, there is no obvious evidence that the use of trade measures was responsible for that lack of success. If anything, it was the failure to follow through with trade measures that undermined some of these treaties. But trade measures can only go so far. They cannot create a meeting of the minds between countries when that does not exist. Moreover, border measures have diminished effectiveness in dealing with smuggling. This was a problem in several of the cases discussed such as ivory, opium, narcotic drugs, CITES, and, most recently, with the Montreal Protocol.

DO TRADE MEASURES NEED TO BE DISCRIMINATORY?

Some commentators have suggested that if environmental treaties use any trade measures, such measures should only be nondiscriminatory.⁴⁶

44. It is interesting to note that the Maastricht Treaty permits the European Court of Justice to levy penalty payments against EU member nations that do not comply with a judgment of the Court. See Treaty on European Union (1992, Article 171).

45. See Twum-Barima and Campbell (1994, pp. 52, 53, 100), and Brack (1995, p. 504).

46. For example, see Eglin (1993, pp. 304, 311). (Nondiscrimination is the principal GATT requirement in every case, and it is hard to accept that environmental policy making needs trade discrimination to be effective.) Eglin is the director of the WTO division responsible for environmental issues.

Any trade measure that distinguishes between countries is discriminatory. This includes cases concerning sugar bounties, livestock, animal products, opium, textiles, whaling, ozone, hazardous waste, Iraq, CITES, bananas, and shipbuilding. In addition, any trade measure that treats like products differently depending on their production method would also be viewed as discriminatory by most GATT experts. This includes cases concerning fur seals, birds, polar bears, and fish stocks. Trade measures aimed at helping another country enforce its law are also technical discrimination. This includes cases concerning migratory birds, ivory, and narcotic drugs. But those trade measures would probably never be adjudged discriminatory because the other country is unlikely to lodge a complaint.

There is no reason why the environmental regime should eschew trade discrimination when the trade regime utilizes it. Several of the clearest examples of trade discrimination occur in commodity agreements (see cases concerning sugar bounties, textiles, and bananas). The GATT permits discrimination in Article VI (countervailing duties) and Article XXIII (dispute settlement) to force changes in the domestic policies of other countries.

But even if the trade regime did not violate its own norm of nondiscrimination, there would still be a justification for the environment regime to do so. Although "equal treatment" may be very useful in deregulating trade, it is not so useful in regulating production to safeguard the environment. Environmental regulation needs to be targeted. This illustrates one of the basic clashes between the trade and environment regimes. The environment regime cannot operate on the norm that it does not matter how an item is produced or where it is produced.

One useful distinction is between trade measures used to control the flow of trade (see cases concerning birds useful to agriculture, African liquor, property of historic value, CITES, ozone layer, Antarctica, and bananas) and trade measures used as punishment (see cases concerning sugar bounties, opium, Iraq, and shipbuilding; Chayes & Chayes, 1995, pp. 29-32). The latter might be viewed as a less essential use of a trade measure.⁴⁷ For example, in the sugar bounties convention, any punishment could have been used to thwart subsidies. But in the 1902 birds convention, trade controls on eggs were part of the strategy to preserve bird populations.

Although there have been several environmental treaties that ban trade in items whose production (using the term loosely) violates the treaty (see cases concerning fur seals, birds, polar bears, and CITES), the fish stocks agreement goes one step further in linking the trade ban to actions that undermine a treaty.⁴⁸ This is expanded enforcement. It will be interesting to see whether it proves effective.

47. Insights from game theory might be useful here. See McMillan (1990).

48. For a discussion of the earlier technique, see Mander (1941).

A few of the treaties discussed in the previous section recommend or require trade discrimination against nonparties (see cases concerning whaling, ozone layer, and hazardous waste). One treaty, the WTO, can require countries to change their trade laws as the price for membership.⁴⁹ The issue of trade relations with nonmembers is a difficult issue that will continue to arise in new treaties. We will probably see more Category A and E cases in the future if new environmental agreements are negotiated that are costly to implement.

LINKAGE TO OTHER REGIMES

In two cases, trade measures were used in one treaty to promote the goals of another treaty. The animal products treaty provided trade preferences to countries that ratified the International Convention for the Campaign Against Contagious Diseases of Animals. NAFTA required parties to give effect to property-rights treaties. In another case, not included in the previous section, the GATT required members to join the International Monetary Fund (IMF) or enter into a special exchange rate agreement with the GATT (1947, Article XV:6).

These cases differ from the more common circumstance where a trade measure was used to promote a noneconomic objective of the treaty itself.⁵⁰ For example, the Multi-Fiber Arrangement sought to preserve textile production in certain countries. The fur seals treaty sought to preserve seals. But these goals were inherent to the textile and fur seal regimes.

We will likely see more interregime linkage in the future.⁵¹ For example, as of 1998, the European Commission may give additional trade preferences to developing countries that "have adopted and actually apply domestic legal provisions incorporating the substance of the standards laid down by the ITTO [International Tropical Timber Organization] relating to the sustainable management of forests."⁵² Interregime linkage will be driven by new paradigms, such as sustainable development, that attempt to balance and meld fundamental goals.⁵³

49. It is interesting to note that the OECD also negotiates accession with new member nations (e.g., Mexico) that involve discussions about previous OECD recommendations including environmental policy.

50. For a discussion of the efficiency of trade and subsidy measures used for noneconomic objectives, see Bhagwati and Srinivasan (1983).

51. One case, not included here, is the original GATT, which permitted quantitative trade restrictions having the equivalent effect of exchange restrictions authorized under Article VII(3)(b) of the Agreement of the International Monetary Fund. See GATT (1947, Article XIV[5][a]).

52. Council Regulation No. 3281/94, *OJ* L348/1.

53. See Moltke (1996).

FUTURE OF TRADE MEASURES IN INTERNATIONAL REGIMES

For more than a century, multilaterally approved trade measures have been used in the design of international regimes. This article has tried to explain the logic of such use. I have also tried to point out that the use of trade measures in treaties about commerce bears similarity to such use in treaties about the environment.

Although trade measures have shown their utility, their use in the 21st century may be less than in the 20th. There are several reasons for this. First, the channels of trade have greatly expanded. Trade stopped at one border can easily flow to another. Second, trade in services is expanding faster than trade in goods, and services are less likely to cause health, sanitary, or environmental problems. Third, the increasingly globalized economy, and the ensuing interdependence, makes it more costly to restrict trade.⁵⁴ For all three reasons, economic borders are likely to be less important in the future. Borders that are permeable to information and money find it harder to be impermeable to goods.

On top of market-driven economic integration, there will be more politically driven governmental integration. Nations will venture into deeper harmonization of their domestic policies. These trends can be seen in the European Union, where the Maastricht Treaty contains strong provisions on economic and monetary policy (and considerably weaker ones on environmental policy).⁵⁵ Integration will forestall the need for trade measures if new commitments are legally enforceable in supranational or national courts. A step in that direction was taken by Canada in the NAFTA environmental and labor side agreements when it agreed that dispute panel decisions would be enforceable in Canadian courts.⁵⁶

The final reason why trade measures will be used less is that they are too blunt.⁵⁷ Trade measures fit into "command-and-control" environmental regulation but are less suited to market-based economic instruments. It is one thing to prevent relocation through trade (i.e., Category G). It is quite another to achieve ecoefficiency through trade restrictions.

If trade measures are to retain their usefulness for treaties, there will need to be a new generation of trade measures. One possibility is an international tariff (or tax) approved by a multilateral authority and applied to goods based on their production process. For example, there could be a tax on fossil fuel use. There could be a tariff on fish caught in excess of an internationally set quota. Such a system could rely on

54. However, a reduction in self-sufficiency may also make countries more vulnerable to trade restrictions.

55. Treaty on European Union (1992, Title VI). The limitations on government deficits may increase unemployment, which can lower public support for environmental quality.

56. North American Agreement on Environmental Cooperation (1993, Annex 36A); North American Agreement on Labor Cooperation (1993, Annex 41A). For a discussion, see Johnson and Beaulieu (1996).

57. See Barbier (1995).

certifications, or ecolabels, granted by a neutral authority. We have already seen a greater use of product documentation in recent treaties, such as the Basel Convention, which operates by officializing waste flows.

Perhaps the most fruitful feature of the trade-and-environment debate is that both regimes are reflecting on their own goals and mechanisms in light of the practices in the other regime. Until recently, the contribution of trade measures to regime effectiveness has been given insufficient attention. This article has sought to shed new light on this little-explored topic.

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References

- Abbott, F. M. (1992, Fall). Trade and democratic values. *Minnesota Journal of Global Trade*, 15-20.
- Agreement for the Control of Illicit Traffic in Ivory and Rhinoceros Horn, 136 LNTS 386, ¶2 (1932).
- Agreement on the Conservation of Polar Bears, 27 UST 3918 (1973).
- Agreement Regarding the Regulation of Plaice and Flounder in the Baltic Sea, 115 LNTS 107 (1929).
- Agreement Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 34 ILM 1542 (1995).
- Agreement Respecting Normal Competitive Conditions in the Commercial Shipbuilding and Repair Industry (OECD 1994).
- Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes Within Africa, 30 ILM 773 (1989).
- Barbier, E. B. (1995). Elephant ivory and tropical timber: The role of trade interventions in sustainable management. *Journal of Environment and Development*, 4(2), 1-32.
- Barrett, S. (1994). *Trade restrictions in international environmental agreements*. Center for Social and Economic Work on the Global Environment Working Paper, GEC 94-13.
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 28 ILM 649 (1989).
- Benedick, R. E. (1991). *Ozone diplomacy*. Cambridge, MA: Harvard University Press.
- Bhagwati, J. N., & Srinivasan, T. N. (1983). *Lectures on International Trade*. Cambridge, MA: MIT Press.
- Blackhurst, R., & Subramanian, A. (1992). Promoting multilateral cooperation on the environment. In K. Anderson & R. Blackhurst (Eds.), *The Greening of World Trade Issues* (pp. 247-268). London: Harvester Wheatsheaf.

- Bovard, J. (1991). *The fair trade fraud: How Congress pillages the consumer and decimates American competitiveness*. New York: St. Martin's.
- Brack, D. (1995). Balancing trade and the environment. *International Affairs*, 71, 504.
- Brack, D. (1996). *International trade and the Montreal Protocol*. London: Earthscan.
- Burgess, J. (1994). The environmental effects of trade in endangered species. In OECD, *The Environmental Effects of Trade* (pp. 123-150). Paris: OECD.
- Caldwell, D. J. (1994, Fall). International environmental agreements and the GATT: An analysis of the potential conflict and the role of a GATT "waiver" resolution. *Maryland Journal of International Law and Trade*, 173, 178.
- Cameron, J., & Arden-Clarke, C. (1996). *The relationship between the provisions of the multilateral trading system and trade measures for environmental purposes, including those pursuant to multilateral environment agreements* (WWF Legal Briefing #2).
- Charnovitz, S. (1994, Summer). Green roots, bad pruning: GATT rules and their application to environmental trade measures. *Tulane Environmental Journal*, 299.
- Charter of the United Nations, 1 UNTS xvi (1945).
- Chayes, A., & Handler Chayes, A. (1995). *The new sovereignty: Compliance with international regulatory agreements*. Cambridge, MA: Harvard University Press.
- Convention for the Prohibition of Fishing With Long Driftnets in the South Pacific, 29 ILM 1454, Article 3(2)(c) (1989).
- Convention for the Protection of Birds Useful to Agriculture, 191 CTS 91 (1902).
- Convention for the Protection of Migratory Birds, 39 Stat. 1702 (1916).
- Convention on International Trade in Endangered Species of Wild Fauna and Flora, 993 UNTS 243 (1973).
- Convention on Measures to be Taken Against *Phylloxera Vastatrix*, 153 CTS 247 (1878).
- Convention Relating to Liquor Traffic in Africa, 7 LNTS 332 (1919).
- Convention Respecting Measures for the Preservation and Protection of Fur Seals in the North Pacific Ocean, 214 CTS 80 (1911).
- Convention Respecting the Prohibition of the Use of White (Yellow) Phosphorus in the Manufacture of Matches, 203 CTS 12, Article 1 (1906).
- Convention to Safeguard Livestock Interests by Prevention of Infectious and Contagious Diseases, 46 Stat. 2451 (1928).
- Crawford, C. (1995, Spring). An examination of conflicts between the convention on international trade in endangered species and the GATT in light of actions to halt the rhinoceros and tiger trade. *Georgetown International Environmental Law Review*, 555-585.
- Dam, K. W. (1970). *The GATT: Law and the International Economic Organization*. Chicago, IL: University of Chicago Press.
- Eglin, R. (1993). International economics, international trade, and international environmental protection. *Wirtschaftspolitische Blätter*, 3(4), 304, 314.
- Enders, A., & Porges, A. (1992). Successful conventions and conventional success: Saving the ozone layer. In K. Anderson & R. Blackhurst (Eds.), *The greening of world trade issues* (pp. 130-144). London: Harvester Wheatsheaf.
- Esty, D. C. (1994). *Greening the GATT*. Washington, DC: Institute for International Economics.
- Favre, D. S. (1989). *International trade in endangered species: A guide to CITES*. Dordrecht, Netherlands: Martinus Nijhoff.
- Feketekuty, G. (1993, Summer). The link between trade and environment policy. *Minnesota Journal of Global Trade*, 171, 182-185.
- Framework Agreement on Banana Imports, 34 ILM 1 (1994).
- GATT Secretariat (1993). *Trade provisions contained in Multilateral Environmental Agreements* (GATT Doc. TRE/Wq Rev. 1). Geneva, Switzerland: Author.
- General Agreement on Tariffs and Trade, 55 UNTS 188 (1947). (The WTO has renamed this agreement GATT 1994.)
- General Agreement on Tariffs and Trade. (1973). Agreement regarding international trade in textiles. In *Basic instruments and selected documents*, 21, 3.

- Harland, D. (1994). *Killing game: International law and the African elephant*. Westport, CT: Praeger.
- Hudson, M. O. (1941). *International Legislation, Vol. VII*. Washington, DC: Carnegie Endowment.
- Hufbauer, G. C., & Elliott, K. A. (1994). *Measuring the costs of protection in the United States*. Washington, DC: Institute for International Economics.
- Hufbauer, G. C., Schott, J. J., & Elliott, K. A. (1990). *Economic sanctions reconsidered: Supplemental case histories, 2*. Washington, DC: Institute for International Economics.
- International Convention Concerning the Export and Import of Animal Products (Other than Meat, Meat Preparations, Fresh Animal Products, Milk, and Milk Products), 193 LNTS 61 (1935).
- International Convention Concerning the Transit of Animals, Meat and Other Products of Animal Origin, 193 LNTS 39, Article 5 (1935).
- International Convention for the Campaign Against Contagious Diseases of Animals, 186 LNTS 175 (1935).
- International Convention for the Protection of Birds, 638 UNTS 187 (1950).
- International Convention for the Regulation of Whaling, 161 UNTS 72, Article VI (1946).
- International Convention Relative to Bounties on Sugar, 95 B.F.S.P. 6, Articles IV & VII (1902).
- International Whaling Commission (1978). 29th Annual Meeting, Appendix 8.
- The Iraqi invasion: Text of the Resolution for Sanctions on Iraq. (1990, August 7). *The New York Times*, p. A9.
- Johnson, P. M., & Beaulieu, A. (1996). *The environment and NAFTA*. Washington, DC: Island.
- Kastner, J. (1994). Long before furs, it was feathers that stirred reformist ire. *Smithsonian*, 25(4), 96.
- Kirchgässner, R., & Mohr, E. (1996). Trade restrictions as viable means of enforcing compliance with international environmental law: An economic assessment. In J. A. Frowein et al. (Eds.), *Beiträge zum ausländischen öffentlichen Recht und Völkerrecht*. Heidelberg, Germany: Springer Verlag.
- Kummer, K. (1994). The use of trade measures in selected multilateral environmental agreements. In *Environment and trade, 7*. Geneva, Switzerland: United Nations Environment Programme.
- Lammers, J. G. (1988). Effort to develop a protocol on chlorofluorocarbons to the Vienna Convention for the Protection of the Ozone Layer. *Hague Yearbook of International Law*, 1, 225.
- Lang, J. T. (1991). Some implications of the Montreal Protocol to the Ozone Convention. In W. Lang et al. (Eds.), *Environmental protection and international law* (pp. 183-185). London: Graham & Trotman.
- Lang, W. (1993). International environmental agreements and the GATT. *Wirtschaftspolitische Blätter*, 3(4), 364-368.
- Lloyd, P. J. (1992). The problem of optimal environmental policy choice. In K. Anderson & R. Blackhurst (Eds.), *The greening of world trade issues*. London: Harvester Wheatsheaf.
- Lyster, S. (1985). *International wildlife law*. Cambridge, UK: Grotius.
- McGrory, B. (1995, November 2). Freon hot in Miami: Smugglers find big profits in soon-to-be-banned gas. *The Boston Globe*, p. F6.
- Mander, L. A. (1941). *Foundations of modern world society*. Stanford, CA: Stanford University Press.
- Martin, L. L. (1992). *Coercive cooperation: Explaining multilateral economic sanctions*. Princeton, NJ: Princeton University Press.
- McMillan, J. (1990). Strategic bargaining and Section 301. In J. Bhagwati & H. T. Patrick (Eds.), *Aggressive unilateralism: America's 301 trade policy and the world trading system*. Ann Arbor: University of Michigan Press. (Reprinted from *Economics and Politics*, (1990, Spring), 45-58.

- Moltke, K. von. (1996). *International environmental management, trade regimes and sustainability*. Winnipeg, Manitoba: International Institute for Sustainable Development.
- Montreal Protocol on Substances that Deplete the Ozone Layer, 26 ILM 1541, Articles 4 & 17 (1987).
- North American Agreement on Environmental Cooperation, 32 ILM 1480, Annex 36A (1993).
- North American Agreement on Labor Cooperation, 32 ILM 1499, Annex 41A (1993).
- North American Free Trade Agreement, 32 ILM 605 (1992).
- Ovink, B. J. (1995, Winter). Transboundary shipments of toxic waste: The Basel and Bamako Conventions: Do Third World countries have a choice? *Dickinson Journal of International Law*, 281.
- Petersmann, E.-U. (1995). *International and European trade and environmental law after the Uruguay Round*, London: Kluwer Law International.
- Peterson, M. J. (1993). International fisheries management. In P. Haas et al. (Eds.), *Institutions for the Earth* (pp. 261-262). Cambridge, MA: MIT Press.
- Protocol for Limiting and Regulating the Cultivation of the Poppy Plant, the Production of, International and Wholesale Trade in, and Use of Opium, 14 UST 10 (1953).
- Protocol on Environmental Protection to the Antarctica Treaty, 30 ILM 1460 (1991).
- Reinsch, P. (1911). *Public international unions*. Boston: Ginn.
- Runge, F. (1994). *Freer trade: Protected environment* (chapter 5). New York: Council on Foreign Relations.
- Rüster, B., & Simma, B. (1975). *International protection of the environment* (Vol. IV). Dobbs Ferry, NY: Oceana.
- Single Convention on Narcotic Drugs, 520 UNTS 204 (1961).
- Sonner, S. (1995). "Group Blames Timber Trade for Deforestation," *Journal of Commerce*, December 29, p. 5A.
- Treaty on European Union. (1992). Brussels, Belgium: European Commission.
- Twum-Barima, R., & Campbell, L. B. (1994). Protecting the ozone layer through trade measures: Reconciling the trade provisions of the Montreal Protocol and the rules of GATT. In *Environment and Trade*, 6. Geneva, Switzerland: United Nations Environment Programme, 52, 53, 100.
- Tyson, R. (1995, December 21). Nearly banned coolants are hot illegal imports. *USA Today*, p. 5A.
- United Nations. (1992). *Earth Summit Agenda 21*. Geneva, Switzerland: Author.
- United Nations Environment Programme. (1995). The Use of Trade Measures in Selected Multilateral Environmental Agreements. In *Environment and Trade*, 10 Geneva, Switzerland: Author.
- U.S. Bureau of Labor Statistics. (1919). *International Labor Legislation and the Society of Nations* (Bulletin No. 254). Washington, DC: Author.
- Vienna Convention for the Protection of the Ozone Layer, 26 ILM 1516, Article 14 (1985).
- Walker, T. (1995, October 18). China accuses US over WTO. *Financial Times*, p. 4.
- Wilder, M. (1995, Summer). Quota systems in international wildlife and fisheries regimes. *Journal of Environment and Development*, 55.
- World Trade Organization. (1994). Agreement Establishing the World Trade Organization (WTO). Reprinted in *Uruguay Round*. Washington: Government Printing Office.
- World Trade Organization (1995, December). WTO Trade and Environment Committee agrees on work programme in preparation for the Singapore Ministerial Meeting. *Trade and the Environment*.

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