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# **Deep Economic Integration Between Canada and the United States, the Emergence of Strategic Innovation Policy and the Need for Trade Law Reform**

**J.-G. Castel, Q.C. and C.M. Gastle\***

Although antidumping and countervailing duty remedies have political appeal in the United States, they are not appropriate to meet the needs of either Canada or the United States. Antidumping duties are intended to respond to international price discrimination, while countervailing duties are intended to respond to government subsidization. They are unprincipled and provide substantial opportunity for abuse. They inhibit Canada's goal of secure access to the American market and leave vulnerable Canada's attempts at stimulating innovative activity. They do not recognize the current degree of economic integration between the two countries and tend to reward anti-competitive practices evident in other nations which are not caught within the reach of the existing remedies. The maintenance of such remedies is not in the interest of the United States as they hinder the promotion of consumer welfare, which has become the dominant value in American antitrust law. They also do not contribute to the reduction of barriers in foreign markets or increase economic integration of fully open markets.

Substantively, international trade law remedies need a new organizing principle. The existing antidumping and counter-

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vailing duty practices find their origin at the turn of the nineteenth century, at a time when economies had not yet integrated.<sup>1</sup> They are based upon a concept of territorial sovereignty<sup>2</sup> in which each nation has the exclusive authority to act as it pleases within its own home market, and they provide a right to impose retaliatory tariffs when “dumping” or “subsidization” causes or threatens to cause material injury to a domestic industry. In a time of deep economic integration, the continued existence of antidumping and countervailing duty remedies cannot be defended in a principled manner and both should be eliminated. International remedies should be based upon competition law or market access principles in a manner designed to achieve greater openness. Once nations commit themselves to maintain open markets, the presumptions implicit in the trade law remedies should permit government programs directed at stimulating growth, facilitating structural change, and building confidence within the economy. International trade law remedies should not be based upon a principle of territorial sovereignty *per se*, but upon a recognition of the right or interest which nations have in each of the national markets, and the conditions of trade therein, which comprise a regionally-based or an internationally-integrated economy.

If it proves impossible to eliminate antidumping and countervailing duty remedies, North American innovation policies should be coordinated. There are no spending trends yet evident to suggest that the North American Free Trade Agreement<sup>3</sup> (NAFTA) has caused a diversion in technology spending by Canadian subsidiaries from Canada into the United States. Coordination of Canadian programs into a North American innovation system provides insulation from the emergence of innovation policy in the United States as a kind of strategic trade initiative. International reform could be achieved by broadening the research and development “non-actionable” category in the

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1. Countervailing duties were first established in the United States as a relief mechanism via the Tariff Act of July 24, 1897, ch. 11, § 5, 30 Stat. 151, 205 (1899). 3 JOSEPH E. PATTISON, *ANTIDUMPING AND COUNTERVAILING DUTY LAWS* 1–16, nn.1–2 (3d ed. 1996). Antidumping laws were first enacted by Canada in 1904 and in the United States in 1916, although their roots can be traced back to the Sherman Act in 1890 and the Wilson Tariff Act of 1894. J. MICHAEL FINGER, *ANTIDUMPING: HOW IT WORKS AND WHO GETS HURT* 14–19 (1993).

2. For a good discussion of the concept of territorial sovereignty, see SIR H.J.S. MAINE, *ANCIENT LAW* 73–112 (1905).

3. North American Free Trade Agreement, Dec. 17, 1992, U.S.–Mex.–Can., entered into force Jan. 1, 1994, reprinted in 32 I.L.M. 289 and 32 I.L.M. 605 (1993) [hereinafter NAFTA].

World Trade Organization (WTO) Agreement on Subsidies and Countervailing Duty Measures<sup>4</sup> (Subsidies Code) into a technology exemption which is at least co-extensive with the existing practices of key American technology consortia. The exemption should be based on the growing recognition that innovation is a discontinuous, dynamic phenomenon and not a linear process in which legal rules can easily identify inappropriate government support.

NAFTA Chapter 19 currently replaces domestic judicial review of final determinations made in antidumping and countervailing duty disputes by domestic tribunals. The binational panels are required to apply the domestic standard of judicial review and must accept the exercise of discretion granted to the tribunals by their governing statutes. In this article we recommend that antidumping and countervailing duty mechanisms should be eliminated, and if such a reform were to occur, Chapter 19 would be unnecessary. If these mechanisms are not eliminated, we believe that the binational process should be reformed to make dispute settlement under NAFTA more effective and less susceptible to criticism.

In Section I, we argue that antidumping practices should be eliminated in the context of North American trade, as no principled difference in treatment can be justified between United States domestic antitrust and international laws on discriminatory pricing. In section II, we recommend the elimination of countervailing duty practices in the context of North American trade. Once a commitment to deep economic integration exists and there are no impediments to trade, all subsidies within North America should be treated in the same manner. American industrial subsidies overwhelm the level of subsidies in Canada, yet state and federal subsidies are exempt from review within the United States under antitrust laws and the commerce clause. In section III, we suggest that Canada should attempt to integrate its innovation programs into American programs where possible. Further, the research and development 'non-actionable' category in the Subsidies Code appears to be based on a flawed linear model of innovation. A technology exemption should be implemented which is based upon the

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4. Agreement on Subsidies and Countervailing Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization [hereinafter WTO Agreement], Annex 1A, THE LEGAL TEXTS—THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 264 (1994) [hereinafter Subsidies Code].

growing recognition that innovation is a dynamic process, and that the challenge facing North American industry is more the successful commercialization of technology than the promotion of basic research. In section IV, we suggest, among other reforms, that the NAFTA Chapter 19 mechanism should free panels from the domestic standard of judicial review by changing to an arbitration process. An option which we favor would be to replace the *ad hoc* panel system with a permanent international trade review tribunal. A further and alternative route of reform would be to eliminate the Chapter 19 mechanism in favor of binding and enforceable WTO Dispute Settlement Body decisions, at least in antidumping and countervailing duty disputes involving NAFTA parties.

### I. ANTIDUMPING AND ITS CHILLING EFFECT UPON LEGITIMATE PRICE COMPETITION

In general terms, antidumping practices allow a nation to impose duties if there is price discrimination between the home and export market.<sup>5</sup> They require foreign exporters to price equal to or above a fully-allocated cost standard. This bias is compounded in certain circumstances by allowing domestic tribunals to construct artificially the base or "home market" cost, allowing the use of unjustifiable presumptions.<sup>6</sup> A finding of material injury or threat of injury to domestic competitors is required, and this becomes the limiting condition for the imposition of duties.<sup>7</sup> Where integrated economies exist, allegations of predatory pricing provide the only adequate basis for an international discriminatory pricing mechanism. It is appropriate to have a remedy for predatory pricing, in which one country's

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5. Agreement on the Implementation of Article VI of the General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, THE LEGAL TEXTS—THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS 168 (1994) [hereinafter Antidumping Code].

6. In the past, American practices required the inclusion of an 8% profit factor, even where American competitors had never achieved such a profit. N. David Palmetier, *The Antidumping Law: A Legal and Administrative Nontariff Barrier*, in DOWN IN THE DUMPS 64, 75 (Richard Boltuck & Robert E. Litan eds., 1991). Article 2.2 of the Antidumping Code provides a "reasonable amount . . . for profits." See Antidumping Code, *supra* note 5, art. 2.2. Article 2.2.2 provides that profits "shall be based on actual data pertaining to production and sales in the ordinary course of trade of the like product." *Id.* art. 2.2.2.

7. J.-G. CASTEL ET AL., THE CANADIAN LAW AND PRACTICE OF INTERNATIONAL TRADE 504 (2d ed. 1997); see generally *id.*, at 495–538 (describing GATT law of dumping and subsidies, especially as implemented in Canada).

manufacturers attempt to drive competitors from another country out of the market so they can then raise prices and earn extraordinary returns. The circumstances in which the conditions for successful predation exist are rare.

One major problem with antidumping practices is that they allow the imposition of duties without proof of predatory intent and when foreign exporters are acting reasonably in the same manner as domestic competitors. Economic theory holds that companies act reasonably when the price of a good is at least equal to its marginal cost.<sup>8</sup> Areeda and Turner have proposed a test of predation based upon marginal cost, using average variable cost as a surrogate and, while their test has had a significant impact upon antitrust jurisprudence, it has not been endorsed by the Supreme Court. In *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*,<sup>9</sup> Justice Kennedy's majority opinion followed earlier decisions in refusing to comment upon the appropriate cost standard for the determination of predation.<sup>10</sup> The Court held that two prerequisites must be established: first, the prices complained of must be below "an appropriate measure of its rival's costs"<sup>11</sup> and, second, the plaintiff must demonstrate that the competitor "had a reasonable prospect or . . . a dangerous probability, of recouping its investment . . ."<sup>12</sup> The requirement of recoupment makes predatory pricing extremely difficult, if not impossible, to establish, and so there is a strong bias in American antitrust law to protect price competition:

Recoupment is the ultimate object of an unlawful predatory pricing scheme; it is the means by which a predator profits from predation. Without it, predatory pricing produces lower aggregate prices in the market, and consumer welfare is enhanced. Although unsuccessful

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8. Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 702 n.18 (1975).

9. 509 U.S. 209 (1993).

10. *Id.* at 222 n.1 (citing *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 585 n.8 (1986); *Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104, 117-18 n.12 (1986)).

11. *Id.* at 222. The Court applied an average variable cost standard in *Brooke Group* because both parties agreed that this was the appropriate standard. *Id.* Phillip Areeda represented the appellant and Robert Bork represented the respondent. *Id.* at 211.

12. *Id.* at 224. Specifically, the Court interprets § 2 of the Sherman Act to "condemn predatory pricing when it poses 'a dangerous probability of actual monopolization,'" *id.* at 222 (quoting *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 455 (1993)), "whereas the Robinson-Patman Act requires only that there be 'a reasonable possibility' of substantial injury to competition before its protections are triggered." *Id.* (quoting *Falls City Industries, Inc. v. Vanco Beverage, Inc.*, 460 U.S. 428, 434 (1983)).

predatory pricing may encourage some inefficient substitution toward the product being sold at less than its cost, unsuccessful predation is in general a boon to consumers.

That below-cost pricing may impose painful losses on its target is of no moment to the antitrust laws if competition is not injured: It is axiomatic that the antitrust laws were passed for "the protection of competition, not competitors."<sup>13</sup>

The Supreme Court required proof of recoupment in *Matsushita Electric Industrial Co., Ltd. v. Zenith Radio Corp.*,<sup>14</sup> which involved allegations of international price discrimination. This was an action brought under Section 1 of the *Sherman Act* against 21 Japanese television manufacturers.<sup>15</sup> The suit alleged that they had conspired over a twenty-year period to drive American firms from the American electronics market by engaging in a scheme to fix and maintain artificially high prices for television sets sold by them in Japan and, at the same time, to fix and maintain low prices for the sets exported to and sold in the United States.<sup>16</sup> The Supreme Court held that recoupment was necessary and that "there is a consensus among commentators that predatory pricing schemes are rarely tried, and even more rarely successful"<sup>17</sup> because "the predator must make a substantial investment with no assurance that it will pay off."<sup>18</sup> The Court noted that the goal of the alleged conspiracy to charge monopoly pricing was, after twenty years of operation, still "yet far distant."<sup>19</sup> The Court found that there was "nothing to suggest any relationship between petitioners' profits in Japan and the amount petitioners could expect to gain from a conspiracy to monopolize the American market" and "[w]hether or not petitioners have the *means* to sustain substantial losses in this country over a long period of time, they have no  *motive* to sustain such losses absent some strong likelihood that the alleged conspiracy in this country will eventually pay off."<sup>20</sup>

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13. *Id.* at 224 (quoting *Brown Shoe Co. v. United States*, 370 U.S. 294, 320 (1962)).

14. 475 U.S. 574 (1986).

15. *Id.* at 577-78.

16. *Id.* at 578.

17. *Id.* at 589.

18. *Id.* (quoting Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 268 (1981)).

19. *Id.* at 591. The Court also noted that "the two largest shares of the retail market in television sets are held by RCA and respondent Zenith, not by any of petitioners. Moreover, those shares, which together approximate 40% of sales, did not decline appreciably during the 1970s." *Id.* (citations omitted).

20. *Id.* at 593 (emphasis in original). In addition to the antitrust action, a series of trade law proceedings were undertaken. Harry First, *An Antitrust Remedy for International Price Predation: Lessons from Zenith v. Matsushita*, 4

## A. THE CASE TO ELIMINATE ANTIDUMPING LAW

The distinction between antitrust and trade law principles is striking. Professor Wood has stated that "it has become the accepted wisdom that there is an irreconcilable conflict between the antitrust laws, with their consumer welfare orientation, and the trade statutes, with their producer or labor orientation."<sup>21</sup> In an integrated North American economy, what justification can there be for a difference in treatment between United States' domestic and international laws on discriminatory pricing, except political expediency based upon an out-moded concept of territorial sovereignty? American consumers are the beneficiaries whether the source of price competition is American or Canadian competitors.

With respect to NAFTA members, the only effective reform of antidumping practices is to get rid of them. Disputes alleging predatory price discrimination could then be resolved using domestic competition law, which would be harmonized or otherwise coordinated between NAFTA members, or at least between Canada and the United States. Canadian and American trade negotiators agreed in 1987, at the time of the Canada-United States free trade negotiations, that antidumping practices should be replaced with competition laws which would be harmonized between the jurisdictions. The reform was not implemented because of American concern over Canadian subsidy practices at the time.<sup>22</sup> The Canada-Chile Free Trade Agreement provides that antidumping practices are to be phased out

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PAC. RIM L. & POL'Y J. 211 (1994). As a result of the proceedings, an Orderly Marketing Agreement was implemented in 1977 which limited the import of color televisions to 1.75 million per year for three years; in 1980 dumping duties were settled at \$77 million pursuant to the 1968 U.S. complaint; antidumping orders remained in effect, and in 1991, the U.S. Department of Commerce found dumping margins for eleven Japanese manufacturers between 1983 and 1990, ranging from 0.16% to 35.4%. *Id.* at 219-22.

21. Diane P. Wood, *"Unfair" Trade Injury: A Competition-Based Approach*, 41 STAN. L. REV. 1153 (1989). Professor Wood quotes Paula Stern, a former Commissioner of the United States International Trade Commission:

Implicit in our trade law is the notion that U.S. workers and businesses should compete on the basis of comparative advantage, but they should not have to adjust to unfairly traded goods. Consumers are expected to forgo the savings resulting from dumping or subsidies in the interests of producers of the product.

*Id.* at 1154.

22. Michael Hart, *Dumping and Free Trade Areas*, in ANTIDUMPING LAW AND PRACTICE 341 (Jackson & Vermulst eds., 1989).



by 2003.<sup>23</sup> Antidumping practices were also eliminated pursuant to the terms of the Closer Economic Relations Trade Agreement between Australia and New Zealand.<sup>24</sup>

In the context of international price discrimination, the *Matsushita* decision neatly encapsulates the inability of both American antitrust law and antidumping and countervailing duties to address the key issue.<sup>25</sup> Lower prices in the United States are beneficial to consumer welfare, particularly when such pricing levels have lasted more than twenty years. Antidumping duties do nothing more than limit the benefit accruing to American consumers. They also have the potential to promote the coordination of an export cartel by the Japanese government to raise prices. This discloses one of the bizarre consequences of American trade laws: *they can have the effect of promoting the kind of anticompetitive activity the antitrust laws are intended to prevent.*<sup>26</sup> The real problem is not the low prices, but the absence of an effective international mechanism which can force open the Japanese market. A principled international

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23. Signed on Dec. 15, 1996, <<http://www.dfait-maeci.gc.ca/english/geo/lac/cda-chili/menu.htm>>. Article M-01 of the Agreement provides:

1. Subject to Article M-03, as of the date of entry into force of this Agreement each Party agrees not to apply its domestic anti-dumping law to goods of the other Party. Specifically:
  - (a) neither party shall initiate any anti-dumping investigations or reviews with respect to goods of the other Party;
  - (b) each party shall terminate any ongoing anti-dumping investigations or inquiries in respect of such goods;
  - (c) neither Party shall impose new anti-dumping duties or other measures in respect of such goods; and
  - (d) each party shall revoke all existing orders levying anti-dumping duties in respect of such goods.

*Id.*

24. Australia-New Zealand: Closer Economic Relations—Trade Agreement, Mar. 28, 1983, 22 I.L.M. 945 (entered into force Jan. 1, 1983). Bernard M. Hoekman & Petros C. Mavroidis, *Policy Externalities and High-Tech Rivalry: Competition and Multilateral Co-operation Beyond the WTO, in MARKET ACCESS AFTER THE URUGUAY ROUND: INVESTMENT, COMPETITION AND TECHNOLOGY PERSPECTIVES* 187, 217 (Organisation for Economic Co-Operation and Development ed., 1996).

25. We exclude the American Section 301 trade remedy, an analysis of which is beyond the scope of this article.

26. On occasion, trade law remedies can have perverse results. The First Semiconductor Agreement (1986), for instance, has been argued to have simply increased the degree of collusiveness of the Japanese semiconductor industry by requiring coordination of price and supply by the Japanese government through its Ministry of Trade and Industry (MITI). See generally KENNETH FLAMM, *MIS-MANAGED TRADE? STRATEGIC POLICY AND THE SEMICONDUCTOR INDUSTRY* 159-226 (1996).

trade remedy would have market access as its objective, particularly since the introduction of competition is an effective mechanism to break down a cartelized industry.

## II. THE ENIGMA OF COUNTERVAILING DUTY REFORM

Countervailing duty practices target government programs which provide a specific advantage to a particular industrial segment and which cause material injury, or threaten material injury, to the industry in the complaining nation.<sup>27</sup> The United States is the primary user of this mechanism, while Canada uses it to a much lesser degree.<sup>28</sup>

The reform of countervailing duty practices is a politically-charged issue in the United States and thus is a much more difficult problem than antidumping reform. The United States made it clear at the time of the Canada-U.S. Free Trade Agreement negotiations that such reform was necessary before substantive reform of antidumping procedures would occur. NAFTA did not address the issue of countervailing duty reform and the American NAFTA implementing legislation established that the "achievement of increased discipline on domestic subsidies" was one of the key objectives of any future trade negotiations.<sup>29</sup> The Subsidies Code achieved limited reform by introducing "non-actionable subsidies" for research and development and environmental action as well as support for certain economically depressed regions.<sup>30</sup>

### A. THE CASE TO ELIMINATE COUNTERVAILING DUTY PRACTICES

The solution to countervailing duty reform is that these practices should be eliminated, at least within the North American context. Their theoretical foundation is that government support distorts the market allocation of resources and, therefore, is economically inefficient. However, it is becoming increasingly difficult to identify "normal conditions of trade,"

27. See Subsidies Code, *supra* note 4.

28. The United States is the source of 70% of the countervailing duty measures in force worldwide as of December 31, 1995. The statistics are: United States, 72; European Community, 3; Canada, 6; Australia, 13; Mexico, 7; New Zealand, 1; Brazil, 6; total, 108. 1996 WORLD TRADE ORGANIZATION ANN. REP. 32.

29. Charles M. Gastle & Jean-G. Castel, *Should the North American Free Trade Agreement Dispute Settlement Mechanism in Antidumping and Countervailing Duty Cases Be Reformed in the Light of Softwood Lumber III?*, 26 *LAW & POLY INT'L BUS.* 823, 883 (1995).

30. Subsidies Code, *supra* note 4, art. 8.2(a)-(c).

particularly in the high-technology sectors which have been the recipient of government support through direct subsidization or preferential procurement practices during the post-war era. The United States continues to provide significant subsidies for high-technology industries through a variety of programs.<sup>31</sup> All governments recognize the importance of innovative activity and are increasing funding for research and development activity. If the United States supports high-technology industries, why should Canadian programs be vulnerable to the application of countervailing duties simply because Canada supports different industrial segments? Canada does not possess the range of high-technology companies which exist in the United States, whereas many American high-technology companies have received significant government support in one form or another during the post-war era.

31. The Budget of the United States Government for Fiscal Year 1998 provides estimated 1997 and proposed 1998 technology spending as follows:

U.S. RESEARCH AND DEVELOPMENT INVESTMENTS  
(U.S. dollar amounts in millions)

	CIVILIAN		DEFENSE		TOTAL	
	1997	1998	1997	1998	1997	1998
Basic Research	13,747	14,112	1,138	1,191	14,885	15,303
Applied Research	10,469	11,125	4,060	4,034	14,529	15,159
Development	7,860	8,117	34,293	33,519	42,153	41,636
Equipment	492	506	445	454	937	960
Facilities	984	1,128	333	1,283	1,317	2,411
SUBTOTAL	33,552	34,988	40,269	40,481	73,821	75,469

H.R. Doc. No. 105-003, vol. III, at 78 (1997) (containing the budget of the U.S. Government for Fiscal Year 1998).

Placing this spending in perspective, the Office of Technology Policy of the U.S. Department of Commerce indicates that research and development spending in other nations is as follows: France, Germany and the United Kingdom invested more than \$28 billion in 1993; the European Union is in the midst of an \$18 billion five-year effort to increase European competitiveness; the European Space Agency has an annual budget of \$3.2 billion and spent \$13.3 billion through November 1995 through its Eureka program; Japan's research and development spending amounted to \$26.7 billion in 1996, but it has the goal of doubling its budget by the year 2000, with the increases demonstrating "Japan's firm commitment to science and technology as the engine of economic growth;" China intends to triple its expenditures on science and technology by the year 2000 by increasing its percentage of GDP from .5% (\$4 billion) to 1.5% (\$12 billion), in addition to spending \$250 billion in the next five years in the infrastructure necessary to fuel growth; Korea spent \$1.1 billion in 1996. OFFICE OF TECHNOLOGY POLICY, U.S. DEP'T OF COMMERCE, INTERNATIONAL SCIENCE & TECHNOLOGY: EMERGING TRENDS IN GOVERNMENT POLICIES AND EXPENDITURES (1996). Canada is said to have spent \$5 billion U.S. in fiscal year 1995-96. *Id.* This is consistent with the Canadian government's own estimates of spending in recent past years. 1 Government of Canada, RESOURCE BOOK FOR SCIENCE AND TECHNOLOGY CONSULTATIONS tbl. 1.3 (1995).

Countervailing duties should also be eliminated with respect to Canadian and American trade because the United States has an interest in the competitive health of the Canadian economy. Through free trade, Canada committed itself to deep integration with the American economy and an unprecedented level of openness which caused significant structural adjustment in a time of recession. An analysis of the openness of the Canadian manufacturing industry indicates that the following comparison with the United States and Japan can be made:<sup>32</sup>

**EXPOSURE TO FOREIGN COMPETITION  
MANUFACTURING INDUSTRY**

	1980	1992	Change
United States	17.4	27.1	+ 9.7%
Canada	51.6	62.8	+11.2%
Japan	16.2	16.7	+ 0.5%
Total OECD	30.6	36.8	+ 6.2%

In its manufacturing industry, Canada has an exposure to foreign competition which is more than twice that of the United States and four times that of Japan. Both Canada and the United States' exposure to trade has grown significantly while Japan has experienced no growth during a 12-year period marked by globalization of the world economy. Japan continues to have a concentrated industrial system dominated by horizontal and vertical business groups known as *keiretsu*.<sup>33</sup> One estimate is that these groups, each one including as many as 6,000 companies, represent "no less than one-third of the total Japanese economy . . . [a]nd that is a rather conservative guess."<sup>34</sup> Apart from this structure, informal governance in Japan is undertaken unofficially by trade associations and cartels,<sup>35</sup> as well as through more official forms of government

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32. This comparison is based upon the export share of production within an industry combined with a weighted average of the import share of domestic consumption. ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, INDUSTRY AND TECHNOLOGY: SCOREBOARD OF INDICATORS 175 (1995).

33. See KENICHI MIYASHITA & DAVID W. RUSSELL, *KEIRETSU: INSIDE THE HIDDEN JAPANESE CONGLOMERATES* 8-12 (1994).

34. *Id.* at 81.

35. One commentator described the manner in which Japanese domestic businesses are protected as follows:

To understand the true scope of industrial policy, one must look beyond official state-sponsored policies to unofficial policies initiated and implemented by trade associations. Illegal cartels should not be immediately dismissed as aberrant behavior by outlaw firms; in many

coordination, such as the Ministry of Trade and Industry ("MITI"). The degree of concentration evident in Japanese industry appears to have prevented or at least moderated the kind of structural adjustment which would have occurred if the same degree of openness existed in Japanese trade as exists in Canadian trade. Instead of undergoing adjustment, Japanese industries receive significant benefits through the *keiretsu* structure, including: access to venture and expansion capital; financial and managerial adjustment support in times of financial downturns; access to preferential contractual relationships; insulation from take-over through patterns of cross-ownership; as well as the accessibility of detailed marketing information relating to foreign markets through a unique trading institution known as a *sogo shosha*, which also provides trade insurance.<sup>36</sup>

The irony is that the concentration of the Japanese system and collusive practices which can occur therein are beyond the reach of international trade dispute mechanisms. The GATT 1994 and other WTO agreements contain no substantive competition law provisions<sup>37</sup> and, as a result, Japanese practices are generally not actionable pursuant to international trade law

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cases, they constitute governance tacitly delegated to private interests as an extension of official state policy. . . . [T]he trade associations that run cartels do not function primarily as lobbying groups outside the government but are seen as administrative organs that assist government.

MARK TILTON, *RESTRAINED TRADE: CARTELS IN JAPAN'S BASIC MATERIALS INDUSTRIES* 205 (1996).

36. See MIYASHITA & RUSSELL, *supra* note 33, at 53-59.

37. Hoekman and Mavroidis further explain:

[R]estrictive business practices can impede the contestability of markets for foreign firms, and the WTO allows for only limited recourse against governments that tolerate such business practices. There are four "holes" in the WTO as far as competition policies are concerned. First, there is no requirement that WTO Members have a competition policy, let alone that it meet certain minimum standards. Many Members have anti-trust [sic] legislation, but there are significant differences in national laws, and, especially, in their enforcement. Second, purely private business practices, not supported by the government, that restrict access to markets cannot be attacked. Third, practices by firms on export markets or government tolerance of anti-competitive behaviour on export markets by firms headquartered in its territory cannot be addressed—thus the oft-encountered statement that there are no multilateral disciplines for export cartels. Fourth, some firms may be so large as to have global market power. In such cases, competition rules should in principle also be global, as no single government may be able—even if willing—to control possible anti-competitive behaviour.

Hoekman & Mavroidis, *supra* note 24, at 215.

remedies. Why should collusiveness within the Japanese system be tolerated as private action, when Canadian government programs are actionable under existing countervailing duty procedures? For that matter, why should the United States apply the same trade law remedies to both Canada and Japan, notwithstanding the openness of the Canadian market and competition law environment which is substantially the same as the American system?<sup>38</sup>

Another reason why the United States has an interest in promoting the level of innovation within Canada is that Canadian subsidiaries spend more in the United States than do Japanese subsidiaries with respect to research and development, as Table I (in the appendix to this Article) shows. In 1993, Canadian subsidiaries spent U.S. \$2.4 billion while Japanese subsidiaries spent U.S. \$2.0 billion.<sup>39</sup> The Office of Technology of the U.S. Department of Commerce has noted that, in 1996, Japanese companies maintained 224 research and development facilities in the United States. The Department of Commerce views these facilities as a method by which Japan can monitor and utilize U.S. and other foreign technology, noting that "Japan traditionally has been weak in basic research and has relied on foreign sources of technology."<sup>40</sup>

Table II (also in the appendix) extends the comparison between spending by Canadian and Japanese subsidiaries on research and development. It shows that Canadian spending, which constituted thirty percent of total foreign spending in the United States in 1985, dropped to fifteen percent of total spending by 1994. Spending by Japanese subsidiaries has increased to thirteen percent. However, when manufacturing spending is isolated, Canadian subsidiaries account for eighteen percent and Japanese subsidiaries account for nine percent.

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38. Of course, the antitrust provision for treble damages is a significant difference between American and Canadian competition law.

39. See *infra* Table I. However, technology spending by Japanese subsidiaries in the United States increased by 655% from 1987 to 1994. *Id.* This indicates that Japanese spending will soon outpace spending by Canadian subsidiaries in the United States.

40. OFFICE OF TECHNOLOGY POLICY, *supra* note 31.

## B. THE PRESUMED EFFICIENCY OF AMERICAN DOMESTIC SUBSIDIES

Countervailing duties should be eliminated because they reduce domestic social welfare in the importing country.<sup>41</sup> They should also be eliminated because, in circumstances of deep integration, no principled distinction can be made between the competitive impact in North America of a Canadian subsidy and that of an American subsidy. Identical subsidies from Ontario or New York will have the same competitive impact upon the Michigan marketplace, yet according to American law, the Ontario subsidy may be actionable under countervailing duty practices while the New York subsidy will be exempt from scrutiny in the United States under antitrust law and the commerce clause. Why should the existence of the Canadian-American border give rise to different treatment, if the market in question is fully integrated and open?

Pursuant to American antitrust principles, state legislative acts represent a declaration of the public interest.

To be sure, the legislature may be mistaken or unaware of the consequences of its actions, or it may be responding to political pressures not truly reflecting 'the public interest,' but the antitrust court may not reappraise the legislature's assessment of the public welfare. Government is its own judge of how much competition is desirable.<sup>42</sup>

Therefore, subsidy programs introduced by a legislative act are immune from antitrust scrutiny. By virtue of the "state action" doctrine as first formulated in *Parker v. Brown*, activities authorized by the state will only be exempt from antitrust scrutiny if there is adequate state supervision and state action which is clearly intended to displace antitrust law.<sup>43</sup> Areeda and Turner

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41. See generally Alan O. Sykes, *Countervailing Duty Law: An Economic Perspective*, 89 COLUM. L. REV. 199 (1989). The author posits:

Although enforceable multilateral covenants prohibiting inefficient subsidy practices may well be in the mutual interest of participating nations, the unilateral imposition of countervailing duties on "subsidized" imports does not systematically promote national economic welfare, and existing law is poorly tailored to identify the cases in which countervailing duties are arguably beneficial. Instead, the duties are imposed mechanically under conditions that may often produce a considerable net welfare loss to the U.S. economy. As a consequence, duties under existing law will enhance national economic welfare only by chance. Because the need for any type of countervailing duty policy is questionable, abolition of the countervailing duty laws might best serve the national economic interest.

*Id.* at 200-01 (footnotes omitted).

42. 1 PHILLIP AREEDA & DONALD TURNER, ANTITRUST LAW ¶ 202b (1978).

43. *Id.* ¶ 211. In *Parker v. Brown*, 317 U.S. 341 (1943), the Supreme Court rejected a contention that statutory restrictions on the marketing of privately

suggest that the rationale for the requirement of state supervision is that "a state may be free to determine for itself how much competition is desirable, provided that it substitutes adequate public control wherever it has substantially weakened competition."<sup>44</sup> A state subsidy program which is supervised by state officials should be accorded *Parker* immunity if it could not be protected as an express legislative act. The requirement of state intent to displace antitrust scrutiny should not arise in the circumstances of the administration of a subsidy program, as it would be highly unlikely that the state would intend that its grant of a subsidy should be subject to private penalties under federal antitrust laws if they have an anti-competitive impact.

Even if subsidies were subject to antitrust scrutiny, a strong argument can be made that no liability would be imposed under the Sherman Act<sup>45</sup> or the Robinson-Patman Act.<sup>46</sup> The only type of economic inefficiency which appears to result from subsidies has been found not to be actionable by the Supreme Court. Posner has argued in the context of predatory and discriminatory pricing that "[t]he misallocative effects of a firm's selling a product below cost, thus inducing inefficient substitution toward it, are not reduced by its subsequently selling the product at a monopoly price and thus inducing substitution away from it."<sup>47</sup> He argues elsewhere with respect to subsidies that

[a] subsidy designed to enable a firm to sell its product at a price below marginal cost produces the same distortion as monopoly power that enables it to sell the product above cost: the subsidy and resulting price change attract consumers from products that are socially less costly to produce, just as monopoly pricing deflects consumers to products that are socially more costly to produce.<sup>48</sup>

Thus, Posner suggests that subsidies represent only the first kind of misallocation—inefficient substitution towards the product as a result of the subsidy. However, in *Brooke Group* the Supreme Court held that this kind of misallocation was not actionable:

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produced raisins violated the Sherman Act. Relying on principles of federalism and state sovereignty, the Court held that the Sherman Act did not apply to anticompetitive restraints imposed by the States "as an act of government." *Parker*, 317 U.S. at 352. On the topic of the state action doctrine, see generally AREEDA & TURNER, *supra* note 42, ¶¶ 207-220 (describing the tension between state antitrust legislation and federal preemption).

44. AREEDA & TURNER, *supra* note 42, ¶ 213a.

45. 15 U.S.C. §§ 1-7 (1994).

46. 15 U.S.C. §§ 13-13b, 21a (1994).

47. RICHARD POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* 187-88 (1976).

48. RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 309 (4th ed. 1992).



Although unsuccessful predatory pricing may encourage some inefficient substitution toward the product being sold at less than its cost, unsuccessful predation is in general a boon to consumers.<sup>49</sup>

The protection of price competition is such that inefficient substitution toward the product does not provide a basis for liability unless recoupment is likely through higher prices. If inefficient substitution toward a product is not actionable according to American antitrust law, why should it be actionable in the context of trade with Canada? No principled distinction can be made on the basis that the *Brooke Group* involved predatory pricing and not a government subsidy. We suggest that modal neutrality requires that similar treatment be given to the effect of a particular activity notwithstanding the fact that the funding for the activity might come from different sources. "Subsidization" from any source should be treated in the same manner and it should be irrelevant whether below-cost pricing is subsidized from corporate resources or from some other source, such as government funding.<sup>50</sup> If funding between divisions of a conglomerate is acceptable, or between different product lines in a multi-product firm, funding from a government source should not be treated differently. Canadian government spending should receive the same treatment in the United States as American government spending.

Apart from the application of antitrust laws to state subsidies, the question arises whether such programs would be actionable under the commerce clause, which is an important limitation on state power.<sup>51</sup> With respect to interstate commerce, federal law is paramount under the supremacy clause if a

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49. *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 224 (1993).

50. It has been argued that pricing below total cost represents a form of subsidization. See Charles Purinton Shimer, *Predatory Pricing: The Retreat from the AVC Rule and the Search for a Practical Alternative*, 22 B.C. L. Rev. 467, 486 (1981) (discussing what the author considered to be judicial misconceptions of the average variable cost rule). Such argument certainly has no merit in the short term, as costs above marginal cost / average variable cost contribute to overhead and thus minimize losses. Prices below marginal cost / average variable cost would be subsidized from some other source. In *Brooke Group*, defendant Brown & Williamson's pricing was below average variable cost for a period of 18 months, yet liability was not imposed, reflecting the importance the Supreme Court attributed to the protection of price competition. 509 U.S. at 222 n.1 and at 231. What possible difference should it make whether the source of the subsidy is a conglomerate, a different division in a multi-product firm or a government?

51. See U.S. CONST. Art. I, § 8, cl. 3; AREEDA & TURNER, *supra* note 42, ¶ 220. See also Frank P. Spinella, Jr., *Antitrust's "State Action" Doctrine and the Policy of the Commerce Clause*, 39 ANTITRUST BULL. 653 (1994) (discussing the

state regulation conflicts with federal legislation<sup>52</sup> and through the “dormant commerce clause,” federal authority may remain paramount where no federal regulation exists. The U.S. Supreme Court has formulated an analytical framework to determine the scope of permissible state regulation. It has indicated that the rationale of the commerce clause was to create and foster “the development of a common market among the states, eradicating internal trade barriers, and prohibiting the economic Balkanization of the Union. . . . When local legislation thwarts the operation of the common market of the United States, the local laws have then exceeded the permissible limits of the dormant commerce clause.”<sup>53</sup> It might appear from this framework that state subsidies which have the same potential to distort competition as foreign subsidies could be subject to federal regulation through the introduction of an American domestic countervailing duty mechanism. The dormant commerce clause has been described in the following terms:

The commerce clause has been recognized since the time of Chief Justice Marshall as having a negative implication which restricts state laws that burden interstate commerce. When the Court strikes down a state or local regulatory act as inconsistent with the “dormant” commerce clause, it is interpreting the silence of Congress to hold that, in the absence of federal legislation, the state or local law creates a trade barrier or imposes a burden on interstate commerce that is inconsistent with the principle that one state should not be able to gain an economic advantage by shifting costs for its local benefits to out-of-state persons or interests, particularly through the elimination of competition.<sup>54</sup>

And further:

[T]he Congressional approval of state or local laws which create trade barriers or otherwise regulate commerce in a manner that would not be permissible under dormant commerce clause principles may in fact create inefficient markets and cause economic hardship to persons in some states through the shifting of economic burdens by states which seek to promote local interests at the expense of interstate commerce.

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intersection of the state action doctrine and the commerce clause in the context of antitrust legislation).

52. JOHN E. NOWAK & RONALD D. ROTUNDA, *CONSTITUTIONAL LAW* 274 (4th ed. 1991). With respect to the supremacy of federal legislation see *State of Alaska v. F/V Baranof*, 677 P.2d. 1245, 1249 (Alaska 1984).

53. NOWAK & ROTUNDA, *supra* note 52, at 275-76. Cf. *AGREEMENT ON INTERNAL TRADE* (Can.) (July 18, 1994) (agreement between Canadian provinces to, *inter alia*, minimize barriers to inter-provincial trade).

54. NOWAK & ROTUNDA, *supra* note 52, at 281.

... [O]ne factor becomes imperative to the judicial tribunal—a legitimate state regulation must not burden interstate commerce in either purpose or effect unless the extent of that burden is outweighed by a legitimate state objective that cannot be achieved in a less burdensome manner.<sup>55</sup>

This implies that the commerce power granted to Congress might allow a domestic countervailing duty regime to discipline state subsidies. There appears to be a difference, however, between the *regulation* of commerce and the *subsidization* thereof. It has been argued that a state can subsidize local producers or consumers and that there is no violation of the commerce clause because the state is simply engaging in a form of welfare vetted through the political process of the state itself:

When a state actually owns resources and favors its own citizens it is not violating the commerce clause; it is simply engaging in a form of welfare. It may be welfare for the rich rather than for the poor, but it is not restricted by the dormant commerce clause.

....

The selling of state-owned resources to local residents at a lower price that [sic] the state charges to out-of-state interests is consistent with commerce clause principles because the state is acting as a “market participant”—that is, the residents of the state are bearing the cost of providing a welfare benefit to persons within the jurisdiction. When the state is bearing the cost of providing economic benefits, there is little reason for the Supreme Court to intervene, even though some inefficiency in the marketplace might be created, because the political process within the state should serve as an *inner political check* on the state’s decisions to participate in the marketplace. Thus, if a state offers a company a cash bonus or tax exemption in exchange for the company locating a factory in the state, its action can be upheld because the state is bearing the cost of producing some economic benefits for people in the state. However, if the state seeks, by law, to force a company to keep its factory from the state or to give employment preference to local residents, then the state law violates the commerce clause because it attempts to shift to out-of-state interests the cost of producing local economic benefits.<sup>56</sup>

One of the policies underlying the commerce clause is to ensure that those affected by economic legislation are represented by the legislating body. Subsidy programs presumably will be the result of a legislative act and will, therefore, be consistent with the commerce clause. Even in unusual circumstances where a subsidy program was not eligible for protection as a legislative act, the court will weigh the burden imposed upon out-of-state concerns against the local benefit and the burden must be found

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55. *Id.* at 282.

56. *Id.* at 298-99 (emphasis added) (citations omitted).

“clearly excessive to the putative local benefits.”<sup>57</sup> Domestic subsidies are often the first best measure to address a particular social issue or concern, as they are closely targeted to the particular issue. Subsidies may withstand the kind of balancing of interests required by the commerce clause.

The preceding analysis indicates that state and federal subsidy programs appear to be exempt from the antitrust laws and consistent with the commerce clause. In an increasingly integrated market which has similar competition values and where a commitment exists to open trade, it is difficult, if not impossible, to justify an exemption for one set of political choices from another on the basis of an international border. Why is the domestic political process an appropriate “inner political check” and the Canadian political process inappropriate; why is the American political process intrinsically superior to the Canadian political process in this regard? It is submitted that a strong case can be made for the elimination of countervailing duty practices in the context of Canadian-American trade. If the existence of NAFTA or the formation of a hemispheric free trade agreement (the Free Trade Agreement of the Americas initiative) will create open markets and foster economic integration, countervailing duty practices should be eliminated within the free trade zone. The only exceptions should be in circumstances where a particular market or sub-market has not integrated due to some artificial barrier to entry which is not efficiency-related.

### C. THE FLAWED DEFENSE OF THE DETERRENCE OF COUNTERVAILING DUTY PRACTICES

Proposals to eliminate countervailing duties on the ground that they inhibit national welfare have been rejected by Professor John H. Jackson.<sup>58</sup> While conceding that countervailing du-

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57. *Pike v. Bruce Church, Inc.*, 397 U.S. 137 (1970) sets forth the “modern approach:”

Where the statute regulates even-handedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits. . . . If a legitimate local purpose is found, then the question becomes one of degree. And the extent of the burden that will be tolerated will of course depend on the nature of the local interest involved, and on whether it could be promoted as well with a lesser impact on interstate activities.

*Id.* at 142.

58. John H. Jackson, *Perspectives on Countervailing Duties*, 21 *LAW & POL'Y INT'L BUS.* 739, 742-45 and 754-55 (1990). Professor Jackson was responding to recommendations to eliminate countervailing duty practices made

ties might not enhance national welfare, he argues that they may promote world welfare and act as a deterrent which could tend to prevent the kind of competitive spiral of subsidies which has marked the agricultural sector and bedeviled past and continuing trade negotiations.<sup>59</sup> He states:

To this author, it seems clear that the "thank you note" approach (no response [to the provision of subsidies]) is justified only with respect to the goal of national welfare, as opposed to world welfare. World experience, especially with respect to agricultural products (with the United States and the EEC in a virtual subsidy war) reinforces the need for this broader perspective.

. . . .

. . . Many persons engaged in the study of subsidies and countervailing duties are of the opinion that such duties do influence governments to limit subsidies.

. . . [I]f one believes that the world would be better off if there were a general reduction of the use by governments of subsidies relating to products that flow in international trade, one could argue that the U.S. policies, motivated for entirely different reasons, may fortuitously or coincidentally be having a salutary effect on the world economy.<sup>60</sup>

Professor Jackson's support of countervailing duties—as well as that of the other persons to whom he refers—appears to be not sustainable because it tends to prove too much. No principled argument appears to be possible on the ground of economic efficiency or deterrence which successfully distinguishes the competitive effect of American and Canadian subsidy programs within North America in a manner exempting one and targeting the other. It is clear that the accumulation of subsidies from the various states and the U.S. Federal government will far exceed the subsidies provided by Canada and its provinces. American subsidies represent a much greater risk of market distortion and of initiating a competitive spiral of subsidization than do Canadian subsidies. Robert Reich has identified one example in which four states competed for a Mitsubishi Diamond-Star Motors plant in 1985. Illinois "won" the competition with a ten-year package of incentives worth \$276 million—\$25,000 per year for every new job created.<sup>61</sup> He states:

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by Professor Michael J. Trebilcock in *Is the Game Worth the Candle? Comments on A Search for Economic and Financial Principles in the Administration of U.S. Countervailing Duty Law*, 21 LAW & POL'Y INT'L BUS. 723, 732 (1990), and by Alan O. Sykes in *Second-Best Countervailing Duty Policy: A Critique of the Entitlement Approach*, 21 LAW & POL'Y INT'L BUS. 699, 700 (1990).

59. Jackson, *supra* note 58, at 742-45 and 754-55.

60. *Id.* at 754-55.

61. ROBERT REICH, *THE WORK OF NATIONS* 296 (1992).

In consequence, states, cities, and even countries have found themselves bidding against one another for the same global jobs. Who successfully lures the jobs becomes a matter of state and local pride, as well as employment; it may also bear significantly upon the future careers of state and local politicians who have pledged to win them. The possibility of a new factory in the region sets off a furious auction; a casual threat to move one already situated initiates equally impassioned rounds of negotiation. The total amount of subsidies and tax breaks thus flowing to global firms of whatever nationality is much higher than it would be without such bidding. Nations whose constituent parts refrain from these internecine battles end up paying far less to lure jobs their way; nations that agree with one another to refrain from bidding altogether come out even further ahead.<sup>62</sup>

In our view, the flaw in Jackson's argument is that one cannot draw a line such that international subsidy competitions are pernicious, while subsidy competitions between U.S. states and cities are acceptable. What difference does it make if Windsor, Ontario joins a competition commenced by Detroit and Buffalo for the location of a new plant? Jackson's deterrence and economic efficiency model requires that all state, provincial and federal subsidies should be treated in the same manner and subject to the same standard of review. Thus, the United States would be required to introduce a domestic countervailing duty mechanism under the commerce clause. The European Community has a competition law-based countervailing duty mechanism which makes actionable the subsidies of its member states,<sup>63</sup> and it is one example of the kind of system required to ade-

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62. *Id.* at 297.

63. The competition law chapter of the Treaty of Rome provides a comprehensive "state aids" system which is broader than the concept of a "subsidy." Treaty Establishing the European Economic Community, Mar. 25, 1957, arts. 92-94, 298 U.N.T.S. 11. Specifically, the Treaty provides:

Save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market.

*Id.*, art. 92(1). If state aid in the form of a financial contribution strengthens the position of an undertaking compared with other undertakings competing in intra-Community trade, "competition must be regarded as distorted." BELLAMY & CHILD, *COMMON MARKET LAW OF COMPETITION* ¶ 18-012 (4th ed. 1993). Jurisdiction at the community level is established, subject to a *de minimis* rule, if a state aid is capable of affecting trade between Member States. *Id.* ¶ 18-014. Trade can be affected in circumstances where the undertaking's products compete with products coming from other Member States even if the aided undertaking did not export its products. See, e.g., Case 102/87, *France v. Commission*, 1988 E.C.R. 4067, 3 C.M.L.R. 713 (1989) (subsidized loan to French brewery was capable of distorting trade even though the brewery was not an exporter).

quately address the concerns raised by Jackson. State, provincial and federal subsidies would be actionable as long as they involved interstate commerce.

Even if the introduction of such a mechanism were constitutional, an issue which is beyond the scope of this Article, we do not believe that Congress would ever consider legislation limiting the power of the states in this regard. It is our view that there is no likelihood that such a mechanism could be introduced and thus, existing countervailing duty practices should be eliminated in the context of NAFTA in circumstances where markets are open and no artificial structural impediments exist to trade. Governments should be able to stimulate industrial development or to facilitate adjustment without fear of retaliation. Where impediments to access exist in a particular market or market segment (which are artificial in nature and are not based upon efficiency), a remedy designed to promote the elimination of such impediments would be principled.<sup>64</sup> As a second-best solution, existing countervailing duty practices might be maintained where such impediments exist.

#### D. COUNTERVAILING DUTY REFORM AND THE SOFTWOOD LUMBER INDUSTRY

If such a reform were implemented in the context of Canadian-American trade, it is questionable whether one of the most celebrated trade disputes would be entitled to freedom from scrutiny under countervailing duty provisions. The Softwood Lumber<sup>65</sup> dispute in its third iteration included a review of log export restrictions which have existed in British Columbia since the turn of the last century. As long as such restrictions existed,

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64. It is not clear that the *keiretsu* would be illegal per se as an artificial barrier. The existence of the *keiretsu* system has been argued in part to be a result of efficiencies and may not be per se illegal in and of itself even according to American antitrust principles. Suzanna C. Miller, *A Double Standard: The United States Plea for Per Se Illegality of the Japanese Keiretsu*, 19 BROOKS J. INT'L L. 1101 1127-28 (1993). While the *keiretsu* business structure itself might not be per se illegal, its practices may well be found to be anticompetitive on the basis of a rule of reason analysis. An example of such a practice would be resale price maintenance within a vertical *keiretsu*. Harry First, *Antitrust Enforcement in Japan*, 64 ANTITRUST L. J. 137, 172 (1995); Julie A. Sheppard, *Using United States Antitrust Law Against the Keiretsu as a Wedge into the Japanese Market*, 6 TRANSNAT'L LAW. 345, 355, 372 (1993). A further example might be exclusive dealing within the *keiretsu*. *Id.* at 355.

65. Certain Softwood Lumber Products from Canada, No. ECC-94-1904-01USA, 1994 FTAPD LEXIS 11 (Binational Review) (Aug. 3, 1994). For an analysis of this decision, see Gastle & Castel, *supra* note 29.

and in the absence of a more principled mechanism which would focus on the elimination of these restrictions, it would be difficult to argue that the softwood lumber industry in British Columbia should be free from scrutiny under the existing countervailing duty provisions.<sup>66</sup>

### III. THE IMPORTANCE OF TECHNOLOGY POLICY AS AN ALTERNATIVE TO COUNTERVAILING DUTY REFORM

If the elimination of countervailing duties is impossible because they are too politically entrenched, it may be possible to achieve reform by permitting Canada and Mexico to coordinate their technology programs with those of the United States. Coordination may become increasingly necessary, due to the possible emergence of innovation programs as an instrument of strategic trade policy in the United States. Globalization of trade and the rapid pace of technological change have placed a premium on technological innovation. The global economy is increasingly driven by high technology, with global production doubling in constant dollar terms between 1980 and 1990, in comparison with a 23 percent growth in other manufacturing industries. OECD data indicate that output by high-technology industries as a share of all OECD manufacturing, increased from 17 percent to 26 percent. The share of high-technology exports from OECD countries grew by 50 percent from 14 to 21 percent of all exports in manufactured goods, during the same ten-year period.<sup>67</sup>

#### A. THE EMERGENCE OF INNOVATION POLICY IN THE UNITED STATES AND CANADA

Throughout the post-war period, the United States dominated technological advancement in most sectors, while maintaining an open market and being the engine of the multilateral system. As American leadership in microelectronics, computers and other key technological sectors became threatened, initiatives were undertaken in an apparent attempt to capture the benefit of technologies developed by "American" companies. A

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66. The log export restrictions are a border practice establishing permit requirements for any exports which are designed to encourage the processing of logs inside British Columbia. Certain Softwood Lumber Products from Canada, No. USA-92-1904-01, 86-112 and dissent of Dearden and Weiler at 163, 16 I.T.R.D. 1168 (BNA) (Binational Review) (May 6, 1993).

67. Government of Canada, *supra* note 31, at 1.



perception had arisen, with some justification, that American companies were adept at developing new technologies, but had not been particularly effective at successfully commercializing advancements into new products or process innovations.<sup>68</sup> The U.S. federal government passed legislation attempting to control technology developed with government support,<sup>69</sup> and clarified antitrust principles with the passage of the National Cooperative Research Act of 1984 (NCRA),<sup>70</sup> such that consortia could more easily be formed among American competitors within a particular market segment. Initially, consortia included only U.S. companies, but Canadian members were admitted to one of the most important consortia, the Microelectronics and Computer Technology Corporation (MCC), once the Canada-United States Free Trade Agreement (FTA)<sup>71</sup> was enacted. The statute was amended by the National Cooperative Production Amendments of 1993 (NCPA).<sup>72</sup> These amendments extended the protection of the Act beyond research and development to production consortia and also established requirements intended to capture the benefits of consortia exclusively for the United States. For example, production consortia are only entitled to the antitrust exemption if the production activities occur within the United States.<sup>73</sup> As a result, production facilities in

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68. See generally Gerald J. Hane, *The Real Lessons of Japanese Research Consortia*, ISSUES SCI. & TECH., Winter 1993-94, at 56 (describing relative ineffectiveness of U.S. consortia in enhancing market competitiveness of U.S. industry due to lack of focus in organization of consortia, undue emphasis on precompetitive research stage, and inefficient systems of diffusing progress to industries at large).

69. In 1980, for example, the Bayh-Dole Act "marked a major retreat from the principle that knowledge subsidized by the government should circulate freely." Richard R. Nelson & Paul M. Romer, *Science, Economic Growth, and Public Policy*, in TECHNOLOGY, R&D, AND THE ECONOMY 49, 71 (Bruce L.R. Smith & Claude E. Barfield eds., 1996).

70. Pub. L. No. 98-462, 98 Stat. 1815 (codified as amended at 15 U.S.C. § 4302 (1994)).

71. Dec. 23, 1987, and Jan. 2, 1988, 27 I.L.M. 281 (1988).

72. Pub.L. No. 103-42, 107 Stat. 117 (codified at 15 U.S.C. §§ 4303-06 (1994)).

73. The NCPA provides:

Notwithstanding sections 4 and 6, the protections of section 4 shall not apply with respect to a joint venture's production of a product, process, or service, as referred to in section 2(a)(6)(d), unless—

- (1) the principal facilities for such production are located in the United States or its territories, and
- (2) each person who controls any party to such venture (including such party itself) is a United States person, or a foreign persons from a country whose law accords antitrust treatment no less favorable to United States persons than to such country's domes-

the United States will be exposed only to a single-damages remedy if the consortium's activities are found to breach the anti-trust "rule of reason" standard of review. However, if the production facilities are located in Canada, the consortium faces the punitive treble damages standard which is an important part of American antitrust legislation.<sup>74</sup>

The growth of consortia in the United States has been significant and, by 1995, 592 consortia had been registered pursuant to the NCPA. The adoption of technology consortia followed a trend in both Japan and Europe where consortia exist as an institutional mechanism to pool research and development resources and to distribute new technology. It appears to reflect an acceptance of the importance of maintaining a North American industrial infrastructure of suppliers and manufacturers in particular segments. Federal spending also increasingly began to focus upon successful innovation of technological developments. An example is provided by the promotion of dual use technologies as part of American defense technology spending, the second or "dual" use being commercial application.<sup>75</sup>

The change in American technology policy has been described as a "new paradigm,"<sup>76</sup> which has been articulated by President Clinton and Vice-President Gore in the metaphor "Science, the Endless Resource" instead of "Science, the Endless

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tic persons with respect to participation in joint ventures for production.

*Id.* at § 4306.

74. Gary Luton, Canada Department of Foreign Affairs and International Trade, Policy Staff Paper, *Diplomacy at the Leading Edge: Advanced Technology and Canadian Trade Policy* § 5.4.1(i) (Dec. 1995), available in <<http://www.dfait-maeci.gc.ca/english/foreignp/policy%5Fpapers/1995/part1%5F12.htm>>.

75. Funding through the Department of Commerce for the Advanced Technology Program (ATP) increased from \$98 million in 1993 to an estimated \$225 million in 1997 and a projected \$275 million in 1998. H.R. Doc. No. 105-003, *supra* note 31, at 79. It is projected to grow to \$500 million by 2002. *Id.* Funding for Manufacturing Extension partnerships increased from \$18 million in 1993 to an estimated \$95 million in 1997 and a projected \$129 million in 1998. *Id.* This program is intended to give smaller manufacturers the technological information and expertise to improve their operations. *Id.* at 80. This represents a five-year increase in funding for these two projects of 343%. In addition, the budget proposes \$225 million for Department of Defense Dual Use Applications (DUAP), "which will build on previous Federal dual-use technology development programs and allow the military services to develop and use technologies, processes, and products available to the commercial sector." *Id.* at 83.

76. Harvey Brooks, *The Evolution of U.S. Science Policy, in* TECHNOLOGY, R&D, AND THE ECONOMY, *supra* note 69, at 15, 34.

Frontier.”<sup>77</sup> Science must not only create new knowledge though continuous improvement, but also must improve the human condition. David, Mowery and Steinmueller have described this change in focus as follows:

The emphasis in science and technology policy has been placed on fostering the generation of new knowledge, rather than the distribution of knowledge and the possibilities of improving the performance of the system by improving access to the existing knowledge stock. We too are persuaded that this thrust has been maintained for too long, and there is a case to be made now for restoring some balance; in other words, to raise not only the marginal social rate of return on future R&D expenditures, but to increase the social payoff from such outlays made in the past by increasing the commercial exploitation of the knowledge.<sup>78</sup>

The commercialization of technology underpins the concept of innovation, and American innovation policy appears to be an attempt to capture the social payoff.

As in the United States, technology policy has emerged as an important issue in Canada.<sup>79</sup> Canada's low levels of research and development spending have been attributed to its resource-based industrial structure, relative lack of a developed high technology sector and the large number of multinational enterprises which, generally, are perceived as carrying out their research and development activities in their “home bases.”<sup>80</sup> Canada competes well in certain areas of telecommunications and aerospace technology but, when compared to other G7 nations, “Canada lags in its rate of technological innovation.”<sup>81</sup> Canada's solution, as announced in the Federal Government's new strategy “Science and Technology for the New Century: A Federal Strategy,” is to coordinate the emergence of a “national innovation system” to foster the development of linkages between industry, government and business, particularly with respect to the promotion of research and development.<sup>82</sup> The

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77. *Id.*

78. *Id.*, quoting from Paul A. David et al., University-Industry Research Collaborations: Managing Missions in Conflict (1994) (paper prepared for Center for Economic Policy Research / American Academy of Arts and Sciences Conference, “University Goals, Institutional Mechanisms, and the ‘Industrial Transferability’ of Research,” Stanford University, March 16-20, 1994).

79. See generally John N.H. Britton, *Introduction to CANADA AND THE GLOBAL ECONOMY: THE GEOGRAPHY OF STRUCTURAL AND TECHNOLOGICAL CHANGE* 3-19 (John N.H. Britton ed., 1996).

80. MICHAEL PORTER, *CANADA AT THE CROSSROADS: THE REALITY OF A NEW COMPETITIVE ENVIRONMENT* 74-75, 114-15 (1991).

81. Britton, *supra* note 79, at 16.

82. GOVERNMENT OF CANADA, *SCIENCE AND TECHNOLOGY FOR THE NEW CENTURY: A FEDERAL STRATEGY* (1996).

Federal Strategy concentrates upon the promotion of small and medium enterprises,<sup>83</sup> and also introduces Technology Partnerships, which are designed to be “forward looking, risk-sharing instruments—an investment fund—to develop partnerships with the private sector in achieving technological excellence,” directed in support of certain specific sectors.<sup>84</sup> The partnerships also appear to promote the formation of Canadian consortia, among other initiatives.

#### B. THE COORDINATION OF AMERICAN AND CANADIAN INNOVATION POLICY

Canadian and American innovation policies should be coordinated within the context of an integrated North American market. The emergence of innovation policy in the United States, with nationalistic restrictions upon the participation in technology projects, is not consistent with the open, integrated economy which NAFTA is intended to promote. These restrictions appear to be based on a presumption that technology development can be considered a kind of national asset which can be captured and implies that policies intended to repatriate technology spending by a nation's companies are an eligible option. This is inconsistent with the trend toward globalization and an economy in which companies are losing national identity.

Canada might re-orient its industrial policy to the extent of focusing it upon integrating the Canadian “innovation system” into the North American innovation system which appears to be emerging. The Federal Government could encourage Canadian companies and universities to engage in the American consortia and similar technology initiatives, and help provide the funding for them to participate. This would have the benefit of encouraging linkages between the Canadian and American innovation systems, bringing Canadian companies into contact with some of the most important technology companies in the United States and giving them access to the development of leading technology. This kind of strategy is consistent with the deep integra-

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83. SMEs were responsible for 87 per cent of the new jobs created in Canada during the 1980s. GOVERNMENT OF CANADA, BUILDING A MORE INNOVATIVE ECONOMY 19 (1995).

84. GOVERNMENT OF CANADA, *supra* note 82, at 13. The fund is focused upon environmental technologies; strategic enabling technologies (i.e. biotechnology and agriculture); advanced materials (ceramics, composites); selected information technologies (telemedicine); advanced manufacturing technologies (robotics); and the aerospace and defense industries, including defense conversion. *Id.*

tion of the Canadian and American economies and is also consistent with the Federal Government's Science and Technology Strategy, which is intended to foster the development of small and medium enterprises in a niche-driven economy. Integration of Canadian technology programs into American initiatives would tend to insulate the programs from retaliation through countervailing duty proceedings commenced in the United States. If such a challenge were to be made, Canadian companies participating in the consortia would likely have a political constituency in the United States supporting them before the domestic tribunals.<sup>85</sup>

A question may arise whether the coordination of Canadian and American technology programs would result in a diversion of corporate innovation spending from Canada to the United States. Canadian technology programs are vulnerable simply because of their proximity to the United States and its scientific establishment. Professor Michael Porter indicates that Canada risks losing some of its "home base" functions due to the greater strength of the American congruence of factors contributing to competitive advantage (the Porter "diamond").<sup>86</sup> Apart from the normal risk of diversion arising from economic integration, it has been argued that Canada is particularly vulnerable to the emergence of American innovation policy. Gary Luton, Deputy Director, Economic and Trade Policy Division of Industry Canada, argues that Canadian companies are increasing their technology efforts in the United States, with spending rising to \$2 billion in 1990 or almost half the value of Canadian firms' R&D spending in Canada. He concludes that:

A number of Canadian firms have invested heavily in R&D operations in the U.S. to cultivate good economic relations with U.S. scientific and political elites. American political elites, however, are becoming increasingly demanding and protectionist. Clearly, even when formal market access commitments have been made, investors are often frustrated by informal barriers.<sup>87</sup>

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85. Of course, American consortia may have restrictions on membership and Canadian companies and academic institutions might not gain automatic membership. We believe that NAFTA should provide that any consortia receiving public funding should be required to admit participants from NAFTA members.

86. PORTER, *supra* note 80, at 74-75, 114-15. The four determinants of competitiveness which are the basic elements of Porter's diamond paradigm are factor conditions; demand conditions; related and supporting industry structure; and firm rivalry. The role of government and chance are also important determinants. *Id.* at 53-67.

87. Luton, *supra* note 74, § 3.2.1.

This is an intriguing argument and, if accurate, would have significant implications for Canadian industry in the light of free trade. An open trade regime might be considered inimical to the competitive health of Canada's economy if it faced a serious risk of diversion of research and development spending in a manner accelerating and accentuating the normal risk of diversion identified by Michael Porter. If this were the case, Canada should insulate its technology programs as much as it possibly could from U.S. diversion and, in fact, should attempt to implement programs intended to recapture Canadian technology spending in the United States. We do not know what anecdotal evidence Luton relies upon, if any. Fortunately, there are no trends in technology spending which we could find which would confirm Luton's conclusion and, based upon the references he provided, it does not appear warranted.<sup>88</sup>

Tables I and III in the appendix to this Article set forth an analysis of research and development spending trends in the United States in an attempt to test Luton's conclusion. Table I compares research and development spending of Canadian and Japanese subsidiaries in the United States from 1981 to 1994. It shows that technology spending by Canadian subsidiaries increased by 42%, from \$1.7 billion to \$2.4 billion, between 1987 (the inception of free trade negotiations between Canada and the United States) and 1994. Total spending by foreign subsidiaries in the United States increased by 239% from \$6.5 billion to \$15.6 billion during the same period. Table III compares technology spending in the United States and Canada. Luton is correct that Canadian corporate technology spending has increased to more than \$2 billion U.S. It is also evident that Canadian companies spend a significant proportion of their research and development budgets in the United States (\$2.16 billion U.S. vs. \$4.20 billion Cdn in Canada). Canada is a net exporter of corporate technology spending, with foreign spending in Canada amounting to only \$1.13 billion Cdn in 1993 which is well below the spending of Canadian subsidiaries in the United States

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88. Luton referenced a Statistics Canada report as support for the proposition that Canadian companies are spending \$2 billion in the United States. The report does not provide any information on technology spending in the United States by Canadian companies. We then contacted Statistics Canada and were advised that it does not track the technology spending of Canadian subsidiaries in the United States and will not do so until at least the year 2000. Interview with Lucie Lalibertie, Statistics Canada, Balance of Payments Division (Apr. 1, 1997).

alone (\$2.16 billion U.S.).<sup>89</sup> However, to support an argument that there has been a diversion of research and development spending from Canada to the United States, one would expect there to be some difference in growth rates between the levels of spending which existed at the time free trade negotiations commenced and 1993, which is the last year for which information is available. To the contrary, the spending by Canadian subsidiaries in the United States increased by thirty percent, while Canadian-controlled corporate research and development spending increased in Canada by 51%. As a sub-component of this figure, Canadian manufacturing spending in Canada increased by 38%. On the basis of the information available, Luton's conclusion that "[a] number of Canadian firms have invested heavily in R&D operations in the U.S. to cultivate good economic relations with U.S. scientific and political elites" appears to be incorrect, insofar as it implies that this has been at the expense of research and development spending in Canada.

This analysis suggests that thus far, FTA and NAFTA have had no discernable impact on technology spending trends. It also indicates that Canada has been an important contributor to technology spending in the United States and that it is in the interest of the United States to foster Canadian programs which benefit the "North American innovation system."

#### C. BROADENING THE WTO RESEARCH AND DEVELOPMENT NON-ACTIONABLE CATEGORY

Apart from coordinating innovation programs, reform of the international trade law mechanisms could occur if the research and development non-actionable category in the WTO Subsidies Code was broadened. At the time of the GATT Tokyo Round negotiations in the 1970s, the United States successfully resisted the inclusion of a list of permissible subsidies in the Subsidies Code. Surprisingly, at the Uruguay Round, the United States, at the last minute, supported a broadening of the research and development non-actionable category specifically to permit the activities of American technology consortia, such as

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89. Of course, this analysis addresses only direct spending and ignores any consideration of invisible technology transfer. See generally KRISTIAN PALDA, INNOVATION POLICY AND CANADA'S COMPETITIVENESS 126-32 (1993) (explaining that foreign-controlled firms' subsidiaries located in Canada rely partially on technology drawn from R&D expenditures made outside of Canada, thus appearing to spend less on R&D when only Canadian R&D spending is counted).

SEMATECH.<sup>90</sup> The support of the United States was reportedly due to a comprehensive policy review undertaken to ensure that the Subsidies Code “would not affect the U.S. domestic R&D agenda of public-sector/private-sector technology partnerships by subjecting them to countervailing action.”<sup>91</sup> Notwithstanding this review, it appears that the activities of American consortia well exceed the scope of the existing non-actionable category. The Statement of Administrative Action<sup>92</sup> dealing with the U.S. implementation of the Subsidies Code makes clear that the United States considers the exceptions to be ambiguous and will interpret them narrowly. The Statement provides:

With respect to subsidies for industrial research and pre-competitive development activity, the administration considers it critical to draw a careful, sharp distinction between genuinely pre-competitive activity and later-stage development and production aid. In this regard, Commerce should not accord green light status to assistance for pre-competitive development activity unless the pre-competitive nature of the research is well established. In particular, the term “pre-competitive development activity” must be strictly construed in order to prevent circumvention of the intent of the provision.<sup>93</sup>

A strong argument can be made that the research and development non-actionable category should be broadened into a technology exemption if the practices of American consortia which gave rise to American support for the non-actionable category are inconsistent with the activities which it permits. A review of the performance of two of the key consortia in the United States, SEMATECH and MCC, highlights the manner in which each of them had to redefine its mandate from pre-competitive research to shorter-term, near-market projects involving the commercialization of technology. This is due to a recognition that the traditional linear model of technological development is flawed and that innovation does not involve a simple progression from basic research, to applied research, to product develop-

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90. Charles M. Gastle, *Policy Alternatives for Reform of the Free Trade Agreement of the Americas: Dispute Settlement Mechanisms*, 26 *LAW & POL'Y INT'L BUS.* 735, 772 (1995) (citing *U.S. Tables Proposal for 11 Changes to GATT Antidumping Text*, *INSIDE U.S. TRADE*, Dec. 3, 1993, at 1).

91. Luton, *supra* note 74, § 3.3.2. The fact that the philosophical change in American trade policy is a relatively recent development is confirmed by the opposition of the United States to the inclusion of a list of permissible subsidies at the time of the Tokyo Round negotiations, which concluded in 1979.

92. Reprinted in PATTISON, *supra* note 1, at B-155.

93. *Id.* at B-156.



ment, and then to manufacturing.<sup>94</sup> The linear model of innovation has been described in the following terms:

Among other things, this pattern of thinking tended to reinforce a linear model of innovation in which research largely preceded engineering and development. Research thus dominated the innovation agenda even though it absorbed only a small fraction of the total resources and human effort going into the innovation process. Descriptions of the innovation process emphasized the flow of information from science to engineering, and then successively to production and to the market. Overlooked were the reverse flows back along the chain from the market to production and to research as well as the leaps that often bypassed the intermediate steps in the linear description. Thus, in the idealized linear model, innovation begins with basic research that turns up discoveries while being pursued almost without thought of application. These discoveries in turn suggest opportunities for applications that are pursued through applied research, development, design, production, and marketing. In this model, the rest of the innovation chain cannot exist without basic research, which is the foundation on which the productivity of all subsequent investments depends. This simplistic model, though increasingly challenged by scholarly research, has had an important and persistent influence on the organization and management of innovation in the United States until recently.<sup>95</sup>

The Technology Exemption appears to be based upon a linear model of technological development. Article 8.2 of the Subsidies Code permits "assistance for research activities conducted by firms or by higher education or research establishments on a contract basis with firms if the assistance covers not more than 75% of the costs of industrial research or 50% of the costs of pre-competitive development activity."<sup>96</sup> The terms industrial research and pre-competitive development activity are defined as follows:

The term "industrial research" means planned search or critical investigation aimed at discovery of new knowledge, with the objectives that such knowledge may be useful in developing new products, processes or services, or in bringing about a significant improvement to existing products, processes or services.<sup>97</sup>

The term "pre-competitive development activity" means the translation of industrial research findings into a plan, blueprint or design for new, modified or improved products, processes or services whether intended for sale or use, including the creation of a first prototype which

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94. For a discussion of the linear model of technological development, see Bruce L.R. Smith & Claude E. Barfield, *Contributions of Research and Technical Advance to the Economy, in TECHNOLOGY, R&D, AND THE ECONOMY*, *supra* note 69, at 1.

95. Brooks, *supra* note 76, at 21.

96. Subsidies Code, *supra* note 4, art. 8.2(a). The Code further limits this assistance to certain research costs. *Id.*

97. *Id.*, art. 8.2(a), n.28.

would not be capable of commercial use. It may further include the conceptual formulation and design of products, processes or services alternatives and initial demonstration or pilot projects, provided that these same projects cannot be converted or used for industrial application or commercial exploitation. It does not include routine or periodic alterations to existing products, production lines, manufacturing processes, services, and other on-going operations even though those alterations may represent improvements.<sup>98</sup>

The structure of the provision seems to link the concepts of industrial research and pre-competitive development activity as sequential steps in the development and design of new products. Governments can fund 75% of the first stage, which is the industrial research stage, but their funding must be reduced to 50% of the next, or pre-competitive stage. Industrial research requires the discovery of new knowledge which develops new products, processes or services or improves them. Pre-competitive development activity then appears to take the new products, processes or services to a plan, blueprint or a prototype but one which is not capable of commercial use. It also does not include routine or periodic alterations to existing products or on-going operations. The research and development non-actionable category supports elements in two of the stages of technology development (basic and applied research) but not pre-production, production or manufacturing start-up.<sup>99</sup>

#### D. AMERICAN CONSORTIA AND THEIR PARTICIPATION IN NEAR-MARKET INNOVATION PROJECTS

SEMATECH and MCC found that technology development and successful commercialization was a dynamic process marked by discontinuous development. Their experience in this regard is consistent with evolving economic theory. American experience with its key technology consortia thus supports an argument that a linear concept of innovation is not appropriate and that a more dynamic interaction with the near-market activities is necessary to achieve diffusion of the technology to the members of the consortia. MCC was formed in 1983 "to conduct high-risk, long-range research aimed at significant advances in microelectronics and computer technology," and specifically "to preserve and enhance U.S. predominance and preeminence in microelectronics and computing."<sup>100</sup> It eventually discovered

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98. *Id.*, art. 8.2(a), n.29.

99. See generally PALDA, *supra* note 89, at 50-60 (reviewing stages of linear innovation).

100. E. RAYMOND COREY, TECHNOLOGY FOUNTAINHEADS: THE MANAGEMENT CHALLENGE OF R&D CONSORTIA 38 (1997).

that successful innovation and diffusion required a "Level IV" technology transfer model<sup>101</sup> involving near-market activities in which technology developers and receptors interact in a two-way dialogue with both contributing to the "market strength" technology emerging therefrom.<sup>102</sup> SEMATECH was formed in 1987 at a time when the American semiconductor industry was under significant pressure from Japanese competition. It was originally a research facility to "provide the U.S. semiconductor industry with the domestic capability for world leadership in manufacturing."<sup>103</sup> It experienced difficulty in developing a research agenda and "altered its research agenda to one that sought to improve the technological capabilities of U.S. suppliers of semiconductor manufacturing equipment and to strengthen 'vertical' cooperation between U.S. suppliers and U.S. users of semiconductor process equipment."<sup>104</sup> SEMATECH's mission shifted from "horizontal" research cooperation to "vertical" collaboration between semiconductor manufacturing and suppliers.<sup>105</sup> It has been credited with establishing better linkages between manufacturers and suppliers. SEMATECH, thus, became more of a conduit for technology distribution and coordination than a pure research facility. Its activities do not appear to constitute the development of new technologies and processes, but rather the adoption of the best existing American technology. It has done so by funding such activities as the purchase of complex lithography equipment and delivering it to member

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101. "Level IV" collaborative technology activities can be described as follows:

Level IV transfer, technology application, centers on product commercialization. Level IV builds cumulatively on the successes achieved in attaining the objectives of the three previous stages, but market strength is required. Feedback from technology users drives the transfer process. Success is measured in terms of ROI (return on investment) or market share. Here, we take a longer-term view.

DAVID V. GIBSON & EVERETT M. ROGERS, R&D COLLABORATION ON TRIAL 337 (1994).

102. See *id.* at 271-75 (describing MCC spinout companies as a means of transferring technology); 334-40 (describing difficulty of achieving Level IV transfer); 403 (describing MCC's focus on producing customer-ready technology); 417-18 (evaluating MCC's success in technology transfer).

103. *Id.* at 505.

104. Peter Grindley et al., *SEMATECH and Collaborative Research: Lessons in the Design of High-Technology Consortia*, 13 J. POL'Y ANALYSIS & MGMT. 723, 730 (1994).

105. *Id.* at 724.

companies for evaluation and joint development work.<sup>106</sup> The financing of this kind of equipment appears to be well beyond the research and development non-actionable category within the Subsidies Code, as it was fully operational, finished machinery which was financed and not a "first prototype which would not be capable of commercial use."

The activities carried on by the consortia and permitted under the NCPA do not appear to fall within the research and development non-actionable category when the activities are supported by the public purse. Both MCC and SEMATECH have been the recipients of significant government support in the form of funding and subsidies, at times up to fifty percent of their total funding.<sup>107</sup> They changed their mandates due to the problems inherent in technology transfer which, instead of a technology-push or technology-pull process, was found to be a far more difficult undertaking requiring close collaboration on matters of commercial interest to the companies participating in the consortia.

Consortia originally were established with the intention of undertaking long-term, basic, pre-competitive research. This focus was expected to deliver new-generation technology revitalizing American industry and allowing it to catch up with, and surpass, Japan. The rationale behind establishing consortia is based upon a politico-economic justification for government support of basic research: the social returns are higher than the direct returns due to the inappropriability of the results by the companies undertaking the research. It is also based upon the neoclassical policy justification for including a research and development, non-actionable category: subsidies for basic research do not wrongfully distort the allocation of resources, only the subsidization of the commercialization process causes the distortion of resources. The problem of technology diffusion, as it emerged in the experience of the consortia, challenges the traditional justification for public support of basic research. The experience of MCC and SEMATECH suggests that technological spill-over does not easily take place after the basic research stage, which, by definition, is the earliest stage of technology de-

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106. Lucien P. Randazzese, *Semiconductor Subsidies*, SCI. AM., June 1996, at 46-48. SEMATECH purchased 14 GCA "steppers" for \$19 million. Notwithstanding this purchase, GCA ultimately failed. *Id.* at 48.

107. By 1994, government sources provided almost half of the MCC contributions. COREY, *supra* note 100, at 42. SEMATECH received \$100 million from government sources each year from 1987 to 1992 and \$90 million each year from 1993 to 1996, covering half its yearly operating budget. *Id.* at 9.

velopment. A better model would acknowledge that diffusion occurs, in reality, closer to the market when the technology has been proven and when a successful adaptation is likely because linkages to existing production techniques or product design have been established. The argument suggesting that public spending is justified by spill-overs is turned on its head and now becomes an argument in favor of public spending for the commercialization of the technology. It is at that point that spill-over can be expected to occur.

If the United States allows consortia to engage in near-market innovation projects supported by the public purse, the Subsidies Code should be amended to include a technology exemption to allow this kind of activity. The challenge facing American industry is the development of products capable of commercial use. The challenge does not appear to be the development of prototypes unsuitable for commercial use, which is the existing limiting condition in the definition of "pre-competitive development activity" within the Subsidies Code. The United States has an interest in broadening the exemption due to the advantages which Japan appears to have over the United States, at least with respect to the adoption and commercialization of technologies through government-sponsored consortia.<sup>108</sup>

#### IV. PROCEDURAL REFORM—NAFTA CHAPTER 19

If antidumping and countervailing duties are to be eliminated, NAFTA Chapter 19 would not be required and domestic competition law mechanisms would be relied upon.<sup>109</sup> However, if substantive reform is not possible, procedural changes to Chapter 19 can be made which would improve dispute settlement under NAFTA. The weaknesses of the binational panel process have been highlighted by *Softwood Lumber III*<sup>110</sup> and the subsequent settlement agreement which Canada was forced to enter under the threat of the commencement of *Softwood Lumber IV*. Canada faced the imposition of at least a 10% pre-

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108. See generally Hane, *supra* note 68 (describing why Japanese research consortia are more effective than those in the United States).

109. The coordination or harmonization of NAFTA competition law is beyond the scope of this article. We note that before the elimination of antidumping duties, Canada may want to eliminate the application of the treble damages provisions of American antitrust law to cases of international price discrimination. In our view, antidumping duties should be eliminated and domestic competition laws applied even if the United States is not willing to exempt international price discrimination from the treble damages provision.

110. Certain Softwood Lumber Products from Canada, *supra* note 65.

liminary duty which would have lasted at least three years,<sup>111</sup> until the final resolution of the case. It was by no means clear that Canada would win the new dispute, due to the amendments which had been made in the interim to American trade law. The panel in *Softwood Lumber III* was the first to divide along national lines at both the Binational Panel and the Extraordinary Challenge Committees levels, and it appeared to do so on the critical issue of the measure of discretion which should be accorded the domestic tribunals by the binational panels pursuant to the American standard of judicial review.

#### A. WEAKNESSES OF THE NAFTA CHAPTER 19 MECHANISM

This dispute highlights three important weaknesses of the Chapter 19 mechanism. First, the binational panels are shackled to a standard of judicial review and cannot effectively review the merits of the dispute. Second, it does not address the problem of preliminary duties which represent a prejudgment remedy available upon an unusually low evidentiary threshold, effectively constituting a reverse onus of proof. Third, the Chapter 19 mechanism does not provide any effective restriction upon amendments designed specifically to overturn binational panel findings. Article 1903 does provide a panel process for the review of such amendments, but the panel determination is not binding. The remedy is that the complaining nation can duplicate the amendments which were the subject of the panel review, thereby enabling Canada to ratchet its trade law up to a new level of abstraction. The alternate remedy is to terminate the agreement, which is no remedy at all, as the right to terminate exists independently of this provision. The proof of the weakness of this mechanism is that no panel appears to have ever been convened to consider proposed amendments. Furthermore, we do not believe that Article 1905, which establishes a special committee review process intended to safeguard the binational panel system, can be used to deal with this situation.

The Chapter 19 mechanism could be improved by freeing the panels from the domestic standard of judicial review and changing it into a process of arbitration whereby the board would exercise the powers of the administrative agencies. It is clear that the United States considers arbitration to be an effective form of dispute settlement, as it is the mechanism of choice

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111. *Softwood Lumber III* was commenced in October 1991 and the final determination was not released until August 3, 1994, after which there was a dispute whether duties collected on an interim basis had to be returned. *See id.*

in investment disputes, which was the matter of most concern to the United States during the NAFTA negotiations.<sup>112</sup>

Chapter 19 could be improved by extending the binational panel process to the preliminary duty stage. It would also treat preliminary duties as extraordinary relief which should only be granted if the implementing nation meets the kind of onerous thresholds required for such relief within the domestic civil litigation process.

Chapter 19 could also be improved by making the review process under NAFTA Article 1903 binding and enforceable on the Parties. NAFTA members then could be forced to retract amendments which are designed to overturn panel findings or are otherwise inconsistent with the provisions of NAFTA or the WTO Agreements.

The reforms suggested above assume the continuation of the binational panel process in its current form. An option which we favor would be to replace the *ad hoc* panel system with a permanent international trade review tribunal comprised of a national of each of the three NAFTA countries and a presiding member who is not a NAFTA national. The tribunal members would all be appointed for a lengthy period or permanently, and the decisions of the tribunal would be final and binding on the parties.<sup>113</sup> Its decisions would also have the force of binding precedent. However, in the United States, the creation of such a tribunal may be subject to constitutional challenge.<sup>114</sup>

#### B. A RADICAL REFORM: BINDING WTO PANEL DECISIONS IN NAFTA ANTIDUMPING AND COUNTERVAILING DUTY DISPUTES

A further and alternative route of reform would be to eliminate the Chapter 19 mechanism in favor of binding and enforce-

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112. NAFTA, *supra* note 3, ch. 11, § 3, art. 1115-38. See also Gastle, *supra* note 90, at 800-08.

113. For a discussion of this alternative, see Gastle & Castel, *supra* note 29, at 890.

114. See U.S. CONST. art. I, § 1 (all legislative powers vested in Congress); art. II, § 2, cl. 2 (Presidential power to make treaties); art. III, § 1 (judicial power vested in courts created by Congress). Note that the American Coalition for Competitive Trade challenged the constitutionality of the present Chapter 19 mechanism on February 18, 1997. The case was scheduled to be heard by the U.S. Court of Appeals on October 21, 1997. Canada, which was granted intervening status on April 3, 1997, supports the U.S. government's position, which is that NAFTA Chapter 19 fully meets constitutional standards. See Canada's Brief on NAFTA Chapter 19, Sept. 5, 1997; P. Morton, *Ottawa Attacks "Misleading" NAFTA Challenge*, FIN. POST, Sept. 9, 1997.

able WTO Dispute Settlement Body (DSB) decisions in anti-dumping and countervailing duty disputes involving NAFTA Parties.<sup>115</sup> Since the WTO DSB can review preliminary determinations, the underlying trade legislation and any amendments thereto, it is better situated to impede unprincipled amendments to domestic trade laws designed specifically to overturn earlier determinations. The United States would have to comply immediately with WTO DSB directions that the preliminary determinations or trade law amendments were not WTO-consistent. It would also be more difficult for the United States to mount a campaign to overturn a favorable WTO DSB result because the world trade community is now looking to the United States to support the WTO and abandon its policy of aggressive unilateralism.<sup>116</sup> The WTO DSB panel determinations also would likely be more credible than Chapter 19 panel determinations due to the advantages in due process provided by the WTO's innovative appellate procedures.

Although few GATT disputes have occurred involving anti-dumping or countervailing duty complaints,<sup>117</sup> the standard of review which appears to be emerging is at least as broad as the American standard of "substantial evidence" on the record.<sup>118</sup>

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115. The DSB hears and decides disputes that arise under the Dispute Settlement Understanding (DSU). Understanding on Rules and Procedures Governing the Settlement of Disputes, Article 37, April 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND vol. 31; 33 I.L.M. 112 (1994). The WTO DSB determinations are not directly enforceable in the courts of the WTO Parties; as a result, the Parties are not required to implement the recommendations of the DSB panels. While removal of the offending measure or provision is the primary objective of the WTO DSB, if the defaulting Party refuses to comply, the complaining Party's only remedy is to suspend the application of benefits of equivalent effect until a resolution has occurred. Our recommendation is that the WTO DSB panel determinations in anti-dumping and countervailing duty determinations be made directly enforceable in the domestic courts of the NAFTA Parties.

116. THOMAS O. BAYARD & KIMBERLY ANN ELLIOTT, *RECIPROCITY AND RETALIATION IN U.S. TRADE POLICY* 1-3 (1994).

117. ROBERT E. HUDEC, *ENFORCING INTERNATIONAL TRADE LAW: THE EVOLUTION OF THE MODERN GATT LEGAL SYSTEM* 345-47 (1993). During the first 42 years, twenty GATT dumping or countervailing duty complaints were filed, with eleven violation rulings. *Id.*

118. Judge Wilkey has acknowledged the difference between an international standard of review and the American standard of review, noting in reference to Article 17.6 of the WTO Anti-Dumping Code, "I . . . suggest that this provision is about as good a standard of review by an international body as we are likely to be able to negotiate in a treaty with other countries, considering the accepted divergence in standards among various countries." *Accession of Chile to NAFTA: Hearings Before the Subcomm. on Trade of the House Comm.*



This potential reform has been criticized on the basis that the WTO DSB requires governments to commence the proceedings, as private parties have no direct access to them, whereas this is not the case with respect to Chapter 19 panel proceedings.<sup>119</sup> An amendment to the Canadian Special Import Measures Act,<sup>120</sup> and similar U.S. and Mexican legislation, could require Canada, the U.S., or Mexico to commence WTO complaints when petitioned to do so. There is also the issue of legal fees. Private parties could be required to pay for counsel acceptable to their governments, which would continue to have the option, as in NAFTA Chapter 19 proceedings, to appear in those disputes which were felt to raise important questions of national interest. This probably would include most if not all proceedings involving countervailing duty disputes.

Critics should also remember that a practice has developed of taking certain aspects of trade disputes before a Chapter 19 panel and also before a WTO DSB panel with respect to issues which cannot be determined by the Chapter 19 panel. For example, *Softwood Lumber III*<sup>121</sup> was taken before GATT with respect to the self-initiation of the investigation, along with certain other aspects of the dispute which the binational panel

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on *Ways and Means*, 104th Cong. 80 n.2 (1995) (testimony of Malcolm R. Wilkey, U.S. Circuit Judge (Ret.)). The pertinent provision of the Antidumping Code provides that, in examining the matter,

- (i) in its assessment of the facts of the matter, the panel shall determine whether the authorities' establishment of the facts was proper and whether their evaluation of those facts was unbiased and objective. If the establishment of the facts was proper and the evaluation was unbiased and objective, even though the panel might have reached a different conclusion, the evaluation shall not be overturned;
- (ii) the panel shall interpret the relevant provisions of the Agreement in accordance with customary rules of interpretation of public international law. Where the panel finds that a relevant provision of the Agreement admits of more than one permissible interpretation, the panel shall find the authorities' measure to be in conformity with the Agreement if it rests upon one of those permissible interpretations.

Antidumping Code, *supra* note 5, art. 17.6, at 193.

119. See NAFTA, *supra* note 3, art. 1904.5. See also Rules of Procedure for Article 1904 Binational Panel Reviews, 128 C. GAZ. 1012 rr.3, 39 (Part I) (Feb. 12, 1994); NAFTA, *supra* note 3, arts. 1116-17 (claims by investors).

120. R.S.C. 1985, ch. 5-15, as am.

121. Two disputes have been taken to GATT panels notwithstanding that FTA panels were also convened: *United States—Countervailing Duties on Fresh, Chilled and Frozen Pork from Canada*, Jul. 11, 1991, GATT B.I.S.D. (38th Supp.) at 30 (1992), and *United States—Measures Affecting Imports of Softwood Lumber from Canada*, GATT Doc. SCM1162, adopted on Oct. 27, 1993.

could not determine. Had there been a binding GATT mechanism, the duties would have been repaid in October 1993 instead of a year later. If the Chapter 19 panel determination had been made by a binding WTO DSB panel, the world trading community would have had a stake in ensuring that the United States could not simply change the rules as they did and launch a new dispute in the expectation of a reversal of outcome.

This reform would also have an important benefit for the multilateral trade system. For the first time, WTO panel determinations would be binding and enforceable on the United States. As a result, it would provide an important precedent for the future development of the multilateral trade dispute mechanism. It would also provide an important opportunity to build a body of WTO trade law through a method which would allow non-NAFTA parties to participate in the process.

A different approach to the question of reform would be to change the focus of Chapter 19 panels. Instead of the present system, Chapter 19 panels could perform the function of the WTO and apply its international standard of review, with private parties continuing to have a direct right of access and the resulting decisions being binding and directly enforceable upon the NAFTA Parties. The panels would thereby be free from the American practice of deference, and the underlying trade laws could be challenged, along with preliminary determinations. Even Judge Wilkey<sup>122</sup> recognizes that the international standard of review before WTO DSB is not encumbered by the American tradition of deference to domestic administrative tribunals. This is a second-best solution, as it would duplicate the WTO DSB mechanism and become a competing source of WTO law.

## V. CONCLUSION

In conclusion, antidumping and countervailing duty mechanisms are unprincipled and should be eliminated in NAFTA. It should be recognized that the North American economy has evolved beyond nineteenth-century concepts of territorial sovereignty and that new approaches are required which recognize and reward the openness of the Canadian economy and its commitment to further integration with the United States. New mechanisms should be designed which are based upon *market access* principles having as their objective opening up markets

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122. The American member of the Softwood Lumber III Extraordinary Challenge Committee who released a strongly worded dissent criticizing the Chapter 19 binational panel mechanism.

which are insulated by artificial barriers to access. If such fundamental reform is not possible, North American technology programs should be coordinated and international reform should focus upon broadening the technology exemption. Procedural changes to Chapter 19 would also improve NAFTA dispute settlement, with a more radical option being the elimination of Chapter 19 in favor of a *binding* WTO dispute settlement mechanism.

TABLE I  
RESEARCH & DEVELOPMENT SPENDING  
BY FOREIGN SUBSIDIARIES IN THE  
UNITED STATES

	<i>Total Foreign spending in U.S.</i>	<i>Canadian Subsidiaries in U.S.</i>	<i>Japanese Subsidiaries in U.S.</i>
1994 <i>Growth since '87</i>	15,602 (+10)  (+239)	2,363 (+10)  (+42)	2,013 (+12)  (+655)
1993	14,199 (+37)	2,159 (+0.4)	1,801 (+9)
1992	13,695 (+15)	2,151 (+4)	1,656 (+22)
1991	11,872 (+ 3)	2,060 (+6)	1,353 (+4)
1990	11,522 (+22)	1,944 (+11)	1,307 (+59)
1989	9,465 (+21)	1,758 (-3)	822 (+44)
1988	7,834 (+20)	1,804 (+8)	571 (+86)
1987	6,521 (+11)	1,666 (+8)	307 (+5)
1986	5,804 (+12)	1,542 (-1)	292 (+9)
1985	5,240 (+11)	1,550 (+10)	267 (+27)
1984	4,738 (+14)	1,405 (+16)	210 (+23)
1983	4,164 (+11)	1,212 (+17)	171 (+21)
1982	3,744 (+20)	1,032 (+32)	141 (-1)
1981	3110	777	142

Data for total foreign spending in the United States for the years 1981-1991 appears in BUREAU OF ECONOMIC ANALYSIS, ECONOMICS AND STATISTICS ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE, FOREIGN DIRECT INVESTMENT IN THE UNITED STATES: OPERATIONS OF U.S. AFFILIATES OF FOREIGN COMPANIES, PRELIMINARY 1994 ESTIMATES tbl. 5.1. The remainder of the data was supplied by Ray Mataloni, an Economist with the Bureau, whose assistance is gratefully acknowledged. 1994 data represents preliminary estimates, while previous years represent revised estimates.

TABLE II  
RESEARCH & DEVELOPMENT SPENDING  
IN U.S. CANADIAN & JAPANESE SUBSIDIARIES,  
COMPARATIVE SHARES  
(Millions of dollars)

	<i>Total Foreign spending in U.S.</i>	<i>Canadian Subsidiaries in U.S.</i>	<i>Japanese Subsidiaries in U.S.</i>	<i>Total Foreign Mfg spending</i>	<i>Canadian Subsidiaries - Mfg</i>	<i>Japanese Subsidiaries - Mfg</i>
1994	15,602 (100)	2,365 (15)	2,013 (13)	12,917 (100)	2,289 (18)	1,207 (9)
1993	14199	2,159 (15)	1,801 (13)	11842	2081 (18)	1084 (9)
1992	13695	2,151 (16)	1,656 (12)	11413	2,080 (18)	1,189 (10)
1991	11872	2,060 (17)	1,353 (11)	8476	n/a	n/a
1990	11522	1,944 (17)	1,307 (11)	8212	n/a	n/a
1989	9465	1,758 (19)	822 (9)	6968	n/a	n/a
1988	7834	1,804 (23)	571 (7)	5656	n/a	n/a
1987	6521	1,666 (26)	307 (5)	5573	n/a	250 (4)
1986	5890	1,542 (26)	292 (5)	3811	n/a	n/a
1985	5240	1,550 (30)	267 (5)	3335	n/a	n/a
1984	4738	1,405 (30)	210 (4)	2990	n/a	n/a
1983	4164	1,212 (29)	171 (4)	2586	n/a	n/a
1982	3744	1,032 (28)	141 (4)	2403	n/a	n/a
1981	3,110 (100)	777 (25)	142 (5)	2092	n/a	n/a

Data in the first three columns reproduced from Table I, *supra*. Remainder of data provided by Ray Mataloni, drawn from Foreign Direct Investment in the United States, published by the U.S. Department of Commerce Economics and Statistics Administration, Bureau of Economic Analysis. 1994 data represents preliminary estimates while previous years represent revised estimates.

**TABLE III**  
**COMPARISON OF TECHNOLOGY SPENDING BY**  
**CANADIAN-CONTROLLED CORPORATIONS**  
**IN THE UNITED STATES & CANADA**

	<i>Total Foreign spending in U.S.<sup>(1)</sup></i>	<i>Canadian Subsidiaries in U.S.<sup>(1)</sup></i>	<i>Total Corp R&amp;D Spending in Canada<sup>(2)</sup></i>	<i>Cdn- controlled corp R&amp;D in Cda<sup>(3)</sup></i>	<i>Total Fgn Corp R&amp;D spending in Canada<sup>(3)</sup></i>	<i>Total Cdn Mfg spending in Cda<sup>(4)</sup></i>
1994	15,602 (+10)	2,365 (+10)	7,018 (+7)	n/a <sup>(5)</sup>	n/a <sup>(5)</sup>	4,256 (+6)
1993	14,199 (+37)	2,159 (+0.4)	6,547 (+12)	4,195	1,125	4,028 (+10)
<i>Growth Since 1987</i>	(+218)	(+30)	(+51)	(+54)	(+54)	(+38)
1992	13,695 (+15)	2,151 (+4)	5,845 (+7)	n/a <sup>(5)</sup>	n/a <sup>(5)</sup>	3,668 (+3)
1991	11,872 (+ 3)	2,060 (+6)	5,439 (+4)	3,480 (+4)	980 (+7)	3,576 (+1)
1990	11,522 (+22)	1,944 (+11)	5,244 (+8)	3,362 (+10)	916 (+13)	3,532 (+7)
1989	9,465 (+21)	1,758 (-3)	4,836 (+4)	3,046 (+6)	810 (-3)	3,288 (+3)
1988	7,834 (+20)	1,804 (+8)	4,642 (+7)	2,863 (+5)	833 (+14)	3,184 (+9)
1987	6,521 (+11)	1,666 (+8)	4,342 (+8)	2,719 (+4)	730 (+34)	2,921 (+8)
1986	5,890 (+12)	1,542 (-1)	4,023 (+11)	2,615 (+13)	546 (+5)	2,705 (+5)
1985	5,240 (+11)	1,550 (+10)	3,635 (+20)	2,324 (+43)	518 (+0)	2,584 (+15)
1984	4,738 (+14)	1,405 (+16)	3,022 (+16)	1,629 (+1)	516 (+20)	2,242 (+11)
1983	4,164 (+11)	1,212 (+17)	2,602 (+5)	1,608 (-5)	431 (+61)	2,012 (+3)
1982	3,744 (+20)	1,032 (+32)	2,489 (+17)	1,698 (+11)	268 (+70)	1,950 (+15)
1981	3110	777	2124	1534	158	1692

<sup>(1)</sup> Tables provided by Ray Mataloni, drawn from Foreign Direct Investment in the United States, published by the U.S. Department of Commerce Economics and Statistics Administration, Bureau of Economic Analysis. 1994 data represents preliminary estimates while previous years represent revised estimates.

<sup>(2)</sup> STATISTICS CANADA, INDUSTRIAL RESEARCH & DEVELOPMENT: 1995 INTENTIONS 58 tbl. 2.

<sup>(3)</sup> *Id.* tbl. 9. 1994 numbers are preliminary estimates and 1993 figures are actual expenditures.

<sup>(4)</sup> *Id.* tbl. 3. Data for Table 9 and Table 3 for years 1981 through 1993 were provided by Don O'Grady of Statistics Canada and we gratefully acknowledge the compilation which he undertook for us. Of course, any error in the interpretation of these numbers is solely our mistake.

<sup>(5)</sup> Data not available because of a reduced survey (per Don O'Grady).