LEADING ARTICLES

Policy Externalities and High-Tech Rivalry: Competition and Multilateral Cooperation Beyond the WTO

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Abstract: Governments have increasingly been giving attention to the need for, and prospects of, ensuring contestability of markets through international agreements. This paper explores what has been achieved so far in the context of the World Trade Organization (WTO) and what might be done to further enhance the 'competition-friendliness' of the multilateral trading system. The case of high-technology industrial rivalry is used for concreteness. High-tech is interesting because it cuts across many of the issues that are relevant from a systemic perspective, both 'old' (market access) and 'new' (investment, antitrust). We conclude that greater contestability of regulatory regimes in domestic legal orders may be beneficial. This can be pursued by giving private parties the right to contest actions of WTO member states before national courts.

1. INTRODUCTION

In the first three decades of the operation of the multilateral trading system, governments steadily reduced frontier barriers (tariffs, quotas) and

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sought to ensure that such reductions were not offset through discriminatory internal taxation or similar measures. Over time, the focus began to shift to a broader agenda, including 'domestic' policies that could have trade restricting effects. Recently, increasing attention is being given to questions such as the scope for integrating rules against restrictive business practices into the multilateral trading system, and the need for, and prospects of, 'regulating regulatory regimes' more generally. The objective underlying such efforts is to ensure greater contestability of markets. Government policies may directly restrict access to markets or do so indirectly. In addressing the impact of such policies, the problem is one of determining the 'acceptability' of the competitive conditions that may prevail on a market.

This paper reviews existing WTO disciplines from a competition-based perspective,[1] using the case of high-tech rivalry for concreteness. High-tech is interesting because it cuts across many of the issues that are relevant from a systemic perspective, both 'old' (market access) and 'new' (investment, antitrust). The objective is to explore what has been achieved, discuss some of the holes that remain, and what might be done to further enhance the 'competition-friendliness' of the multilateral trading system. The paper starts in Section 2 with a brief discussion of the concepts, including the notion of contestability of markets. Section 3 discusses 'high-tech' industries, their characteristics, and the policy spillovers that may emerge. Section 4 summarizes the history of attempts to obtain sector-specific disciplines on high-tech *per se* in the General Agreement on Tariffs and Trade (GATT) setting. Section 5 analyzes a number of relevant WTO rules, exploring the scope of existing disciplines that are especially pertinent for high-tech. These are many-fold, as high-tech policy rivalry has been a driving force in the evolution of the multilateral trading system. Section 6 turns to the adequacy of the current rules of the game from a contestability-*cum*-conditions of competition perspective, and explores options for strengthening the 'competition-friendliness' of multilateral cooperation. Section 7 concludes.

1. The Marrakesh Agreement Establishing the World Trade Organization, The Results of the Uruguay Round of Multilateral Trade Negotiations: the Legal Texts 5 (1995).

2. CONCEPTS AND DEFINITIONS

It is assumed in this paper that the objective underlying multilateral rules and cooperation is to enhance market access conditions broadly defined. This goes far beyond reduction in trade barriers, and includes the impact of investment policies, industrial policies, and antitrust policies. Useful concepts in this connection are:

1. the contestability of markets; and
2. the conditions of competition on a market.

A market is said to be contestable if firms are not confronted with barriers to entry created by government actions/policies and no potential entrant finds it profitable to enter the market given prices charged by incumbents. A contestable market is one where the threat of entry induces incumbent firms in an industry to price as close to marginal costs as is feasible, given the need to remain viable (cover average total costs). The theory of contestable markets was developed by Baumol, Panzar, and Willig for industries where fixed costs constitute a barrier to entry.[2] The economic theory of contestable markets says that economic barriers to entry (e.g. fixed costs) do not necessarily imply surplus profits and thus a need for regulation (including competition policy). That is, *absent* governmentally created entry barriers, the theory predicts that a near-competitive outcome may result, independent of market structure, sunk costs, etcetera, i.e., the business practices/conduct of the incumbents. Policy may enter the picture in this context insofar as it impedes entry, lowers the threat effect of potential entry, and thus prevents the gains from contestability (a reduction in price-cost margins) from being realized.[3] But this is a general

2. W. Baumol, J. Panzar & R. Willig, Contestable Markets and the Theory of Industry Structure (1982).
3. Non-enforcement of national antitrust laws or tolerating business practices that exclude foreign firms can affect both contestability and the conditions of competition on a market, although in practice it is likely that the main impact will be on contestability (barriers to entry, market foreclosure, refusal to deal, etc.). The extent to which such business practices are prevalent or inefficient are empirical questions. Often no clearcut normative prescriptions are possible. Even if there is significant scope for strategic actions by incumbents aimed at increasing the costs of entry, these are not necessarily anti-competitive in the sense of impeding contestability.

issue that is not dependent on the existence of fixed-cost technologies.[4] The key criterion is whether governmental barriers to entry exist.

The conditions of competition applying on a market (determining the 'playing field') are in contrast solely dependent on government actions: as given by, e.g., industrial, tax, and macro-economic policies. The competitive conditions that prevail are a factor determining the contestability of a market. These two concepts underlie much of what is in the GATT and the WTO Agreement,[5] and are useful in characterizing both past and current approaches to treaty-based multilateral cooperation in the economic policy sphere. While the set of policies subjected to multilateral attention has expanded far beyond trade policy *per se*, the underlying objectives of attempts at such cooperation have not. Contestability of markets (through, e.g., tariff reductions) and establishing conditions of competition on markets (through, e.g., the national treatment rule) have always been fundamental objectives of the multilateral trading system, as embodied in GATT 1947 and in the new WTO.[6] However, there has been a change in emphasis, there now being calls for deeper integration through the adoption of common regulatory regimes.[7] This contrasts with the shallow integration that has historically been pursued in the multilateral context-agreement *not* to pursue specific policies.[8]

The concepts of contestability and conditions of competition are used

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4. The definition of contestable markets used here differs from that in The International Contestability of Markets and the New Trade Agenda: A Preliminary Outline, OECD Doc. TD/TC/WP(95)55, at 5 (1995): "a market could be deemed internationally contestable when characterized by conditions of competition (*i.e.*, the 'competitive process') in which the rivalrous relationship between firms is not distorted by anticompetitive governmental or private action." Much depends here on the definition of the terms used, e.g., distortion, competitive process, rivalry. Rivalry will generally characterize firms in the same industry, but is not necessarily efficient in vertical relationships. Private action (cooperation) to overcome transactions costs and internalize externalities is often not a distortion of competition. Such efficient cooperation may be horizontal, e.g., Research and Development (R&D) consortia.
5. *See* GATT 1994, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 21.
6. *See* GATT 1947, 55 UNTS 194 (1948); and the WTO Agreement, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1.
7. J. Bhagwati, *Fair Trade Reciprocity and Harmonization: The New Challenge to the Theory and Policy of Free Trade*, *in* A. Deardorff & R. Stern (Eds.), Analytical and Negotiating Issues in the Global Trading System 579 *et seq.* (1994).
8. R. Lawrence & R. Litan, *The World Trading System After the Uruguay Round*, 8 Boston University International Law Journal 247-276 (1990).

in this paper as two dimensions or criteria that could usefully be used as the basis for further development and expansion of multilateral rules. They can be applied whether shallow or deep integration is pursued. Indeed, they can help determine whether deep integration is needed in specific circumstances. They are consistent with the concepts of market access and market presence used in Organization for Economic Cooperation and Development (OECD) discussions on the 'new trade agenda',[9] but have the advantage of not distinguishing between different modes of supplying markets. Such distinctions are of value only in an institutional sense, i.e., in terms of recognizing that existing multilateral disciplines (WTO) do not deal in a comprehensive manner with investment policies (market presence). Although further work is clearly required to define and refine these concepts, the contestability-*cum*-conditions of competition framework may be helpful in providing more concrete yardsticks for the policy challenges that have been identified by the OECD Secretariat as emerging from the 'new dimensions of market access', i.e.:

1. agreeing to investment policy disciplines; and
2. dealing with public policies and private practices that 'affect the conduct of international business'.[10]

The concepts of contestability and conditions of competition can help to define the latter challenge more concretely.

3. HIGH-TECH: ECONOMICS AND GOVERNMENT POLICY

No generally accepted definition of high-tech industries exists. A common element in most definitions that are employed is that these are industries where research and development (R&D) outlays are significantly above average in comparison with other industries. Examples are aerospace, pharmaceuticals, fiber optics, biotechnology, and information technology. The ratio of R&D expenditure to output in such industries is often in the 10 to 15% range, and rises to almost 25% for aerospace.[11] Policymakers

9. *See* The International Contestability of Markets and the New Trade Agenda, *supra* note 4.
10. *Id.* at 3.
11. *See* Comparable International Statistics on High-Technology Products, UN Doc.

tend to be more concerned with the size/health of high-tech industries than other types of economic activities for a variety of reasons.[12] R&D undertaken by a firm will generally benefit other firms and consumers, i.e., there are positive spillovers. As a result, social returns to R&D expenditures are generally held to exceed private returns, as R&D expands the stock of public knowledge (capital), thus fostering economic growth.[13] Given that high-tech industries account for a major share of total R&D in industrialized countries, this provides one rationale for elevating the 'policy status' of high-tech. Although some of the knowledge generated will spill over in to other technology-specializing countries, as long as the dynamic benefits (R&D spillovers) accrue disproportionately to national firms, support of high-tech may improve national welfare by generating higher rates of growth in output. More generally, appropriability problems may give rise to underprovision of private R&D effort. Studies investigating the international diffusion of knowledge have shown spillovers to be significant.[14] Although in itself beneficial to world welfare, it again provides a potential justification of government assistance insofar as it results in less R&D effort. Such support could be subsidization, or take a regulatory form, e.g. through relaxation of antitrust rules to allow cooperation between firms with respect to R&D and its exploitation. Enforcement of intellectual property rights internationally also enters the picture in this connection.

High-tech industries are generally characterized by high fixed costs as well as high R&D intensity. High-tech competition is by definition of an oligopolistic nature, as the products developed via R&D will be differentiated from those of competitors. These are industries where learning curves are steep. Large fixed/start-up costs constitute a barrier to entry and create increasing returns to scale. This gives rise to the possibility that incumbent industries enjoy rents or surplus profits. Although empirical research suggests that such excess profits are small at best,[15] increasing returns and

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ENG.AUT/SEM.12/R.4/Add.1 (1994).

12. *See, e.g.*, L.D.A. Tyson, Who's Bashing Whom: Trade Conflict in High-Technology Industries (1992).
13. G. Grossman & E. Helpman, Innovation and Growth in the World Economy (1991).
14. *See, e.g.*, D. Coe & E. Helpman, *International R&D Spillovers*, CEPR Discussion Paper 840 (1993).
15. L. Katz & L. Summers, *Industry Rents: Evidence and Implications*, Brookings Papers on Economic Activity: Microeconomics 209-275 (1989).

imperfect competition provide a theoretical case for supporting high-tech industries. 'Strategic' trade policies may be able to generate not only terms of trade gains, but also extract rents from foreign firms selling on the domestic market and shift rents obtained by foreign firms on third markets to national firms. From the very start of the strategic trade literature, the interaction between trade and industrial policies for high-tech industries stood at the centre of attention.[16] The arguments against such 'strategic' policies are well known: there are great information problems, with no guarantee that intervention will target the 'right' industries (especially if the incentives for rent-seeking are recognized), and account must be taken of possible retaliation.[17] Nonetheless, many governments actively support high-tech industries, through industrial policies (direct subsidies for R&D, investment tax credits, and public procurement), and through trade policy (protection).

To a large extent the rise to prominence of high-tech rivalry on the multilateral agenda reflects the catching-up of nations devastated by World War II and the development of an ever increasing number of former low-income countries. Since the 1950s, US dominance in a number of high-tech industries has been successfully challenged by foreign competition. Research has shown that the outcome of such challenges is highly dependent on the reaction of incumbents. In a number of the product markets investigated by Scherer,[18] US firms' reactions to foreign competition were submissive: the R&D to sales ratio fell, and ineffective attempts were made to retain market share. In many other cases, however, US firms reacted relatively aggressively, and succeeded in stemming the decline in market share through specialization, product differentiation, and an increase in R&D outlays. Scherer found protectionist policies to be negatively correlated with an aggressive R&D reaction to import competition; the inference being that firms devoted resources to obtaining protection rather than pursue innovation and greater efficiency.[19]

The issue of how to respond to foreign industrial policy has been

16. *See, e.g.*, B. Spencer & J. Brander, *International R&D Rivalry and Industrial Strategy*, 50 Review of Economic Studies 707-722 (1983).
17. *See*, for a recent survey of the literature, D. Laussel & C. Montet, *Strategic Trade Policies*, *in* D. Greenaway & L.A. Winters (Eds.), Surveys in International Trade (1994).
18. F.M. Scherer, International High-Technology Competition (1992).
19. *Id.*

addressed at length in the literature. No clear-cut conclusions emerge, except that the dynamics of any given situation are likely to be extremely complex, making it very difficult, if not impossible, to identify optimal policy. What can be said is that policies of countervailing subsidies make very little sense. Restricting attention to high-tech, once R&D has been sunk, a countervailing duty (CVD) can at best provide a very imperfect instrument to induce foreign governments to refrain from supporting industries in the future. At the same time, it imposes costs on consumers, while the protection accorded to domestic firms is unlikely to lead to greater innovative activity.[20] In general, the results of successful R&D efforts benefit all consumers no matter where they are located; there is likely to be both a greater variety of goods and services and a decline in the average price of products. As long as global markets remain open, countries can rely on international intra-industry exchange and specialize in particular niches. However, to the extent that policies close markets (e.g. antidumping), a policy problem may emerge (*see infra* sections 5.2. *et seq.*). Moreover, local spillovers create the potential for locational competition between governments seeking to attract foreign direct investment (FDI) and technologies.

The pursuit of 'strategic' policies by governments creates incentives for international cooperation-attempts to agree to particular 'rules of the game'. As noted earlier, there are two dimensions that underlie such attempts: enhancing the contestability of markets and defining the competitive conditions that exist on these markets. Two types of issues arise. The first revolves around private anti-competitive practices pursued by a high-tech industry that reduces the contestability of home or other markets; the second pertains to government policies that either restrict contestability or bias competitive conditions on the home or on third markets in favour of the domestic industry.

Private business practices are a potential cause for concern if a foreign industry (or cartel) has significant market power in particular areas of technology/know-how. Such power is likely to be reflected in prices charged, and may also be used to control access to - and the dissemination of - technological innovations. The empirical relevance of this possibility is unclear. Firms may be able to establish market dominance for a period

20. *Id.*

of time, but entry and the threat of entry should ensure that in most sectors the issue of global dominance is not a serious problem. In all such instances the firms involved will be highly dependent on sales in the markets of the US and the European Community, and national enforcement of antitrust by large countries can go far to address this possible problem. Bilateral agreements between the antitrust authorities of such nations can complement such enforcement.

Concern has also been expressed about the possible strategies that may be employed by firms to establish a competitive advantage over rivals. Pricing in particular has attracted attention of proponents of multilateral disciplines on firm behaviour. Strategic dumping is a prominent example. The key issue in this context is not whether such pricing strategies are rational but whether they are anti-competitive. In the absence of government policies that restrict the contestability of home markets, dumping is generally not injurious to competition and benefits consumers. The policy implication then is that attention should focus on the public policies that restrict competition from imports and/or establishment of foreign firms. This, indeed, is one of the few general conclusions to emerge from the literature evaluating the case for intervention in internationally oligopolistic markets. Benefits resulting from abolition of the barriers to entry and policies that support market segmentation can greatly exceed those associated with industrial, 'strategic' policies.[21]

There are numerous government policies that can restrict contestability. Such restrictions may discriminate against foreign entry or be non-discriminatory (e.g. regulated monopoly). They may also discriminate against *domestic* industry (e.g. through strict enforcement of environmental process standards). Many such policies are subject to multilateral rules. Others are not. It is both impossible and undesirable to subject all forms of government policy intervention to multilateral disciplines. The issue is to obtain agreement where to draw the line - how much competition in rules and regulatory regimes is acceptable politically and desirable economically. The extent to which antitrust enforcement should be

21. *See* D. Ben-David & M. Loewy, *Free Trade and Long-Run Growth*, CEPR Discussion Paper 1183 (1995), in which they argue that free trade spurs the dissemination of knowledge and fosters a long-term convergence of per capita incomes across countries. Unilateral liberalization is also found to raise global steady state growth levels. *See also* Laussel & Montet, *supra* note 17.

harmonized or subject to multilateral rules is an open issue. Adoption of common antitrust disciplines *per se* can have little direct impact if other government policies continue to support imperfect competition. A reference to the EC Single Market programme is relevant here. The 1992 project was geared explicitly at removing many of the remaining policies restricting the contestability of European markets (including frontier formalities), product standards, and discriminatory public procurement. Antitrust policy was not a priority issue. It is important to note here that trade and establishment issues were given priority in an intense integration process, like the EC, approximately thirty years after its coming into being. An essentially harmonized antitrust law was not enough to guarantee the 'passage' to a single market; much was left to be desired on traditional market access issues. This is only normal since antitrust laws deal with only a small subset of market access. As long as the existence of trade policy instruments is still a matter for negotiation, antitrust laws can at best play a useful secondary or supporting role.

This is not to say that specific antitrust policies pursued by a government may not be detrimental to other countries. A good example is merger policy in large players such as the EC or the US. Just as regional integration can be problematical for the multilateral trading system if driven by a desire to raise trade barriers, mergers that occur between large firms may significantly enhance their market power. If the firms concerned sell most of their output on third markets, the national competition authorities are unlikely to object to the merger, as long as the costs of any reduction in competition on domestic consumers is expected to be more than offset by the benefits accruing to the merged firm. If competition authorities take a purely 'selfish' point of view, the enforcement of a rational antitrust policy may be detrimental to the rest of the world. Much depends here on the criteria employed by antitrust authorities. In the EC case, where appropriate, the relevant market may be the world market, as was the case in the veto of the proposed takeover by Aerospatiale (France) of de Havilland (Canada). However, the wording of the EC Merger Regulation is such as to allow fewer concerns to be raised in instances where the merger involves high-tech industries.[22] The possibility is then

22. Reg. 4064/89, OJ 1990, L 257/13. *See* A. Jacquemin, *Goals and Means of European Antitrust Policy After 1992*, *in* H. Demsetz & A. Jacquemin, Anti-trust Economics - New Challenges

created that negative spillovers are created through the enforcement of national antitrust rules.

Another example of a potential policy externality of particular relevance to high-tech industries concerns the antitrust treatment of R&D consortia and technology sharing agreements. In the EC, for example, cooperative R&D agreements between firms (including those which provide for the joint exploitation of results) can be excluded from the coverage of Article 85(1) EC. That is, they are not considered to be a competition-distorting form of collusion. The implicit rationale for such an exemption is that cooperative R&D efforts have been found to be more effective when extended beyond the pre-competitive level to cover manufacturing and distribution of the resulting product.[23] Joint exploitation in the relevant EC statute covers manufacturing, but not joint marketing. Exemptions are time-bound and conditional. For horizontal agreements the limit is five years, and the exemption is awarded only if the firms involved have less than 20% of the relevant market. Vertical agreements also may last only five years, but there is no market share condition. The market share constraint implies that there is a presumption that negative spillovers, i.e. exploitation of market power by the firms involved on third markets will be limited. In principle, however, such national exemptions may prove detrimental to foreign firms. The opportunities to participate in such R&D consortia can then be important.

The issue is not whether such externalities exist, but their importance relative to other policy distortions and the need for obtaining multilateral agreement on antitrust policies to address the underlying market access problems. The latter question is particularly important given that regulatory convergence in the antitrust area is likely to be difficult to achieve. Certain 'antitrust-related' spillovers may be addressed in large part through an investment treaty (e.g. merger policy) or through the application of the national treatment principle (e.g. access to R&D consortia). While cooperation on antitrust may be useful in specific instances, a broad agenda should be pursued that includes a variety of 'domestic' regulatory policies that explicitly restrict the contestability of markets or skew conditions of competition. As mentioned earlier, this has

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for Competition Policy (1994).

23. *Id.*

always been the approach of the GATT, and now the WTO. A key question then concerns the usefulness and comprehensiveness of WTO disciplines from a competition/contestability perspective, and identification of priority issue areas for further research and for negotiations.

4. GATT NEGOTIATIONS ON HIGH-TECH: A SHORT-LIVED STORY

Sector-specific disciplines for high-tech products never reached the stage of actual negotiations between GATT contracting parties, despite attempts by the US in particular. Instead, attention mostly focused on the introduction of policy areas on the agenda of multilateral trade negotiations (MTNs) that largely affected high-tech industries. Indeed, much of what was added to GATT after the late 1970s was high-tech-related.

Attempts to establish specific multilateral trade rules for high-tech competition were first initiated during the Tokyo Round. Attention focused on aircraft and on procurement by government entities of heavy electrical and telecommunications equipment. A Code was negotiated on aircraft;[24] no agreement proved possible on the 'higher-tech' types of procurement. More general efforts were pursued in the context of the Preparatory Committee to the 1982 Ministerial Conference. A proposal to negotiate on high-tech products *per se* appears for the first time in February 1982 as part of a list of suggested topics for the Ministerial Conference. The item was put on the agenda at the suggestion of the US, which argued that

> [t]he developed world will devote increasing resources to 'knowledge intensive' industries such as electronics, telecommunications, fibre optics, robotics and biotechnology [...]. The high level of government involvement in these high-tech industries in both developed and newly industrialized countries, combined with the rapidity of market growth and product innovation, could pose serious strain on the trading system. A piecemeal approach to these trade issues under current GATT mechanisms cannot be expected to keep pace with the rapid technological and market developments [...]. The United States proposes that the Ministers discuss global goals,

24. *See,* for a discussion of aircraft negotiations Tyson, *supra* note 12, at 155 *et seq. See also* Code on Aircraft, BISD 26th Suppl., at 162.

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> particularly means for further trade liberalization, and problems in the high-technology area.[25]

The issue of trade in high-tech products appeared in a number of subsequent Preparatory Committee papers that concern the agenda of the Ministerial Conference, with a number of industrialized nations supporting the US initiative. As a result, it was proposed that Ministers agree that the CONTRACTING PARTIES undertake a study of existing disciplines in the context of trade in high-technology goods and associated services and suggest specific steps to deal with any problems identified.[26] However, the proposal was dropped before the Ministerial Conference, and the text of the agreed Ministerial Declaration of 1982 contains no specific reference to high-tech competition. The discussion was re-opened in the so-called 'Senior Officials' Group' (SOG) in the mid-1980s, which had the task of establishing a possible agenda for a multilateral negotiation. During the ensuing discussions, the US, which had actively pursued the inclusion of high-tech on the negotiating agenda in the early 1980s, merged the issue with that of investment and intellectual property and called for comprehensive discussions on the latter.[27] High-tech as such was not discussed during the Uruguay Round.

The GATT record does not document why the topic was effectively dropped. Reasons are likely to include the difficulty of defining what constitutes high-tech; the likely overlap between sector-specific rules and the generally applicable, universal, disciplines of the GATT; and the general objective of moving away from the Tokyo Round 'code-type' approach to dealing with specific problems. Many issues relating to trade in high-tech products were discussed in various negotiating groups, and the resulting Agreements address high-tech policy rivalry. Important examples include the Agreement on Subsidies and Countervailing Measures,[28] the Agreement on Implementation of Article VI of the GATT-1994 (Anti-

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25. GATT Doc. PREP.COM/W/2, at 2 (1982).
26. GATT Doc. L/5395, at 23 (1982).
27. GATT Doc. SR.SOG/10, at 9-12 (1985). Japan continued to support a full-fledged discussion on high-tech. The EC did not support a comprehensive negotiation on investment, but did not express itself on the high-tech question. Many developing countries, led by Yugoslavia, were opposed to the idea of entertaining negotiations on high-tech products.
28. *See* Agreement on Subsidies and Countervailing Measures, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 264.

dumping),[29] the Agreement on Government Procurement (GPA),[30] the Agreement on Trade Related Intellectual Property Rights (TRIPs),[31] and the General Agreement on Trade in Services (GATS).[32]

5. WTO DISCIPLINES

The Preamble of the WTO calls for substantial reduction of tariffs and other barriers to trade and the elimination of discriminatory treatment in international commerce.[33] The WTO's substantive provisions aim to reduce market access barriers in member states and thus facilitate the sale of foreign products. The hard core 'market access' provisions in the GATT 1994 are contained in Articles I, II, III, and XI.[34] Article I is the most-favoured-nation (MFN) rule: with respect to border restrictions, WTO member states may not treat any WTO member states less favourably than any other trading partner. Article II establishes a ceiling (tariff binding) for the tariffs listed in a member state's 'schedule of concessions'. If rates are raised above bindings, compensation must be granted to affected trading partners. Article XI prohibits the use of quantitative restrictions (QRs). Article III requires that once foreign products have been cleared through customs they be treated no less favourably than locally produced like products. This national treatment obligation applies to taxes and equivalent measures, as well as to laws, regulations, and requirements affecting internal sale, offering for sale, purchase, transportation, distribution or use of products. It ensures that tariff commitments are not circumvented through the use of internal measures. The aim of Articles I and III is to ensure greater *equality* of competitive conditions on a specific market,

29. *See* Agreement on Implementation of Article VI of the GATT-1994, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 168.
30. *See* Agreement on Government Procurement, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 438.
31. *See* Agreement on Trade Related Intellectual Property Rights, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 365.
32. *See* Agreement on Trade in Services, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 325.
33. *See* Preamble of the WTO, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 6.
34. *See, e.g.*, for a more detailed discussion, B.M. Hoekman & M. Kostecki, The Political Economy of the World Trading System: From GATT to WTO 87 *et seq.* (1995).

while the primary role of Articles II and XI is to enhance the contestability of markets. Member states continue to have wide discretion with respect to *how* to regulate their market, especially as regards internal measures that do not directly affect foreign products. However, they must ensure that internal measures (in the widest sense of the term as incorporated in Article III) are applied in a non-discriminatory way to both domestic and foreign like products.[35]

Major holes in GATT 1947 market access disciplines existed. These included carve-outs for subsidies (Article III(8.a)) and government procurement (Article III(8.b)), as well as various safeguard mechanisms and the absence of rules regarding investment and service sector regulations. A central theme of much of the discussion in the GATT context in the last two decades, and the Uruguay Round in particular, was to close or to narrow a number of these holes. In attempting to do so, governments have gradually defined more precisely what policies are 'domestic', i.e., the set of policies where WTO member states retain not only unconstrained sovereignty, but cannot be subjected to countervailing/retaliatory actions. This is an ongoing process that has both helped to foster the economic integration of the world economy and been driven by the ongoing globalization of business activity. The process involves both enhancing the contestability of markets and further defining acceptable conditions of competition. Many of the WTO Agreements that address GATT 1947 'holes' are relevant to high-tech and a number are discussed below.

5.1. Subsidies after the Uruguay Round: it takes two to tango

The US and the EC have traditionally disagreed over the extent to which government support of industries should be tolerated. At the end of the Uruguay Round negotiations, after the election of President Clinton, the US position shifted towards a more subsidies-friendly approach, facilitating a multilateral deal.[36] An important innovation of the new Agreement on

35. This obligation covers not only *de iure*, but also *de facto* discrimination. Antitrust laws are covered by Art. III insofar as members have guaranteed to their counterparts that they will be applied in a non-discriminatory way. The substance of such laws is not a matter of concern for WTO purposes, however. What matters is non-discrimination.

36. *See* P. Low, Trading Free: The GATT and U.S. Trade Policy 124 (1993); and S. Ostry & R. Nelson, Techno-Nationalism and Techno-Globalism: Conflict and Cooperation 66 (1995).

Subsidies and Countervailing Measures (hereafter the Agreement) was the introduction of the so-called 'traffic-light' approach which divides subsidies into three categories:

1. prohibited;
2. actionable; and
3. non-actionable.[37]

The Agreement defines both prohibited and non-actionable subsidies; actionable subsidies are defined by default as the residual. The difference between actionable and prohibited subsidies is that in the latter case immediate abolition of the subsidy can be recommended as a remedy, as the subsidy is illegal. R&D subsidies may be non-actionable, subject to certain conditions.[38]

Article 8(1) of the Agreement states:

> [t]he following subsidies shall be considered as non-actionable: (a) subsidies which are not specific within the meaning of Article 2; (b) subsidies which are specific within the meaning of Article 2 but which meet all of the conditions provided for in paragraphs 2(a), 2(b) or 2(c) below [on R&D, environmental, and regional subsidies, respectively].[39]

Article 8(2.a) covers "[a]ssistance for research activities conducted by firms or by higher education or research establishments on a contract basis with firms." 'Fundamental research', defined as "[a]n enlargement of general scientific and technical knowledge not linked to industrial or commercial objectives" is not covered, nor is civil aircraft, which is subject to specific

37. *See* Agreement on Subsidies and Countervailing Measures, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 28.

38. *See*, for a comprehensive discussion of the new agreement, G.N. Horlick & P.A. Clarke, *The 1994 WTO Subsidies Agreement*, 17(4) Journal of World Trade 41-54 (1994); and *see*, for a detailed presentation of proposals made by participants and a history of the negotiations, P. McDonough, *Subsidies and Countervailing Measures*, *in* T. Stewart (Ed.), The GATT Uruguay Round: A Negotiating History (1986-1992) 856 *et seq.* (1993).

39. Art. 8(2) of the Agreement confirms non-actionability for the subsidies mentioned in Art. 8(1) of the Agreement by stating that "*notwithstanding* the provisions of Parts III and V, the following subsidies shall be non-actionable" (emphasis added). Part III refers to actionable subsidies; Part V to countervailing measures. As it is nowhere stipulated that recourse to one form of non-actionable subsidies prohibits recourse to other types, members may be able to subsidize the same program on three different grounds.

plurilateral rules. Allowable assistance is limited to five different cost categories:

1. personnel;
2. instruments, equipment, land, and buildings;
3. consultancy, bought-in research (patents), etcetera;
4. additional overheads directly incurred; and
5. other running costs directly incurred.

A distinction is made between industrial research and pre-competitive development activity. The former is defined as

> planned search or critical investigation aimed at discovery of new knowledge, with the objective that such knowledge may be useful in developing new products, processes or services, or in bringing about a significant improvement to existing products, processes or services.

The maximum amount of government participation authorized is 75% of the costs of industrial research. Pre-competitive development activity occupies the field between industrial research and commercial exploitation. It is defined as

> the translation of industrial research findings into a plan, blueprint or design for new, modified or improved products, processes or services whether intended for sale or use, including the creation of a first prototype which would not be capable of commercial use. It may further include the conceptual formulation and design of products, processes or services alternatives and initial demonstrations or pilot projects, provided that these same projects cannot be converted or used for industrial application or commercial exploitation. It does not include routine or periodic alterations to existing products, production lines, manufacturing processes, services and other on-going operations even though those alterations may represent improvements.[40]

The maximum amount of government participation is 50% of the cost of pre-competitive development activity. In case of programmes which span industrial research and pre-competitive development activity, the level of non-actionable subsidization may not exceed the simple average of the

40. Negotiating drafts referred to pre-competitive development activity as 'applied R&D', implicitly defined as activities taking place prior to the industrial or commercial exploitation of a product.

allowable levels of the two categories.[41]

If programmes are classified as non-actionable, no means, outside the procedures available in Article 9 ('consultations and authorized remedies') exist to go against them. This means that there is no room for non-violation complaints against non-actionable subsidies.[42] Article 9 provides for a *sui generis* procedure that can be followed by WTO member states which have reason to believe that a non-actionable subsidy of another member state has caused 'serious adverse effects' to a domestic industry. The procedure has two stages:

1. bilateral consultations aiming at reaching a mutually acceptable solution; and
2. if these fail, authorization by the Committee, as a last resort, for the injured member state "to take appropriate countermeasures commensurate with the nature and degree of the effects determined to exist."

While this suggests that non-actionable subsidies may be actionable after all, in practice such counter-measures are unlikely to occur.[43]

Article 25 of the Agreement requires WTO member states to notify their subsidy programmes to the Subsidies Committee. Article 8(3) requires member states to notify all subsidy programmes they want classified as non-actionable to the Committee before their implementation. The Subsidies Committee is solely competent to pronounce on the non-

41. During the negotiations on the Agreement, a number of proposals were tabled that would have subjected the use of subsidies to stricter rules. Although ultimately not retained, three deserve mention: 1. a strictly defined time limit for non-actionable programmes (a 5-year review/sunset provision was included instead); 2. a requirement that the results of non-actionable schemes be generally available free of charge (this was the US CVD rule prior to the WTO Agreement); and 3. significantly lower maximum allowable amounts of government support. *See* McDonough, *supra* note 38.

42. Non-violation complaints can be submitted to the WTO dispute settlement system in cases where benefits to members can be nullified or impaired as a result of actions that are consistent with the covered agreements. *See* B.M. Hoekman & P.C. Mavroidis, *Competition, Competition Policy and the GATT*, 17 The World Economy 137 *et seq.* (1994).

43. A strict reading of the Agreement suggests that if the Committee determines non-actionability of a subsidy, recipient companies are 'immunized' against imposition of CVDs *only*. Governments appear to have the latitude not to adjust for cost-reducing, non-actionable subsidies in antidumping investigations. Thus, *de iure* non-actionability may not imply *de facto* non-actionability.

actionability of notified schemes, based on a report by the WTO Secretariat. Article 8(4) requires the Committee to use this report to determine if the criteria for non-actionability have *not* been met. The determination of the Committee, or its failure to do so, can be submitted to binding arbitration. Arbitration is strictly confined to determining whether a particular notified scheme can qualify as non-actionable, and is to take no more than 120 days. Otherwise the relevant procedures of the WTO Dispute Settlement Understanding (DSU) are applicable.[44]

Although Article 8 appears clear-cut, footnote 35 of the Agreement greatly hollows out the notification requirement. It reads in part

> [i]n addition, in the case of a subsidy referred to in paragraph 2 of Article 8 conferred pursuant to a programme which has not been notified in accordance with paragraph 3 of Article 8, the provisions of Part III and V may be invoked, but such subsidy shall be treated as non-actionable if it is found to conform to the standards set forth in paragraph 2 of Article 8.[45]

This creates incentives for subsidizers not to notify, as the subsidizer can contest the imposition of CVDs before a panel and, eventually, before the Appellate Review Body.[46] Indeed, footnote 35 allows it to argue that the subsidy concerned, while not notified, is nonetheless non-actionable. Footnote 35 may make non-notification a dominant strategy, especially if there are strong learning effects, as more time is granted to the subsidized activity to come to fruition. This does not appear to be consistent with the objectives of many participants in the negotiations, who sought to obtain both greater transparency in this field and impose multilateral disciplines. The additional 'carve-out' from notification in footnote 35 did not exist in the so-called 'Dunkel Draft'.[47] It was apparently added much later when negotiations resumed in 1993.

In conclusion, a characteristic of high-tech industries is that govern-

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44. *See*, Understanding on Rules and Procedures Governing the settlement of disputes, The Results of the Uruguay Round of Multilateral Trade, *supra* note 1, at 404.
45. *See* Agreement on Subsidies and Countervailing Measures, *supra* note 28, at 278.
46. One of the novelties of the new dispute settlement system in the WTO is the establishment of an Appellate Review Body competent to hear appeals to panel decisions. In the case at hand the object of the review will be the imposition of CVDs. In case of notification however, if the procedure is followed all the way, the subsidizer risks seeing his/her scheme subjected to a review by binding arbitration to determine whether the scheme qualifies as non-actionable.
47. *See* GATT Doc. MTN.TNC/W/FA, at I.13 (1991).

ments tend to support pre-competitive and basic R&D. The welfare consequences of the simultaneous pursuit of such policies for the world economy are ambiguous. A major result of the Uruguay Round was that agreement was obtained that such subsidies are acceptable, and that the principle of 'subsidy freedom' will apply to public support of R&D by specific firms/industries. Such subsidies have therefore also been removed from the possible ambit of antitrust enforcement; they are WTO legal. Thus, governments are free to compete in R&D subsidies, as long as the liberal quantitative maxima are not exceeded. The ostensibly strong, but *de facto* weak notification/approval requirements for non-actionability support the premise that governments sought to have a relatively free hand in this area. No move was made to emulate the EC, with its prohibition in principle on state aids, and supranational oversight/exception procedures. This is unlikely to be desirable in any event, as the goal in the WTO setting is not integration. Given that governments can support production in many ways through regulation and the tax system, the rationale for singling out production subsidies is not compelling. Thus, the primary restriction on governments as regards subsidy policies remains the national budget constraint. The wide-ranging latitude granted for R&D subsidies supports the observation by Ostry and Nelson that a shift seems to be occurring at the margin away from supporting fundamental, basic, research towards applied research.[48] By incorporating the principle of R&D subsidy freedom, the Agreement implicitly accepts locational competition between governments to attract high-tech industries. Future discussions on multilateral disciplines on investment policies will reveal to what extent this is by design.

5.2. Antidumping

Antidumping has important implications for high-tech industry competition and contestability. In terms of absolute number of cases, high-tech industries did not figure prominently in US antidumping investigations in the 1980s. High-tech accounted for some 5% of US cases, and about 10% of EC cases.[49] However, such cases often involve a large amount of trade.

48. *See* Ostry & Nelson, *supra* note 36, at 111.
49. P. Messerlin, *Reforming the Rules of Antidumping Policies*, presented at a conference Toward

Instances where high-tech competition has given rise to unfair trade allegations and disputes include pagers, semiconductors, flat panel displays, and supercomputers. In the post-Uruguay Round era, two important changes have occurred that may increase the prominence of antidumping. Firstly, voluntary export restraints (VERs) have been prohibited.[50] In the past recourse was often made to VERs or equivalent measures to deal with foreign competitive high-tech industries (e.g. semiconductors). This is no longer an option. Secondly, as R&D subsidies can qualify as non-actionable, this may induce a substitution of antidumping for CVDs in high-tech cases.

Learning by doing and economies of scale are generally important for high-tech industries. Once the R&D (pre-competitive) stage has been completed and firms have a prototype, output and pricing decisions depend not on current costs of production but on future expected unit costs. These will be lower than unit costs in the start-up phase because of learning (production experience) and scale effects. As the firm moves down its learning curve, prices charged will for a time be below current unit costs of production as the firm equates marginal revenue with its 'real' (longer-term) marginal costs of production.[51] To the extent that the firm is concerned with entry/competition from other firms, it may even, for a limited period, price below marginal cost in export markets. As legally all that is required is pricing below average total costs, as determined (constructed) by investigating authorities, such pricing behaviour may give rise to dumping. The constructed cost criterion will often be used in high-tech antidumping cases, as this is the method used in instances where investigators conclude that there are insufficient sales in the firm's home market that are above cost, or where a particular market situation exists. If there are significant dynamic scale economies, this can be expected to be the case. Exporters will be pricing below total average costs of production

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a New Global Framework for High-Technology Competition (1995), mimeo 6 *et seq.*

50. Although so-called quota modulation schemes permitted under the WTO Safeguards Agreement can have a comparable function, they must respect multilateral disciplines and transparency provisions. *See,* for an extensive discussion on this point, M.J. Finger, *Legalized Backsliding: Safeguard Provisions in the GATT, in* W. Martin & A. Winters (Eds.), The Uruguay Round and Developing Economies 291 *et seq.* (1995).

51. *See* A. Dick, *Learning By Doing and Dumping in the Semiconductor Industry*, 34 Journal of Law and Economics 133-159 (1991); and H. Gruenspecht, *Dumping and Dynamic Competition*, 25 Journal of International Economics 225-248 (1988).

incurred during the investigation period, and dumping margins will be found. Antidumping rules therefore discriminate against high-tech industries as it is relatively easy for import-competing industries to claim dumping.

The biases in this connection are widely recognized. Tyson,[52] writing before the Uruguay Round was concluded, argued that at

> a minimum, the methods for calculating average total cost should be modified to eliminate their most egregious biases, including the use of arbitrary profit and overhead markups and the allocation of R&D and start-up costs to the years in which they are incurred rather than over the expected life of a product.[53]

Under the 1979 Tokyo Round Code,[54] antidumping investigations against R&D-intensive products, and eventually the imposition of duties, could disregard the allocation of R&D and start-up costs. In practice, this meant that the outcome of investigations depended on timing: the earlier, the better for the petitioner since accounting unit costs decline over time. The economic incentive to restrict competition through antidumping early in the product cycle may be strengthened insofar as the domestic industry is seeking time to catch-up.

To take into account such considerations, a provision dealing with start-up costs was inserted in the WTO Antidumping Agreement.[55] Article 2(2.1.1) states:

> [u]nless already reflected in the cost allocations under this sub-paragraph, costs shall be adjusted appropriately for those non-recurring items of cost which benefit future and/or current production, or for circumstances in which costs during the period of investigation are affected by start-up operations.

A footnote to this provision explains that

> the adjustment made for start-up operations shall reflect the costs at the end of the start-up period or, if that period extends beyond the period of

52. *See* Tyson, *supra* note 12.
53. *Id.*, at 270. In this section the focus is only on R&D and start-up costs, which are particularly relevant to high-tech products. *See*, for a more general discussion, M.J. Finger (Ed.), Antidumping: How It Works and Who Gets Hurt (1993).
54. 1979 Tokyo Round Code, BISD 26th Suppl. 171 (1980).
55. *See*, Agreement on Implementation of Article VI of the GATT-1994, *supra* note 29.

> investigation, the most recent costs which can reasonably be taken into account by the authorities during the investigation.[56]

Although this language provides for a more rational way to allocate start-up costs than in the past, it fails to provide a clear framework on how to do so. Neither start-up costs nor the time period over which such costs should be calculated is defined. Because of this vagueness, state practice becomes crucial. Implementing legislations so far have not shed much light on this question.[57] In US practice, a 'reasonable period' is allowed for cost recovery, and the start-up period can roughly be defined as encompassing the product research, prototype-testing, and construction or adaptation of manufacturing lines necessary to launch the commercial exploitation of the product.

An interesting question is what happens in cases where a firm that has received non-actionable subsidies faces antidumping charges. Specifically, if a constructed cost methodology is used, is there a legal compulsion to make adjustments in the cost structure for non-actionable subsidies received? The two relevant WTO Agreements (Subsidies and Antidumping) do not provide an answer. A strict reading of the WTO Agreement suggests that if the Committee determines the non-actionability of a national scheme, recipient companies are 'immunized' against imposition of CVDs. Such an 'immunity', however, does not extend to cover other forms of trade remedy laws. Thus, *de iure* non-actionability does not imply *de facto* non-actionability. Taken into account the ambiguities of the WTO Antidumping Agreement and the limited extent to which the characteristics of high-tech production are reflected in it, beneficiaries of non-actionable subsidies might find themselves threatened with imposition of antidumping duties. If so, the 'immunity' granted may not mean much, as

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56. *Id.*, at 170.

57. *See, e.g.*, the comprehensive analysis in D.N. Palmeter, *United States Implementation of the Uruguay Round Antidumping Code*, 29(3) Journal of World Trade 49 *et seq.* (1995). *See also* G. Kaplan & S. Hagerty-Kuhbach, *Recent U.S. Developments in Cost of Production Analysis*, *in* J.H. Jackson & E. Vermulst (Eds.), Antidumping Law and Practice: A Comparative Analysis 361 *et seq.* (1989), in which they refer to a very interesting judgment by the US Court of International Trade (CIT) in the Titanium Sponge From Japan case (Toho Titanium Sponge Co. Ltd *v.* US, 657 F. Supp. 1280 (CIT 1987)). The Court there was not persuaded by the arguments of the Department of Commerce and stated that "a company may be justified in taking a loss over an even greater period of time if it expects sales to increase and production costs to decrease, perhaps due to more efficient production and the averaging of initial investment costs over time", *id.*, at 361.

the non-deduction of R&D subsidies granted will inflate dumping margins.[58] In practice, the treatment of R&D subsidies in antidumping investigations will depend on how such costs appear on the firm's books, provided that

> [r]ecords are in accordance with the generally accepted accounting principles of the exporting country and reasonably reflect the costs associated with the production and sale of the product under consideration.[59]

Much therefore again depends on state practice. In case of disputes before the WTO, panels will have to have recourse to judicial activism to resolve such issues. A significant increase in the administrative burden of responding to antidumping questionnaires may result insofar as it becomes necessary to document the precise incidence of R&D subsidies on the firms' cost structure. In the US such questionnaires already comprise some 135 pages of questions and instructions.[60] As is well known, in case of responses deemed inadequate, recourse is made to the 'best information available' (i.e., data provided essentially by petitioners).

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58. This approach has not been followed in US practice. In responding to a comment by petitioners that it should disallow adjustments for grants, the Department of Commerce (DOC) observed: "[w]e believe subsidies are more properly handled in the context of the countervailing duty law." The judiciary in the US appears to share this point of view. The Court of International Trade (CIT) rejected a petition by a US corporation challenging a decision of DOC not to include subsidies to a West German tool steel exporter in cost of production and constructed value calculations for the purpose of antidumping duties. The CIT argued that, had it accepted the plaintiff's arguments, "[c]ommerce would be allowed to counteract subsidization without undertaking any of the procedural protections contained in the countervailing duty statute" and that "benefits that were previously not countervailable could be attacked under new antidumping rules, thus creating substantial uncertainty among exporters." AL Tech Specialty Steel Corp., *et al. v.* United States, 651 F. Supp. 1421, at 1430 (CIT 1986). *See* more generally, DOC - International Trade Administration, Notice of Final Determination of Sales at Less Than Fair Value: Aramid Fiber Formed of Poly-Phenylene Terephthalamide From The Netherlands, 6 May, 1994, 59 at Fed. Reg. 23684, 23690; *see also* the determinations of the same agency on two more cases: Final Determination of Sales at Less Than Fair Value, Red Raspberries From Canada, 10 May 1985, 50 Fed. Reg. 19748,19759; and Final Determination of Sales at Less Than Fair Value: Furfuryl Alcohol From Thailand, 8 May, 1995, 60 Fed. Reg. 22557,22661. In all these cases the DOC recognized that cost of production should be offset by funds received from the government that are not necessarily associated with material inputs.

59. Art. 2(2.1.1), Agreement on Implementation of Article VI of the GATT-1994, *supra* note 29, at 169.

60. This is a page count of the new standard questionnaire issued by the US Department of Commerce after the Uruguay Round. *See* D.N. Palmeter, *The Antidumping Law: A Legal and Administrative Nontariff Barrier*, *in* R. Boltuck & R. Litan (Eds.), Down in the Dumps 67 *et seq.* (1991).

Summing up, antidumping is no doubt an issue that is of relevance to high-tech industries. It also has a strong antitrust dimension, in the sense that antidumping is used by firms to restrict competition. The criteria used contradict those that are used in antitrust investigations to determine whether pricing practices cause a threat to competition. The issues here are very well known. Some progress was made in the Uruguay Round to reduce the more blatant protectionist methodological biases operating against high-tech producers in the early stage of the product cycle, but others were added. Negotiating positions and the final outcome are testimony to the desire of user countries to maintain antidumping in their shrinking arsenal of trade policy instruments. One can only hope that it proves possible to gradually introduce more antitrust-like ingredients into this area.[61] A number of modifications to the Antidumping Agreement resulting from the Uruguay Round imply some tightening of disciplines (e.g., new rules on cumulation, constructed value, zeroing).[62] The value of such improvements must be weighed against the novel standard of review laid down in Article 17 of the Antidumping Agreement, the internal consistency of which has already been challenged.[63]

5.3. Government procurement

The pursuit of multilateral disciplines on government procurement has been driven in part by high-tech industries. A significant share of public purchases concern equipment for public utilities - power generation, telecommunications equipment, fiber-optic cable, etcetera, and national defense. Access to procurement markets is important to firms producing such equipment as the markets are large, and there are often significant economies of scale. Procurement of high-tech products has led to a number

61. One option could be to make antidumping actions conditional on a finding by the exporter's antitrust authorities that there are barriers to entry in the home market. *See* B.M. Hoekman & P.C. Mavroidis, *Dumping, Antidumping and Antitrust*, 30 JWT 36 *et seq.* (1996). Alternatively, efforts could be made to introduce antitrust-based criteria into the antidumping process. *See* D. Wood, *'Unfair' Trade Injury: A Competition-based Approach*, 41 Stanford Law Review 1153 (1989); and P. Messerlin, *Should Antidumping Rules be Replaced by National or International Competition Rules?*, 49 Aussenwirtschaft 351-374 (1994).
62. *See* Agreement on Implementation of Article VI of the GATT-1994, *supra* note 29.
63. *See* S. Croley & J.H. Jackson, *WTO Dispute Procedures, Standard of Review, and Deference to National Governments*, 90 AJIL 198 *et seq.* (1996); *see also* Palmeter, *supra* note 57, at 76 *et seq.*

of disputes. Examples include purchases of computer equipment by Japan, sonar mapping equipment by the US, and telecommunications equipment in the EC.[64] 'Buy National' policies or informal discrimination acted as investment-related trade measures (IRTMs), in effect requiring a local presence, and thus induced inward investment (often via a merger or joint venture). Antitrust 'violations' were often alleged, e.g. bid rigging collusion, or bribery of officials.

Starting with the Tokyo Round, attempts were made in the GATT to extend the reach of national treatment to public purchases. A code on procurement was negotiated in 1979. The Tokyo Round Government Procurement Agreement (GPA)[65] extended the GATT obligations of national treatment, MFN, and transparency to the tendering procedures of government entities included on the schedules submitted by signatory nations. The GPA did not extend to procurement of utilities or services. Attempts at cooperation in this area were stymied for a number of reasons, including differences in market structure (largely state-owned utilities in Europe as opposed to private, regulated operators in the US), the federal nature of the US, and the fact that many EC governments supported national 'champions' that focused on the domestic 'own' market and developed its own standards. As a result, intra-EC procurement was very limited, and many of the firms concerned were inefficient. Stronger antitrust enforcement in the EC could not address this issue; what was needed was the abolition of internal barriers to trade. This was recognized in the '1992' project, where procurement played a prominent role. Directives were issued to enforce opening of procurement markets (including utilities), create an effective bid-protest procedure, and extend market opening to services.[66] These internal EC developments allowed the GPA to be strengthened in 1994. Its coverage was extended to include sub-central and quasi-governmental bodies, as well as procurement of heavy electrical and transportation equipment, and services. However, commitments of many countries contain derogations regarding services, as well as telecommunications equipment.

The GPA requires that in principle procurement of goods and services

64. *See* Tyson, *supra* note 12. *See also* Ostry & Nelson, *supra* note 36.
65. Government Procurement Agreement, 26S BISD 33 (1980).
66. *See* F. Weiss, Public Procurement in EC Law 40 *et seq.* (1993).

by covered entities be based on an open competitive tendering process, and has detailed provisions to ensure transparency of procurement.[67] Technical specifications used may not create unnecessary obstacles to international trade. Where appropriate they should be expressed in terms of performance rather than design or descriptive characteristics and be based on international standards where such exist. Entities are legally obliged under the GPA (Article XIII(4.b)) to award contracts to the tenderer who "has been determined to be fully capable of undertaking the contract" *and* who is either the lowest tender or the tender which in terms of the specific evaluation criteria set forth in the notices or tender documentation is determined to be the most advantageous. Who best meets the evaluation criteria is therefore open to a considerable degree of discretion. Procuring entities are only obliged to motivate purchasing decisions upon the explicit request to do so by interested parties.

There are many possibilities through which entities may attempt to avoid multilateral obligations on a *de facto* basis. 'Classic' tactics in this regard that have been brought forward in past GPA Committee meetings and that have led to bilateral disputes are splitting of contracts to fall below the GPA's threshold, abuse of technical specifications, short deadlines, non-publication of calls for tender, and the use of limited tendering. Although the new GPA makes renewed efforts to reduce the scope for circumvention (e.g. through the setting of deadlines) by prohibiting splitting (Article II(3)) and establishing detailed rules on the contents of tender documentation and the award of contracts, without an effective bid protest procedure such rules may not be very effective in operational terms.

An important innovation in the new GPA in this regard is the introduction of a domestic challenge procedure. Article XX(7) states that:

> challenge procedures shall provide for: (a) rapid interim measures to correct breaches of the agreement and to preserve commercial opportunities. Such action may result in suspension of the procurement process. However, procedures may provide that overriding adverse consequences for the interests concerned, including the public interest, may be taken into account in deciding whether such measures should be applied. In such circumstances,

67. *See* B.M. Hoekman & P.C. Mavroidis, *The WTO's Agreement on Government Procurement: Expanding Disciplines, Declining Membership?*, 4 Public Procurement Law Review 68 *et seq.* (1995).

> just cause for not acting shall be provided in writing; (b) an assessment and a possibility for a decision on the justification of the challenge; and (c) correction of the breach of the Agreement or compensation for the loss or damages suffered, which may be limited to costs for tender preparation or protest.[68]

This is a rare example in the WTO-system where private parties can invoke WTO-law before domestic courts. Article XX requires signatories to enact appropriate procedures to meet their obligation; they must guarantee that challenges will be heard by a court or by an impartial and independent body that will respect the minimum of due process (Article XX(6)), and provide rapid interim measures to correct breaches of the Agreement. Article XX(8) specifies further that "[w]ith a view to the preservation of the commercial and other interests involved, the challenge procedure shall normally be completed in a timely fashion."

The challenge procedures provide the possibility of rapid action *by affected firms* against violations of GPA rules and disciplines. Of course, signatories retain the possibility to bring a case before a GATT-panel if they believe that domestic courts have misinterpreted the GPA. The GPA goes beyond the DSU,[69] by stating that the Dispute Settlement Body (DSB) shall have, *inter alia,* the competence to authorize "[c]onsultations regarding remedies when withdrawal of measures found to be in contravention of the Agreement is not possible" (Article XXII(3)). This provision reflects the dissatisfaction of some signatories with the panel ruling on the *Trondheim* case on remedies.[70] Article XXII(3) permits member states of the GPA to reach mutually acceptable, bilaterally negotiated solutions, thus providing an opportunity to go beyond the 'usual' *ex nunc* remedy.[71]

In conclusion, the expansion of the coverage of the GPA has constrained the use of IRTMs in the high-tech area. Experience has shown that enforcement is a crucial problem in the procurement context. The

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68. In their Annexes signatories may make derogations on the applicability of Article XX.
69. Understanding on Rules and Procedures Governing the Settlement of Disputes, 33 ILM 1125 *et seq.* (1994).
70. In the Trondheim case (GATT Doc. GPR/M/46), the panel found that although the procurement procedures that were employed by Norway violated the GPA, it was too late to remedy the situation. It therefore decided to accept an undertaking by Norway that similar procedures would cease to be followed in the future. *See* P.C. Mavroidis, *Government Procurement Agreement: The Trondheim Case*, 48 Aussenwirtschaft 82 *et seq.* (1993).
71. There is no requirement that panels take such a conservative approach to remedies. It is simply practice, although not always followed.

challenge procedures of the GPA are very innovative, as it implies that private parties can invoke WTO-law before an impartial and independent adjudicating body. If the challenge procedures prove to function as envisioned, an effective mechanism will have been created through which firms can enforce commitments to open access to procurement markets.

5.4. Technical barriers to trade

Standards, whether for compatibility of products or aimed at safeguarding human health and safety, are often welfare-enhancing. However, standards may have trade-impeding effects, which is why they are dealt with in the GATT. A distinction must be made between mandatory standards (called technical regulations), usually relating to health and safety and enforced by the government, and voluntary standards. The latter are usually developed by firms and industries with a view to ensuring compatibility, interconnection, and quality. While adoption of standards may help achieve technical efficiency, they may also allow incumbent firms in an industry to maintain/increase their market power by raising rivals' costs and reducing the contestability of a market. To the extent that this occurs, the standard may create rents and the standards-setting activity may be collusive.

There are two dimensions that are relevant from a high-tech perspective. Firstly, the role of standards-setting in the competitive process of technology and product development. Secondly, the potential impact of differences in standards as technical barriers to trade. The WTO Agreement on Technical Barriers to Trade (TBT) addresses both dimensions.[72] The TBT basic rule is that central government bodies may not discriminate and may not write technical regulations that are "more trade-restrictive than necessary to meet their legitimate objectives." Relevant international standards, if they exist, must be used as a basis for technical regulations and conformity assessment, except if this would be inappropriate because of, e.g., climatic, geographical, or technological factors. Technical regulations based on product requirements should be worded in terms of performance rather than design or descriptive characteristics. In

72. *See* Technical Barriers to Trade (TBT), The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, at 138.

principle, WTO member states are to join and use international systems for conformity assessment, and are encouraged to accept the results of conformity assessment procedures undertaken in exporting countries following consultations to determine equivalence. Accreditation on the basis of relevant guides or recommendations issued by international standardizing bodies is to be taken into account as an indication of adequate technical competence of the foreign entity. Transparency-related provisions are an important aspect of the TBT. Each member state must establish an 'enquiry point' to inform firms on existing and proposed technical regulations and conformity assessment procedures. Best efforts are to be made to ensure that enquiry points are also able to answer enquiries regarding standards and testing procedures of non-governmental standardizing bodies (e.g. industry associations).

The TBT establishes precise conditions for technical regulations, the non-observance of which can lead to violation of the TBT. With respect to standards, disciplines are much more vague. Bodies that set standards ('standardizing bodies') can be governmental (central or local) and non-governmental. A Code of Good Practices attempts to ensure that disciplines extend to such bodies.[73] Only central government standardizing bodies are obliged to accept and comply with this Code. It does not create legal obligations for acceding non-central government standardizing bodies; compliance with the Code for such entities is voluntary. WTO member states must take "such reasonable measures as may be available to them" to ensure that local government and non-governmental standardizing bodies operating within their territories accept and comply with the Code.[74]

There is substantial anecdotal evidence that compliance with volun-

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73. Code of Good Practices, Annex 3, TBT Agreement, *supra* note 1, at 159.

74. The Code of Good Practices requires, *inter alia*, that activities of standardizing bodies conform to GATT's MFN and national treatment principles, as well as the various requirements applying to technical regulations. Standardizing bodies are also to make every effort to avoid duplication of, or overlap with, the work of bodies in other member countries or relevant international or regional standardizing bodies. At least once every six months, they must publish a work programme containing their name and address, the standards currently under preparation, and the standards which were adopted in the preceding period. Work programmes are to be notified to the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) Information Centre in Geneva; *See,* TBT Agreement, The Results of the Uruguay Round of Multilateral Trade Negotiations, *supra* note 1, art. 3.1., at 142.

tary, industry, standards can be of great importance for market access purposes.[75] Even government purchases are often based on satisfaction of relevant voluntary product quality or compatibility standards. Research stimulated by the EC 1992 programme has illustrated how significant such standards-induced market segmentation can be. A typical example was the case of building tiles, where voluntary industry standards differed by EC country.[76] In the mid-1980s, Spain was the lowest cost producer of such tiles, average prices being between 40 to over 100% lower than prices charged by producers in other EC countries such as Germany, France, and The Netherlands. Such price differences are maintained as the result of a combination of differing standards and government procurement regulations.[77]

There are a number of issues that arise in this context from a contestability perspective for high-tech. Firstly, at the R&D stage, foreign firms may want to participate in the development of standards. Domestic firms may not favour this, and seek to exclude them. Such pressures may be augmented through subsidization of R&D, insofar as subsidizing governments may not want to allow foreign firms to benefit from the subsidy. Alternatively, they make the opportunity to benefit from publicly supported standards development conditional on investment (local production, an IRTM). Secondly, procedures employed to determine conformity assessment and equivalence/compatibility of foreign produced goods may be used to restrict access to markets.

Two types of remedies could in principle be used to combat standards-related barriers to market access, *ex post* and *ex ante*. *Ex post* remedies could be sought under domestic antitrust laws in cases where it is alleged that firms have used the standards-setting process to obtain vertical market foreclosure. However, if not accompanied by some kind of anti-competitive behaviour, e.g. a dominant position of the firm(s) involved, such foreclosure is not necessarily an antitrust violation. Abuse of dominance will be the issue, and not the incidental market foreclosure. *Ex ante*, the

75. A. Sykes, Product Standards for Internationally Integrated Goods Markets 15 *et seq.* (1995).
76. Groupe MAC, Technical Barriers in the EC: An Illustration by Six Industries, Research on the Costs of Non-Europe No. 6 (1988).
77. In France, for example, non-standard tiles could not be used in public works (about 40% of the market), while private firms were hesitant to use non-standard tiles because insurance companies tended to require that buildings meet industry standards.

key question concerns the conditions of participation in the standards-setting process with a view to ensure that this process is not used to restrict access. The appropriate policy in this regard is to seek to apply and enforce MFN and national treatment. Often the problem may be more related to government policy than firm strategy (e.g. biased procurement, non-national treatment under subsidy programmes, national security considerations). As far as access to standards-setting bodies is concerned, the key issue is non-discrimination-ensuring that all interested parties, including foreign firms, have the opportunity to participate on equal terms. Transparency requirements must play an important role in this connection.[78] Agreements to apply non-discrimination principles must be enforced, of course. The development of an analogue to the challenge procedures of the GPA may be fruitful in this regard.

5.5. Services

The objective of the General Agreement on Trade in Services (GATS)[79] is the progressive liberalization of trade in services, defined to include cross-border trade and sales by foreign suppliers through a market presence (both establishment and temporary entry). The GATS constitutes both a first step towards incorporating disciplines on regulatory regimes for services into the multilateral trading system and a first step towards expanding multilateral disciplines to cover investment policies (for services). The sectoral coverage of the GATS is incomplete; most countries scheduled fewer than half of their service sectors and often continue to maintain measures that restrict market access or violate national treatment for scheduled sectors.

The GATS is noteworthy in that it makes explicit reference to the two competition policy dimensions that are covered in the Treaty of the European Community (EC); anticompetitive behaviour by private firms (Articles 85-86 EC) and state-owned enterprises (Article 90 EC). GATS

78. *See* M. Warner & A. Rugman, *Competitiveness: An Emerging Strategy of Discrimination in U.S. Antitrust and R&D Policy?*, 25 Law and Policy in International Business 945-982 (1994), in which they present arguments along similar lines when examining the US National Competitiveness Act of 1993. One of the key provisions of this Act was to limit participation in US technology programmes.

79. *See* GATS, *supra* note 32.

Article VIII (Monopolies and Exclusive Services Providers) stipulates that monopoly or exclusive suppliers of services may not abuse their market power to 'nullify' MFN or specific market access or national treatment commitments relating to activities that fall *outside* the scope of their exclusive rights. GATS Article IX (Business Practices) requires that with respect to activities of service suppliers that have *not* been granted monopoly or exclusive rights, member states are obliged, on request, to enter into consultations with a view to eliminating business practices that are claimed to restrict trade in services. The member state addressed "shall accord full and sympathetic consideration to such a request and shall cooperate through the supply of publicly available non-confidential information of relevance to the matter in question."[80] There is no requirement to act, only an obligation to provide information. It is therefore unclear how a restrictive practice is to be eliminated, or what constitutes a restrictive business practice. Indeed, member states remain free not to apply competition law and policy to services. It is also unclear what disciplines or remedies exist for sectors where incumbents have significant market power but do not formally have exclusive rights (e.g., a privatized utility in a market where entry is in principle free). Of course, in practice, many GATS member states are increasingly subjecting utilities to both greater competition and to the reach of competition law.

From a 'high-tech' perspective, telecommunication services are perhaps most relevant.[81] The extension and enforcement of competition laws to services could in principle enhance the contestability of many telecommunication markets, as these tend to be beyond the reach of the competition authorities, be it *de facto* or *de iure*. In many jurisdictions, a necessary condition for antitrust to apply, however, is that a provider is privately owned.[82] Although increasingly the trend is towards subjecting telecommunications operators to the reach of antitrust, different jurisdictions have

80. Art. IX, GATS, *supra* note 32, at 336.

81. There is a close link with procurement of telecommunications equipment here, an issue that has been discussed at great length both bilaterally and under GPA auspices.

82. The competition law principles of Arts. 85 and 86 EC have been connected with Art. 90 EC and thus applied to commercial decisions of state-owned entities. In fact, since the late 1980s, Arts. 86 and 90 have been used increasingly to eliminate of confine the exclusive concessions of state-owned utilities, e.g. in the telecommunications area. *See* D. Edward & M. Hoskins, *Article 90: Deregulation and EC Law, Reflections Arising From the XVI FIDE Conference*, 32(1) CMLRev. 157-186 (1995).

different ideas on competition law and enforcement, and it is not clear *a priori* what effect differences in substantive rules or enforcement mechanisms have on the state of competition.[83] Arguably attention should initially focus on obtaining agreement on applying the national treatment and MFN principles when it comes to matters such as the conditions on access to, and use of, public networks.

Sector-specific 'rules of the game' may need to complement these non-discrimination principles. Reference can be made in this connection to the North American Free Trade Agreement (NAFTA)[84] where disciplines, while excluding basic telecoms, set out 'reasonable' and non-discriminatory terms under which firms can gain access to and use public networks and services, and to delineate conditions that may be attached to the provision of enhanced telecommunications services. Under the NAFTA, 'reasonable' conditions of access and use means that companies will be allowed to operate private leased networks for intra-corporate communications, attach terminal or other equipment to public networks, interconnect private circuits to public networks, perform switching, signalling, and processing functions, and use operating protocols of the user's choice. The NAFTA goes beyond the GATS by requiring that private leased circuits be made available on a flat-rate pricing basis *and* that rates for public telecommunications services reflect economic costs. Further pursuit of this kind of approach in the GATS context is likely to be a fruitful way of making the WTO more relevant from a contestability-*cum*-conditions of competition perspective.

Antitrust should also be on the agenda, however, as many service sectors in member states tend to be subject to more 'liberal' antitrust than manufacturing industries. This is the case, for example, in the area of distribution, transport, and various business and professional services (where self-regulation is sometimes the norm). A permissive attitude towards measures maintained by a service industry that explicitly restrict entry and regulate operating conditions can have serious implications for the contestability of markets. Indeed, agreement on antitrust could be a

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83. This fluidity is also reflected in changes in enforcement practices over time. *See*, on the EC Commissions's evolving attitude towards enforcing Arts. 85-86 EC with regard to services A. Sapir, P. Buigues & A. Jacquemin, *European Competition Policy in Manufacturing and Services: A Two-speed Approach?*, 9 Oxford Review of Economic Policy 113-132 (1993).

84. North American Free Trade Agreement, 32 ILM 296 (1993).

substitute for specific agreements on the conditions of competition in a sector. This is especially the case if an industry has been de-regulated and is contestable. However, if an incumbent has a high degree of market power, e.g. a privatized ex-monopoly utility, a regulatory agreement may be required.

5.6. Intellectual property

Protection of intellectual property (knowledge generated through investments in R&D) can be of great importance to high-tech industries. Without such protection less R&D may be undertaken and/or firms may have to engage in costly mechanisms in an attempt to ensure that control is kept over proprietary know-how. Non-recognition or non-enforcement of intellectual property rights (IPRs) became an increasingly contentious issue in the multilateral trading system over the years, as a number of countries moved up the development ladder, in part through reverse engineering.[85] A major result of the Uruguay Round was the agreement reached on minimum standards of IPR protection and enforcement.[86] The Agreement on TRIPs imposes obligations regarding six types of IPRs, including protection of trademarks, geographical indications, copyrights and related rights, industrial designs, layout designs of integrated circuits, and patent protection. The last four are of greatest importance to high-tech industries (copyright is important because of software).

The TRIPs Agreement is important not just in terms of its substance and economic impact, but because it is the first time countries agreed in the GATT context to adopt common minimum standards for a policy area. TRIPs is the first example of 'deep' integration in the multilateral setting. From a competition perspective, the Agreement is an outlier insofar as IPRs entail the granting of temporary monopoly rights. It is not surprising therefore that the Agreement makes allowance for governments to apply competition laws to IPRs. Three issues related to the TRIPs Agreement are of particular relevance from an antitrust perspective:

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85. However, the importance of IPRs should not be over-emphasized, as for many industries patents are largely irrelevant. *See* Ostry & Nelson, *supra* note 36.
86. *See* TRIPs, *supra* note 31.

1. compulsory licensing;
2. the application of competition policy to the effect of IPRs; and
3. the treatment of parallel imports.

Arguments have been made that in the IPR area compulsory licensing should not be possible, as it counteracts the very rationale for protection of intellectual rights, namely to provide incentives to innovate. For this reason industrialized nations that have compulsory licensing schemes subject them to tight conditions. Developing nations, conversely, have argued that compulsory licensing is important and have traditionally favoured 'looser' conditions for legitimate recourse to it.[87] The TRIPs Agreement reflects a compromise between the two positions, allowing compulsory licensing of patents or government use of patents without the authorization of a patent holder, but subject to a number of conditions that have to be respected if national legislation provides for compulsory licensing. In the absence of a national emergency situation, a necessary condition for compulsory licensing is that efforts are first made to obtain authorization from the right holder 'on reasonable commercial terms'. This provision is open to abuse. Claims of 'excessive pricing' (i.e. 'abuse of dominant position', to use the terminology of competition law) may give rise to compulsory licensing. Lack of local working of a patent cannot, however, be sufficient ground for compulsory licensing. That is, importation satisfies patent working requirements.[88] Article 31(h) requires that adequate compensation be offered, taking into account the economic value of the authorization. It is not clear what this means, in particular whether it corresponds to the 'market value' standard used in determining compensation in cases of expropriation. Future panels will have to deal with such questions.

Article 8(1) of the TRIPs Agreement permits, as a general principle, member states to "adopt measures necessary to protect public health and

87. *See* the discussion on the negotiating positions on compulsory licensing in M.C.E.J. Bronckers, *The Impact of TRIPs: Intellectual Property Protection in Developing Countries*, 31(6) CMLRev. 1245-1281, at 1271 *et seq.* (1994).

88. Art. 27(1) states that "[...] patent rights [must be] enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced." There is some disagreement as to whether this ensures that local working requirements are inconsistent with the TRIPs agreement. Some developing countries have argued that this remains possible. However, the language of Art. 27(1) is relatively clear.

nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development," subject to the condition that such measures are consistent with the provisions of the Agreement. Article 8(2) goes on to permit member states, subject to the same condition, to take "appropriate measures" to prevent the abuse of IPRs by right holders and to prevent practices from being pursued which "unreasonably restrain trade or adversely affect the international transfer of technology." Member countries may specify licensing practices or conditions in their laws that can constitute an "[a]buse of intellectual property rights having an adverse effect on competition in the relevant market" (Article 40(2)). Appropriate measures to prevent or control such practices may be taken consistent with the other provisions of the Agreement. Illustrative examples of such practices that are mentioned include exclusive grantback conditions, conditions preventing challenges to validity, and coercive package licensing. The 'home' country authorities of specific right holders are required to consult with 'host' country authorities seeking to secure compliance with its legislation, subject to confidentiality constraints. What constitutes an 'abuse of IPRs' or an 'adverse effect on competition' is not specified in the Agreement, and the illustrative list of practices provided is quite short. This may be an area where consultations could prove difficult, and disputes may arise.[89]

Article 6 of the TRIPs Agreement states that:

> for the purposes of dispute settlement under this Agreement, subject to the provisions of Articles 3 and 4, nothing in this Agreement shall be used to address the issue of exhaustion of intellectual property rights.

This implies that the issue of exhaustion of IPRs cannot be raised before a WTO adjudicating body (be it a panel or the Appellate Review Body). Exhaustion of IPRs is known in the internal EC legal order, which allows for parallel imports. Countries could not agree on either the extension of this principle worldwide or its abolition. The question consequently arises what applies in cases where some WTO member states accept the concept and some do not. A March 1995 decision of the Tokyo High Court

89. As is amply illustrated in the literature, market structure and conduct is very important in determining the extent of effective market power of an IPR holder and thus pricing decisions, R&D activity, and so forth. Application of competition law will generally involve substantial subjective judgment.

illustrates the resulting possibilities for differences in this area by accepting the concept of parallel imports in the *BBS Aluminum* case.[90] This decision, if not reversed, could potentially induce the US to initiate a new Section 301 case, as the US generally does not accept parallel imports.[91] This is inconsistent with its (domestic) antitrust stance on resale price maintenance (RPM) schemes, which are illegal.[92] The absence of an agreed approach on this issue in the TRIPs Agreement may prove problematical.

Summing up, in the TRIPs Agreement explicit allowance is made for national antitrust enforcement, a first in the multilateral trading system. No doubt this reflects the fact that enforcement of IPRs creates market power. The TRIPs Agreement is also noteworthy for its detailed provisions on enforcement of IPRs. The Agreement imposes the obligation on all member states to provide for civil, administrative, or criminal procedures allowing private parties to contest alleged violations of their IPRs. The types of remedies to be used are specified in the Agreement. A key aspect of the TRIPs Agreement is that its provisions may be invoked by private parties before national courts or equivalent institutions. The principle of direct effect is therefore embodied in the Agreement, implying that WTO law will become part of, and interact with, domestic legal orders.

6. CONTESTABILITY, COMPETITION, AND THE WTO

Starting with the Kennedy Round (1964-1967), but especially in the Tokyo (1973-1979) and Uruguay (1986-1994) Rounds, an increasing number of agenda items involved the negotiation of rules and disciplines for specific trade-related domestic policies rather than further reductions in tariffs and

90. *See* M. Matsushita, TRIPs: Trade and Competition Issues, presentation at the annual meeting of the International Trade Law Committee, Geneva, June 1995.

91. *See*, for a discussion of the circumstances in which parallel imports may be accepted in the US, D.N. Palmeter, *Gray Market Imports: No Black and White Answer*, 5 Journal of World Trade 95 *et seq.* (1988). Bronckers suggests that the US would violate WTO law by taking unilateral retaliatory action against countries that accept exhaustion. *See* Bronckers, *supra* note 87.

92. To the extent that coercion is proven, resale price maintenance is a *per se* illegality under US antitrust. However, some US courts (e.g. the 7th and the 5th Circuit) appear to be leaning towards applying a rule of reason in this area.

other border measures. Rules pertaining to product standards, subsidies, and government procurement were prominent items on the agenda of the Tokyo Round. The Uruguay Round further expanded the multilateral negotiating agenda by adding trade-related investment measures (TRIMs), TRIPs, and measures affecting the contestability of service markets. The trend for multilateral trade negotiations to address 'domestic' policies shows no sign of abating. Calls for a post-Uruguay Round negotiation have identified issues such as competition policy, foreign direct investment (FDI) regulations, innovation policies, and the interaction between trade and environmental policies as possible topics for discussion.[93] In part, agenda expansion, both past and future, is driven by high-tech industries and high-tech policy rivalry. More generally, the steady agenda expansion reflects changes in the structure of the global economy. The managerial and technological innovations of the last decade, such as just-in-time inventory management and the increased tradability of services, created pressures for greater specialization and geographic splintering of production. This in turn made regulations pertaining to services, FDI, transfer of technology, and protection of intangible assets more important to both governments and firms. The paradigm shift that occurred in the 1980s with many developing nations adopting a much more outward-oriented, market-based policy stance greatly facilitated the expansion of multilateral rules.

From a systemic perspective, a key issue is whether existing institutions and approaches (i.e. the WTO) are adequate in terms of moving further towards enhancing the contestability of markets and defining the conditions of competition that are 'acceptable'. As illustrated by the elements of the WTO Agreements discussed in this paper, governments have greatly expanded the scope of multilateral rules, and adopted common minimum standards in the area of IPRs (and product standards as well, in requiring in principle the adoption of international standards where these exist). This illustrates that the trading system is evolving. What is needed to maintain progress is the identification of modalities to augment and improve existing disciplines and institutions from a contestability/competition perspective. In principle, investment policies should be readily integrable into the WTO framework. Although there is arguably much about the GATS that is imperfect, the primary need at this point is to

93. *See* Hoekman & Kostecki, *supra* note 34, at 246 *et seq.*

expand its sectoral coverage. From an economic perspective, investment and services regulations are clearly two areas where the potential benefits of multilateral rules are great. To a great extent one can rely on old concepts: transparency and non-discrimination.

This having been said, something of a paradigm shift is arguably needed in terms of helping policymakers and negotiators identify both priority areas and enforce multilateral disciplines. With the increasing emphasis on contestability and the conditions of competition no obvious focal points exist that can be used. The development of such focal points would do much to facilitate progress.[94] Even if not used for negotiation purposes, as was done with the Aggregate Measure of Support in the agricultural context,[95] quantitative information on the 'level' of contestability barriers implied by different policies is required to inform policy. Antitrust is one of the policies that is suggested as a priority area. Competition policy is already on the agenda. Three WTO agreements contain provisions on or related to competition policy: TRIMs, TRIPs, and the GATS.[96] The TRIMs agreement is limited to a call to consider the need for possible disciplines in this area in the future. The TRIPs Agreement and the GATS were discussed above.

Discussions on competition-trade policy linkages often suggest that firms may engage in business practices that prevent the market access benefits of negotiated trade liberalization from being realized (i.e., the governments concerned tolerate these alleged practices). These business practices involved are held to prevent the realization of 'legitimate expectations' (to use GATT-speak) associated with multilaterally negotiated trade barrier reductions (i.e., private practices 'nullify or impair concessions'). The actual state of competition in a particular market is of

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94. B.M. Hoekman, *Focal Points and Multilateral Negotiations on the Contestability of Markets*, *in* K. Maskus, P. Hooper, D. Richardson & E. Learner (Eds.), Quiet Pioneering: Robert M. Stern and His International Economic Legacy (1995).

95. *See* OECD, A Preliminary Evaluation of the Impacts of the Agreement on Agriculture in the OECD Countries 35 *et seq.* (1995).

96. Art. 9 TRIMs, Art. 40 TRIPs, Arts. VIII and IX GATS. As was pointed out by Bronckers (private correspondence), Art. 11(3) of the WTO Safeguards Agreement contains an interesting provision according to which members shall not encourage or support the adoption or maintenance of public and private enterprises of non-governmental measures equivalent to those eliminated and prohibited by the same Article (e.g. VERs). This withholds the foreign sovereign compulsion defence to private parties in competition law investigations regarding privately negotiated VERs and other grey area measures.

secondary importance, and may not be of concern at all. US-Japan talks and Section 301 negotiations illustrate that the market access sought by negotiators is not necessarily driven by a lack of contestability.[97]

Nonetheless, restrictive business practices can impede the contestability of markets for foreign firms, and the WTO only allows for limited recourse against governments that tolerate such business practices. There are four 'holes' in the WTO as far as competition policies are concerned.[98] Firstly, there is no requirement that WTO member states have a competition policy, let alone that it meets certain minimum standards. Many member states have antitrust legislation, but there are significant differences in national laws and in their enforcement. Secondly, purely private business practices restricting access to markets that are not supported by the government cannot be attacked. Thirdly, practices by firms on export markets or tolerance by governments of anticompetitive behaviour on export markets by firms headquartered in its territory cannot be addressed. Thus the oft encountered statement that there are no multilateral disciplines for export cartels. Fourthly, some firms may be so large as to have global market power. In such cases, competition rules should in principle also be global, as no single government may be able (even if willing) to control possible anti-competitive behaviour.

The empirical significance of these holes in terms of reducing the contestability of markets or skewing conditions of competition has not been determined. Efforts to agree to minimum standards in antitrust will have to be complemented by analogous tightening of the rules regarding the scope that exists for governments to pursue 'strategic' trade policies more generally. The EC illustrates that in the multilateral context, competition policy disciplines must be defined broadly to ensure contestability. In the case of the EC, competition policy disciplines pertain not only to private firms (i.e. antitrust), but also to public monopolies,

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97. A recent case is illustrative. Kodak has brought a Section 301 case to the US Trade Representative (USTR) alleging that anticompetitive practices by Fuji in the Japanese market prevented it from gaining a substantial share in the Japanese market. Kodak has 36% of the world film market; Fuji has 33%. Kodak has only 9% of the Japanese market, similar to Fuji's share of the US market. Japanese antitrust authorities investigated the case, and concluded that no antitrust violations by Fuji could be established and that the market was contestable. This review by the Japanese antitrust authorities was, however, rejected by Kodak as not being 'serious' (*The Economist*, August 5-11, at 59-60, 1995).

98. *See* Hoekman & Mavroidis, *supra* note 42, at 129 *et seq.*

state-owned enterprises, and governments.[99] The multilateral trading system is similar to the EC in that antitrust is clearly not enough. What is needed is a competition policy broadly defined. The accent should be placed on ensuring access to the relevant markets. In the EC there is free trade, a prohibition on the use of subsidies, and an across-the-board application of the national treatment principle, covering products and persons (investment). In the multilateral system many market access restrictions remain, including trade policies (tariffs, contingent protection), restrictions on foreign direct investment (outright prohibitions or non-national treatment), discriminatory public procurement policies, subsidy practices, and regulatory regimes pertaining to the service sector.

This is not to say that antitrust should be kept off the multilateral agenda, or to deny that progress on specific issues cannot be made. As noted above, the potential gains from introducing antitrust-principles and concepts into trade policy (e.g., antidumping) can be very large. Moreover, ongoing bilateral and plurilateral cooperation arrangements and agreements need to be transparent, and if efficient, be open to multilateralization. Finally, in the services area, agreement on antitrust standards and their enforcement may well be necessary to ensure the contestability of a market. There is a variety of approaches that could be used in this context. Expansion of the concept of 'positive comity' could be of considerable help in defusing antitrust-related tensions. This concept, embodied in the EC-US Cooperation Agreement on Antitrust Issues,[100] provides the opportunity for countries whose interests could be affected negatively by antitrust action/inaction of another country in its domestic jurisdiction to request intervention. To stimulate the needed 'discovery process,' attempts can be made to allow WTO dispute settlement procedures to be used in cases where it is alleged that restrictive business practices restrict entry by foreign firms. This could be done by explicitly agreeing that non-enforcement of national anti-trust laws constitutes a government measure

99. Jacquemin has suggested that it is useful in this connection to distinguish antitrust policy from competition policy, and not to use the two terms interchangeably. This approach has been used in this paper. *See* Jacquemin, *supra* note 22.

100. EC-US Cooperation Agreement on Antitrust Issues, 30 ILM 1491-1502 (1991). The agreement is discussed in A. Ham, *International Cooperation in the Antitrust Field and in Particular the Agreement Between the USA and the Commission of the EC*, 30 CMLRev. 571-595 (1993).

as understood in GATT case law.[101] The establishment of a capacity in the WTO Secretariat with the mandate to investigate instances where it is alleged by a WTO member state that another member state tolerates business practices that restrict entry could also be useful. Criteria that might be used in an investigation could be those contained in the antitrust laws and regulations of the member states involved in the dispute. Such investigations would be pure fact-finding exercises, but would help in identifying issues for future negotiation and could help in defusing disputes. An additional step could be to allow for mediation or voluntary arbitration.

7. CONCLUSIONS

The goal of this paper was to examine existing WTO rules of relevance to high-tech industries, in the process discussing the evolution of multilateral rules and identifying remaining weaknesses. A major sub-theme or underlying objective was to discuss the competition-friendliness of the WTO, and the need for, and possible modalities of, pursuing multilateral agreement on antitrust. The case against the pursuit of global antitrust rules at the present time, i.e. in a world littered with trade and investment barriers, was not considered to be very strong on economic grounds. That is, other government policies restricting the contestability of markets and affecting conditions of competition are likely to be more distorting. This conclusion applies as much to high-tech as to other industries. Indeed, given the nature of competition in such industries, it is important that entry barriers created by government policy are reduced as much as possible. The anti-competitive effects of state behaviour are generally *beyond* the purview of domestic competition laws/agencies.

This is not to say antitrust should not be put on the multilateral agenda. Parallel efforts to discuss antitrust can be helpful in terms of identifying areas of agreement and disagreement and possible linkages with trade/investment policy. The EC illustrates that once traditional market

101. As argued in Hoekman & Mavroidis, *supra* note 42, at 137-142. Although technically it may be feasible to bring a non-violation complaint arguing this, matters would be greatly facilitated if formal agreement was obtained.

access/presence barriers are eliminated, governments will seek common competition rules for firms operating on the single market. Indeed, adoption of common competition disciplines may be a necessary condition for the elimination of certain trade policies, e.g. antidumping. The Closer Economic Relations Trade Agreement between Australia and New Zealand is illustrative in this connection,[102] where antidumping was abolished in the late 1980s after harmonization of competition policies.[103] It would be laudatory if this could be emulated at the multilateral level.

Space constraints made a comprehensive discussion of the WTO disciplines impossible. Some progress was made in the Uruguay Round to regulate high-tech policy competition and disciplines these policies. As has always been the case with the GATT, rule-making centred in part on enhancing the contestability of markets and in part on further specifying allowable conditions of competition. Rules of relevance to high tech include subsidization, nationalistic and/or discriminatory public procurement or standards-setting procedures, the anti-competitive use of antidumping, the need for IPR protection and enforcement,[104] and, more generally, the behaviour of service firms with significant market power (e.g. a monopoly provider of basic telecommunications infrastructure services).

An innovation of great importance made during the Uruguay Round was the introduction of the principle of direct effect into the multilateral trading system. This occurred in two areas of direct relevance to high-tech: government procurement (Article XX GPA)[105] and intellectual property (Part III TRIPs).[106] This is a significant improvement over the traditional GATT model of enforcement, which relies on governments bringing cases to Geneva. Traditionally, GATT rules have not had direct effect within national legal orders, thus denying the real 'users' of the multilateral system (firms, consumers) the opportunity to contribute to its shaping.[107]

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102. The Closer Economic Relations Trade Agreement between Australia and New Zealand, 22 ILM 948 *et seq.* (1983).
103. *See* Hoekman & Mavroidis, *supra* note 42.
104. The TRIPs Agreement, *supra* note 31, is a special case, as competition-related issues are prominent. The Agreement does not aim at enhancing the contestability of markets but is restricted to the establishment of competitive conditions on world markets.
105. *See*, GPA, *supra* note 30.
106. *See*, TRIPs, *supra* note 31.
107. A notable exception to the case law of the Court of Justice of the EC in this connection was a ruling by a lower German Court. The Finanz Gericht Hamburg ruled in a case involving

The best that 'users' can generally hope for is that they can persuade their governments that their particular case is worth pursuing in the WTO. This inevitable 'filter' determines what goes through. It has slowed the development of multilateral rules, and greatly reduced the relevance of existing rules for international trading firms. Antitrust laws have developed to a large extent because of invocation by private parties. Law in this area is therefore much closer to the market's needs, as it develops to reflect changing conditions. WTO law has to follow a similar path.

What is needed is not only contestability of product markets, but contestability of regulatory regimes. Such contestability exists in national legal orders and in the EC, but has been excluded from the WTO. As argued by Tumlir,[108] this is a crucial weakness in the multilateral trading system, not just because of the inefficiency of available multilateral remedies, but more importantly, in terms of building a strong constituency that supports the development of multilateral rules guaranteeing non-discriminatory access to markets.[109] The initiatives in the GPA and the TRIPs Agreement illustrate that moving in this direction may not be as 'impractical' as it is sometimes held to be. The innovations are restricted to 'vertical' direct effect, i.e., private parties may contest actions of WTO member states by having recourse to judicial procedures before national courts. This compares with the 'horizontal' direct effect, under which firms may contest actions by other firms alleged to violate the rules of the game. This applies in the case with domestic antitrust enforcement. Vertical direct effect will already do much to enhance the relevance of the WTO. In any event, it is arguably all that is needed, given that governments are bound by the WTO, not private parties.

Vertical direct effect is, of course, not in itself sufficient to eliminate market access problems in world trade and investment. Clearly much depends on the specifics of the rules that are negotiated. Major holes remain in this regard, most notably the absence of disciplines, especially basic principles such as national treatment in the area of investment policy

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imports of bananas from non-European Union (EU) countries that GATT rules have direct effect. *See* Finanz Gericht Hamburg, Decision of 19 May 1995 (Firma T. Post GmbH *v.* Hauptzoll Ambt Hamburg).

108. J. Tumlir, Protectionism: Trade Policy in Democratic Societies (1985).

109. *See also* M.C.E.J. Bronckers, Selective Safeguard Measures in Multilateral Trade Relations 242-244 (1985).

and the weakness of the GATS in terms of coverage and market opening disciplines. Attention should continue to focus on expanding the reach of the multilateral trading system. But this should be complemented by efforts to allow direct application and enforcement of multilaterally negotiated disciplines.

Direct effect of WTO rules will allow a number of problems that proponents of multilateral antitrust rules worry about to be addressed, without negotiating new rules and thus adding to an already heavy regulatory framework. At the same time, it must also be recognized that our knowledge of the empirical importance and economic impact of restrictive business practices is not well researched. The problem is that market behaviour is always endogenous, and in the absence of government policies that directly restrict entry, competition will generally emerge. But often such competition may take place along dimensions that are not necessarily readily discernable, e.g. a shift from price to non-price competition. It is very difficult to arrive at general, normative conclusions, as can be readily discerned from any textbook on industrial organization.[110] The best advice in this connection is that much more research and discussion is needed.

To stimulate the needed 'discovery process', consideration might be given to facilitate the invocation of WTO dispute settlement procedures in cases where it is alleged that restrictive business practices restrict entry by foreign firms. One way of doing this is to agree that non-enforcement of national antitrust laws constitutes a government measure as understood in GATT case law, facilitating recourse to non-violation complaints. Another option would be to create an investigative capability in the WTO Secretariat that would be given the mandate to determine the economic facts of cases where it is alleged by a WTO member state that another member state tolerates business practices that make a market uncontestable. The existence of violations of the antitrust laws and criteria of both member states could be used as yardsticks in such investigations.

110. *See, e.g.*, J. Tirole, The Theory of Industrial Organization (1988).