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Effective Pollution Control in Industrialized Countries: International Economic Disincentives, Policy Responses, and the GATT

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**EFFECTIVE POLLUTION CONTROL IN
INDUSTRIALIZED COUNTRIES: INTERNATIONAL
ECONOMIC DISINCENTIVES, POLICY
RESPONSES, AND THE GATT**

Frederic L. Kirgis, Jr.

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EFFECTIVE POLLUTION CONTROL IN INDUSTRIALIZED COUNTRIES: INTERNATIONAL ECONOMIC DISINCENTIVES, POLICY RESPONSES, AND THE GATT

*Frederic L. Kirgis, Jr.**

I. THE ISSUES AND THEIR PRESENTATION

A. Introduction

It is generally recognized that efforts toward meaningful pollution control by an industrialized nation or group of nations raise economic problems at the international level. Discussion has touched upon the balance of trade¹ and the effects for developing countries.² Yet there seems to have been little attempt to analyze how these problems will manifest themselves and how they may be resolved within the current international legal-economic ordering system.³ This Article cannot deal with them all, but will examine closely the international competitive disincentives to truly effective pollution-control efforts in the industrialized countries, where environmental imperatives bear heavily on national decision-makers. Such an examination will suggest policies likely to be adopted by those countries to deal with the economic disincentives—policies that may exacerbate existing strains on the legal framework for world trade, embodied in

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I am grateful to Professors Charles W. Howe and Stephen F. Williams, of the University of Colorado Department of Economics and School of Law, respectively, for their helpful comments on a draft of this paper. All errors, however, are the responsibility of the author.

1. See COUNCIL ON ENVIRONMENTAL QUALITY, SECOND ANNUAL REPORT 131-33 (1971) [hereinafter CEQ 1971 REPORT]; E. MISHAN, THE COSTS OF ECONOMIC GROWTH 17-34 (1967); Gardner, *Can the U.N. Lead the Environmental Parade?*, 64 AM. J. INTL. L., No. 4, at 211, 212 (Am. Soc. Intl. L. Proceedings) (1970); Humpstone, *Pollution: Precedent and Prospect*, 50 FOREIGN AFFAIRS 325, 336-38 (1972); Report of U.N. Secretary-General to the 47th Session of the Economic and Social Council on Problems of the Human Environment, U.N. Doc. E/4667, at 21, 32 (1969).

2. See REPORT OF THE STUDY OF CRITICAL ENVIRONMENTAL PROBLEMS, MAN'S IMPACT ON THE GLOBAL ENVIRONMENT 249-54 (C. Wilson ed. 1970); Reports of the Preparatory Committee for the U.N. Conference on the Human Environment, U.N. Docs. A/Conf.48/PC.6, at 6 (1970), and A/Conf.48/PC.9, at 14 (1971).

3. A useful start in this direction has been made in GATT STUDIES IN INTERNATIONAL TRADE, No. 1, INDUSTRIAL POLLUTION CONTROL AND INTERNATIONAL TRADE (1971) [hereinafter GATT STUDY].

4. 61 Stat. pt. 5, at A3 (1947), T.I.A.S. No. 1700, 55 U.N.T.S. 194. For the current text of GATT, see IV GATT, BASIC INSTRUMENTS AND SELECTED DOCUMENTS 1 (1969) [hereinafter BISD].

the General Agreement on Tariffs and Trade (GATT).⁴ It will also bring into focus the economic arguments from the standpoint of the industrialized countries for effective multinational coordination of national pollution-control efforts.

B. *A Note on Methodology*

Economists, like lawyers, attempt to distill relevant facts from a given matrix, and to arrive at defensible conclusions based on those facts. But the facts that concern the economist change constantly as economic forces interact. His problem is one of making predictions that will be valid despite the changes of facts. To do this requires the selection of a few key elements—the relevant facts—that can serve as indicators for the direction the others will take. This usually means that the facts must be idealized in order to give them general validity in as many real world variations as possible. The point has been made by a noted economist:

[An economic] hypothesis is important if it “explains” much by little, that is, if it abstracts the common and crucial elements from the mass of complex and detailed circumstances surrounding the phenomena to be explained and permits valid predictions on the basis of them alone. To be important, therefore, a hypothesis must be descriptively false in its assumptions; it takes account of, and accounts for, none of the many other attendant circumstances, since its very success shows them to be irrelevant for the phenomena to be explained.⁵

The discussion below does not purport to set forth any fundamentally new economic hypothesis. It does, however, adopt the methodology of positive economics in order to isolate essential elements of the pollution-control problem. Because pollution-control policies are still in an evolutionary stage, there would be limited usefulness in an examination of the probable effects of existing pollution-control measures in, for example, the United States. More important is an attempt to distill key pollution-control variables facing any industrialized nation and to assess their implications. Consequently the discussion will make use of a hypothetical country with an epitomized pollution problem. Moreover, the analysis will deal with pollution controls that do not reflect all the imperfections to which such measures are subject in practice.

5. M. FRIEDMAN, *The Methodology of Positive Economics*, in *ESSAYS IN POSITIVE ECONOMICS* 14-15 (1953).

C. Marginal Pricing and Pollution Control

Optimal pollution control is one aspect of the problem of making efficient use of natural resources. A brief exposition of the manner in which pollution control fits into the theory of efficient resource utilization is basic to the discussion to follow.⁶

The relevant theoretical condition for maximum efficiency concerns the relationship of marginal costs of goods produced with their marginal values.⁷ At any given set of prices, it is a necessary (though not in itself sufficient) condition for maximum efficiency that the marginal cost of producing each commodity be equal to its marginal value. This means that the cost of producing the last unit (the marginal cost) must equal the value of that unit to consumers, indicated by the price they are willing to pay for it. If this equality does not hold, resources could theoretically be shifted in such a way that greater efficiency—greater net product for no higher cost—could be achieved. For example, if the marginal cost of an item exceeds its marginal value (price), the last units of that commodity are not worth the resource cost of producing them; greater efficiency would be attained by shifting resources out of that line of production into another, until the marginal cost is reduced to the level of the price.

The divergence between marginal cost and marginal value arises in the pollution-control context because the true marginal social cost of the commodity (including the cost to society of net pollution damage) is not reflected in the marginal private cost to the producer. Efficient use of resources occurs only when marginal *social* cost is equated with marginal social value. Consequently when marginal private cost of production is equated with marginal value, marginal social cost exceeds marginal value by the amount of pollution damage—if pollution damage is the only cause of divergence. The result is a pollution-caused “external diseconomy.”⁸

6. The present discussion bypasses significant questions of economic equity, such as the allocation of pollution-control burdens among segments of the international, national, or local community. The value judgments inherent in these questions would influence the choice among pollution-control approaches outlined in text accompanying notes 19-25 *infra*, and would affect the shape taken by any international pollution-control regime. The discussion assumes, in effect, that these value judgments can be made to the relative satisfaction of members of the community.

7. See generally J. MEADE, *TRADE AND WELFARE* 10-67 (1955). In the pollution-control context, see A. KNEESE & B. BOWER, *MANAGING WATER QUALITY: ECONOMICS, TECHNOLOGY, INSTITUTIONS* 75-84 (1968); E. MISHAN, *supra* note 1, at 45-52.

8. Economists have devoted considerable attention to the problem of bringing external diseconomies into the pricing system, focusing primarily on use of tax-subsidy schemes. The pioneering work was A. PIGOU, *THE ECONOMICS OF WELFARE* (4th ed. 1932). See also A. KNEESE & B. BOWER, *supra* note 7, at 97-142; J. MEADE, *supra* note 7,

A divergence could occur from a number of causes in addition to pollution, including taxes, tariffs, and monopolistic pricing. As we have noted, the attainment of maximum efficiency would require that all such divergences be eliminated. But it is virtually inconceivable that they could all be removed, even in a single country. This raises a problem of the "second best": Given that all divergences in the economy cannot be eliminated, the second best solution is not necessarily the removal of those that can be.⁹ If, for example, the effect of removing some divergences were to alter relative prices so that demand is increased for goods bearing higher marginal costs than marginal values, over-all economic efficiency could be reduced.¹⁰

Common sense and scientific opinion agree that something must be done about external costs imposed by industrial pollution. It would be most incongruous if economic theory were compelled to demur on the ground that such a course of action may not be the second best solution if all other divergences cannot be removed. If the divergence being corrected were slight, such a demurrer might indeed be forthcoming. But the greater the divergence, and the more pervasive its correction, the more likely it is that the net result will be a welfare gain even though other divergences remain.¹¹ Thus, if damage from industrial pollution in a given country is widespread and presently or potentially severe, a policy that seeks effectively to

at 30, 237; BURROWS, *On External Costs and the Visible Arm of the Law*, 22 OXFORD ECON. PAPERS (n.s.) 39, 50-51 (1970); TURVEY, *On Divergences Between Social Cost and Private Cost*, 30 ECONOMICA (n.s.) 309 (1963).

The Pigovian analysis, with its focus on equating private and social costs, has been challenged in Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960). Given the existence of transaction costs that prevent private parties from reaching bargains that will internalize social costs, it appears that Professor Coase's objections are less concerned with the concept of private-social cost divergence than with the problem of measuring net social cost in such a way that the value of production is maximized. See *id.* at 41-42. One aspect of this problem is discussed briefly in note 19 *infra*. Professor Coase's article contains more than the challenge to Pigou, and repays reading by any lawyer interested in environmental problems. For further discussion of the Coase approach, see Burrows, *supra* at 41-46, 49-51; Krier, *The Pollution Problem and Legal Institutions: A Conceptual Overview*, 18 UCLA L. REV. 429, 433-38, 444-49 (1971); Mishan, *Pareto Optimality and the Law*, 19 OXFORD ECON. PAPERS (n.s.) 255, 278-80 (1967); Mishan, *Reflections on Recent Developments in the Concept of External Effects*, 31 CAN. J. ECON. & POL. SCI. 3, 29-32 (1965). For a thoughtful survey, see Mishan, *The Postwar Literature on Externalities: An Interpretative Essay*, 9 J. ECON. LIT. 1 (1971).

9. See Lipsey & Lancaster, *The General Theory of the Second Best*, 24 REV. OF ECON. STUDIES 11 (1956); Mishan, *Second Thoughts on Second Best*, 14 OXFORD ECON. PAPERS (n.s.) 205, 213 (1962).

10. Cf. J. MEADE, *supra* note 7, at 244-53.

11. See *id.* at 223-25, 565-66; Mishan, 14 OXFORD ECON. PAPERS (n.s.) 205, *supra* note 9, at 214.

eliminate the pollution divergence throughout the economy must be presumed to provide a net domestic efficiency gain.

The discussion below accepts this proposition, and for expositional reasons proceeds as though the pollution divergence were the only one existing in the country. It deals with pollution-control systems designed to achieve maximum attainable economic efficiency by attempting, in so far as is possible, to equate marginal social costs roughly with marginal values. Framing the analysis in these terms permits conclusions to be drawn about the effect of intensified pollution control on consumer prices and output in terms of reasonably well understood behavioral principles of profit maximization. It has the further advantage of permitting the relevant economic variables to be analyzed diagrammatically. The exposition for a nonmarginal system would have to rely simply on a priori reasoning.

The conclusions reached are of general validity, even for systems that do not set standards by reference to marginal costs, so long as it is accepted that pollution control will raise costs at any given level of output and that net pollution damage will in general increase with increasing commodity output. Pollution-control methods are quite diverse. They include treatment of wastes before discharge to the environment, storage of wastes to give natural cleansing processes an opportunity to work, recycling, commercial use of by-products, alteration of basic inputs or production processes, and reduction in the volume of commodity output.¹² Some of these are, or may eventually become, cost-saving. For the foreseeable future, however, marginal and total cost for any level of commodity output may be expected to increase in the short run in virtually every industry encompassed by the pollution-control scheme.¹³

12. See, e.g., A. KNEESE & B. BOWER, *supra* note 7, at 105. Optimal over-all pollution-control policy involves public as well as private pollution-controlling activities. Although these public projects, such as sewage treatment, affect industrial pollution costs, our focus will be on pollution controls that have a more direct impact on business costs.

13. It is difficult to find data dealing with specific marginal costs of pollution control. It is reasonable to assume, however, that total pollution-control costs are related to quantities of output. One noteworthy cost study is ENVIRONMENTAL PROTECTION AGENCY, *THE ECONOMICS OF CLEAN AIR*, S. Doc. No. 92-6, 92d Cong., 1st Sess. (1971). It estimates the annual cost in the United States of compliance with the federal Clean Air Act, 42 U.S.C. §§ 1857-58a (1970), by fiscal year 1976 for the control of air pollution from industrial processes, alone, at over 1 billion dollars (in addition to capital investment costs), resulting in an increase in the general price level attributable to that source of about 0.14%. *Id.* at 1-7 to 1-9. The price estimate assumes that some of the increased annual costs will be absorbed rather than passed along to consumers. The cost figures do not include amounts for control of air pollution from fuel consumption or solid waste disposal, or for control of water pollution. The price level figure does include industries, such as real estate, not producing internationally traded goods, for

D. Assumptions

Let us assume that an economically developed country, *A*, is faced with a widespread and still inadequately resolved pollution problem to which most of its major industries contribute. This occurs in many cases as a by-product of production processes; in other cases it is caused by the consumer products themselves.

Country *A* is determined to carry out an efficient industrial pollution-control program. In the absence of an appropriate international control regime, *A* must face the possibility that its program will raise domestic industrial costs more than will the pollution-control programs of its major trading partners. In order to demonstrate the effect if that occurs, the discussion in part II assumes that industries in *A*'s major trading partners do not, in general, incur pollution-control costs equivalent to those incurred in *A*.¹⁴

In addition to its pollution-control goals, *A* has economic objectives that it does not wish to abandon. These include the prevention of recession and maintenance of international competitiveness on the part of its enterprises. The economic objectives have several motivations, including particularly the desire to provide employment for domestic labor, avoidance of the socioeconomic problems of readjustment for workers and firms in import-competing (or exporting) sectors of the economy, and the inability even under emerg-

which estimated price increases are negligible. *Id.* at 4-130. Thus, the estimated 0.14% price increase attributable to this source subsumes a greater increase for internationally tradable goods. Price estimates used in the study did not explicitly take into account the effect of import competition. Compare GATT STUDY, *supra* note 3, at 25 (breakdown by industrial sectors of projected price increases if major air-polluting industries meet standards of the Clean Air Act; median increase 0.80%); STUDIES FOR THE COUNCIL ON ENVIRONMENTAL QUALITY, DEPT. OF COMMERCE, AND ENVIRONMENTAL PROTECTION AGENCY, THE ECONOMIC IMPACT OF POLLUTION CONTROL 10 (1972) [hereinafter ECONOMIC IMPACT STUDIES] (price increases attributable to control of air and water pollution up to 10% by 1976 in eleven major United States industries).

See also CEQ 1971 REPORT, *supra* note 1, at 110-18 (projected annual and cumulative outlays for water and air pollution control in the United States); FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, I THE COST OF CLEAN WATER AND ITS ECONOMIC IMPACT 144-51 (1969) [hereinafter THE COST OF CLEAN WATER] (projection of costs of treatment of industrial wastes entering United States waterways); A. KNEESE & B. BOWER, *supra* note 7, at 158-64 (relatively modest, but positive, projected cost in terms of value of output for industrial water pollution control in the Delaware estuary); THE PROTECTION OF THE ENVIRONMENT, CMND. No. 4373, at 10 (1970) (costs of air pollution control for selected industrial processes in the United Kingdom, 1958-1968).

14. It is most unlikely that costs would rise uniformly in all—or even in any two—pollution-controlling industrialized countries. The disparities would result from differences in the relative magnitude of industrial pollution among the countries, in the stringency of each country's pollution controls, and in the age of existing industrial equipment. See GATT STUDY, *supra* note 3, at 7-9.

ing international monetary arrangements to ignore *A*'s balance of payments.¹⁵ Country *A* is also a party to GATT.¹⁶

It is necessary to compress the various abatement approaches *A* might take into a limited number of categories, each with its own distinguishing features.¹⁷ In keeping with the methodology discussed above, the descriptions are in terms of optimal systems and ignore most operating details as well as problems of administration.¹⁸

(1) *The pollution tax approach.* Country *A* may attempt to integrate pollution costs into costs of production by imposing a tax that is roughly equated to the (marginal) net cost to society of each firm's activities in excess of the private cost to the firm.¹⁹ The tax would

15. It is probable that a system of relatively fixed exchange rates (reflecting the adjustments emanating from the 1971 monetary crisis) will continue to be the prevailing international monetary arrangement for at least the next few years, when any effects of internationally uncoordinated pollution-control efforts would begin to manifest themselves. Widening of the band around parity (within which exchange rates are permitted to fluctuate) is the most significant of the emerging monetary changes for purposes of the present discussion. Such an arrangement, however, still involves relatively fixed exchange rates, and does not eliminate the need to attend to balance-of-payments considerations. If the widened-band arrangement is to be more than ad hoc, there must be an amendment to the Articles of Agreement of the International Monetary Fund. See Articles of Agreement of the International Monetary Fund, Dec. 27, 1945, arts. IV, §§ 3-4, XVII, 60 Stat. 1401 (1946), T.I.A.S. No. 1501, 2 U.N.T.S. 39. Cf. note 184 *infra*.

16. As of late 1971, there were eighty contracting parties to GATT. See GATT Press Release No. 1091 (1971); N.Y. Times, Oct. 19, 1971, at 68, col. 7 (city ed.). Several other nations were applying it de facto. See GATT Secretariat, *The Most-Favoured-Nation Clause in GATT*, 4 J. WORLD TRADE L. 791 (1970).

17. The categories are discussed in J. DALES, POLLUTION, PROPERTY & PRICES 81-84 (1968); Goldman, *Pollution: The Mess Around Us*, in CONTROLLING POLLUTION: THE ECONOMICS OF A CLEANER AMERICA 3, 20-38 (M. Goldman ed. 1967); Krier, *supra* note 8, at 459-75.

18. For discussion of some of the difficulties glossed over here, see, e.g., A. KNEESE & B. BOWER, *supra* note 7, at 109-24; Crocker, *Some Economics of Air Pollution Control*, 8 NATURAL RESOURCES J. 236 (1968); Davis & Whinston, *On Externalities, Information and the Government-Assisted Invisible Hand*, 33 ECONOMICA (n.s.) 303 (1966); Kneese, *Economics and the Quality of the Environment—Some Empirical Experiences*, in SOCIAL SCIENCES AND THE ENVIRONMENT 165 (M. Garnsey & J. Hibbs ed. 1967). Cf. K. KAPP, SOCIAL COSTS OF BUSINESS ENTERPRISE 21-23, 63-66 (2d ed. 1963); Mishan, *The Spillover Enemy*, 33 ENCOUNTER, No. 6, at 3, 6 (Dec. 1969); Plott, *Externalities and Corrective Taxes*, 33 ECONOMICA (n.s.) 84 (1966).

19. Marginal net cost to society (*S*) is (1) the price paid by the purchaser of the last item (*P*); plus (2) the marginal gross external damage (*D*) from its production (including estimated damage to such societal values as those concerned with aesthetics and recreation); less (3) any excess of the value of the pollution-affected resources (including all factors of production) in their best alternative use (V_A), over their remaining pollution-affected value in their existing use (V_E). Cf. A. KNEESE & B. BOWER, *supra* note 7, at 81-82; Coase, *supra* note 8, at 4-6. In algebraic form, $S = P + D - (V_A - V_E)$, where $(V_A - V_E) > 0$. As indicated in the text, the tax (*T*) would equal *S* minus the private marginal cost to the firm. In a world in which the only economic distortion is caused by pollution, the private marginal cost would equal the price (*P*). See text following note 7 *supra* and Figure 1 *infra*. Thus:

not be levied on any firm that eliminates the excess net cost of its activities. This would give each firm an incentive to reduce pollution to the point at which further reduction would cost more than the amount of the tax.²⁰ Since the tax would be equated to net damage, further reduction of pollution would cause a greater drain on society's resources than would the remaining pollution. Tax proceeds would be used for centralized pollution control, or perhaps in some cases to recompense members of society peculiarly damaged by industrial pollution. Whenever possible the tax would be imposed directly on such elements of, or inputs to, the production process as are responsible for external costs. It might also be imposed on the incorporation into the final product of materials or designs that pose a pollution hazard, at least in so far as the product is likely to be used domestically rather than exported.²¹

(2) *The legal regulation approach.* Country *A* could attempt to achieve essentially the same result accomplished by the tax approach by mandatory (nontax) legislation applied directly or through administrative bodies.²² Firms would be required to prevent pollution

$$\begin{aligned} T &= S - P \\ T &= [P + D - (V_A - V_E)] - P \\ T &= D - (V_A - V_E) \end{aligned}$$

where $(V_A - V_E) > 0$.

If $(V_A - V_E) < 0$, it is eliminated from the formula, so $T = D$ in such a case.

This approach would not involve elimination of all waste discharge and other external effects. To do so would be to ignore the purifying properties of the environment, thus wasting resources. For elaboration, see, e.g., Ogden, *Economic Analysis of Air Pollution*, 42 *LAND ECON.* 137, 139 (1966); Ruff, *The Economic Common Sense of Pollution*, *THE PUBLIC INTEREST*, No. 19, Spring 1970, at 69; Turvey, *Side Effects of Resource Use*, in *ENVIRONMENTAL QUALITY IN A GROWING ECONOMY* 47, 49 (H. Jarrett ed. 1966).

20. A tax scheme to regulate water pollution is presently in effect in the Ruhr area in West Germany. See A. KNEESE & B. BOWER, *supra* note 7, at 237-53. Some municipalities in the United States apply surcharges to industries that make particularly heavy demands on municipal sewage facilities. See 3 *THE COST OF CLEAN WATER*, *supra* note 13, at 29-30. President Nixon has proposed a tax on lead used in gasoline and a charge on the emission of sulphur oxides. See H.R. DOC. NO. 92-46, 92d Cong., 1st Sess. 3-4 (1971). These arrangements, however, do not attempt to equate marginal costs with marginal values.

21. Export of the pollution-engendering product would also export the pollution. If we assume a parochial pollution-control outlook on the part of *A*, there would be no point in applying a domestic tax in such a case unless there is also a pollution problem arising from the production process. See text accompanying notes 49-50 *infra*.

22. Legal regulation is the approach most widely adopted in the United States and United Kingdom. See, e.g., Federal Water Pollution Control Act, 33 U.S.C. §§ 1151-75 (1970); Clean Air Act, 42 U.S.C. §§ 1857-58a (1970). For the United Kingdom, see Rivers (Prevention of Pollution) Act of 1951, 14 & 15 Geo. 6, c. 64, § 2, supplemented by Clean Rivers (Estuaries and Tidal Waters) Act of 1960, 8 & 9 Eliz. 2, c. 54, § 1, and by Rivers (Prevention of Pollution) Act of 1961, 9 & 10 Eliz. 2, c. 50, § 1; Clean Air Act of 1956,

damage to a point determined by a legislative or regulatory body to be such that the cost of further control exceeds the net cost to society of further pollution from that source. If pollution control fell short of that point, the firm would be liable to members of the public—or to the government in behalf of the public—much as it would under the tax approach.²³ The optimal regulatory scheme would not specify the means firms must use to “internalize” pollution costs. It would restrict itself to setting forth the required results and leave it to firms to select the least expensive ways to achieve them.

(3) *The production subsidy approach.* Country A may offer to subsidize private measures to prevent pollution damage. In order to form the basis for a comprehensive attempt to control pollution, the subsidies would have to be more ambitious than tax write-offs for investment in pollution-abatement equipment.²⁴ They would have to provide an incentive to firms to eliminate net damage by the least costly available means. Thus, the optimal subsidies would be available for pollution control that eliminates the excess social (over private) cost of the pollution that would be engendered by firms in the absence of the pollution-control scheme. Subsidies would be based on marginal costs and would not be tied to the adoption of designated pollution-control methods.²⁵

For diagrammatic exposition, we assume that for each firm or industry there is a constant ratio of pollutant discharge per unit of commodity output, that each additional unit of pollutant results in a net amount of damage to society equal to the net damage from the previous unit, and that these conditions do not change over time. Let us further assume that there are constant returns to scale and that we are not dealing with a domestic monopoly. These assumptions are for convenience only; their absence would not invalidate the conclusions reached.

4 & 5 Eliz. 2, c. 52, §§ 1-6, supplemented by Clean Air Act of 1968, c. 62, §§ 1-4. See generally Krier, *supra* note 8, at 459-67, and references cited therein.

23. It is generally thought that it is more difficult to approach actual correlation between social and private costs with the legal regulation approach than with taxes. See J. DALES, *supra* note 17, at 85-86; A. KNEESE & B. BOWER, *supra* note 7, at 135-39; Mills, *Economic Incentives in Air-Pollution Control*, in *THE ECONOMICS OF AIR POLLUTION* 40, 44, 47-48 (H. Wolozin ed. 1966).

24. Several states in the United States offer tax exemptions for pollution-control expenditures. See McNulty, *State Tax Incentives To Fight Pollution*, 56 A.B.A.J. 747 (1970). Similarly, in the United Kingdom investment grants are available to cover a portion of such expenditures. See U.K. MINISTRY OF HOUSING & LOCAL GOVERNMENT, *REPORT OF THE WORKING PARTY ON SEWAGE DISPOSAL, TAKEN FOR GRANTED* 43 (1970).

25. See A. KNEESE & B. BOWER, *supra* note 7, at 101-09, 175-78.

At the macroeconomic level, we assume that the government of *A* will utilize fiscal and monetary policy to prevent aggregate demand in *A* from falling below its prepollution-control level, and that this can be done with relative success in the short run. Such a governmental policy may create tensions with the pollution-control objective, which might be best served by reductions in demand for some economically significant pollution-engendering goods. It is possible, however, to maintain aggregate demand while discouraging demand for selected items. That the government of *A* would try to do so seems realistic, since present-day governments in industrialized countries are generally unwilling to permit aggregate demand to fall significantly. It would be aided in its efforts by the inevitable increase in demand for products designed to control pollution.

It is important to keep in mind that what follows is a partial equilibrium analysis, necessarily limited to the pollution-control aspect of a complex over-all economic situation, which in the early 1970's includes elements of inflation and reviving protectionism. The impact of these phenomena will be noted as the discussion proceeds, but they cannot be analyzed here in detail.

II. ECONOMIC DISINCENTIVES AND TRADE POLICY

A. *The Pollution Tax or Equivalent Domestic Legal Regulation*

1. *Microeconomic Disincentives*

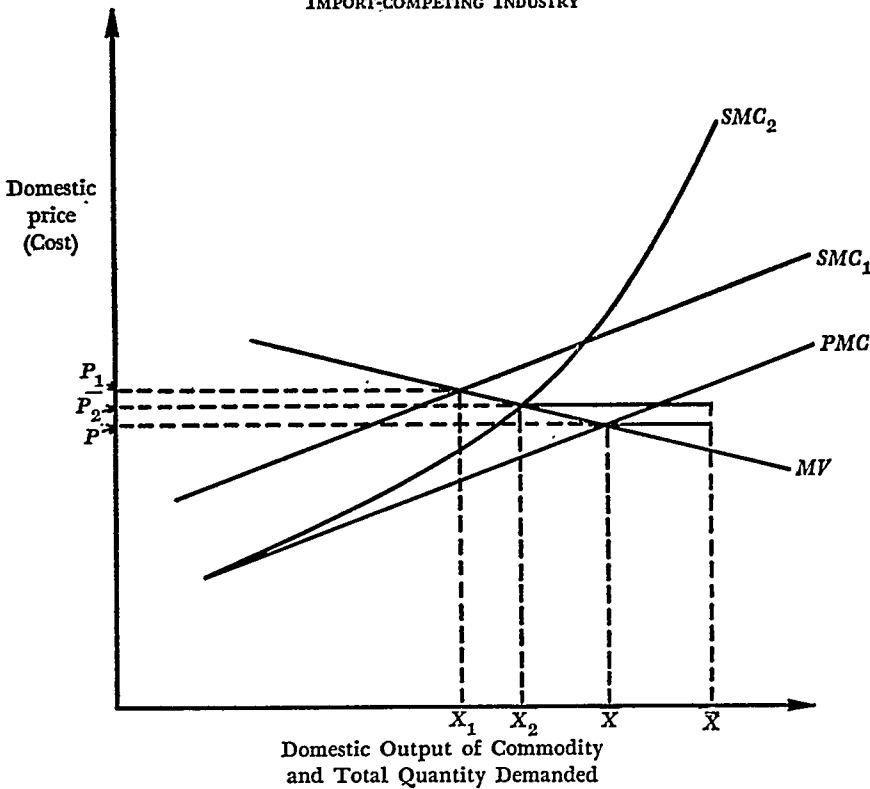
Figure 1 illustrates the situation facing a relatively large domestic industry that competes with imports but does not export the commodity concerned.²⁶ Pollution occurs as a result of the production process in the depicted industry, but the commodity produced does not pose a serious pollution problem in its consumption. The domestic output of the commodity is measured along the horizontal axis, and price (including cost to the industry) along the vertical. *MV* is the marginal value to consumers in *A* of the commodity produced by the domestic industry; *PMC* is the private marginal cost curve for the industry before *A* intensifies its pollution-control efforts; *SMC*₁ is the social marginal cost curve for the industry if a new tax equivalent to the marginal net pollution damage (net social cost in excess of private cost) from rising output is applied and firms do nothing

26. The diagram was suggested by a less detailed one in A. KNEESE & B. BOWER, *supra* note 7, Figure 16, at 101. It does not illustrate fixed costs for pollution control, since they are less significant for the determination of equilibrium prices and outputs than are marginal costs.

to avoid the tax;²⁷ and SMC_2 is the social marginal cost curve if each firm adopts the least expensive means available to avoid causing any net pollution damage from its activities. The MV line may be viewed as a short-term demand curve in country A for the domestic commodity, and the various MC lines as short-term domestic industry supply curves.

Figure 1 shows, on the assumptions we have made, comparative

FIGURE 1
EFFECT OF PRODUCTION TAX OR LEGAL
REGULATION APPLIED TO DOMESTIC
IMPORT-COMPETING INDUSTRY



equilibrium positions for the domestic industry before and after A 's pollution control intensification. As shown, the demand for domestic production of the commodity is not infinitely elastic, for MV is not horizontal. This means that the quantity of the commodity offered

27. The diagram illustrates the effect of both the tax and legal regulation approaches. For the sake of convenience the exposition is in terms of the tax approach, and is correlated with legal regulation *supra* in text following note 35 *infra*. For the definition of net social cost, see note 19 *supra*.

to the market in A by the domestic industry affects the price. This reflects any or all of three conditions: (1) reduced competition from imports because of existing trade barriers; (2) imperfect substitutability between the domestic product and competing imports, so that import competition does not fully prevent domestic firms, in the aggregate, from affecting prices in A ;²⁸ and/or (3) less than infinite elasticity of supply of imports in the short term, so that a reduction in domestic output (or an increase in its price) could not be wholly offset by new imports without a rise in the price of imports.²⁹

Firms in the domestic industry are profit-maximizers in the usual sense,³⁰ so that they arrive at the point at which the effective marginal cost to each of them equals the price.³¹ Before any pollution-control intensification occurs, the domestic industry produces an output of X units of the commodity at price P , reflecting the point of intersection between PMC (supply) and MV (demand). Total domestic demand for the commodity (including imports) is \bar{X} , with the difference between X and \bar{X} representing the domestic demand for imports at price P . If a pollution tax is applied to production,³² and if the firms in the industry choose to pay it rather than to make further pollution-control expenditures, marginal cost would reflect pollution damage and the supply curve would shift to SMC_1 . Domestic output

28. This does not necessarily mean that domestic firms consciously fix prices, or that there is a domestic monopoly. The reference is simply to the aggregate effect of the (presumably independent) acts of domestic firms in the industry.

29. Over the long run, if the domestic price remains above world prices (adjusted for existing trade barriers and transportation costs) for substitutable goods, the usual assumption in the absence of new trade barriers is that foreign supply capacity would be induced to grow. This would bring prices in A back down as imports increased. Thus, the third point above may be limited to the time period within which such conditions as lack of technology, of capital, or of market flexibility prevent foreign competition from stepping into the breach.

30. With imperfect competition, firms may administer prices on a cost-markup basis or by some other rule of thumb. For an empirical study, see Lanzillotti, *Pricing Objectives in Large Companies*, 48 AM. ECON. REV. 921 (1958). This does not mean that they ignore demand conditions, and is not inconsistent with the concept of profit maximization based on marginal cost and demand. Firms behave as though they were equating marginal costs and marginal revenues, whether or not their decision-makers go through that mental process. See G. ACKLEY, *MACROECONOMIC THEORY* 455 (1961); M. FRIEDMAN, *supra* note 5, at 15, 21-23.

31. The downward-sloping demand curve applies to the domestic industry as a whole. In the absence of monopoly, each firm in the industry faces a horizontal demand curve: its output, alone, does not affect the price. If there were a monopoly, the downward-sloping demand curve would apply to the individual firm, and the price would be set above marginal cost. See generally G. STIGLER, *THE THEORY OF PRICE* 195-99 (3d ed. 1966).

32. We are dealing with a production tax, rather than a tax on consumption of goods in A . For discussion of relevant distinctions between consumption and production taxes, see text accompanying notes 49-50 *infra*.

would be reduced to X_1 and price would rise to P_1 .³³ As the diagram is drawn, however, it is cheaper at output X_1 for firms in the industry to eliminate net pollution cost to society (in excess of private cost) than to pay the tax, since the SMC_2 curve is below SMC_1 at output X_1 . They would thus make the expenditures to avoid the tax, and would expand output in the aggregate to X_2 , at price P_2 . For the present, we assume that no new import barriers are erected, so domestic output and price would not rise above these levels.

In the absence of a shift in the MV (demand) curve, the precise locations of X_2 on the output axis and of P_2 on the price axis depend on the rates of change in marginal costs and marginal value, represented by the slopes of the various curves. Those slopes will not necessarily be as shown in the diagram. In particular, the slope of SMC_2 —the rate of increase of the cost of pollution-damage avoidance—at any given point might vary widely from that shown. Depending on its rate of increase, final equilibrium output (X_2) could be as low as X_1 , but not lower; if SMC_2 rose steeply to the left of the intersection between SMC_1 and MV , firms would stop paying the marginal cost of net pollution-damage avoidance when SMC_2 crosses SMC_1 , and would then pay the tax and expand output until the SMC_1 - MV intersection is reached (at output X_1). X_2 could not be as far to the right as X , so long as effective pollution control results in increased marginal costs. This would be so even if SMC_2 did not rise relative to PMC ; it need only be anywhere above PMC . Similarly, P_2 could not be higher than P_1 , and would have to be higher than P unless demand for the domestic industry's output is infinitely elastic (*i.e.*, unless MV is horizontal).³⁴ This demonstrates the strong likelihood that effective unilateral pollution control by means of taxes applied to a large domestic industry will result in an increased domestic price for its product and reduced output.

33. The production tax would not directly affect prices of goods imported into *A*. This inhibits the ability of firms in *A* to pass along the amount of the tax. A consumption tax (which might be applied to the use of pollution-engendering commodities in *A*) would directly affect imports and could more readily be passed on to the purchaser. See generally A. HART, P. KENEN & A. ENTINE, MONEY, DEBT AND ECONOMIC ACTIVITY 258 (4th ed. 1969); Krauss, *The Issue of Border Tax Adjustments*, 3 J. WORLD TRADE L. 553, 560 (1969).

34. These limits would not apply if the MV curve has shifted. It could shift, for example, as a result of the income-redistribution effect of the pollution-control scheme, or because of other income changes (including those resulting from the effect on real incomes of higher aggregate prices). If MV did shift, the limits for X_2 and P_2 would also shift. We have assumed, however, that the government of *A* would act to keep aggregate demand roughly stable in the short run. This would be likely to forestall any substantial shift of MV .

Figure 1 also demonstrates the potential increase in imports of a given commodity resulting from intensified pollution control, on our assumption that the government will act to prevent aggregate domestic demand from falling in the short run, even though prices increase. If the price increase for the commodity depicted in Figure 1 is not substantially out of proportion with increases for goods that consumers might substitute for it, total domestic demand for the depicted commodity could be expected to remain approximately at \bar{X} . The share supplied by imports has now increased from $X-\bar{X}$ to $X_2-\bar{X}$.³⁵

If A uses the legal regulation approach keyed to marginal costs and values, the analysis is similar. In the optimal case, the only difference for our purposes would be that a legislative or regulatory body would estimate the point at which the cost of further control exceeds the net cost to society of further pollution (*i.e.*, the point at which SMC_2 intersects SMC_1). If that point is reached within the limits of profitable production (before SMC_2 crosses MV), firms would be liable to members of the public—or to the government in behalf of the public—for the net pollution cost of further production. In effect, they would proceed along SMC_1 from that point. The result would be the same as in the case of the pollution tax.

It is important to note that the increase in imports suggested by Figure 1 would be probable even if the rise in marginal costs in the domestic industry were relatively minor. International trade flows since World War II have become highly sensitive even to small changes in incomes, costs, and prices as natural and artificial trade barriers have receded.³⁶ This is a matter of considerable significance to any discussion of the economic effects of comprehensive unilateral pollution control, in light of the strong likelihood that costs will increase when effective pollution-control measures are applied.³⁷ Excess

35. Of course, aggregate demand might be maintained while demand for a given commodity falls. A commodity heavily laden with pollution-control costs may have a relatively pollution-free substitute in which case demand for it would shift downward. Imports, however, may still command an increased share of the (diminished) market for such a commodity. Cf. CEQ 1971 REPORT, *supra* note 1, at 132.

It is noteworthy that Figure 1 could also illustrate the reduction in exports of a domestic export industry, or of the profit-maximizing export divisions of firms in an industry, after imposition of the production tax or regulation. The MV curve would be the foreign demand curve facing A 's producers, and the reduced output would represent reduced exports.

36. See R. COOPER, *THE ECONOMICS OF INTERDEPENDENCE: ECONOMIC POLICY IN THE ATLANTIC COMMUNITY 76-77* (1968); GATT STUDY, *supra* note 3, at 11. For discussion of the forces leading to this result, see R. COOPER, *supra* at 63-76.

37. This means, for example, that projections of relatively modest cost for some

capacity would develop in the domestic industry, in terms of manpower as well as physical plant. Shifts in demand among domestic industries (away from products of high-pollution industries and toward low-pollution substitutes as well as toward products specifically designed to control pollution in the production or consumption of other products) may prevent the general level of domestic economic activity from falling sharply. But if high-pollution industries are significant exporters or import competitors, the aggregate balance of trade may suffer.³⁸

2. Possible Macroeconomic Disincentives

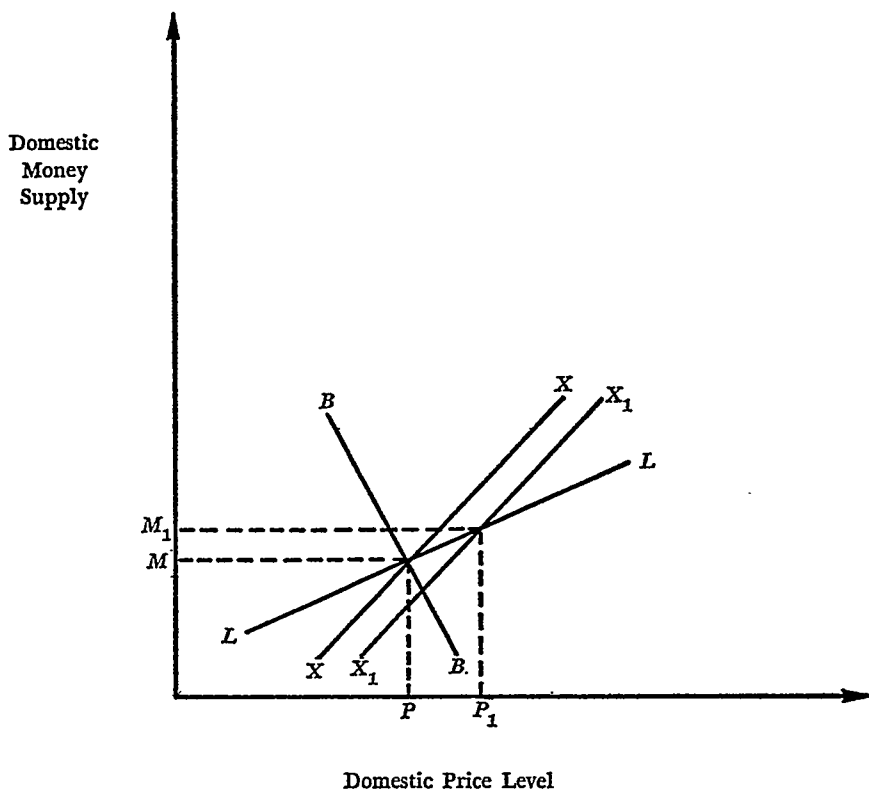
The macroeconomic consequences of pollution-control measures affect most import-competing and exporting industries, assuming *A* takes steps to ensure that the level of aggregate domestic demand does not fall, may be shown with the aid of a simple diagram in which the existence of a capital market is ignored and the role of money in the economy is emphasized. In Figure 2, the domestic price level for home-produced goods is measured along the horizontal axis, and the domestic supply of money along the vertical. Everywhere on the *LL* line, domestic monetary conditions are in equilibrium in the sense that the demand for money equals the supply. Along *XX* and *X₁X₁*, the domestic and foreign demand for domestic goods equals the supply of domestic goods. *XX* represents equilibrium in the market for domestic goods before intensification of pollution control, *X₁X₁* afterward. Along *BB*, the price level and money supply are such that the balance of trade is zero—the aggregate value of imports equals the aggregate value of exports.³⁹

industrial pollution control—as in A. KNEESE & B. BOWER, *supra* note 7, at 161 n.10—cannot be taken to resolve the economic questions surrounding efficient pollution control.

38. Compare CEQ 1971 REPORT, *supra* note 1, at 132-33, which seeks to minimize this risk for the United States by indicating that the major polluting industries account for only about 19% of the value of United States import competition and a like percentage of the value of exports. These percentages, which are not insignificant, are pre-pollution control and do not take account of all industries facing foreign competition that have significant pollution-control costs. See ECONOMIC IMPACT STUDIES, *supra* note 13, at 328-29 (projected decline in United States trade balance of 2 or 3 billion dollars by 1980 if the Government acts to maintain domestic demand in the face of pollution-control costs and United States trading partners do not incur price increases from environmental regulations abroad; the decline would be less severe, of course, with foreign price increases).

39. Figure 2 was suggested by a more rigorously defined diagram in R. MUNDELL, INTERNATIONAL ECONOMICS 118, Figure 8-3 (1968). Professor Mundell's diagram, however, does not purport to demonstrate the effect of a change in domestic equilibrium. Cf. *id.* at 217-32. For the derivation of the diagram, see *id.* at 114-19. It assumes relatively fixed exchange rates. See note 15 *supra*.

FIGURE 2
BALANCE OF TRADE IN COUNTRY A



If we assume that country A was in balance-of-trade equilibrium before it intensified its pollution-control efforts, the initial aggregate price level would be P and the money supply M . If pollution control results in price increases that are validated by A 's monetary policy designed to maintain a supply of money just equal to the demand (and—though this is not necessarily the same thing—to maintain the aggregate level of demand for goods), a new short-run equilibrium in the goods market may be reached at the intersection between X_1X_1 (representing a higher aggregate price level at which demand and supply in the goods market are equalized) and LL . The price of domestic goods will have risen to P_1 , and the money supply to M_1 . But it is clear from the diagram that these levels are too high for balance-of-trade equilibrium, since the intersection between X_1X_1 and LL is to the right of, and above, the BB line.⁴⁰ If there were no

40. If country A is large enough so that its demand and supply conditions affect

capital market, country *A*'s balance of payments would be in deficit.

With a capital market, the government of *A* might be able to attract short-term capital by interest rate increases (though this would work at cross purposes with the objective of maintaining demand for goods), and some long-term capital may flow in to finance new investment in pollution-control equipment. Whether these potential inflows would offset the trade deficit cannot be determined in the abstract. If not, and if *A* remained committed to a policy of maintaining aggregate demand (a policy that props up demand for imports), there would be a balance-of-payments problem.⁴¹ If there are exogenous inflationary forces at work in *A*'s economy to a stronger degree than in *A*'s trading partners, the balance-of-payments problem would be exacerbated; conversely, it would be ameliorated if the rate of inflation is greater in the trading partners.

B. Trade Measures

The discussion to this point suggests that, in the absence of international regulation to achieve some rough measure of pollution-control cost-equalization among developed countries, there are significant deterrents to optimal industrial pollution control through production taxes or legal regulation in an open, industrialized economy.⁴² It remains to be seen, however, whether unilateral policy measures could effectively mitigate these economic disincentives. Devaluation would be appropriate for maintaining external balance if the price change in *A* is general and if the price differential between *A* and its trading partners is expected to be long-term; moreover, there are indications that the political barriers to devaluation

world prices, *BB* could shift to the right. There is no guarantee, however, that it would shift far enough to coincide with the intersection between X_1X_1 and *LL*.

41. For a discussion of the mechanisms of balance-of-payments adjustment, see A. HART, P. KENEN & A. ENTINE, *supra* note 33, at 325-36. Cf. R. BALDWIN, NONTARIFF DISTORTIONS OF INTERNATIONAL TRADE 91-92 (1970), discussing the adjustment mechanism when taxes on all domestic products are increased. The balance-of-payments problem would arise even under the emerging changes in the international monetary system, though its severity could be relieved by the wider band around parity and by a greater willingness to alter par values than has heretofore existed.

42. An additional economic disincentive to effective pollution control in the industrialized countries may result from the combination of relative international mobility of capital (despite controls on capital movements in some countries) and the appealing prospect to entrepreneurs of low pollution-control costs in many developing countries. Cf. R. COOPER, *supra* note 36, at 98-99; GATT STUDY, *supra* note 3, at 11, 23. Industrialized countries, though sympathetic to the felt needs of developing nations for capital and technology, will be reluctant to risk large-scale displacement of domestic industrial activities—and possible unemployment problems—as a result of their pollution-control efforts. If such problems arise, new capital controls may well appear.

are receding.⁴³ But if the trade imbalance were expected to be short-term, or if new political barriers to devaluation appear, import surcharges would be attractive to national decision-makers—as the events of August 15, 1971, in the United States have shown.⁴⁴

If the price change in *A* were confined primarily to a few industries, or if *A*'s pre-existing payments position were sufficiently strong, devaluation would be inappropriate on economic as well as political grounds. There would be a strong temptation, however, to adopt selective import duties or quotas to protect specially affected industries. Protective pressures already exist, of course, in some industrialized countries. Consequently, even in the event that unilateral pollution control would pose no balance-of-payments problems for country *A*, it is necessary to consider the effect of new trade measures intended to mitigate the economic disincentives to pollution control.⁴⁵

To illustrate the probable microeconomic effect of new import duties complementing a production tax or legal regulation scheme, Figure 1 is reproduced below as Figure 3, with the addition of a new MV_1 curve. It depicts the demand facing the domestic industry after the import duty is imposed.⁴⁶ Its precise position depends on the effective rate of the duty; its slope depends on the elasticity of demand for the product in general and the collective market power of the firms in the domestic industry.⁴⁷ The MV_1 curve has been

43. See, e.g., *The Washington Post*, Dec. 20, 1971, § A, at 1, col. 4.

44. See Proclamation No. 4074, 36 Fed. Reg. 15724 (1971).

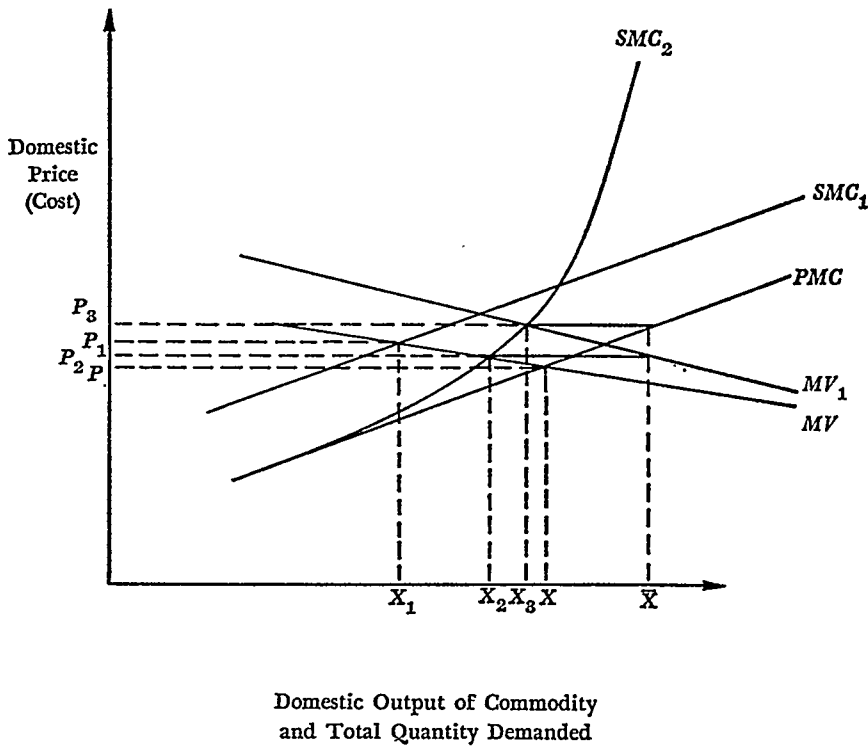
45. It has been observed that pollution damage "is particularly severe in the basic industries to which all industrial countries attach particular importance." GATT STUDY, *supra* note 3, at 13. There would be strong incentives to apply trade measures in behalf of such industries. If such measures are adopted, there could be strong pressures from other domestic industries for similar protection. *Cf. id.* at 14.

In the discussion of economic effects, we shall neglect the question of *A*'s freedom to impose new trade measures consistently with its GATT obligations. These obligations are considered in part III *infra*. In addition, we shall postpone until the end of this section consideration of the possible effect of retaliation by *A*'s trading partners.

46. The exposition is in terms of import duties rather than quotas. MV_1 , however, could as well illustrate the effect of an import quota. The protective effect would be essentially the same, though a quota—unlike the normal import duty—could prevent an increase in domestic demand from being reflected in increased imports. See generally R. BALDWIN, *supra* note 41, at 31-34; J. MEADE, *supra* note 7, at 173-75; G. VERBIT, TRADE AGREEMENTS FOR DEVELOPING COUNTRIES 65-66 (1969).

47. The effect of an import duty on domestic production also depends on the elasticity of supply in the domestic industry, reflected in the slopes of the *MC* curves and their intersections with *MV*. See generally R. COOPER, *supra* note 36, at 239. The appropriate magnitude of a duty designed to offset pollution-control costs would not always be easy to determine. It would depend not only on the size of increased costs directly imposed on the industry to be protected, but also on the increased cost to it of pollution-controlled intermediate products. See GATT STUDY, *supra* note 3, at 12-13, 18.

FIGURE 3
PROTECTIVE EFFECT OF TARIFF FOR
DOMESTIC IMPORT-COMPETING INDUSTRY



given a steeper slope than MV , to reflect increased collective market power of the domestic industry resulting from the new duty.

The new domestic output and price are indicated by the intersection between SMC_2 and MV_1 , the effective supply and demand curves for the domestic industry. As the diagram is drawn, the combination of tariff rate and demand-supply conditions has increased domestic output to X_3 . On our assumption of relatively stable aggregate demand maintained if necessary by monetary and fiscal policy, imports would be reduced from $X_2 - \bar{X}$ to $X_3 - \bar{X}$. Domestic output, however, has not returned to its original level. Whether it would in a given case depends on the factors that determine the position and slope of MV_1 , as well as on the maintenance of over-all demand in the face of price increases.

The introduction of new import duties could directly affect A 's pollution-control objective, though this would not be the case as the

diagram is drawn. As shown, firms would still be making the necessary pollution-control expenditures as domestic output rises from X_2 to X_3 , since the social marginal cost of doing so (SMC_2) is still below the marginal tax or regulatory burden (SMC_1) at that point.⁴⁸ If SMC_2 rose more steeply and crossed SMC_1 to the left of the SMC_1 - MV_1 intersection (*i.e.*, if pollution-control expenses rose more rapidly with output than shown), pollution control by the industry would fall short of full elimination of the marginal net cost to society in excess of the industry's private cost. Instead, firms would be paying the pollution tax (or incurring liability) over part of their output range. This of course is more likely the greater the domestic output. Thus, it is more likely with tariff protection than without, since the tariff would normally increase domestic output.

Such an increase in domestic output would not necessarily frustrate A 's pollution-control objectives, since the tax or liability proceeds, if equated to marginal net social cost, would reimburse society for its loss. The proceeds could be used for centralized pollution control. In practice, however, the presumption in terms of optimal pollution abatement must be against the adoption of measures that could stimulate production beyond the point at which it becomes uneconomical for firms to take fully effective abatement steps, even though a payment is made in lieu of prevention. This is dictated in part by the inevitable leakage to administrative, legal, and other costs when the tax is paid or the liability incurred. It is also dictated by the substantial risk that the pollution-control standard, represented in the diagram by the marginal damage line (SMC_1), will be set too low as a result of political pressures or inability to foresee and/or estimate accurately the environmental costs involved. If the standard is too low, the tax or liability will by definition provide insufficient reimbursement for pollution damage.

The discussion to this point has assumed that any import duty would be applied in conjunction with a tax on production in A . But if A imposed a consumption tax on goods sold or used in A , wherever produced, tariff protection would be unnecessary. In theory, such a tax could effectively deal with pollution damage caused by consumer products themselves. It would discourage consumers from purchasing goods that impose heavy pollution costs, and encourage producers at home and abroad to install pollution-control devices or

48. The industry, however, would be incurring greater marginal and total pollution-control costs than in the absence of import duties.

improve the product's composition if the consequent price increase would be less than the amount of the tax.

The consumption tax, however, would not be appropriate to reach pollution arising in the production process. It could not normally be tailored to the specific causes of the pollution in such a manner as to induce changes in production methods. Moreover, it would have no effect on the production of items for export (since they are normally exempted from a consumption tax in the country of export), except in so far as it is levied not on final goods but on inputs into the domestic production process.

Similarly, the production tax has not been thought appropriate to deal with pollution caused in the process of consumption.⁴⁹ But this case may not be entirely symmetrical with the consumption tax case. It is true that if *A* is concerned with pollution only within its own territory, there would be no point in imposing a tax on the production of an item for export when the damage occurs only in its consumption. To the extent, however, that the item is produced for home consumption as well as for export, there may be some practical advantage to a tax or regulation imposed directly on the producer, who is in a position to correct whatever pollution-creating propensities are built into the item.⁵⁰ In addition, if production methods as well as the final product contribute to pollution damage, there may be an advantage in dealing with both problems at once in the production stage.

This Article is not the place to argue these points. It is sufficient to note that the production tax or regulation may not be wholly irrational as a means of reducing consumption pollution, at least if a significant proportion of the output is consumed at home. The question for present purposes is whether new trade measures would be likely as a result.

An export subsidy is the obvious candidate. A combination of production tax and export rebate could simulate the effect of a consumption tax. If the export rebate is limited to the burden imposed on production with respect to harm caused by the end product, it would not defeat *A*'s parochial pollution-control objectives and would

49. Cf. Krauss, *supra* note 33, at 560-61.

50. See MAN'S IMPACT ON THE GLOBAL ENVIRONMENT, *supra* note 2, at 228; Gilbertson, *Present and Future Trends in Municipal Disposal of Solid Wastes*, in W.H.O. PUBLIC HEALTH PAPERS NO. 38, PROBLEMS IN COMMUNITY WASTES MANAGEMENT 9, 19 (1969); Kneese, *Air Pollution—General Background and Some Economic Aspects*, in THE ECONOMICS OF AIR POLLUTION 23, 36 (H. Wolozin ed. 1966).

help to preserve the price competitiveness of the exports.⁵¹ If the rebate extended to pollution damage resulting from the production process, however, it would frustrate *A*'s pollution-control efforts; export of the product would avoid the (tax) burden of pollution control without also exporting the pollution. The result would be the same with the combination of production regulation and export subsidy, unless the sanction for failing to meet the regulated standard is something more than liability refundable upon export.

The foregoing analysis has suggested that tariffs and limited export subsidies would be attractive to *A* as a means of protecting individual industries or, with pollution control extending throughout the economy, as possible corrective measures for balance-of-payments difficulties—though with some risk to the attainment of optimal pollution control. The discussion, however, has assumed the absence of retaliation by *A*'s trading partners. If they did retaliate with trade measures of their own, they could diminish the exports of some of *A*'s industries or offset at least part of the balance-of-payments gain. The degree to which *A*'s trade measures would be neutralized depends on the extent of the retaliation and upon *A*'s monopolist or monopsonist power in world markets, but the potential ability collectively to affect *A*'s trade in some degree is virtually certain.

Trade retaliation is, of course, the ultimate sanction under the GATT for unilateral measures that violate GATT provisions or that impair benefits otherwise accruing to members.⁵² We will consequently examine in part III the arguments under GATT for and against the legitimacy of *A*'s possible trade measures. Before doing so, however, it is necessary to consider briefly the production subsidy pollution-control approach.

C. *Production Subsidies*

At first glance it might appear that by subsidizing pollution control at the production stage, *A* could hold down commodity prices, prevent loss of international competitiveness, and avoid a balance-of-payments problem. Unfortunately, it is not so simple.

If production subsidies are widely employed, much depends on

51. The widespread use of nonuniform export subsidies and import charges, however, would probably result in resource misallocation. See, e.g., R. BALDWIN, *supra* note 41, at 21, 48-57. On the use of uniform export subsidies to complement import duties for balance-of-payments adjustment, see *id.* at 19-22; *Hearings on a Foreign Economic Policy for the 1970's Before the Subcomm. on Foreign Economic Policy of the Joint Economic Comm.*, 91st Cong., 1st Sess., pt. 1, at 55 (1970) (statement of R. Cooper).

52. See GATT, art. XXIII. Cf. arts. VI; XIX, para. 3; XXVIII, para. 4.

the method used to raise funds for the subsidies.⁵³ If it is done primarily by increasing taxes, the income redistribution effect (taxing the general public and indirectly subsidizing a new pollution-control equipment industry) could cause a downward shift in the demand curve facing any given consumer goods industry. Because the taxes would be spent for pollution-control equipment and operating costs, there would not necessarily be a tax-engendered deflationary bias in the economy. The balance-of-payments effect would be indeterminate. Alternatively, if the subsidy funds are raised by increasing the domestic money supply, there would be an upward shift in the demand curve facing any industry producing normal goods, and inflationary pressures would affect the balance of payments.

There is a middle ground for financing the subsidies, but it too may fall short of solving the problems we have been discussing. If a fiscal-monetary mix is used such that demand remains roughly stable—a policy choice consistent with our basic macroeconomic assumption—it is entirely possible that prices would rise and output fall despite the subsidy. The reason may best be seen by reference again to the marginal cost-marginal value approach to pollution control. In such an optimal system, production subsidies would be offered for avoidance of excess net social cost through simple reductions in output as well as for adoption of positive measures to avoid damage. The subsidy would be limited to the excess net social cost attributable to any unit of output if control measures were not taken. The effect would be to increase the alternate opportunity cost (out-of-pocket cost plus forgone benefits) of producing at the former output, since firms would not only pay their out-of-pocket costs but would also lose the opportunity to receive the subsidy. Thus, firms would be induced to abate pollution damage, either by reducing output or by taking (subsidized) steps to control pollution.⁵⁴ If they do the former, not only would output fall, but prices would rise as well if the demand curve facing the domestic industry is less than infinitely elastic (as shown in our diagrams).

If it is more profitable to take affirmative pollution-control steps, output could still fall and prices rise if the marginal cost of avoiding

53. The use of production subsidies as a major tool for pollution control would require heavier funding than the use of export subsidies to complement one of the other pollution-control approaches. Hence the method of raising funds is relatively more important to the determination of the economic consequences.

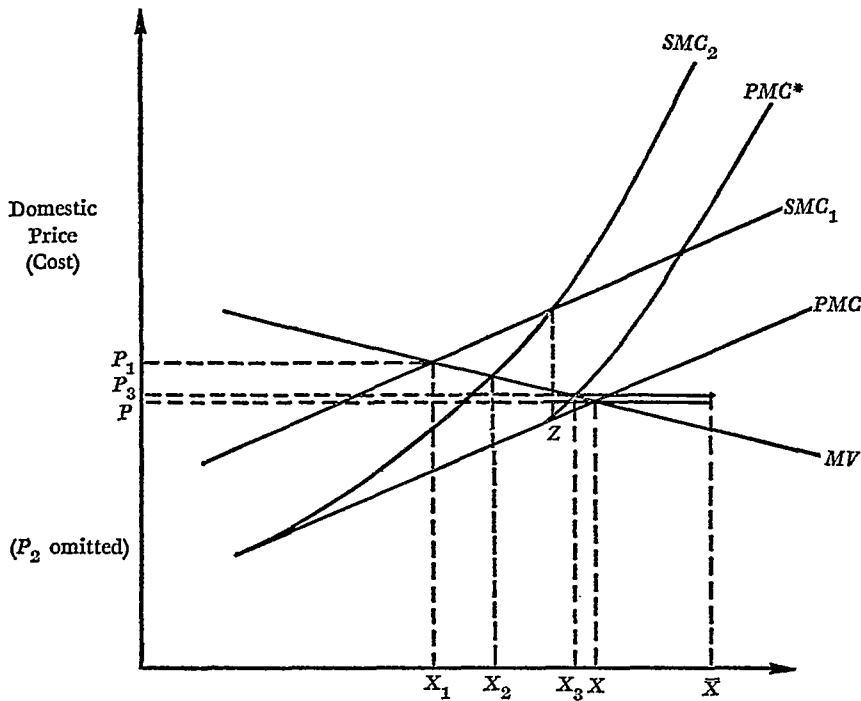
54. For a demonstration of this fact, using a model in which firms can control pollution only by reducing production, see A. KNEESE & B. BOWER, *supra* note 7, at 101-02.

excess net social cost increases rapidly at relatively low outputs. The maximum subsidy could be reached before output has returned to its former level. Any further output would be at a marginal alternate opportunity cost higher than that prevailing before pollution control. In effect, the supply curve would shift upward, and would therefore cut the (stationary) demand curve at a lower level of output and higher price than before.

This is demonstrated in Figure 4, which again is an adaptation

FIGURE 4

EFFECT OF PRODUCTION SUBSIDY APPLIED TO DOMESTIC IMPORT-COMPETING INDUSTRY



Domestic Output of Commodity and Total Quantity Demanded

of Figure 1. As output of the domestic industry expands along SMC_2 , the production subsidy holds net private marginal cost to PMC until expenditures for avoidance of excess net social cost from pollution are no longer fully reimbursed (until SMC_2 cuts SMC_1). Further production, with expenditures for avoidance of excess net social cost, would follow PMC^* until it intersects the demand curve, MV .

PMC^* is parallel to SMC_2 and begins at point Z, which corresponds to the point at which expenditures for avoidance of excess net social cost are no longer fully reimbursed. Along PMC^* , private marginal cost consists of (a) the normal out-of-pocket marginal cost, plus (b) the amount by which marginal expenditures for avoidance of excess net social cost are greater than the maximum available subsidy.⁵⁵ As the diagram is drawn, the price would be slightly higher, domestic output slightly lower, and imports slightly greater than before pollution-control intensification.

Therefore, even if the subsidy funds are raised by a balanced fiscal monetary policy, international competitiveness could suffer.⁵⁶ The adverse effects, however, would normally be less severe than in the case of unilateral production taxes or regulatory measures and might be avoided entirely if pollution abatement costs do not rise too rapidly with output.

There are other distinctions between the subsidy approach and the tax and regulatory approaches. The effect on domestic income distribution would differ from that of the other two approaches, since different groups would bear the ultimate pollution-control costs. The total resource cost is greater with production subsidies than with production taxes or regulation unaccompanied by trade barriers, because of the greater output to which pollution-control costs attach.⁵⁷

Finally, as in the case of new import duties, there is the possibility of trade retaliation that could offset, at least in part, the price and output advantages of production subsidies. This, of course, is part of the broader question of legitimate trade measures in the existing international legal order, to which we turn in part III below.

D. Summary

Part II has attempted to demonstrate not only what one would intuitively expect—that effective, comprehensive pollution control is likely to result in price increases—but also that these increases, in an economy that is at least relatively open to international trade,

55. If these expenditures were not made after SMC_2 intersects SMC_1 , marginal alternate opportunity cost would rise immediately to SMC_1 and output would not expand beyond point Z. It would clearly be more profitable for firms in the industry to make the expenditures even though they are not fully subsidized, and to expand output to X_B .

56. As we have seen, trade flows are quite sensitive even to relatively slight changes in cost and price differentials. See text accompanying note 36 *supra*.

57. The caveat concerning production-stimulating policies, expressed in connection with import duties in text following note 48 *supra*, applies here as well.

and in the absence of comparable pollution control by most or all major trading partners, are likely to result in reduced domestic output and a drop in employment in the affected industries. In addition, unilateral pollution control could contribute to balance-of-payments difficulties, even with a wider band around new currency parities, unless counterbalancing measures are adopted. The use of subsidies would not be a complete answer. They would not ensure international competitiveness, and would tend to boost domestic production beyond the optimal pollution-control level.

Devaluation would be appropriate if balance-of-payments difficulties are expected to persist, but not if the problems of import-competing and exporting industries do not rise to the level of a payments imbalance for the nation, or if the payments imbalance were expected to be transitory (which, of course, is not the same as saying that it is inconsequential). Without effective international pollution-control coordination, the temptation will be strong to erect new import barriers. These could restore some of the lost domestic output and employment, but at a cost in terms of resource misallocation. Questions are raised about how such trade-related measures fit into the existing international legal order. These questions are considered in part III.

III. POLLUTION CONTROL IN THE EXISTING WORLD TRADE ORDERING SYSTEM

The existing legal order for world trade is built around the GATT, which reflects postwar trade liberalization policies directed toward the elimination of nontariff barriers to trade and the gradual reduction of tariff barriers.⁵⁸ The goals of economic growth and "full

58. On the background to GATT, see G. CURZON, *MULTILATERAL COMMERCIAL DIPLOMACY, THE GENERAL AGREEMENT ON TARIFFS AND TRADE AND ITS IMPACT ON NATIONAL COMMERCIAL POLICIES AND TECHNIQUE* 15-33 (1965); K. DAM, *THE GATT; LAW AND INTERNATIONAL ECONOMIC ORGANIZATION* 10-16 (1970); J. JACKSON, *WORLD TRADE AND THE LAW OF GATT* 35-57 (1969). These three books together provide a comprehensive picture of the world trade system under GATT. For narratives on the rise and fall of the abortive Havana Charter for an International Trade Organization (which would have included the substance of the GATT), see W. DIEBOLD, *THE END OF THE I.T.O.* (Princeton Essays in Intl. Fin. No. 16, 1952); R. GARDNER, *STERLING-DOLLAR DIPLOMACY* 348-80 (2d ed. 1969). On the substance of the Havana Charter, see C. WILCOX, *A CHARTER FOR WORLD TRADE* (1949).

The General Agreement incorporates the commercial policy provisions of the Havana Charter. Consequently the preparatory work relating to those Charter provisions is relevant to the GATT. It stems primarily from the United Nations Conference on Trade and Employment, held in Havana in 1947-1948 [hereinafter Havana Conference]. On the use of preparatory work and other materials outside the instrument in interpreting the General Agreement, see J. JACKSON, *supra* at 17-26. Cf. Vienna Convention on the Law of Treaties, art. 31, 63 AM. J. INTL. L. 875, 885 (1969) (not in force).

use of the resources of the world" through freer trade appear in the preamble.⁵⁹ The body of the Agreement contains detailed provisions designed to achieve these goals, but includes a number of important exceptions that will be the focus of much of the following discussion.

In the absence of an international pollution-control regime dealing with economic as well as ecological and biological considerations, GATT provides the major external legal restraint on the freedom of national decision-makers to effectuate domestic policies designed to mitigate the economic effects of industrial pollution control.⁶⁰ GATT provisions for consultations with other parties and with the CONTRACTING PARTIES⁶¹ seek to ensure that national officials concerned with trade matters take into account the interests of trading partners as reflected in GATT substantive rules.⁶² Negotiations subject to the sanctions of international disapprobation and possible retaliation have provided a reasonably effective means of restraining trade-reducing conduct inconsistent with GATT, so long as perceived vital national interests, which cannot be served within the letter of the General Agreement, are not at stake.⁶³ It will therefore be important to ask, first, whether the measures we have examined in part II are consistent with GATT substantive rules, and then whether those rules are adequate for resolution of the conflict between economic and environmental interests.⁶⁴

59. For a summary of the economic benefits to be derived from trade liberalization, see B. BALASSA, *TRADE LIBERALIZATION AMONG INDUSTRIAL COUNTRIES* 69-124 (1967). The reduction of individual tariffs raises questions under the economic theory of the second best. See text accompanying notes 9-11 *supra*. It is the philosophy of GATT, however, and is generally accepted as a practical matter, that a continuing process of nondiscriminatory trade liberalization is beneficial, at least among countries similar in economic structures and in stages of development. See, e.g., G. & V. CURZON, *Options After the Kennedy Round*, in *NEW TRADE STRATEGY FOR THE WORLD ECONOMY* 19, 23 (H. Johnson ed. 1969).

60. Not all trading nations are parties to GATT. See note 16 *supra*. However, GATT members and nations applying GATT de facto account for more than four fifths of world trade. See GATT Secretariat, *supra* note 16, at 791.

61. In accordance with GATT practice, references to "CONTRACTING PARTIES" are to the parties acting collectively in their institutional capacity. References to "contracting parties" are to the parties *qua* parties, but not in an institutional sense. See GATT, art. XXV, para. 1.

62. Consultation provisions appear throughout the General Agreement. See, e.g., GATT, arts. II, para. 5; XII, para. 4; XIII, para. 4; XVI, para. 1; XVIII, para. 12; XIX, para. 2; XXII; XXIII; XXXVII, paras. 2 & 5.

63. For discussion of instances in which substantive provisions in the General Agreement appear to have been honored largely in the breach, see K. DAM, *supra* note 58, at 165-66 (quantitative import restrictions); G. VERBIT, *supra* note 46, at 19-23 (preferential trade agreements entered into by developing countries). See generally J. JACKSON, *supra* note 58, at 756-63.

64. Much of the discussion will focus on GATT as a set of substantive rules rather

A. *GATT Problems Under the Tax or Legal Regulation Approach*

The issues surrounding either the tax or the legal regulation approach center on articles I through III. These articles are the heart of the GATT ordering system for trade among industrialized countries.

Article I, paragraph 1, the unconditional most-favored-nation clause, provides:

With respect to customs duties and charges of any kind imposed on or in connection with importation or exportation or imposed on the international transfer of payments for imports or exports, and with respect to the method of levying such duties and charges, and with respect to all rules and formalities in connection with importation and exportation, and with respect to all matters referred to in paragraphs 2 and 4 of Article III, any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.

Once a rate of import duty has been "bound" by agreement reached within the GATT system of negotiations,⁶⁵ article II, paragraph 1(b) requires that the bound rate be observed with respect to all GATT parties, and that the covered products "be exempt from all other duties or charges of any kind imposed on or in connection with importation in excess of those imposed on the date of this Agreement or those directly and mandatorily required to be imposed thereafter by legislation in force in the importing territory on that date." However, article II, paragraph 2(a) exempts from this requirement "a charge equivalent to an internal tax imposed consistently with

than as an institution. It is recognized that in many respects GATT as an institution is more significant than GATT as a quasi-legislative document. To the extent, however, that the rules reflect shared expectations about how the parties to GATT will conduct themselves, they supply the ordering system without which the institution would be ineffective. On GATT as an institution, see K. DAM, *supra* note 58, at 335-75; J. JACKSON, *supra* note 58, at 119-89. On the importance of substantive rules in the GATT context, see Hudec, *GATT or GABB? The Future Design of the General Agreement on Tariffs and Trade*, 80 YALE L.J. 1299 (1971).

The discussion will no longer rely on the assumption, useful to the demonstration of economic effects in part II, that pollution-control measures are applied optimally by reference to marginal social costs and values. If they were applied by some non-marginal rule of thumb, the GATT issues would not be materially different.

65. On tariff bindings under GATT, see K. DAM, *supra* note 58, at 30-31. In general, a binding is an undertaking not to increase a duty above a stated rate. Tariff bindings stabilize trading relationships and permit traders to plan ahead with some degree of certainty. See G. CURZON, *supra* note 58, at 108. GATT does contain a provision expressly permitting negotiated modification of bound duties. See art. XXVIII, discussed in text accompanying note 127 *infra*.

the provisions of paragraph 2 of Article III in respect of the like domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part."

Article III, paragraph 2 applies to unbound as well as bound items.⁶⁶ It provides in part that "[t]he products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products."⁶⁷ Article III, paragraph 4, also applicable to unbound as well as bound items, provides that imports are to be treated as favorably as like domestic products "in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use."

The tax and legal regulation approaches to pollution control raise similar GATT issues. As will appear from the discussion to follow, there seems to be no instance in which protective measures designed to complement the legal regulation approach would be

66. See Working Party Report, Brazilian Internal Taxes, II GATT, BISD 181, 182 (1952). All reports of GATT Working Parties, Panels, and Groups of Experts cited herein have been adopted by the CONTRACTING PARTIES or by the Council. On the procedure involved, see J. JACKSON, *supra* note 58, at 160-62, 175-76. On the role of the Council, see *id.* at 154-57.

67. The second sentence of article III, paragraph 2 adds: "Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1." Paragraph 1 requires parties to "recognize" that internal charges, *inter alia*, "should not be applied to imported or domestic products so as to afford protection to domestic production."

The combined effect of the two sentences of article III appears to be that so long as an import competes only with a "like" domestic product, it receives the sole benefit of the first sentence (quoted in the text above), in the form of a conclusive presumption of protective effect if a higher charge is applied to the import than to the domestic product. If the import does not compete with a "like" domestic product but does compete with a substitute product, the second sentence applies and is restricted to the case in which the charge can be shown to afford protection to domestic producers. If the import competes with "like" and substitute products, both sentences apply. See GATT, *ad. art. III*, para. 2; K. DAM, *supra* note 58, at 118-21; REPORT OF COMMITTEE ON INTERNATIONAL TRADE AND INVESTMENT, INTERNATIONAL LAW ASSN. 52d REPORT 369, 392-93 (1966). Cf. Brazilian Internal Taxes, *supra* note 66, at 184; *id.*, 2d Supp. BISD 25, 26 (1954); *id.*, 4th Supp. BISD 21, 22 (1956); GATT ANALYTICAL INDEX 22 (3d rev. 1970) [hereinafter ANALYTICAL INDEX], quoting from Reports of the Havana Conference.

Whether the domestic item is a "like" product is not always easy to ascertain. GATT investigations have stressed the inclusion or noninclusion of the imported and domestic products in the same item of the tariff schedules of the respondent state, at least if supported by similar treatment in tariff schedules of other countries. See Working Party Report, The Australian Subsidy on Ammonium Sulphate, II BISD 188, 191 (1952); Panel Report, Treatment by Germany of Imports of Sardines, 1st Supp. BISD 53, 57-58 (1953). Cf. G. CURZON, *supra* note 58, at 62-63; J. JACKSON, *supra* note 58, at 263-64.

permissible under GATT when similar measures complementing the appropriate tax approach would not be. Most of the relevant practice under GATT has concerned taxes of various sorts. Consequently it is convenient to discuss the issues primarily in terms of the tax approach and point out any distinctions applicable to legal regulation. It is useful to begin with the consumption tax, since it fits most comfortably into the GATT framework and thus can serve as a vehicle for subsequent normative evaluation of measures associated with production taxes and legal regulation.

1. *The Consumption Tax or Equivalent Regulation*

If country *A* taxes the consumption (sale, use, or disposal) of a product that itself causes pollution damage, regardless of the product's origin, and the tax is uniformly applied without exemption or rebate, there would be no inconsistency with articles I through III.⁶⁸ In particular, articles II and paragraph 2 of article III are tailored to turnover and use taxes applied to final products, and impose no obstacle to them so long as they are uniformly applied.⁶⁹ The only significant question concerning bound items would arise if the con-

68. This is so whether the duty on the product has been bound or not, by virtue of the exemption in article II, paragraph 2(a).

69. It might be contended, however, that these articles permit an equivalent charge only when the domestic tax is imposed for general revenue purposes. This could be inferred from an inconclusive statement by a GATT Panel for Conciliation, in *French Assistance to Exports of Wheat and Wheat Flour*, 7th Supp. BISD 46, 51 (1959). The Panel was considering an export exemption from a tax imposed on wheat marketed domestically, the proceeds of which were used to finance agricultural family allowances. It said that it was "questionable whether such an exemption was within the ambit of the preamble to the interpretative notes to Article XVI," which permits the exemption of an exported product from taxes borne by the like product destined for domestic consumption. If a tax is not eligible for export rebate, it could not be applied to imports under article III. See K. DAM, *supra* note 58, at 211. The only plausible explanation of the GATT Panel's doubt would be that the tax was used for a specialized purpose connected with production of the taxed article. Such a rationale could be stretched to the pollution tax case, but the Panel's statement is too inconclusive in its own context to provide a sound basis for doing so.

Cf. In re Import Duties on Gingerbread, 2 Comm. Mkt. L.R. 199, 217 (1963), in which the Court of Justice of the European Communities appears to have doubted whether a charge imposed for other than fiscal purposes could be applied to imports under EEC Treaty article 95, first sentence—the counterpart of GATT article III, paragraph 2, first sentence. *But see* *Sociaal Fonds voor de Diamantarbeiders v. S.A. Ch. Brachfield & Sons*, 8 Comm. Mkt. L.R. 335, 350-51 (1969), in which the Court looked to the nature of a charge rather than to its purpose in determining whether it had an effect equivalent to a customs duty for purposes of the EEC Treaty; *In re Aids to the Textile Industry*, 9 Comm. Mkt. L.R. 351, 363 (1970), in which the Court did not question the respondent state's argument that a tax to raise revenue for aid to the textile industry, applied to sales of domestic and imported textiles, was consistent with article 95 (though the Court upheld the EEC Commission's determination that the scheme contravened article 92, concerning measures incompatible with the Common Market).

sumption tax were a disguised import duty. It would not be considered such if it were applied equally to domestic products and to imports.⁷⁰

As we have seen, however, if consumption taxes are to be effective inducements to pollution-damage avoidance, they would have to provide exemptions whenever the excess social cost imposed by the taxed commodity has been eliminated.⁷¹ Measures to that end could be expected to be taken primarily at the production stage. Thus, if a product is produced in two or more exporting countries, imports from one country might be taxed (because the producer has not taken steps to eliminate excess social cost from consumption) while those from another are not. Similarly, the tax might exempt some home-produced goods, but not damage-inflicting "like" imports. The question in these cases is whether most-favored-nation treatment, or the equality-of-internal-charge requirement of article III, paragraph 2, requires exemption for the environmentally offensive imports.

Several exceptions to most-favored-nation treatment are written into the General Agreement,⁷² and there have been derogations from it with and without benefit of formal GATT waiver.⁷³ Nevertheless, much of GATT is built around the most-favored-nation principle,⁷⁴ and there is no precedent for deviating from it on pollution-control grounds. It retains enough vitality in relations among industrially developed nations to affect the decisions made by national officials seeking to implement any pollution-control approach.

70. See ANALYTICAL INDEX, *supra* note 67, at 23, quoting from Reports of the Havana Conference. See also Panel Report, Belgian Family Allowances, 1st Supp. BISD 59, 60 (1953). The tax would not be considered an import duty even if it were collected in the customs process. See GATT, ad art. III.

We shall assume throughout that all substantive pollution-control measures are applied in good faith for pollution-control objectives, rather than as disguised trade barriers. As to the latter problem, see CEQ 1971 REPORT, *supra* note 1, at 132.

71. See text accompanying notes 19-21 and preceding note 49 *supra*.

72. See generally GATT Secretariat, *supra* note 16. The relevant exceptions are discussed in text accompanying notes 80-84 *infra* and in pt. III. A. 2. b. *infra*.

73. See *id.* at 800; G. VERBIT, *supra* note 46, at 19-23. The pertinent GATT waiver provision is in article XXV, paragraph 5. It has recently been argued that the most-favored-nation clause is not applicable to preferential trade agreements between developed and developing countries. See Espiell, *The Most-Favoured-Nation Clause: Its Present Significance in GATT*, 5 J. WORLD TRADE L. 29 (1971); Verbit, *Preferences and the Public Law of International Trade: The End of Most-Favoured-Nation Treatment?*, HAGUE ACADEMY COLLOQUIUM 1968, at 19, 46-53. See generally G. PATTERSON, *DISCRIMINATION IN INTERNATIONAL TRADE: THE POLICY ISSUES 1945-1965* (1966).

74. For an expression of its importance to GATT, see T. FLORY, *LE G.A.T.T.: DROIT INTERNATIONAL ET COMMERCE MONDIAL* 13-14 (1968). On the economic rationale of the most-favored-nation principle, see J. VINER, *INTERNATIONAL ECONOMICS* 97-99 (1951). Cf. G. & V. CURZON, *supra* note 59, at 54-55.

Taken literally, article I would require consumption tax exemption for all imports of like products when the exemption is granted to imports from any external source.⁷⁵ The tax would be a "matter" referred to in paragraph 2 of article III (and thus covered by article I); the obligation is to accord all parties any advantage granted to the like product originating in any other country. Any argument to the effect that pollution-engendering and pollution-free imports are not "like products" for most-favored-nation purposes is unpersuasive unless, perhaps, a number of countries adopt such a distinction for tariff classification purposes.⁷⁶

At least in the absence of established GATT practice to the contrary in a particular field (such as trade arrangements involving developing countries), literal interpretation of this provision is suggested by the structure of the General Agreement, with the broadly worded most-favored-nation clause followed at various places in the Agreement by express exceptions. It is suggested also by the report of a GATT Panel on Complaints in the *Belgian Family Allowances* case.⁷⁷ Belgium applied a levy on foreign goods purchased by Belgian public bodies whenever the exporting state did not require its producers to pay family allowance contributions for their employees roughly comparable to those payable by Belgian producers under Belgian law. Norway and Denmark had no such requirement. They objected on the ground, *inter alia*, that they were nevertheless entitled to exemption from the levy under article I of GATT, since suppliers in states with family allowance contribution requirements comparable to Belgium's had been duly exempted. The Panel concluded that the Belgian system was inconsistent with article I, which involved an unconditional "undertaking to extend an exemption of an internal charge"⁷⁸ to the nonconforming states. The Panel found no applicable exception in the General Agreement.⁷⁹

The *Belgian Family Allowances* case strongly suggests that the exemption of a consumption pollution tax with respect to imports

75. On the broad coverage of article I, see G. VERBIT, *supra* note 46, at 37; Ruling by the Chairman, II BISD 12 (1952).

76. See note 67 *supra*. But see J. JACKSON, *supra* note 58, at 501-02, describing an opinion of the Chairman of a GATT committee that had the effect of differentiating for most-favored-nation purposes between bales of jute according to the form in which they were shipped.

77. 1st Supp. BISD 59 (1953).

78. *Id.* at 60.

79. The result reached on the merits was inconclusive because of the effect of the Protocol of Provisional Application of GATT. See GATT, ad art. I; Jackson, *The Puzzle of GATT*, 1 J. WORLD TRADE L. 131, 137-40 (1967).

from some external sources would engage the GATT most-favored-nation clause, unless there is an express exception available for pollution taxes that was not available for family allowance contributions. The exceptions having the clearest relevance to the pollution tax on consumption appear in article XX,⁸⁰ which provides in part:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

-
- (b) necessary to protect human, animal or plant life or health;
-
- (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;
-

The "health protection" exception to most-favored-nation treatment is generally recognized to be necessary, but susceptible to abuse.⁸¹ Article XX reflects the fear of abuse, although its attempt to deal with the situation is hardly a model of clarity. The standards are not readily apparent by which to judge whether a discrimination between countries in which the same conditions prevail is or is not "justifiable," nor is the meaning of "disguised restriction on international trade" perfectly clear.⁸² Nevertheless, if the taxing country is able to demonstrate a danger to human, animal, or plant health from pollution arising in the consumption of the taxed products, and if it administers the tax evenhandedly among its own products and all foreign products from whatever source, there would seem to be strong grounds for permissibility under article XX(b).

It might still be asked whether the consumption tax approach, with its exemptions for pollution-damage avoidance, is "necessary"

80. Other GATT exceptions (such as those in article XXI on national security) might also be relevant, depending on the facts of the specific case. In general, however, they have greater relevance to taxes on production than on consumption.

81. See Ustor, Second Report [to the International Law Commn.] on the Most-Favoured-Nation Clause, U.N. Doc. A/CN.4/228/Add.1, at 41 (1970); GATT Secretariat, *supra* note 16, at 797; ANALYTICAL INDEX, *supra* note 67, at 116, quoting from Reports of the Havana Conference. On the "health protection" exception in the pollution-control context, see Doud, *Developing International Environmental Regulation*, in PRIVATE INVESTORS ABROAD—PROBLEMS AND SOLUTIONS IN INTERNATIONAL BUSINESS IN 1971, at 247, 260-61 (Southwestern Legal Foundation 1971).

82. Cf. K. DAM, *supra* note 58, at 192-95; J. JACKSON, *supra* note 58, at 743.

to protect health, since other means of protection might be used. An adequate answer is that if some measures are necessary in order to deal with the matter, there is no inconsistency with the "necessary" requirement of article XX unless it could be shown that the measures adopted are clearly unsuited to the health protection objective. This does no violence either to the over-all goals of GATT or to the most-favored-nation principle. Any other view would unduly limit the discretion of GATT members to protect domestic health by means that seem most appropriate to them, and would render article XX(b) too restrictive to have any influence over the actual conduct of national decision-makers.

The applicability of article XX(g), concerning conservation of natural resources, is less clear. It was intended primarily to authorize export controls on products drawn from natural resources that are in danger of being exhausted from overexploitation.⁸³ It is nevertheless arguable that the consumption tax, which attempts to conserve natural resources "exhaustible" in the sense that they may not survive the pollution inflicted on them (and which involves a restriction on domestic consumption), would fall within the provision. In the light of the clearer applicability of article XX(b), however, such an attempt to stretch article XX(g) is unnecessary.⁸⁴

As with article I, principles of nondiscrimination support article III, paragraph 2, concerning equality of tax treatment between domestic and imported products. A drafting subcommittee at the Havana Conference noted that article III, paragraph 8(b), dealing with the payment of subsidies to domestic producers, "was redrafted in order to make it clear that nothing in Article [III] could be construed to sanction the exemption of domestic products from internal taxes imposed on like imported products or the remission of such taxes."⁸⁵ This suggests that the exemption from consumption tax for avoidance of pollution damage by domestic products could run afoul of article III, paragraph 2 in the absence of an applicable ex-

83. See G. VERBIT, *supra* note 46, at 221-22.

84. It would also be possible to seek a waiver from the most-favored-nation obligation under article XXV, paragraph 5. A number of such waivers have been given in other contexts. See J. JACKSON, *supra* note 58, at 549-52; GATT Secretariat, *supra* note 16, at 800. As indicated in the text, such a waiver would not be needed so long as the consumption tax is tailored to its purpose and is administered evenhandedly.

85. ANALYTICAL INDEX, *supra* note 67, at 28, quoting from Reports of the Havana Conference. Cf. Belgian Family Allowances, 1st Supp. BISD 59 (1953), which dealt with articles III, paragraph 2 as well as the most-favored-nation clause. The Panel's treatment of article III, paragraph 2, however, was inconclusive. Moreover, the tax in that case was designed to apply only to imports.

ception elsewhere in the General Agreement. The purpose of article III, paragraph 2, however, is to prevent disguised protection for domestic products. When the domestic tax exemption is not simply in favor of the domestic product at the expense of the like imported product—*i.e.*, is available to products from any source—a finding of incompatibility with article III, paragraph 2 would not be required by the remarks of the drafting subcommittee or by the language of article III, paragraph 2, interpreted in light of its purpose.⁸⁶ However, it is not necessary to dwell on this point, since the health exception of article XX(b) is also applicable to article III, paragraph 2. As indicated above, this exception would fit the consumption tax case. It is broad enough to encompass bound as well as unbound items.

If consumption is subjected to direct statutory or administrative regulation rather than a tax, the result would be the same. Article III, paragraph 4 requires treatment of imports comparable to that required by article III, paragraph 2.⁸⁷ The most-favored-nation provision of article I, paragraph 1 refers to matters in article III, paragraph 4, as well as those in article III, paragraph 2. The health exception is again available, so long as the regulatory scheme is not devised or administered in such a way as to constitute a nontariff trade barrier—a risk greater (because of the administrative discretion involved) than in the case of a consumption tax. Again, it would not matter for purposes of the exception whether the items had been bound under article II.

A further problem arises if the consumption tax or regulation is applied not to the final product, but to intermediate products that go into it, or to capital equipment used in its manufacture. The problem does not stem directly from application of the consumption tax or regulation to imports of the intermediate products or capital equipment, but from any attempt country *A* might make to neutralize the cost disadvantage to its producers by imposing a charge di-

86. Cf. ANALYTICAL INDEX, *supra* note 67, at 20, quoting from Reports of the Havana Conference, to the effect that "[t]he new form of the Article makes clearer than did the Geneva text the intention that internal taxes on goods should not be used as a means of protection;" J. JACKSON, *supra* note 58, at 743. The antiprotective purpose applies to both sentences of article III, paragraph 2, even though only the second sentence refers (indirectly) to the protection of domestic production. See note 67 *supra*. For discussion of the type of case in which article III has been applied, see J. JACKSON, *supra* at 284.

A similarly teleological argument might be made concerning the most-favored-nation clause. The language of article I, however, seems less amenable to the argument than does that of article III. Moreover, the risk of opening a new door to trade discrimination outside the pollution-control context is greater because of the wider range of potentially discriminatory practices covered by article I. See text following note 95 *infra*.

87. See text following note 67 *supra*.

rectly on the import of competing finished products. The issues are essentially the same as those raised by the production tax or regulation supplemented by a compensating charge on imports, and will be considered in that context below.

2. *The Production Tax or Equivalent Regulation*

a. *Articles I through III.* As we have seen, it would be appropriate for *A* to deal with pollution arising in the production process (for example, from waste disposal) through a production tax or comparable regulation.⁸⁸ This may also be a convenient means of attacking some consumption pollution, if a substantial portion of domestic production is sold in the home market.⁸⁹ The question is whether a charge on imports designed to offset the domestic producers' cost disadvantage could be imposed consistently with *A*'s GATT obligations stemming from articles I through III.⁹⁰

For ease of tariff administration, the charge would probably be applied equally to imports from all sources, even though the price of the imports might reflect differing (foreign) pollution-control costs. If *A* did attempt to serve equity by providing an exemption for imports already burdened by significant pollution-control costs (or by charging only unburdened imports), it would be open to a most-favored-nation challenge from suppliers who have not been subjected to strong pollution control. Article I is squarely applicable, unless it could successfully be argued that "discrimination" by reference to pollution-control costs, rather than by country, removes the case.⁹¹

A roughly analogous type of import charge has been brought to

88. See pt. II. A. *supra*.

89. See text accompanying notes 49-50 *supra*.

90. The import-reducing effect of such a charge is shown in Figure 3 *supra*. Difficulties would arise in determining the appropriate offsetting amount of the charge. See note 47 *supra*.

91. There would be even less room here than in the consumption tax case for the argument that the exempted and dutied imports are not "like products." The difference here lies not in the products but in the production methods. See GATT STUDY, *supra* note 3, at 17-18. Cf. J. JACKSON, *supra* note 58, at 259; text accompanying note 76 *supra*.

It has been suggested that the concept of subsidy might be stretched to include failure of governments to impose effective pollution controls on production processes. Importing nations might then be able to impose countervailing duties without violating the most-favored-nation obligation. See Doud, *supra* note 81, at 262-65. The argument is rather tenuous, in view of the risks to a liberal trade regime of permitting nations to treat as subsidies the failure of foreign governments to impose cost-increasing measures comparable to those imposed (perhaps for social or economic as well as environmental reasons) domestically. See text accompanying notes 95 & 112 *infra*. On countervailing duties, see text accompanying notes 164-66 *infra*.

the attention of the CONTRACTING PARTIES without evoking any definitive response based on article I. This is the variable import duty designed to raise the price of imported goods (from whatever source) to an artificially maintained domestic price.⁹² A former GATT Executive Secretary viewed the article I issue as "a serious question which had not been resolved,"⁹³ and a GATT Panel ducked the issue when it was presented in a complaint by a member state.⁹⁴ This suggests an argument to the effect that duties or charges that put all foreign competitors on the same domestic price footing with each other (and with domestic producers) may accord equal "advantages" to like products originating in all contracting parties, even though the amount of the duty is proportionately greater for low-cost producers.⁹⁵

In the pollution-control context, this argument has some policy grounds supporting it. If a country such as *A* is likely to impose new import charges (and may do so under GATT), and if *A* has a significant market for industrial imports, there is a disincentive to industrial pollution control in its supplier countries unless it may (and does) grant an exemption for imports from pollution-controlling countries. Decision-makers in supplier countries will think twice about imposing effective pollution control on their export sectors if it means the worst of two economic worlds: new costs not necessarily incurred by competing suppliers, in addition to the new import charges.

Nevertheless, the policy argument should not be carried too far. It could open the door to subtle trade discrimination beyond the pollution-control context, thus introducing new uncertainties and possibilities of retaliation into trade relationships. Administration of the import charge would not be subject to built-in constraints

92. For discussion of the European Economic Community's variable levy on agricultural products, see G. PATTERSON, *supra* note 73, at 202-04, 212-16.

93. See GATT Secretariat, *supra* note 16, at 792-93. See also ANALYTICAL INDEX, *supra* note 67, at 6.

94. Panel Report, Uruguayan Recourse to Article XXIII, 11th Supp. BISD 95, 100 (1963).

95. Variable levies have been used primarily as a substitute for quantitative import restrictions on farm products. See G. PATTERSON, *supra* note 73, at 202. Agricultural import restrictions are the beneficiaries of special GATT exceptions. See art. XI, para. 2(c). Quantitative restrictions are not covered by the article I most-favored-nation clause, though elsewhere in the General Agreement they are qualified by a rule of nondiscrimination. See art. XIII. Cf. art. XIV. It has been argued within GATT that a variable levy should be treated as if it were a quantitative restriction. See ANALYTICAL INDEX, *supra* note 67, at 6. This may explain the GATT equivocation over applicability of article I, but the more plausible argument is that outlined in the text above.

comparable to those surrounding the pollution tax or regulation applied to consumption of final products, where the tax or regulation is applied to domestic as well as imported products and is itself designed to attain domestic health objectives. The substance of the most-favored-nation clause is not only the stability it imparts to trade relationships, but also its effect of preserving the comparative advantage enjoyed by the lowest-cost foreign producers, without regard to value judgments in the importing state about the desirability of policies that permit the low costs. On balance, the purposes of the most-favored-nation clause seem best served by requiring any import surcharge to be applied equally to all foreign suppliers, so that an exemption for one would accrue to all. The conflict with desirable transnational pollution-control policy, which would permit or require selective exemptions if new charges are to be levied, illustrates one of the difficulties of achieving economic and environmental goals simultaneously under a system lacking machinery for effective pollution-control coordination.

Problems in adapting GATT rules to the pollution-control context are again apparent when one considers the application of articles II and III. There is nothing in either article to restrict the imposition of a new charge on unbound items, if the charge is in the nature of an import duty.⁹⁶ On the other hand, the article III restrictions would apply if the charge is in the form of an internal tax.⁹⁷ If it is imposed in conjunction with a domestic production tax, or consumption tax on intermediate goods, there would be a strong argument that it should be treated as an internal tax within the meaning of article III, paragraph 2. The import charge would be assimilated to the tax it is intended to offset⁹⁸—a result that is not precluded by the language of article III, paragraph 2 and that furthers its purpose by bringing the trade-related measure affecting unbound items within the GATT system of constraints. This means that the charge could be applied only if the domestic tax is eligible

96. Article II applies only to bound items. Article III applies only to internal taxes and regulations. On the scope of article III, see ANALYTICAL INDEX, *supra* note 67, at 21, quoting from Reports of the Havana Conference.

97. On the anomaly of exempting import duties on unbound items from the strictures of article III, see K. DAM, *supra* note 58, at 116; J. JACKSON, *supra* note 58, at 286.

98. This is the position taken by the Court of Justice of the European Communities under the equivalent provisions of the EEC Treaty. See *Alfons Lutticke GmbH v. Hauptzollamt de Sarrelouis*, Case 57/65, at 293, 303 (Eur. Ct. J., June 16, 1966). Cf. ANALYTICAL INDEX, *supra* note 67, at 23, quoting from Reports of the Havana Conference.

for offset under article III, paragraph 2; moreover, the charge could not exceed the amount applied, directly or indirectly, to the like domestic product. These points will be explored below in the discussion concerning bound imports.

If the import charge on unbound items is imposed in conjunction with a domestic pollution-control legal regulation (nontax) arrangement, articles II and III do not provide a coherent ordering scheme. It could be argued that the charge should still be considered internal, since it obviously does not change its nature simply because a different domestic pollution-control approach (having the same effect as the tax approach) is adopted. That would be difficult to reconcile, however, with the language of article III, paragraph 2, which seems to fit only the domestic tax case.⁹⁹ Nor does the situation fit within article III, paragraph 4, which refers to domestic laws and regulations but does not deal with charges on imports. The result is anomalous: if the charge is considered an internal tax it would be prohibited on its face by article III, paragraph 2, although the same charge would be permitted (subject to constraints) if there were a domestic pollution tax; if it is an import duty on unbound items, it would escape the reach of articles II and III altogether and would thus be subject to no formal constraint.

In the case of bound imports, articles II and III again are more clearly adaptable to the pollution tax than to legal regulation of pollution. For bound items, the exception in article II, paragraph 2(a) for "a charge equivalent to an internal tax imposed consistently with the provisions of . . . Article III" is limited to charges equivalent to domestic taxes that, in the terminology of article III, paragraph 2, are "applied, directly or indirectly, to like domestic products."¹⁰⁰ It is generally said that only indirect taxes are thus eligible for offset, and that direct taxes are not. But by long-standing definition, direct taxes are simply those levied on the persons who are expected to bear their ultimate burden; indirect taxes are those which are expected to be passed to someone other than the taxpayer, *i.e.*, to the consumer in the usual commercial situation.¹⁰¹ In effect, GATT practice has supplied conclusive presumptions along these lines with regard to

99. See also ANALYTICAL INDEX, *supra* note 67, at 23.

100. This language applies also to charges on unbound items, if the charges are treated as internal taxes. Consequently the discussion below applies equally to that situation.

101. See J. S. MILL, PRINCIPLES OF POLITICAL ECONOMY bk. 5, ch. 3, § 1, at 823 (Longmans, Green & Co. ed. 1926); Rolph, *Taxation: General*, in 15 INTL. ENCYCLOPEDIA OF THE SOCIAL SCIENCES 521, 522 (1968).

some taxes: turnover taxes are presumed to be shifted to the consumer (and thus may be adjusted at the border), while income taxes are presumed not to be (and thus may not be adjusted).¹⁰²

As to taxes for which GATT practice is not conclusive—such as pollution-control taxes on production—the issue should be decided not by asking on a priori grounds whether the tax is direct or indirect, but by asking whether a material portion of it is paid by the consumer of the domestic product. This is the least strained meaning to be given to the language in article III, paragraph 2 and to comparable language in article VI, paragraph 4 and ad article XVI (“taxes borne by the like product”).¹⁰³ It is not always clear whether a given tax is passed along.¹⁰⁴ Probably relatively few are passed along *in toto*, in the absence of perfectly inelastic demand. But if the tax is tied to production methods or units of output, it is reasonably certain that it will be borne by consumers to the extent that demand conditions permit. The discussion in part II showed that the imposition of a marginal production tax on a per-unit-of-output basis would materially affect the price charged to domestic consumers, unless there is infinite elasticity of demand. Such a per-unit tax is not far removed from a turnover tax. Leaving aside the question of production tax rebates, it should be eligible for offset by an appropriate import charge, even with regard to bound items.¹⁰⁵ The result should

102. For discussion of the GATT treatment of these taxes, see, e.g., R. BALDWIN, *supra* note 41, at 84-89, 108-09; K. DAM, *supra* note 58, at 124; Han & Shaw, *Value-Added Taxation: The Economic Consequences*, 4 J. WORLD TRADE L. 548, 557 (1970).

103. Articles VI, paragraph 4 and XVI deal with export rebates. Taxes eligible for export rebate could also be offset by an import charge under articles II and III. See K. DAM, *supra* note 58, at 211.

The GATT preparatory work contains the statement that “[n]either income taxes nor import duties fall within the scope of Article [III] which is concerned solely with internal taxes on goods.” ANALYTICAL INDEX, *supra* note 67, at 21, quoting from Reports of the Havana Conference. In view of the language used in the Agreement and the nature of the direct-indirect tax dichotomy, it would not be reasonable to construe this statement to mean that only taxes having their formal incidence on the goods themselves could be offset by an equivalent import charge.

104. For example, there is considerable controversy over the proposition that income taxes are wholly absorbed by the taxpayer. The extensive literature includes: R. MUSGRAVE & M. KRZYZANIAK, *THE SHIFTING OF THE CORPORATION INCOME TAX* (1963); Cragg, Harberger & Mieszowski, *Empirical Evidence on the Incidence of the Corporation Income Tax*, 75 J. POL. ECON. 811 (1967); Krzyzaniak & Musgrave, *Corporation Tax Shifting: A Response*, 78 *id.* 768 (1970); Cragg, Harberger & Mieszowski, *Corporation Tax Shifting: Rejoinder*, 78 *id.* 774 (1970); Cooper, *National Economic Policy in an Interdependent World Economy*, 76 YALE L.J. 1273, 1289-90 (1967).

105. For final products, the cost burden to be offset could also take into account any consumption tax on intermediate products. For a case in accord under the first sentence of EEC Treaty article 95, see the opinion of the Court of Justice of the European Communities in *Molkerei-Zentrale Westfalen/Lippe GmbH v. Hauptzollamt Paderborn*, 7 Comm. Mkt. L.R. 187, 219-20 (1968). Cf. EEC Treaty art. 97. GATT

be no different for a production tax not calculated by reference to units of output, which also almost certainly would materially affect price.¹⁰⁶

There are further GATT problems with respect to bound items when domestic firms qualify for exemption by taking effective pollution-control measures. If the equalizing charge is considered internal, article III, paragraph 2 applies. If it is an import duty so that article III, paragraph 2 is not directly applicable, the article II, paragraph 2(a) exception to tariff bindings is available only for charges imposed consistently with article III, paragraph 2. As we have noted, there is authority for the proposition that a tax or charge equivalent to a rebated internal tax is inconsistent with article III, paragraph 2.¹⁰⁷ Unless the rebate is extended to the import charge when effective pollution-control measures have been taken by the foreign producer—a step that we have seen to be administratively awkward and likely to meet most-favored-nation objections¹⁰⁸—it could not be argued that domestic and foreign producers are treated alike.¹⁰⁹ An across-the-board charge probably would not be permissible under article III, paragraph 2, in the absence of an applicable exception or waiver.

If legal regulation is used in place of the production tax, it almost certainly could not be supplemented by cost-equilibrating import charges on bound items without running afoul of article II. The exception in article II, paragraph 2(a) refers only to charges equivalent to internal taxes under article III, paragraph 2, and is silent on import charges tied to internal regulations. There is nothing to in-

precedent, however, is inconclusive. See Working Party Report, Schedules and Customs Administration, 3d Supp. BISD 205, 210-11 (1955). See also K. DAM, *supra* note 58, at 122; J. JACKSON, *supra* note 58, at 297. It should also be permissible to offset increased costs attributable to per-unit taxes on the domestic production of intermediate products. On the other hand, it is unlikely that consumption taxes on capital equipment would have sufficient demonstrable influence on the price of the final product to be eligible for offset.

106. If the tax is not levied on a per-unit-of-output basis, or if the offset encompasses increased costs of intermediate goods, the appropriate offsetting charge would be difficult to calculate. Somewhat comparable difficulties have been encountered in connection with European "cascade" taxes, which seem clearly to qualify for border adjustment despite the inconclusive GATT Working Party Report mentioned in note 105 *supra*. On the difficulties involved in such cases, see K. DAM, *supra* note 58, at 121-24, 211-13; J. JACKSON, *supra* note 58, at 299-300.

107. See text accompanying note 85 *supra*.

108. See text preceding note 91 *supra*.

109. Compare the consumption tax case, discussed in text accompanying note 86 *supra*. The consumption tax exemption would be much simpler to administer, since its availability would be determined by the condition of the goods as they cross the border.

dicates that it could be stretched to cover the situation.¹¹⁰ Thus, if the import charge is to be sustained, it would be necessary to rely on exceptions or waivers outside the framework of articles II and III.

b. *Exceptions and waivers.* The General Agreement holds the promise of several possible avenues of escape from the obligations we have noted. Some are more clearly applicable in the pollution-control context than others. Each involves a potential trade barrier.

(1) *The health exception.* It has been asserted above that availability of the health exception in article XX(b) is reasonably clear in the consumption tax context.¹¹¹ With equitable administration of the consumption tax, the exception should be available with respect to the most-favored-nation obligation as well as the constraints of articles II and III. In the context of production taxes or comparable regulation of production, however, the applicability of the health exception would be much less clear, since the charge on imports would no longer be directly for the health-related purpose of eliminating the pollution burden caused by the imported products. The argument in favor of the health exception's applicability to the production pollution situation would be that the tax or regulation is designed to stimulate health-preserving domestic pollution control, and that the economic deterrents to unilateral industrial pollution control are so formidable in the absence of protection that a limited import charge should be considered part and parcel of the basic health measure. If the health measure could not as a practical matter be imposed otherwise, it might be argued that the import charge is "necessary" to protect health.

The argument, however, goes too far. In the first place, unless the charge contains exemptions for imports already burdened by significant pollution-control costs, it would seem to restrict trade for reasons unrelated to health. A more important objection is that the bond between the charge and the health measure is too tenuous. If the argument were accepted, it would supply a precedent for similar

110. Cf. *In re Import Duties on Gingerbread*, 2 Comm. Mkt. L.R. 199, 217-18 (1963), in which the Court of Justice of the European Communities disallowed under article 12 of the EEC Treaty an import charge designed to offset high costs imposed on domestic producers as a result of agricultural price-support policies. It rejected an argument that the charge was permissible under article 95. See also 2 Comm. Mkt. L.R. at 210-11 (submissions of the Advocate-General). Articles 12 and 95 are the counterparts of GATT articles II, paragraph 1 and III, paragraph 2.

The divergence between the GATT treatment of the tax and legal regulation pollution-control approaches is even clearer in connection with export subsidies than with import charges. See text accompanying notes 151-57 *infra*.

111. See text following note 82 *supra*.

assertions concerning import charges to complement health-related measures—such as child labor laws and plant safety regulations—which would put severe strain on the effectiveness of articles II and III.¹¹²

If the argument is made, however, the ambiguities of article XX(b)—and the necessity that each state be given considerable latitude to preserve public health—make effective challenge difficult. Thus, this would seem to be one of those situations frequently encountered in the international legal system, in which the absence of an international decision-making body capable of authoritatively rejecting (or narrowing) an argument dictates a need for self-imposed circumspection in its formulation, lest it return to haunt both its maker and the ordering system.

(2) *The security exception.* Another GATT exception offering few safeguards is that relating to security. Economists acknowledge—but do not normally approve—the argument for tariff protection of those industries necessary to national defense.¹¹³ Authorization to impose protective measures for this purpose is found in GATT article XXI, which provides in part that

[n]othing in this Agreement shall be construed . . . (b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests . . . (ii) relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment. . . .

The self-judging nature of the security exception is apparent. It was recognized in the drafting stage that “the spirit in which Members of the Organization would interpret these provisions was the only guarantee against abuse.”¹¹⁴ In a sophisticated and interdepen-

112. Cf. Panel Report, Italian Discrimination Against Imported Agricultural Machinery, 7th Supp. BISD 60, 64 (1959), in which a GATT Panel noted the importance of construing article III in such a way as to avoid the danger of erosion of bindings under article II. See also GATT STUDY, *supra* note 3, at 16.

113. See, e.g., P. ELLSWORTH, THE INTERNATIONAL ECONOMY 262-63 (4th ed. 1969); G. VON HABERLER, THE THEORY OF INTERNATIONAL TRADE 239-40 (1936); W. KRAUSE, INTERNATIONAL ECONOMICS 131 (1965).

114. See ANALYTICAL INDEX, *supra* note 67, at 120, quoting from the report of a preparatory committee for the Havana Conference. The security exception has been formally invoked once, by the United States, to justify the imposition of export controls on strategic goods. Czechoslovakia objected on the basis of the most-favored-nation clause. The CONTRACTING PARTIES rejected the Czech complaint, without shedding any light on the scope of article XXI. See *id.* at 120; II BISD 28 (1952). For further discussion, see J. JACKSON, *supra* note 58, at 749; S. MUHAMMAD, THE LEGAL FRAMEWORK OF WORLD TRADE 176-79 (1958). The primary relevance of article XXI in the pollution-control setting relates to the increase of bound duties rather than to most-favored-nation treatment.

dent national economy, the argument could be made that virtually all industries are essential to national security, and that traffic in almost any goods is carried on "directly or indirectly for the purpose of supplying a military establishment."¹¹⁵ Any attempt to stand on such an argument, however, would obviously be inconsistent with the purposes of the General Agreement. If the argument is made at all in the pollution-control context, it cannot in good faith be extended beyond protection for industries manufacturing products essential for military use in wartime (munitions, aircraft, and so forth) or essential components of such products (for example, steel). Even as to these industries, the argument for release from the constraints of articles II and III is unconvincing unless the effect of pollution control would be to threaten them with serious decline or extinction.¹¹⁶

(3) *The escape clause.* The GATT "escape clause" in article XIX, paragraph 1 permits suspension of certain GATT obligations when a product is being imported in such increased quantities as to cause or threaten serious injury to domestic producers, if the increased imports are a result of "unforeseen developments" and of obligations incurred by a contracting party under GATT.¹¹⁷ The escape clause would not normally permit suspension of the most-favored-nation requirement, since the obligation to be suspended must have been a cause of the increased imports.¹¹⁸ Its primary use has been the avoidance of article II obligations concerning tariff bindings. It could conceivably be applied also to article III constraints on internal taxes, such as the effective prohibition of an import charge in conjunction with the legal regulation pollution-control approach if the charge is considered internal.¹¹⁹

115. Cf. K. DAM, *supra* note 58, at 201-02; P. ELLSWORTH, *supra* note 113, at 263. For discussion of attempts by a wide variety of United States industries to qualify for protection under the national security provisions of United States trade legislation, see Knapp, *The Buy American Act: A Review and Assessment*, 61 COLUM. L. REV. 430, 455-58 (1961). For the pertinent legislation currently in force, see 19 U.S.C. § 1862 (1970).

116. If imports burdened by pollution-control costs were exempted from the import charge, the argument for release from the most-favored-nation obligation would be considerably more attenuated than in the case of the health exception, since the reason for differentiation among imports would have little to do with the purpose of the exception.

117. The escape clause benefits not only domestic producers of "like products," but also producers of "directly competitive products." Compare the narrower scope of product coverage in the most-favored-nation clause, discussed in text accompanying note 76 *supra* and in note 91 *supra*. See also J. JACKSON, *supra* note 58, at 261-62.

118. GATT preparatory work indicates that most-favored-nation treatment was to be maintained. See ANALYTICAL INDEX, *supra* note 67, at 108, quoting Havana Charter Interpretative Note; J. JACKSON, *supra* note 58, at 564-65.

119. See text following note 99 *supra*.

"Unforeseen developments" include those "occurring after the negotiation of the relevant tariff concession which it would not be reasonable to expect that the negotiators of the country making the concession could and should have foreseen at the time when the concession was negotiated."¹²⁰ A reasonably strong argument may be made that the environmental crisis is such an unforeseen development, with respect to article III obligations and to bindings made before the current environmental awareness had matured. It should be noted, however, that the governmental response, rather than the crisis itself, would create the conditions leading to increased imports. There is a choice among pollution-control approaches. One—the use of production subsidies—would tend to minimize any increase in imports, though it would raise GATT problems of its own.¹²¹ In any event, there is merit to the argument that, so long as the chosen governmental response is appropriate to the circumstances, even though other responses might be made, the "unforeseen developments" prerequisite is met.

A number of other conditions must be met if article XIX, paragraph 1 is legitimately to be invoked.¹²² In an appropriate pollution-control case these conditions could be fulfilled. But if the objective is protection over a broad range of products, article XIX would not be the appropriate vehicle. It is intended to provide a temporary safety valve to be used in behalf of injured producers of a given product or limited group of products, and has been applied substantially in that manner.¹²³ At most, article XIX would be appropriate for emergency action concerning a limited number of items that might be particularly susceptible to import competition when pollution-control costs are increased.¹²⁴

120. REPORT ON THE WITHDRAWAL BY THE UNITED STATES OF A TARIFF CONCESSION UNDER ARTICLE XIX OF THE GENERAL AGREEMENT ON TARIFFS AND TRADE 10 (1951), noted also in ANALYTICAL INDEX, *supra* note 67, at 107.

121. See pt. III. B. *infra*.

122. Particularly significant is the requirement that the increased imports must cause or threaten "serious injury." Moreover, the action taken must be temporary. See generally K. DAM, *supra* note 58, at 99-107; J. JACKSON, *supra* note 58, at 559-64. It is questionable whether these conditions have always literally been met in practice. See, e.g., *id.* at 229. Cf. I. KRAVIS, DOMESTIC INTERESTS AND INTERNATIONAL OBLIGATIONS 66-70 (1963). There is no express requirement in article XIX that compensatory tariff reductions be offered on other items, but it appears to be the practice to do so. See G. CURZON, *supra* note 58, at 118-19; J. JACKSON, *supra* note 58, at 565-66.

123. See K. DAM, *supra* note 58, at 100. For a summary of the instances in which the escape clause has been invoked, and of the accompanying compensatory (or retaliatory) action, see ANALYTICAL INDEX, *supra* note 67, at 109-13.

124. The emergency action could take the form of a quantitative restriction on imports, rather than an increase in a bound duty or the application of a new internal charge. See ANALYTICAL INDEX, *supra* note 67, at 108; K. DAM, *supra* note 58, at 105-06.

(4) *Tariff renegotiation.* Article XXVIII establishes periodic "open seasons" during which tariff bindings may be altered by agreement with contracting parties primarily concerned, or failing agreement, by unilateral withdrawal subject to retaliatory suspension of "substantially equivalent concessions." Renegotiation may occur outside the "open season" if authorized, in special circumstances, by the CONTRACTING PARTIES.¹²⁵ Parties are obliged to "endeavor to maintain a general level of reciprocal and mutually advantageous concessions not less favourable to trade than that provided for in this Agreement prior to such negotiations."¹²⁶

It would be mistaken to view article XXVIII as a *carte blanche* for widespread tariff increases in the pollution-control context. Constraints are supplied by the requirement of negotiation followed by agreement (normally involving compensatory tariff adjustments) or possible retaliation and by the entreaty to maintain the pre-existing general level of concessions. Although the entreaty appears not always to have been strictly observed,¹²⁷ it cannot be considered a dead letter. Its inclusion establishes that article XXVIII negotiations are not intended to result in materially increased over-all levels of protection. The negotiation procedure tends to reinforce this principle, unless trading partners are mutually interested in increasing tariffs. A nation pursuing unilateral pollution control cannot therefore expect to rely on article XXVIII for much more than a limited adjustment of its tariff schedule—with concessions or potential retaliation—to provide some protection for high pollution-control-cost industries.

(5) *Balance-of-payments measures.* If the balance-of-payments consequences of increased domestic prices and reduced domestic output are sufficiently serious, protection under article XII may be permissible. It relaxes the article XI prohibition of quantitative import restrictions by permitting an industrialized country to impose them to the extent necessary "(i) to forestall the imminent threat of, or to stop, a serious decline in its monetary reserves, or (ii) in the case of a contracting party with very low monetary reserves, to achieve a reasonable rate of increase in its reserves."¹²⁸ Consultation with the

125. See generally K. DAM, *supra* note 58, at 82-99. For the background of the present article XXVIII, see G. CURZON, *supra* note 58, at 108-17.

126. GATT, art. XXVIII, para. 2.

127. See K. DAM, *supra* note 58, at 94. GATT STUDY, *supra* note 3, at 17, makes the point that it would be virtually impossible, given the current level of tariff bindings on industrial products, to maintain the general level of concessions if an industrialized country alters its bindings significantly.

128. GATT, art. XII, para. 2(a). A similar, but somewhat less restrictive, standard

CONTRACTING PARTIES is required, under article XII, paragraph 4. In the determination of what constitutes a serious decline in monetary reserves, a very low level of reserves, or a reasonable rate of increase, the CONTRACTING PARTIES are required to consult the International Monetary Fund (IMF) and to accept its views.¹²⁹ GATT article XII, paragraph 2(a) requires that "[d]ue regard shall be paid . . . to any special factors which may be affecting the reserves of such contracting party or its need for reserves" Presumably the need to preserve the environment through price-increasing pollution controls could be such a special factor.¹³⁰ If restrictions are applied, they are to be progressively relaxed as circumstances improve.¹³¹

The article XII conditions are sufficiently fluid to permit the IMF and the CONTRACTING PARTIES, as well as the initiating state, considerable latitude to avoid the quota prohibition of article XI. In practice, the fluidity of article XII has resulted in a wide variety of import quotas.¹³² It has also provided a vehicle for import surcharges on bound items, even though the article XII authorization is limited by its terms to quantitative restrictions.¹³³ The consultation provisions of article XII do tend to limit unilateral freedom of action, at least to the extent of requiring the acting state to justify its measures by some showing of serious balance-of-payments diffi-

is applicable to developing countries under article XVIII, section B. See generally J. JACKSON, *supra* note 58, at 689-90.

129. GATT, art. XV, para. 2. On Fund-GATT consultations generally, see deVries, *Collaborating with the GATT*, in 2 *THE INTERNATIONAL MONETARY FUND 1945-1965*, at 332 (J. Horsefield ed. 1969).

130. See also ANALYTICAL INDEX, *supra* note 67, at 65, quoting from Reports of the Havana Conference. Article XII, paragraph 3(d) expressly recognizes that domestic policies directed toward full employment and development of economic resources may lead to high demand for imports, which could involve a threat to reserves. A party is not to be required to "withdraw or modify" quantitative restrictions simply because a change in those domestic policies might alleviate the problem. It might be inferred, however, that other domestic policies (such as those directed toward pollution control) that may lead to high import demand would not justify quantitative restrictions. But pollution-control problems were not generally recognized when the GATT was drafted, and no inference should be drawn from their omission. Cf. C. WILCOX, *supra* note 58, at 86-87.

131. GATT, art. XII, para. 2(b). See also GATT, *THE USE OF QUANTITATIVE IMPORT RESTRICTIONS TO SAFEGUARD BALANCES OF PAYMENTS 28-29* (1951).

132. See K. DAM, *supra* note 58, at 165-66, and references cited therein. Many of the quotas have concerned agricultural products. See J. JACKSON, *supra* note 58, at 707-10. GATT article XI, paragraph 2(c) contains special exceptions for agricultural products.

133. See, e.g., Working Party Report, United Kingdom Temporary Import Charges, 15th Supp. BISD 113 (1968). See also J. JACKSON, *supra* note 58, at 711-14; J. KRAVIS, *supra* note 122, at 93-95. The imposition of a 10% import surcharge by the United States in August 1971 was a conspicuous manifestation of the trend toward use of im-

culties.¹⁸⁴ Moreover, the increasing political acceptability of devaluation removes some of the steam from balance-of-payments arguments for quotas or surcharges. Nevertheless, if a pollution-controlling country experiences a general increase in its price level and hesitates (for whatever reason) to devalue, existing precedent does not encourage the belief that consultations under GATT procedures would be effective to forestall import quotas or surcharges.¹⁸⁵

(6) *Waivers*. Article XXV, paragraph 5 permits the CONTRACTING PARTIES to waive a GATT obligation "in exceptional circumstances not elsewhere provided for" in the Agreement. The waiver power extends to all GATT obligations.¹⁸⁶ In practice, no attempt has been made to define the "exceptional circumstances" referred to, and there is no effective legal restraint on the use of the waiver power.¹⁸⁷

This does not mean that the waiver authority has been exercised indiscriminately.¹⁸⁸ It has been used in a limited variety of distinguishable situations, most of which bear a recognizable relationship to express GATT exceptions.¹⁸⁹ Particularly relevant are the follow-

port surcharges rather than quotas for balance-of-payments purposes. Some GATT parties challenged the conformity of the United States surcharge with the General Agreement. See 23 INTL. FIN. NEWS SURVEY 277 (1971).

184. The consultation procedure appears to have had some effect in liberalizing postwar quantitative restrictions. See G. CURZON, *supra* note 58, at 141-56; K. DAM, *supra* note 58, at 164-66; I. KRAVIS, *supra* note 122, at 63-64. GATT Working Parties have on occasion applied pressure for the removal of unjustifiable quotas. See Working Party Reports, Italian Restrictions Affecting Imports, 10th Supp. BISD 117, 130 (1962); Panel Report, French Import Restrictions, 11th Supp. BISD 94 (1963). See also the Resolution adopted by the CONTRACTING PARTIES in United States Import Restrictions on Dairy Products, II BISD 16 (1952), "recognizing" that the United States had infringed article XI. The CONTRACTING PARTIES later authorized The Netherlands to take retaliatory measures. See Netherlands Measures of Suspension of Obligations to the United States, 1st Supp. BISD 32 (1953).

185. The bending of GATT rules would not necessarily extend to the most-favored-nation clause. Although article I does not directly apply to quotas under article XII, it does apply to import charges. There is no reason to withhold its application from new import charges simply because they take the place of quotas. For nondiscrimination provisions explicitly applicable to quotas, see GATT articles XIII and XIV.

186. See ANALYTICAL INDEX, *supra* note 67, at 147, quoting report of the London preparatory meeting for the Havana Conference; Working Party Report, The European Coal and Steel Community, 1st Supp. BISD 85, 86 (1953).

187. See J. JACKSON, *supra* note 58, at 544.

188. See, e.g., The European Coal and Steel Community, *supra* note 136, at 86 (consideration of whether the object sought by a proposed waiver was consistent with the objectives of the General Agreement). See also CONTRACTING PARTIES, Article XXV—Guiding Principles To Be Followed by the CONTRACTING PARTIES in Considering Applications for Waivers from Part I or Other Import Obligations of the Agreement, 5th Supp. BISD 25 (1957) (waivers should not be granted when CONTRACTING PARTIES "are not satisfied that the legitimate interests of other contracting parties are adequately safeguarded").

189. The waivers are categorized in J. JACKSON, *supra* note 58, at 545-46, though

ing: most-favored-nation waivers (which in general have permitted preferential trading arrangements within geographic regions or have involved developing countries);¹⁴⁰ waivers of article II obligations while a party alters its tariff schedule and prepares for renegotiation of concessions;¹⁴¹ and waivers of article XI obligations for parties in balance-of-payments difficulties.¹⁴² These provide ample precedent for GATT waivers in the case of a party instituting pollution-control tax or regulatory measures that would otherwise violate articles I or II, or that result in protective measures inconsistent with those articles, if the measures fall within the general scope of express GATT exceptions. The precedent could easily be extended to waivers of article III obligations in appropriate cases.

To some extent waivers have simply seemed to stamp official approval on what is being done anyway,¹⁴³ but this should not be taken for granted. If a waiver is indeed to be regarded as a rubber stamp, it signifies the virtual demise of the General Agreement as a substantive framework for world trade. Unless a structurally sound edifice rises immediately from the ashes, that would be a substantial loss. Despite occasions when parties have appeared to bend the GATT rules (not always with the benefit of an express waiver), the impact of the rules on world trade relations remains considerable. A major current issue is whether they will continue to have meaningful impact in an era that includes such challenges to the traditional order as recurring international monetary crises, special trade treatment for developing countries, and the economic effects of the environmental awakening. Short of appropriate amendments to GATT, or effective multinational coordination of pollution-control policies, judicious use of the waiver instrument may be the only moderately effective regulatory tool available to the international

not by reference to GATT exceptions. See also I. KRAVIS, *supra* note 122, at 84-85. A table setting forth all waivers granted through 1968 appears in J. JACKSON, *supra* at 549-52.

140. See J. JACKSON, *supra* note 58, at 271, 545-47; GATT Secretariat, *supra* note 16, at 800. Article XXIV provides an exception to the most-favored-nation obligation for customs unions and free-trade areas. Part IV of GATT contains provisions drawing attention to the special trade requirements of developing countries.

141. See CONTRACTING PARTIES' Decisions, United States—Tariff Classification, 12th Supp. BISD 57 (1964); Peruvian Schedule—Renegotiation, 13th Supp. BISD 27 (1965); Ceylon—Increases in Bound Duties, 16th Supp. BISD 22 (1969). GATT article XXVIII provides for tariff renegotiation.

142. See J. JACKSON, *supra* note 58, at 546; text accompanying note 133 *supra*. The corresponding GATT exception is in article XII.

143. This is particularly evident when the moving party is a major world power. Cf. J. JACKSON, *supra* note 58, at 758, discussing the GATT waiver for United States agricultural import controls. Even the liberally granted waiver, however, may contain significant conditions with regard to its exercise. See K. DAM, *supra* note 58, at 355.

community to balance the interests affected by the environmental challenge. Therefore, waivers for trade measures to offset pollution-control costs should not be precluded; but neither should they be automatic or open-ended.

B. *GATT Problems Concerning Subsidies*

As we have seen, country *A* may attempt to alleviate the competitive disadvantage of pollution control by adopting production subsidies or by applying export subsidies to goods that have borne a production tax or regulatory burden in respect of their consumption pollution propensities.¹⁴⁴ The resulting GATT issues center on the permissibility of production and export subsidies and the use of countervailing duties by importing countries to neutralize the effect of subsidies.¹⁴⁵

The General Agreement does not embody provisions wholly effective, even on paper, to forestall the protective and trade-diverting potentialities of domestic subsidies.¹⁴⁶ It is clear that a production subsidy for import-competing goods—in the pollution-control context or otherwise—will normally reduce imports below the no-subsidy level, in the absence of demand-stimulating inflationary measures.¹⁴⁷ It tends to nullify any comparative advantage enjoyed by nonsubsidized competitors. From the standpoint of world economic order, the widespread use of subsidies, accompanied by new import barriers, could threaten the same sort of breakdown in trading relationships that competitive devaluations, uncorrelated with market forces, helped to foster in the 1930's.¹⁴⁸ Nevertheless, article XVI, paragraph 4 prohibits only export subsidies (as distinguished

144. See text accompanying note 51 *supra* and pt. II. C. *supra*.

145. Some of the GATT provisions already discussed—such as the most-favored-nation clause—are not likely to be invoked in the subsidy context. Others might well be invoked, but do not raise sufficiently distinctive issues to be re-examined. These include articles XX(b) & (g) (health and natural resources exceptions); XXI (security exceptions); and XXV, paragraph 5 (waivers). The effect of production subsidies on tariff bindings of the subsidizing country is discussed as a “nullification or impairment” issue (at text accompanying notes 173-74 *infra*).

146. The subsidy provisions are in article XVI. Cf. article VI, dealing with countervailing duties. On the background to the GATT subsidy provisions and the rationale for them, see J. JACKSON, *supra* note 58, at 365-76.

147. In terms of Figure 4 *supra*, the effect of the production subsidy compared with that of the production tax or regulation is to reduce imports from $X_2\bar{X}$ to $X_3\bar{X}$. Compare Figure 1 *supra*. Cf. Panel Report, Review Pursuant to Article XVI:5, 9th Supp. BISD 188, 191 (1961).

148. Cf. G. CURZON, *supra* note 58, at 119; K. DAM, *supra* note 58, at 136; C. WILCOX, *supra* note 58, at 126; Meier, *The Bretton Woods Agreement—Twenty-five Years After*, 23 STAN. L. REV. 235, 253 (1971). On the competitive devaluations of the 1930's, see L. YEAGER, INTERNATIONAL MONETARY RELATIONS 329-31 (1966).

from production subsidies), and does so only for nonprimary products and for countries that have affirmatively undertaken the obligation by means of a formal Declaration.¹⁴⁹ Most of the industrialized countries, including the United States, have acceded to the Declaration.¹⁵⁰

There should be no GATT problem with respect to exemption of pollution-engendering exports from a domestic consumption tax, even though the exemption results in export sales at prices below those charged at home.¹⁵¹ Such a tax would normally be "borne by the . . . product"¹⁵² and would be in the nature of a turnover tax that could be rebated or exempted for exports, so long as the rebate or exemption does not exceed the amount of the tax. The more serious question arises when a production tax (or regulation) is applied in order to induce producers to eliminate pollution-caused excess social costs from the consumption of their products and is then rebated for exports.¹⁵³ As in the case of offsetting import charges, the legitimacy of an export rebate is normally expressed in terms of the direct-indirect tax dichotomy.¹⁵⁴ Similarly, such an approach is unexceptionable so long as it is restricted to the traditional types of direct and indirect taxes, but should not be treated as a mechanical solution to problems posed by new types of taxation. Since pollution taxes on production would normally affect prices, an export rebate would be consistent with GATT principles. This would be so whether the tax is measured by units of output or otherwise.¹⁵⁵ However, if the legal-regulation approach is used instead of a production tax, any cost rebate for exports would no longer be a tax

149. See Declaration Giving Effect to the Provisions of Article XVI, Paragraph 4, 9th Supp. BISD 32 (1961), 445 U.N.T.S. 294 (1962).

150. For a list of acceding countries as of January 1, 1969, see J. JACKSON, *supra* note 58, at 374-75 n.24.

151. Article XVI, paragraph 4 prohibits only export subsidies that have this price-differential effect.

152. GATT, ad art. XVI, preamble. A question could conceivably arise from the fact that the pollution-control tax would not be a general revenue tax in the usual sense. See note 69 *supra*.

153. On the usefulness of this arrangement as a pollution-control device when domestic demand is significant, see text accompanying notes 49-50 *supra*.

154. See text accompanying note 101 *supra*. The governments accepting the GATT Declaration agreed in 1960 that they would consider as export subsidies under article XVI, paragraph 4, *inter alia*, the remission for exports of "direct taxes or social welfare charges on industrial or commercial enterprises" and the exemption of charges or taxes other than those on importation or indirect taxes. See Working Party Report, Provisions of Article XVI:4, 9th Supp. BISD 185, 186-87 (1961). The intended distinction was clearly between taxes that affect price and those that do not, subject to the entrenched GATT presumption that income taxes do not.

155. See text accompanying note 106 *supra*.

rebate and would therefore appear to run afoul of article XVI, paragraph 4 for countries subject to the Declaration.¹⁵⁶ This seemingly anomalous result is probably unavoidable in view of the understandable reluctance of GATT framers to enter into the morass of working out practicable measures for equalization of diverse and conflicting regulatory burdens.¹⁵⁷

If a direct production subsidy is adopted, the prohibition in article XVI, paragraph 4 is inapplicable. However, if the production subsidy "operates directly or indirectly to increase exports of any product from, or to reduce imports of any product into, its territory," the subsidizing country is obliged to provide details to the CONTRACTING PARTIES.¹⁵⁸ If another state feels that "serious prejudice" to its interests has occurred, it may request consultations with a view to the possibility of limiting the subsidization.¹⁵⁹

The test whether the subsidy has increased exports or reduced imports involves comparison with the level of exports or imports that would exist absent the subsidy, rather than with historical levels of exports or imports.¹⁶⁰ Moreover, the GATT Panel that approved this test thought it "fair to assume that a subsidy which provides an incentive to increased production will, in the absence of offsetting measures, e.g., a consumption subsidy, either increase exports or reduce imports."¹⁶¹ Consequently a country adopting a pollution-control production subsidy will almost certainly be obliged to report it and must be prepared to defend it in consultations with affected nations.

In the pollution-control context, consumption subsidies, as well as production subsidies, may serve to reduce imports. The problem could arise if country *A* decides to subsidize consumers who use non-polluting products, rather than tax or penalize those who do not. If

156. Cf. Working Party Report, French Trade Measures, 16th Supp. BISD 57 (1969), dealing, *inter alia*, with a French measure providing exporters with partial compensation for wage increases. Although the Working Party "did not examine in detail the question of the compatibility of the trade measures taken by the Government of France with the General Agreement" (*id.* at 63), the tenor of the report clearly indicates disapproval. See *id.* at 62-64.

157. The anomaly of allowing export rebate for pollution taxes but not for pollution regulations is a particularly clear manifestation of the difficulties involved in reaching workable accommodations of economic interests affected by pollution control by means of a general trade agreement. Comparable anomalies exist on the import side in connection with measures likely to be adopted to complement the tax and regulation approaches. See text accompanying notes 96-110 *supra*.

158. GATT, art. XVI, para. 1.

159. See J. JACKSON, *supra* note 58, at 391-92; Panel Report, Operation of the Provisions of Article XVI, 10th Supp. BISD 201, 206-07 (1962).

160. See Review Pursuant to Article XVI:5, *supra* note 147, at 191.

161. *Id.*

domestic products qualify their users for the subsidy but some or all imports do not, demand would normally shift away from the imports. The applicable GATT provision is article III, paragraph 4, requiring equality of treatment between imported and domestic products with respect to laws and regulations affecting, *inter alia*, their sale, purchase, and use.¹⁶² The issues are essentially the same as those regarding the consumption tax. So long as the subsidy is available equally to domestic and imported products, it should not contravene article III, paragraph 4.¹⁶³

Finally, consideration must be given to the use of countervailing duties by trading partners of the country using pollution-control-related subsidies. Article VI, paragraph 3 authorizes, by negative implication, countervailing duties unilaterally imposed by an importing country, not to exceed the amount of the subsidy in the exporting country. Article VI, paragraph 6(a) requires that there be material injury to a domestic industry before a countervailing duty is applied. Article VI, paragraph 4 prohibits the duty in the case of exemption or refund of taxes "borne by the like product" in the exporting country—a prohibition that would, in general, preclude imposition of a countervailing duty with respect to an export rebate of pollution taxes, but not with respect to a rebate of regulatory burdens.¹⁶⁴

It is not necessary to show that any provision of article XVI has been violated in order to impose countervailing duties.¹⁶⁵ Consequently there is no reason why they could not be applied to production subsidies granted for pollution-damage avoidance, provided that the injury requirements either are met or are inapplicable because of the appropriate protocol by which the importing state adheres to GATT.¹⁶⁶

C. Nullification or Impairment

Article XXII, providing generally for consultations, and article XXIII, concerning "nullification or impairment," comprise the pri-

162. See *Italian Discrimination Against Imported Agricultural Machinery*, *supra* note 112, at 62-65, in which a GATT Panel applied article III, paragraph 4 to a consumption subsidy case.

163. See text accompanying note 86 *supra*. In any event, the health exception of article XX(b) should be available.

164. See text accompanying notes 151-57 *supra*.

165. See Group of Experts Report, *Anti-Dumping and Countervailing Duties*, 9th Supp. BISD 194, 200 (1961). On the possible use of countervailing duties to offset the cost advantage of products that have not been subjected to pollution controls in the country of production, see note 91 *supra*.

166. See note 79 *supra*. The term "material injury" in article VI, paragraph 6(a) has been supplemented by an enumeration of factors bearing on the extent of injury in the International Anti-Dumping Code, June 30, 1967, art. 3(b), [1968] 4 U.S.T. 4348, T.I.A.S. No. 6431. A narrow interpretation of "material injury" is in keeping with the need for safeguards in connection with the article VI authorization to act unilaterally.

mary dispute-settlement mechanism of GATT. Article XXIII authorizes representations among parties, and eventual referral to the CONTRACTING PARTIES, if a party

should consider that any benefit accruing to it directly or indirectly under this Agreement is being nullified or impaired or that the attainment of any objective of the Agreement is being impeded as the result of (a) the failure of another contracting party to carry out its obligations under this Agreement, or (b) the application by another contracting party of any measure, whether or not it conflicts with the provisions of this Agreement, or (c) the existence of any other situation

In practice the first step in such a case is consultation among affected parties. If a dispute remains, ensuing stages include conciliation by a GATT Working Party or Panel, recommendations by the CONTRACTING PARTIES if conciliation fails, and—occasionally—authorized retaliation.¹⁶⁷

There could be nullification or impairment whether or not the trade measures taken by the pollution-controlling state contravene the provisions of the General Agreement.¹⁶⁸ This could be so, for example, if a GATT exception is applicable or if a waiver is obtained,¹⁶⁹ so long as the damaging effects could not reasonably have been foreseen when the measure was taken or the waiver issued.¹⁷⁰

It is evident that import charges intended to offset increased domestic pollution-control costs could nullify or impair benefits under GATT. If they are inconsistent with substantive GATT provisions, they would involve prima facie nullification or impairment.¹⁷¹ This appears to be the case even if a waiver has been granted.¹⁷² It may also be the case whenever production subsidies on bound items are involved. A GATT Working Party has said that

a contracting party which has negotiated a concession under Article II may be assumed, for the purpose of Article XXIII, to have a reasonable expectation, failing evidence to the contrary, that the value of the concession will not be nullified or impaired by the contracting

167. See GATT, art. XXIII, para. 2; K. DAM, *supra* note 58, at 364-68.

168. See GATT, art. XXIII, para. 1(b); Italian Discrimination Against Imported Agricultural Machinery, *supra* note 112, at 65.

169. See ANALYTICAL INDEX, *supra* note 67, at 119, citing report of the Geneva preparatory meeting for the Havana Conference (concerning the security exception in article XXI); *id.* at 125-26 (instances of waivers reserving the right of other parties to have recourse to article XXIII).

170. See J. JACKSON, *supra* note 58, at 183; The Australian Subsidy on Ammonium Sulphate, *supra* note 67, at 193; Working Party Report, Quantitative Restrictions, 3d Supp. BISD 170, 188 (1955).

171. See J. JACKSON, *supra* note 58, at 182; Uruguayan Recourse to Article XXIII, *supra* note 94, at 100.

172. *Id.* at 100 n.1.

party which granted the concession by the subsequent introduction or increase of a domestic subsidy on the product concerned.¹⁷³

The statement is circular. Nevertheless, since the existence of "nullification or impairment" turns in part on the expectations of GATT parties at the time benefits under the Agreement accrue to them (*e.g.*, at the time a tariff concession is negotiated), the statement has been thought to indicate that the introduction of a domestic subsidy for production of an item bound under GATT involves, in effect, a *prima facie* nullification or impairment of GATT benefits.¹⁷⁴

If the trade-related measures do not contravene GATT, they raise the issue of how to judge whether lawful trade conduct justifies complaint. It has been thought that in such cases an "injury" requirement is implicit in the concept of nullification or impairment.¹⁷⁵ GATT investigating bodies, however, have not explicitly defined an injury standard. Nor have they required a showing of any precise quantum of damage suffered, so long as the action taken by the respondent state appears likely to have an adverse effect on a GATT benefit (such as a tariff binding) and could not reasonably have been foreseen when the benefit accrued.¹⁷⁶

If there is nevertheless an injury requirement, it is probable that injury should be judged by reference to trade and profit levels that would prevail in the absence of the measure complained of, rather than simply by comparison with pre-existing levels. This tends to strengthen the complainant's position by permitting a showing of injury even though trade and/or profit levels have not fallen if they would have risen in the absence of the new measure. This approach

173. Working Party Report, Other Barriers to Trade, 3d Supp. BISD 222, 224 (1955). See also Operation of the Provisions of Article XVI, *supra* note 159, at 209.

174. See J. JACKSON, *supra* note 58, at 182-83, 388. The statement apparently means that parties are presumed to expect that no subsidy on the bound item will subsequently be introduced. Compare The Australian Subsidy on Ammonium Sulphate, *supra* note 67, at 193, which suggests that there may be no such presumption regarding new production subsidies on substitute products. There is no reason to distinguish between expectations about future subsidies on the same product and those on direct substitutes.

The statement should not be construed to apply to consumption subsidies for which imported as well as domestic products are eligible, even though the imported product in a given case may not qualify for the subsidy. See text accompanying notes 162-63 *supra*. The consumption subsidy and consumption tax are mirror images. Permissibility of such consumption measures—if evenly administered—is sufficiently ingrained in articles II and III that parties must be presumed to expect that new ones could be adopted after a tariff binding is made. Consumption subsidies, however, might be found to nullify or impair most-favored-nation benefits under article I. Cf. text accompanying notes 75-79 *supra*.

175. See J. JACKSON, *supra* note 58, at 181-82.

176. See The Australian Subsidy on Ammonium Sulphate, *supra* note 67, at 193-94; Treatment by Germany of Imports of Sardines, *supra* note 67, at 56.

is suggested by at least one of the reported conciliation proceedings¹⁷⁷ and is consistent with the thrust of GATT toward deterrence of conduct inconsistent with trade liberalization objectives. It is consistent also with the position taken by the CONTRACTING PARTIES concerning the production-subsidy notification and consultation requirements of article XVI, paragraph 1.¹⁷⁸ It would fill the lacuna in the article XVI treatment of production subsidies by providing a standard applicable to subsidies with respect to unbound items that is only slightly less demanding than a prima facie standard applicable to subsidies with respect to bound items. The problem with this approach, of course, is that demanding standards in international trade matters are only as effective as the consensus that supports them. If the perceived interests of the acting state call strongly for protection, the standards are likely to have little deterrent effect; moreover, the ultimate sanction—retaliation—results in further frustration of trade liberalization goals.

If there is nullification or impairment, the CONTRACTING PARTIES may authorize suspension of GATT obligations (retaliation) only if the circumstances are "serious enough," *i.e.*, only as a last resort.¹⁷⁹ Hence, the major effort has been to obtain withdrawal of the offending measures or the grant of compensatory concessions.¹⁸⁰ In the pollution-control context, however, neither of these remedies may be palatable to the acting state if many of its major industries contribute to the pollution damage and if the felt need to protect those industries—or to protect the balance of payments—is strong. Thus, retaliation under article XXIII is a distinct possibility.

177. See Working Party Report, Netherlands Action Under Article XXIII:2 To Suspend Obligations to the United States, 1st Supp. BISD 62, 63 (1953), a case involving a breach of the General Agreement by the respondent state. The Working Party did not speak in terms of prima facie nullification or impairment, but said that "[i]t was agreed . . . that it would be proper to take into account the contention of the Netherlands Government that the restrictions imposed by the United States had had serious effects on the efforts which were being made by the Netherlands to stimulate its exports to the United States" In some cases GATT investigating bodies have taken note of trends in trade between the parties without indicating whether the trends were legally significant in themselves or were simply useful to establish what current levels could be. See French Assistance to Exports of Wheat and Wheat Flour, *supra* note 69, at 54-55; Italian Discrimination Against Imported Agricultural Machinery, *supra* note 112, at 65-67. It would normally be relevant—even indispensable—to examine recent trends in order to estimate what the current trade level would be in the absence of the subsidy.

178. See text accompanying note 160 *supra*.

179. See Working Party Report, Organizational and Functional Questions, 3d Supp. BISD 231, 250-51 (1955).

180. *Id.* See also I. KRAVIS, *supra* note 122, at 131, asserting that in article XXIII proceedings "the success of GATT in achieving settlements that avoided the further contraction of trade was notable."

IV. CONCLUSION

GATT substantive rules seem clearly to permit one useful pollution-control device—the consumption tax—despite the fact that the tax directly affects trade. In this area GATT rules and optimal pollution-control methods mesh, partly because the consumption tax fits the GATT “indirect tax” mold, but also because of the safety exception. That exception should also serve to permit comparable direct regulation of consumption. But uncoordinated consumption measures among pollution-controlling countries could amount to formidable nontariff trade barriers. Moreover, consumption measures cannot alone solve the industrial pollution problems of a developed country. They are inappropriate for control of pollution arising from production methods, where much of the problem lies. Even as to production, if governmental measures designed to avoid pollution damage were limited to taxes or regulatory devices applied to domestic producers, without corresponding trade measures, no significant GATT problems would arise. As the measures take on protective or export-stimulating characteristics, however, they pose the multifaceted GATT questions we have been considering.

These questions could be resolved in individual cases through informal GATT negotiations and consultations, or through formal waiver or conciliation proceedings. The considerations examined above would play a role in shaping the assertions, responses, and decisions. But without some sort of effective international coordination of national environmental policies, the cumulative economic pressures on environmentally activist, industrialized nations may pose too great a challenge for the present GATT ordering system to provide consistent, workable solutions. A large variety of traded products would probably be affected. If fresh trade barriers are forestalled, a significant new threat to the postwar trade liberalization framework would be averted. But the victory could be Pyrrhic if—as the analysis in part II shows is possible in an environmentally unregulated world—the practical alternatives left to the states concerned are displacement of workers in affected industries and/or balance-of-payments difficulties, on the one hand, or industrial pollution control falling far short of optimality, on the other.¹⁸¹

Avoidance of new trade barriers is in any event far less than cer-

181. The worker displacement problem is not wholly alleviated by potential employment opportunities in pollution-control industries and the like. The human and technological problems of worker readjustment have never proved easy to solve, nor is there a guarantee that aggregate economic activity in any given country will be sufficient to absorb all retrainable labor.

tain. As we have seen, exceptions to GATT obligations may be found (or may be stretched, with or without a waiver) for much of what pollution-controlling states would be under pressure to do. It is an open question whether the deterrent provided by article XXIII consultations with their threat of retaliation, or by such lesser remedies as countervailing duties, would be adequate to preclude the adoption of new trade measures by states serious about environmental protection. If new trade measures do ensue, resources are likely to be wasted and GATT objectives frustrated, at least temporarily. There is also the specter—not lightly to be dismissed in an era of reawakening protectionism and economic instability—of an unravelling of postwar trade gains through retaliation and discrimination against “offending” nations. GATT as presently constituted is undergoing severe strains as a force for maintenance of a liberal economic ordering system; it may not be able readily to withstand stress from yet another source.¹⁸²

The inescapable conclusion is that the economic argument for effective multinational coordination (or regulation) of pollution-control efforts in the developed countries is stronger than has been generally realized.¹⁸³ In the absence of effective coordination, GATT provides some rules and procedures that will have to be used to try to find a balance among liberal trade policies, national full-employment objectives, and pollution-control imperatives. But the outlook is cloudy at best if GATT has to go it alone in its present form.¹⁸⁴

182. For a somewhat more optimistic prognosis than that offered here, see GATT STUDY, *supra* note 3, at 21-22.

183. Recognition of the point is beginning to appear at official levels. See statement of Russell E. Train, Chairman of the Council on Environmental Quality, in *Hearings on Conventions and Amendments Relating to Pollution of the Sea by Oil Before the Subcomm. on Oceans and Intl. Environment of the Senate Comm. on Foreign Relations*, 92d Cong., 1st Sess. 178 (1971); S. REP. No. 92-451, 92d Cong., 1st Sess. 16 (1971). The EEC Commission has acknowledged the necessity of joint action regarding pollution control in the European Common Market. See *The Times* (London), July 24, 1971, at 4, col. 1; EUROPEAN COMMUNITY, Sept. 1971, at 9. Cf. GATT STUDY, *supra* note 3, at 22-23; OECD, OECD AT WORK FOR ENVIRONMENT 7, 13, 29 (1971); OECD ENVIRONMENT DIRECTORATE, GOVERNMENTAL RESPONSIBILITIES FOR THE APPLICATION AND CONTROL OF TECHNOLOGY IN RELATION TO MAN'S ENVIRONMENT 16 (1971).

It is possible, of course, that even without formal multinational pollution-control coordination, bargains could be reached among individual countries to offset enhanced costs to their most seriously affected industries. Cf. Doud, *supra* note 81, at 266. It is most unlikely, however, that such ad hoc bargaining could provide a comprehensive solution.

184. Adoption of an international monetary system based on freely fluctuating exchange rates could relieve balance-of-payments pressures, but would not in itself resolve problems of providing full employment or of avoiding other domestic socio-economic disturbances arising from loss of competitiveness on the part of pollution-controlled industries. Moreover, freely fluctuating exchange rates raise some problems of their own. The literature on fixed and flexible exchange rates is vast. See, e.g., P.

The conflict between optimal economic and environmental objectives is a real one that will inevitably be resolved either by subordinating one to the other or, perhaps, by a form of multinational coordination capable of providing assurance to a pollution-conscious nation that others are acting similarly—assurance, in effect, that its pollution-controlled industries will not price themselves out of their own and world markets.

It is beyond the scope of the present discussion to delve into the form such a system should take. It could be a functioning international regime capable of regulating as well as coordinating, or perhaps simply an agreement among industrialized countries to coordinate their pollution-control efforts. It could conceivably be incorporated into a revised and revitalized GATT. Ideally, of course, it should ensure that optimal pollution-control measures are adopted and enforced in each nation. This would have the effect of removing pollution-caused divergences between marginal social costs and marginal values, and would provide the best attainable solution from the standpoint of efficient use of world resources—a solution second-best in terms of efficiency only to full elimination of all divergences, however caused.¹⁸⁵ No one supposes that truly optimal results could be attained in practice, but the closer the world community can come to them the more likely it is that world economic and environmental interests can be harmonized.

EINZIG, *THE CASE AGAINST FLOATING EXCHANGES* (1970); M. FRIEDMAN, *The Case for Flexible Exchange Rates*, in *ESSAYS IN POSITIVE ECONOMICS* 157-203 (1953); M. FRIEDMAN & R. ROOSA, *THE BALANCE OF PAYMENTS: FREE VERSUS FIXED EXCHANGE RATES* (1967); G. HALM, *TOWARD LIMITED EXCHANGE-RATE FLEXIBILITY* (Princeton Essays in Intl. Fin. No. 73, 1969); F. MACHLUP, *PLANS FOR REFORM OF THE INTERNATIONAL MONETARY SYSTEM* 73-88 (1964); E. SOHMEN, *FLEXIBLE EXCHANGE RATES* (rev. ed. 1969); R. TRIFFIN, *OUR INTERNATIONAL MONETARY SYSTEM: YESTERDAY, TODAY, AND TOMORROW* 72-75 (1968); Meier, *supra* note 148, at 264-67.

185. As indicated in text accompanying note 11 *supra*, if the divergences to be corrected are substantial in magnitude and are applicable to a wide variety of goods, the chances of any adverse secondary effects outweighing the beneficial primary effects are very small. Such would appear to be the case with industrial pollution.