

Table III.T6: Economies whose firms were found to be engaging in cartelization by the US and the EC during the 1990s

Economy	Cartel
Angola	Shipping
Austria	Cartonboard, citric acid, newsprint, steel heating pipes
Belgium	Ship construction, stainless steel, steel beams
Brazil	Aluminum phosphide
Canada	Cartonboard, pigments, plastic dinnerware, vitamins
Denmark	Shipping, steel heating pipes, sugar
Finland	Cartonboard, newsprint, steel heating pipes
France	<i>Aircraft</i> , cable-stayed bridges, cartonboard, citric acid, ferry operators, <i>methionine</i> , newsprint, <i>plasterboard</i> , shipping, sodium gluconate, stainless steel, steel beams, seamless steel tubes
Germany	<i>Aircraft</i> , graphite electrodes onboard, citric acid, aluminum phosphide, lysine, <i>methionine</i> , newsprint, pigments, <i>plasterboard</i> , steel heating pipes, seamless steel tubes, vitamins
Greece	Ferry operators
India	Aluminum phosphide
Ireland	Shipping, sugar
Israel	Bromine
Italy	Cartonboard, ferry operators, newsprint, stainless steel, steel heating pipes, seamless steel tubes
Japan	Graphite electrodes, lysine, <i>methionine</i> , ship transportation, shipping, sodium gluconate, sorbates, seamless steel tubes, thermal fax paper, vitamins
Luxembourg	Steel beams
Malaysia	Shipping
Mexico	Tampico fiber
Netherlands	Cartonboard, citric acid, ferry operators, Ship construction, sodium gluconate, Tampico fiber
Norway	Cartonboard, explosives, ferrosilicon
Singapore	Shipping
South Africa	Diamonds, newsprint
[Korea]	Lysine, <i>methionine</i> , ship transportation, shipping
Spain	<i>Aircraft</i> , Cartonboard, stainless steel, steel beams
Sweden	Cartonboard, ferry operators, newsprint, stainless steel
Switzerland	Citric acid, laminated plastic tubes, steel heating pipes, vitamins
[Chinese Taipei]	Shipping
UK	<i>Aircraft</i> , cartonboard, explosives, ferry operators, newsprint, pigments, <i>plasterboard</i> , shipping, stainless steel, seamless steel tubes, steel beams, sugar
US	<i>Aircraft</i> , aluminum phosphide, bromine, cable-stayed bridges, cartonboard, citric acid, diamonds, ferrosilicon, Graphite electrodes, isostatic graphite, laminated plastic tubes, lysine, maltol, <i>methionine</i> , pigments, plastic dinnerware, Ship construction, ship transportation, sorbates, Tampico fiber, thermal fax paper, vitamins
Zaire	Shipping

Source: Evenett, Levenstein, and Suslow (2001).

Note: Products in italics were under investigation at time of publication.

E. THE EFFECTS OF PRIVATE INTERNATIONAL CARTELS ON DEVELOPING COUNTRIES

293. In the last three years a number of studies have identified and estimated the costs to developing countries of the private international cartels that were prosecuted in the 1990s.⁶⁹ These studies have grown in sophistication, reflecting the cumulative efforts of scholars, government officials, and international organizations in collecting data on this subject. As will become evident, the focus of much research has been on estimating the overcharges paid by purchasers in developing countries. However, evidence is coming to light that suggests that exporters in developing country have been hurt by these cartels too. This further reinforces the case for strengthening policies and enforcement institutions to take against anti-competitive practices that impinge on developing economies.

294. Although estimates vary the price increases caused by international cartels are of the order of 20-40 percent (Connor 2001, Levenstein and Suslow 2001, and OECD 2002a,b). The price increases generate sizeable overcharges, especially given the large amount of imports by developing economies of cartelized products. Over time research has refined the calculations of harm done to purchasers in developing economies by international cartels. The first such calculation was performed by Levenstein and Suslow (2001).

295. In a background paper for the World Bank's *World Development Report 2001*, Levenstein and Suslow (2001) identified the international trade flows in 1997 that best matched the products sold by sixteen international cartels which operated at some point during the 1990s.⁷⁰ Developing countries' imports of these goods in 1997 amounted to US \$81.1 billion, an amount that represents 6.7 percent of these countries' imports and 1.2 percent of their national incomes. (For the least developed countries these percentages were even higher.) With an estimated increase in prices of between 20 and 40 percent, one can then calculate a range of estimates for the overcharges paid by developing countries in 1997 had all sixteen of these cartels been in operation during that year. These overcharges are in the range of US \$16-32 billion, which are large sums when one appreciates that they are equivalent to between one third and two thirds of the annual total multilateral and bilateral aid received by developing countries in the late 1990s.

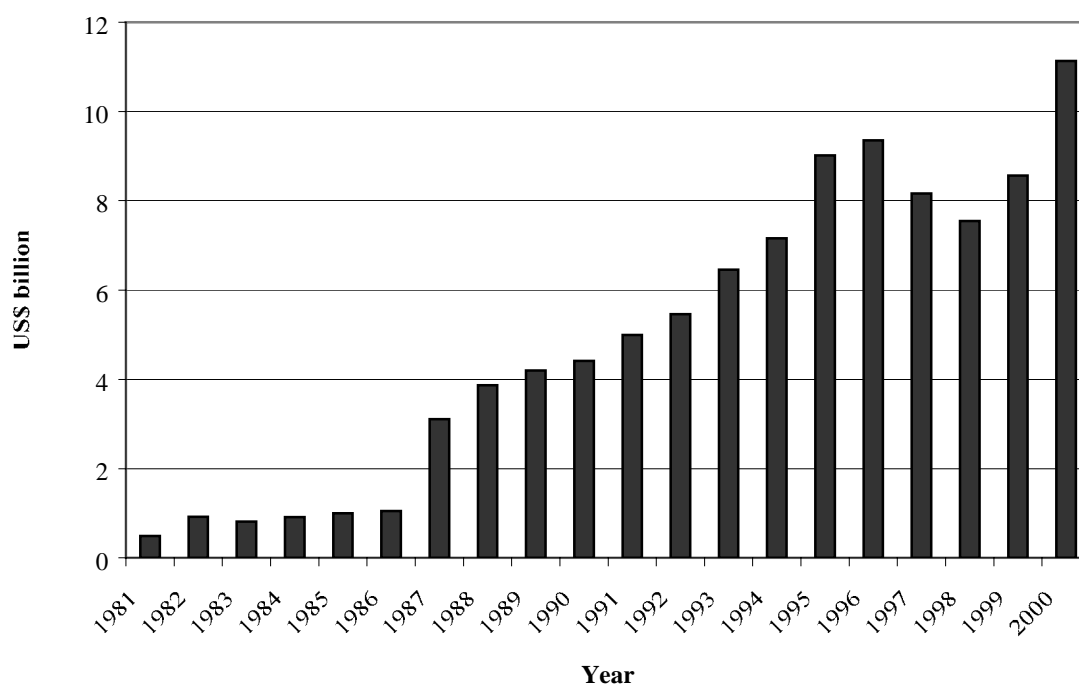
296. An alternative approach to Levenstein and Suslow (2001) is to calculate year-by-year, throughout the 1980s and 1990s, the value of developing country imports that are affected by international cartels. Evenett and Ferrarini (2002), in a background paper for the World Bank's *Global Economic Prospects 2003*, performed these calculations for twelve of the

⁶⁹ Although this section focuses on the scale of recently prosecuted international cartels, it is worth observing—for comparative purposes—that in the 1930s international cartels were thought to control to some degree between 30 and 50 percent of world trade (Scherer 1994, page 46.) In none of what follows is it suggested that the proportion of international trade flows currently affected by private international cartels has reached levels observed in the 1930s. Nevertheless, given that scale of international commerce today is much larger than it was in the 1930s, even if very small percentages of international trade are affected by private international cartels then it is quite plausible that billions of dollars of harm—perhaps even tens of billions of dollars of harm—are being inflicted on customers around the world. In the year 2002 the total value of merchandise imports equaled US\$6.501 trillion dollars. Of that amount, US\$1.704 trillion was imported by developing countries. The latter figures are taken from WTO (2003).

⁷⁰ These authors were able to identify for each of the sixteen cartels in their study the four-digit United Nations' international trade flow that *best* corresponds to the cartelized product. Their study used 1997 data on international trade flows because—at the time they prepared their study—this year's data was the last year of such United Nations' data that was inexpensively available to academics. Data after 1997 and data that is more disaggregated than that reported by the United Nations is available but at a cost that is beyond the reach of many academic researchers in the United States and in Western Europe.

sixteen international cartels studied by Levenstein and Suslow. This approach has the advantage of only counting the imports of developing countries as being affected in a given year—say 1993—if the international cartel in question was in operation in that year. Figure III.F2 plots in year 2000 US dollars the total value of developing country imports that are affected by twelve private international cartels. What is evident is that a substantial amount of developing countries' imports are affected by such cartels. Since 1995, developing countries' imports of these twelve cartelized products exceeded US \$8 billion in all but one year; and in 2000 the value of such imports exceeded US \$10 billion. The overcharges on such imports amount to a recurring drain on the purchasing power of developing country purchasers of the affected goods. It is also worth noting that the data reported in figure III.F2 does not include data on 28 of the 40 private international cartels that have been prosecuted in the 1990s. The true value of the developing country imports is likely to be multiples of the numbers reported here.

Figure III.F2: Total imports of twelve cartelized products by developing economies, 1981-2000



Note: Values reported in year 2000 United States dollars.

297. Further details on six high profile international cartel prosecutions are given in Appendix III.C. The fact that each of these cartels involves the sale of intermediate goods is not atypical—and suggests that the costs of those corporate purchasers of intermediate products are also adversely affected by cartelization. To the extent that these buyers of intermediate inputs face stiff competition for sales of their products in international markets, then export performance is being hindered by international cartels too. (See box III.B2 for a case study that highlights this point.) Furthermore, for these six international cartels, the estimated price increases due to cartelization do vary widely—from 10 percent for stainless steel tubes to 60-70 percent for graphite electrodes. Given these percentage price increases, it is not surprising that two of these six cartels alone (vitamins and graphite electrodes) have resulted in estimated overcharges of over a billion US dollars each.

298. Given the cartels in Appendix III.C lasted several years, it is noteworthy that the fines imposed by authorities often fell well short of the estimated overcharges. Of course, overcharges are not the same as the additional profits obtained from cartelization. However, given that forward looking firms will discount any fines for engaging in cartelization by the probability of getting prosecuted, on the basis of some of the fines imposed during the 1990s, concerns may well arise about the strength of the deterrence of certain national anti-cartel regimes (OECD 2002a).

Box III.B2: The graphite electrodes cartel, 1992-1997

Graphite electrodes are used primarily in the production of steel in electric arc furnaces. In a highly concentrated world market, two firms (one German and one American) had a combined market share of roughly two-thirds at the beginning of the 1990s. Japanese producers supply a considerable part of the remainder, with modest contributions from a number of smaller producers based in certain developing countries, principally India and China. All of the major producers in this market operate production facilities in a number of countries, including developing countries such as Brazil, Mexico, South Africa, Russia, and Poland, and sell their products throughout the world.

In 1999, all seven major producers of graphite electrodes plead guilty to price-fixing between 1992 and 1997, following an investigation by the United States Department of Justice. Similarly, major firms in the Canadian, European Union, and Korean markets were convicted and fined by those jurisdictions' respective authorities.

According to US and European Commission documents, cartel members agreed to:

1. increase and maintain prices,
2. allocate volume among conspirators,
3. divide the world market among themselves,
4. reduce or eliminate exports to members' home markets,
5. restrict capacity,
6. restrict non-conspirator companies' access to certain technology,
7. exchange sales and customer information in order to monitor and enforce the cartel agreement,
8. issue price announcements and price quotations in accordance with the agreement.

The OECD estimates that:

"the cartel affected \$5-7 billion dollars in sales world-wide. Throughout the world, the cartel resulted in price increases from roughly \$2000 per metric ton to \$3200-\$3500 in various markets" (OECD 2000, page 13).

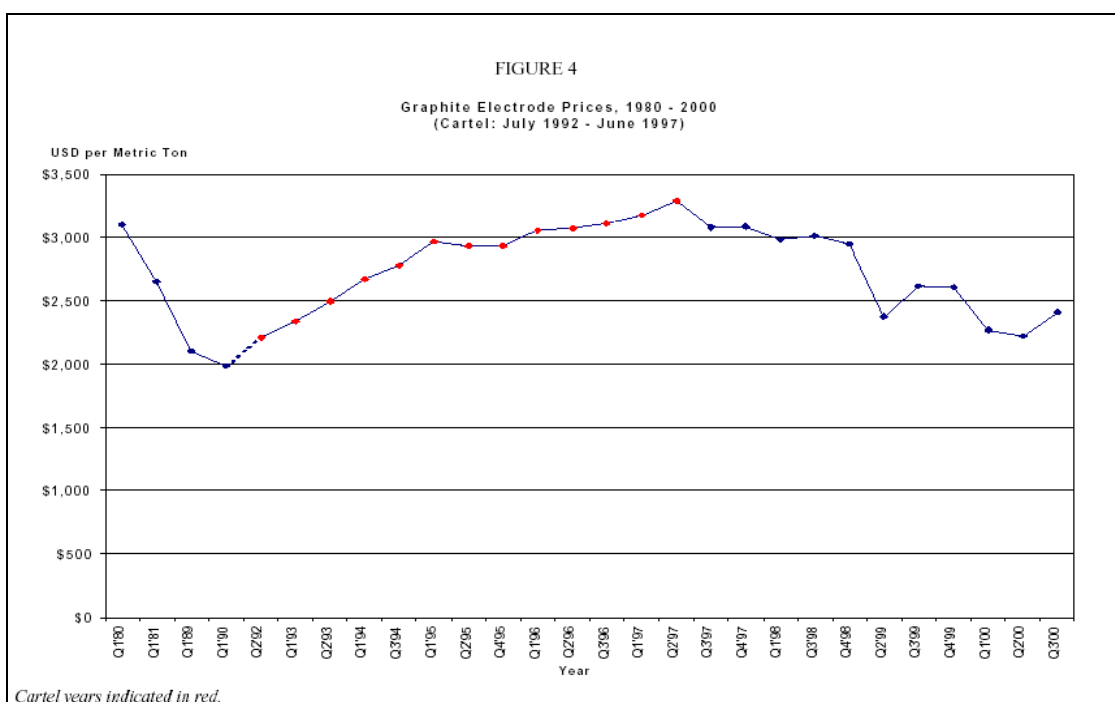
Graphite electrodes prices in the US market are shown the figure below. Prices started rising immediately after the conspiracy started, and display a clear downward trend since the break-up of the cartel in 1997. Although there is some evidence that actual transaction prices paid by developing country purchasers were in some cases lower than for consumers based in advanced economies, the fluctuations in the US price can be assumed to accurately represent the changes in prices in world markets. Clearly, the cartel's negative effects on developing country purchasers were significant, especially for those depending on graphite electrodes imports for steel production. High prices in the graphite electrodes markets translated into higher import prices of steel-based intermediate products for developing countries (Levenstein and Suslow 2001).

The only direct estimate of pecuniary harm caused to purchasers in developing countries comes from the Korea Fair Trade Commission (KFTC), which in March 2002 convicted six graphite electrode manufacturers from the US, Germany, and Japan. According to KFTC, Korean steel manufactures

"imported graphite electrodes amounting to US\$553 million from the six companies from May 1992 to February 1998, and during the period the import price increased from an average of US\$2,225 per ton in 1992 to an average of US\$3,356 in 1997 (about 48.9% price increase). The damage incurred by the companies importing graphite electrodes is estimated at approximately US\$139 million. Korea's major industries such as automobile and shipbuilding that consume much steel were also influenced by this international cartel" (KFTC 2002, page 2).

Since the break-up of the cartel, the industry has seen the formation of several joint ventures, such as the one between UCAR, a leading US corporation, and Jilin Carbon, the largest Chinese producer of graphite electrodes.

Figure III.F3: Graphite Electrode Prices, 1980-2000 (Cartel: July 1992-1997)



Source of figure: Levenstein and Suslow 2001, page 83.

Notes: The above figure refers to prices of graphite electrodes in the US market. There is anecdotal evidence that transaction prices paid by developing country purchasers were lower than in the US. Nevertheless, the fluctuations in US prices shown above can be assumed to represent an approximate trend of prices in the world markets.

299. The effects of certain individual private international cartels have been analyzed with econometric techniques (Connor 2001, White 2001, and Clarke and Evenett 2003). A recent analysis of the international vitamins cartel, which divided up the world markets for various types of vitamins from 1989 until 1999, was able to recover estimates of the overcharges paid by 90 vitamins importing nations throughout the 1990s. Table III.T7 presents the estimated overcharges on vitamins imports by 90 economies for the duration of this cartel (see Clarke and Evenett 2003, for further details.⁷¹) The total overcharges in four developing countries exceeded US\$100 million (in year 2000 US dollars) and in six more they exceeded US\$50 million. The total overcharges for the ten European Union members reported in table III.T7 was estimated to equal US \$660.19 million; that is, two thirds of a billion dollars.⁷² The total overcharges by these 90 importers amounted to US\$2709.87 million throughout the 1990s; just under two and three quarter billion dollars for this one cartel alone. In essence, the international vitamins cartel—like a number of other contemporary private international cartels—exploited the very open markets that the multilateral trade reforms seek to encourage so as to raise prices and transfer billions of dollars of rents from purchasers to cartel members.

300. Clarke and Evenett's (2003) analysis of the vitamins cartel also revealed that countries in Asia, Latin America, and Europe that did not have records of national cartel enforcement tended to be particularly targeted by the international vitamins cartel. For example, Latin American countries without a recent record of cartel enforcement saw their total import bill for vitamins rise by 53 percent after the formation of the cartel, whereas those nations with cartel enforcement records saw imports rise by 38 percent. This finding attests to the deterrent value of more strenuous national cartel enforcement efforts as it suggests that the vitamins cartel members decided to raise prices less in those economies with active anti-cartel policies. That is, even though active cartel enforcement did not deter the formation of this cartel in the first place, it would appear that the credible threat of potential future enforcement did discourage the members of this international cartel from raising their prices as much as in jurisdictions with little or no cartel enforcement.

301. These estimates of the deterrent effect of active cartel enforcement regimes may shed *some light* on the relative magnitudes of the costs to national treasuries and of the benefits more generally of adopting multilateral provisions on cartels. To recap, the associated state outlays and benefits include (i) the cost of drafting and enacting a cartel law, the cost of establishing the relevant enforcement agency and of developing the necessary expertise, (ii) the ongoing budgetary cost of enforcing a cartel law, (iii) the costs to the private sector of any unwarranted bureaucratic harassment that may follow enactment of a cartel law, (iv) any benefits to the national treasury associated with deterring the *formation* of bid rigging cartels *in the first place*, and (v) any benefits associated with deterring the *formation* of cartels that target private sector customers *in the first place*, (vi) any benefits to national treasuries that accrue from bid rigging cartels setting submitting lower bids in jurisdictions with active cartel enforcement regimes, and (vii) any benefits to private sector customers that accrue from cartel members setting lower prices in jurisdictions with active cartel enforcement regimes.

302. In the context of the international vitamins cartel, the findings in Clarke and Evenett (2003) enable a direct comparison of cost (i) and benefit (vii) for a number of developing and industrial countries, and their focus should not be taken to mean that these authors regard the other costs or benefits as unimportant. Thus, the reduction in overcharges on vitamins imports associated with stronger cartel enforcement efforts is a benefit is compared to the cost of implementing national competition policies. Table III.T8 presents estimates, for three Latin

⁷¹ Critical to this empirical analysis is the assumption—backed up by industry evidence—that the demand for vitamins is price-inelastic.

⁷² No doubt differences in the size of the economies in India and the EU account for much of the difference in the amount of overcharges.

American economies and 10 members of the European Union, of the additional overcharges on vitamins imports that these nations would have paid if they did not have a cartel law or an active cartel enforcement regime. These additional overcharges are compared in this table to the fiscal "saving" that would have resulted from shutting down each nation's entire competition enforcement apparatus. As reported in the fifth column of table III.T8, the additional overcharges from this single cartel are equivalent to seven, 46, and 66 percent of the public outlays on Peru's, Mexico's, and Brazil's competition authorities.⁷³ In the 10 European Union members mentioned in table III.T8 the comparable percentage was 96, implying that the reduction in overcharges on one international cartel alone almost covered the entire cost of these ten economies' national competition authorities and the Brussels-based enforcer of competition law.

303. Findings such as those above imply that just one of the four benefits of active cartel enforcement (benefit (vii) listed above) may be of a sufficient order of magnitude to justify the public outlays on cartel enforcement and supports the view that there are likely to be sizeable benefits from implementing multilateral provisions on hardcore cartels.⁷⁴ Moreover, to the extent that the proposed multilateral provisions on voluntary co-operation further strengthen the ability of competition agencies to successfully conduct investigations into hardcore cartels, then this will increase the deterrents to cartelization—the values of which are central to the cost-benefit calculations reported above.⁷⁵

304. In fact, the evidence points to the possibility that the benefits to developing countries of effective measures to tackle international hardcore cartels could *exceed* the welfare gains from liberalizing certain impediments to market access in the context of the Doha Round. For example, in the September 2002 edition of the IMF's *World Economic Outlook* it is estimated that the increase in the welfare of developing countries that would result from measures to liberalize the agricultural policies of industrialized economies would be approximately US\$8 billion per annum.⁷⁶ Undoubtedly, this constitutes a sizeable potential benefit for developing economies. However, it might also be borne in mind that in 2002 developing countries imported merchandise worth US\$1.704 trillion. In fact, in order for disciplines on hardcore cartels and on voluntary cooperation to yield a US\$8 billion reduction in overcharges to developing countries—that is, a benefit to developing countries of the same scale as the IMF estimate of the welfare gain to them from liberalizing industrial countries' agricultural

⁷³ The US\$10.963m figure reported in Table III.T8 is the annual budget of the three government agencies in Brazil that play some role in enforcing its competition laws; namely, the Secretariat for Economic Monitoring (SEAE), the Secretariat for Economic Law (SDE), and the Administrative Council for Economic Defense (CADE). The source of this figure is Brazil Ministry of Finance (2002).

⁷⁴ It should also be added that to the extent that private firms respond to stronger cartel enforcement measures by adopting price-raising but not cartel-like practices—such as collusion and price leadership—then this may detract from the benefits of properly implementing national cartel laws. This concern is of especial importance if the new practice is less easy to deter or prosecute under national competition law.

⁷⁵ The reader may have noticed that the calculations reported here are stacked against finding net benefits to cartel enforcement. For starters, one of the benefits of such enforcement (reduced overcharges) is compared to the government outlays on the *entire* competition authority. Such authorities tend to engage in a number of other activities (including merger review and examining vertical restraints) that involve resources and add to the public outlays on competition enforcement. On the other hand, to the extent that competition enforcement agencies in developing countries are *currently* under-funded, then the calculations discussed in the text may overstate the net benefits to cartel enforcement. Having said that, the sizeable magnitudes of the deterrent effects reported in Table III.T8 suggest that there is ample room to expand government outlays on competition enforcement before the subsequent outlays exceed the likely benefits of active cartel enforcement.

⁷⁶ For comparative purposes, Chadha *et al* (2000) estimate the gains for developing countries resulting from a 33 % overall reduction of agricultural tariffs to be \$ 5.7 billion annually.

policies—international hardcore cartels controlling as little as 1.8 to 3.1 percent of developing countries' imports would have to be deterred or stopped by the implementation of such new disciplines.⁷⁷ It is worth pointing out, in this regard, that 1.8 to 3.1 per cent of total developing countries' merchandise imports in 2002 amounts to US \$ 28-48 billion of imports – a range that is much less than the \$ 81.1 billion of developing countries' imports that Levenstein and Suslow estimated might have been affected by international cartels prosecuted in the 1990s. Those inclined to believe that the imports of developing countries are especially susceptible to international hardcore cartels and that multilateral disciplines on competition policies will go a long way to deterring these cartels might, on the basis of the calculations above, come to the conclusion that such disciplines offer greater benefits to developing countries than certain prominent market access reforms.

F. SUMMARY

305. Readers of this section may have noticed that almost all of the bibliographic references relate to materials that have become available in the last five years. This underlines the fact that the evidentiary record on the prevalence of anti-competitive practices affecting commerce in developing countries has grown considerably in recent years.

306. The economic analyses of the harm done by anti-competitive practices, such as private international cartels, are becoming more sophisticated over time. In one such analysis, the overcharges on cartelized vitamins imports was found to be much higher in Asian, Latin American, and Western European jurisdictions that do not have vigorous cartel enforcement regimes. This finding highlights one of the important benefits of cartel enforcement; namely providing incentives to those cartels (that do have the audacity to form) to limit the amount they overcharge customers in a given jurisdiction.⁷⁸

307. When quantitative estimates of these benefits were compared to the costs of running the agency responsible for enforcing competition laws, considerable returns were found to investments in cartel enforcement activities. It remains to be seen whether other studies will bear out these conclusions. To the extent that they do, such research will further reinforce the case for adopting and enforcing national cartel laws *and* the associated measures that underpin the effective enforcement of national competition laws in general—both of which can be found in current proposals for a multilateral framework on competition policy. The return on these investments in national cartel enforcement can be further enhanced by capacity building and technical assistance measures.

⁷⁷ These calculations assume that the price increase with international cartelization is between 20 and 40 percent, consistent with the findings of Levenstein and Suslow (2001).

⁷⁸ Of course, one of the other benefits of having a vigorous cartel enforcement regime is that it deters the formation of cartels in the first place.

**Table III.T7: Estimated overcharges from the vitamins cartel, 1990-1999, in year 2000
US dollars; by importer**

Importing economy	Millions of US dollars			Importing economy	Millions of US dollars		
	Overcharges paid on vitamins imports during the conspiracy	Total value of imports during years when importer did not have a cartel law	Total value of imports during years when importer did have a cartel law		Overcharges paid on vitamins imports during the conspiracy	Total value of imports during years when importer did not have a cartel law	Total value of imports during years when importer did have a cartel law
<i>Economies with evidence of cartel prosecutions in OECD documents</i>				<i>Economies with no evidence of cartel prosecutions in OECD documents</i>			
Brazil	183.37	0.00	665.19	(continued)			
Australia	154.70	0.00	333.63	Guatemala	10.41	30.05	0.00
Italy	153.78	0.00	1040.09	Nigeria	7.00	20.14	0.00
Mexico	151.98	111.33	411.38	Bangladesh	6.42	22.26	0.00
UK	147.64	0.00	998.57	Syria	5.79	20.08	0.00
Denmark	138.49	0.00	936.62	Paraguay	4.57	13.18	0.00
South Africa	99.93	173.56	39.57	Tunisia	4.45	12.80	0.00
Spain	91.89	0.00	621.47	Vietnam	4.38	15.19	0.00
China	77.61	72.35	56.73	Costa Rica	3.82	11.03	0.00
Austria	44.22	88.34	94.16	Bolivia	3.45	9.97	0.00
Chile	38.43	0.00	139.41	Zimbabwe	3.41	9.80	0.00
Poland	31.50	0.00	213.07	Lebanon	3.11	10.77	0.00
New Zealand	29.26	0.00	63.11	Dominican Republic	3.07	8.86	0.00
Hungary	24.71	48.73	54.11	El Salvador	2.70	7.80	0.00
Sweden	23.47	36.10	75.03	Jordan	2.54	8.82	0.00
Norway	19.27	34.85	49.47	Jamaica	2.11	6.09	0.00
Romania	18.99	48.36	16.29	Kenya	1.79	5.16	0.00
Peru	18.91	3.32	64.43	Ghana	1.32	3.81	0.00
Ireland	17.76	0.00	120.10	Nepal	1.21	4.21	0.00
Finland	16.44	28.06	46.08	Nicaragua	1.20	3.46	0.00
Greece	13.73	0.00	92.83	Cote D'Ivoire	0.88	2.53	0.00
Portugal	12.77	0.00	86.39	Senegal	0.82	2.36	0.00
Bulgaria	5.04	2.87	27.47	Trinidad Tobago	0.81	2.33	0.00
Zambia	0.06	0.14	0.01	Panama	0.68	1.96	0.00
				Madagascar	0.60	1.73	0.00
<i>Economies with no evidence of cartel prosecutions in OECD documents</i>				Ethiopia	0.59	1.69	0.00
Singapore	245.22	849.93	0.00	Yemen	0.58	2.02	0.00
HK_C	178.48	618.61	0.00	Mali	0.49	1.41	0.00
Turkey	82.89	287.31	0.00	Mauritius	0.46	1.33	0.00
Thailand	78.45	271.91	0.00	Cameroon	0.39	1.12	0.00
Argentina	73.83	213.08	0.00	Cambodia	0.28	0.98	0.00
Colombia	54.95	158.60	0.00	Benin	0.22	0.63	0.00
Indonesia	48.72	168.85	0.00	Togo	0.19	0.53	0.00
Venezuela	45.32	130.81	0.00	Tanzania	0.16	0.46	0.00
Iran	44.25	153.35	0.00	Haiti	0.11	0.33	0.00
Egypt	38.49	110.66	0.00	Angola	0.11	0.33	0.00
Pakistan	36.82	127.62	0.00	Gabon	0.09	0.27	0.00
Israel	32.30	111.97	0.00	Niger	0.07	0.19	0.00
Philippines	29.58	102.53	0.00	Congo	0.06	0.19	0.00
Honduras	25.87	74.65	0.00	Burkina Faso	0.06	0.17	0.00
India	25.71	89.12	0.00	Malawi	0.05	0.13	0.00
Malaysia	22.94	79.50	0.00	Rwanda	0.04	0.12	0.00
Ecuador	14.82	42.78	0.00	Uganda	0.03	0.10	0.00
Saudi Arabia	13.11	45.43	0.00	Guinea	0.03	0.09	0.00
Morocco	12.44	35.77	0.00	Laos	0.03	0.10	0.00
Algeria	11.09	31.88	0.00	Chad	0.01	0.04	0.00
				Mozambique	0.00	0.01	0.00

Notes:

1. Total value of overcharges for imports into these 90 economies is 2709.87 million US dollars.
2. This table does not include overcharges for Papua New Guinea or for Korea.

Table III.T8: Estimating the average savings-per-dollar spent on competition enforcement

Economy	Additional overcharges in the absence of a cartel law (millions of US dollars)		Annual cost of competition authority (1999-2000)	Savings on each dollar spent: ratio of last two columns	Overcharges actually paid (millions of US dollars)
	Total throughout the conspiracy	Annual average during 1990-9			
Austria	27.96	2.80			44.22
Brazil	72.09	7.21	10.96	0.658	183.37
Chile	15.11	1.51			38.43
Denmark	278.11	27.81	8.70	3.20	138.49
Finland	13.68	1.37	3.40	0.40	16.44
Greece	27.56	2.76			13.73
Ireland	35.66	3.57	1.60	2.23	17.76
Italy	308.83	30.88			153.78
Mexico	44.59	4.46	9.70	0.46	151.98
Norway	14.69	1.47	7.70	0.19	19.27
Peru	6.98	0.70	10.05	0.07	18.91
Portugal	25.65	2.57			12.77
Spain	184.53	18.45			91.89
Sweden	22.28	2.23	7.30	0.31	23.47
UK	296.51	29.65	46.60	0.64	147.64
<i>Memorandum:</i>					
Sum of entries for EU members above	1220.78	122.08	127.50	0.96	660.19

Note:
The cost of the European Commission's competition enforcement authority was added to the line "EU members above."

Box III.B3: The Lysine Cartel, 1992-1995

Five producers, Ajinomoto and Kyowa Hakko (both from Japan), Sewon/Miwon and Cheil Sugar (both from Korea), and Archer Daniels Midland (an American firm) participated in the lysine cartel between 1992 and 1995. Together these firms controlled 97 percent of global capacity during three years (Connor 2001, page 176). These cartel members engaged in price-fixing, allocation of sales quotas, and the monitoring of volume agreements. At the peak of the cartel's effectiveness in 1994, the price of lysine reached about \$1.20 per pound, which was approximately \$0.50 above the competitive price level in the long-run (Connor 2001).

Estimates of the overcharges to US customers during the conspiracy period vary and are as high as \$141 million (Connor 2001, page 264). Although no formal analysis of overcharges outside the United States is available, the lower prices observed in Asia suggest that overcharges in the rest of the world may be lower than those in the United States. According to Connor, a reasonable projection of the global overcharge by the lysine cartel would be in the range of \$200-\$250 million (Connor 2001, Table 8.A.4).

It is estimated that the lysine industry produced at least 20 percent less in 1994 than it would have made had there been perfect competition (Connor 2001, page 247). Moreover, the advent of the cartel had the effect of freezing the relative positions of the leading firms in the market, in contrast to the very fluid situation prior to the conspiracy. After the cartel broke up in late 1995, some notable changes in global production shares were observed. In particular, production shares of Sewon and Cheil, the Korean cartel members, increased from 15 percent to 18 percent and from 7 percent to 12 percent respectively, at the expense of other companies (Connor 2001, table 8.A.3).

As to the cartel's effects on developing country producers, clearly the two Korean members benefited from higher sale prices generated by the cartel. On the other hand, potential competitors from developing economies were adversely affected by the aggressive means used to preserve the market allocation agreements by the dominant firms.

Although there were some individual instances of extra-cartel entry by relatively small producers during the 1990s (mainly from Hungary, Slovakia, and South Africa), most of the new entrants began production only after the lysine cartel had broken up in 1995. China seems to be the fastest growing location for new ventures in lysine manufacturing. Several joint ventures began operating in China as early as 1993, and by 2000, the productive capacity of these Chinese operations was estimated at about 13% of world capacity (Connor 2001, figure 7.A.3).

APPENDICES

Appendix I.A: The role of government policy in competitive Japanese industries

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Automobiles	<p>1. GM and Ford were prohibited from car assembly in Japan, and imports were banned in 1936.</p> <p>2. Import quotas were abolished in 1963.</p> <p>3. Tariffs were set to protect small domestic cars. Tariff rates were gradually reduced and abolished in 1978.</p> <p>4. Liberalization of inward FDI began in 1971.</p>	<p>1. MITI sought to standardize products in 1955 to exploit economies of scale and in 1961 to reduce the number of competitors (forming three product groups of product category, of two to three firms each). This effort failed.</p> <p>2. Japan Development Bank loans were provided to promote mergers (1966-71). Little consolidation occurred.</p> <p>3. Voluntary export restraints since 1981.</p>	<p>1. Japan Development Bank loans for capital equipment (1954-71).</p> <p>2. Accelerated depreciation (beginning in 1951).</p> <p>3. Tariff exemption for production equipment.</p>	<p>1. R&D subsidies to the industry association (1951-59).</p> <p>2. R&D consortia beginning in 1971 on various issues (emission control, electric car, automated control system, combustion system)</p> <p>3. Subsidies for the electric car were paid back to the government, indicating the success of the project.</p>	<p>1. Auto suppliers were designated as one of the targeted industries under the Temporary Law for Machinery Industry (1956-70). About 500 companies received favourable loans of a total of \$100 million over 15 years, as well as incentives such as accelerated depreciation.</p> <p>2. Between 1960 and 1965, firms that received favourable loans achieved 4% higher growth rate than non-receiving firms, but the stronger firms might have been the ones to receive support. (Cole and Yakushiji 1984, page 87)</p>	<p>1. Commodity tax favoured small cars in the 1950s, which was disadvantageous for imported large cars. Tax rates were gradually reduced from 1962 and abolished in 1989.</p>
Cameras	None	<p>1. Recession cartel to limit production volume in 1965 lasted nine months. Firms directed their efforts to exports.</p>	None	<p>1. R&D consortia on optical technology members include all the major companies in optical technology including small companies (1962-81). Total budget ¥1.66 billion (\$8 million by \$1 = 220 yen)</p>	None	None

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Car audio	None	None	None	None	1. Support provided to the semiconductor industry.	None
Carbon fibres	None	None	None	1. Dr. Shindo at the Osaka Industrial Technology testing discovered the world's first PAN-based carbon fibre in 1961.	None	None
Continuous synthetic weaves	None	1. Attempt to scrap-and-build capacity in the mid-1980s led to expansion since the newer looms generally were of higher capacity than old looms.	None	None	1. Synthetic fibre (1949) – tax incentive and favourable loan. 2. Attempt to reorganize and reduce capacity in the synthetic textile industry: recession cartels (1975, 1978-79, 1981).	1. Government procurement of synthetic fibres (1953) – effect unknown.

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Facsimile machines	None	None	1. Low-interest loan to reduce protection costs and to shorten transmission time (existed at least in 1979).	<p>1. MPT accelerated the standardization of facsimiles in the early 1970s – ensured that all facsimiles were based on the same technology.</p> <p>2. NTT began issuing "type approvals" blanket approvals for facsimile machine models that met NTT standards in 1976 – stimulated demand.</p> <p>3. NTT lab conducted research on technology that directly transmitted thick documents using a technology called "Book Facsimile technology" in the early 1980s. NTT also lab developed an ultra-high speed facsimile that transmitted a page in three seconds – assisted existing manufacturers in helping build a stronger technological foundation.</p>	1. Support to the semiconductor industry.	<p>1. NTT allowed full facsimile transmission over the public telephone system using dedicated lines in 1973 and over regular phone lines in 1974.</p> <p>2. NTT advertised and marketed facsimile machines in the 1970s.</p> <p>3. MITI reduced the depreciable life for facsimiles from ten to five years in 1977. This stimulated the purchases of newer, higher priced, higher value-added machines.</p> <p>4. Patent Office approved applications by facsimile as legal documents in 1985. This gave credibility to the facsimile's existence as a valid communications method in Japan.</p>

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Fork lift trucks	1. Import barriers were completely lifted in 1964-65, spurring improvement by Japanese competitors.	None	1. Small loans were made to a few manufacturers in 1954 to upgrade quality. 2. Some low-interest loan were made available to smaller lift truck companies in 1964, enabling the company to improve the confidence of its banks, and loans from banks became easier.	None	None	None
Home air conditioners	None	None	None	None	None	1. The Energy Conservation Law of 1979 led to efforts to reduce energy usage. Led to the invention of the rotary compressor.
Home audio equipment	None	None	None	None	1. Support to the semiconductor industry	None
Microwave and satellite communications equipment	1. No official entry restriction, but "NTT family" companies (NEC, Mitsubishi, Oki, and Hitachi) received favourable treatment.	None	None	1. NTT developed microwave systems jointly with NEC, Mitubishi, Oki, and Hitachi. 2. NTT Telecommunications Laboratories conducted basic research on microwave and satellite communication technology.	None	1. Government was a major buyer for microwave equipment: NTT (government owned until 1985) accounted for over 50% of sales. Other major buyers were government agencies. Though purchases were conducted through international open tender, it became a mere formality since NTT knew the technological capability of each manufacturer. 3. Government agencies or government related organizations were major buyers for domestic and regional satellite communication.
Musical instruments	None	None	None	None	None	1. Government stimulated early demand for instruments through musical programs in elementary schools.

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Robotics	None	None	<p>1. Low interest loans made available for robot manufacturers in the 1970s. Few companies availed themselves of these loans because the interest rate differential was small and companies had adequate resources.</p>	<p>1. Government sponsored research-at a level far below that undertaken by the companies themselves.</p> <p>2. R&D consortia on the development of special-purpose robots for use in space, under water, and in nuclear power plants (1983-1991). Total government contribution of ¥20 billion (\$16 million)</p>	None	<p>1. Establishment of a leasing system and of Japan Robot Leasing Co. designed to popularise industrial robots among small and medium sized enterprises in 1980.</p> <p>2. Special finance to small and medium enterprises for introducing industrial robots designed to insure worker safety in 1980.</p> <p>3. Establishment of a special system for high performance industrial robots provided with computers in 1980.</p> <p>4. Application of loans and leasing programmes to industrial robots by local governments to help minor enterprises in modernising their equipment in 1980.</p> <p>5. Establishment of a tax system for promoting investment in advanced equipment provided with electronics for smaller enterprises in 1984.</p> <p>6. It was believed that these measures were not very important in the growth of the industry.</p>

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Semi-conductors	<p>1. Successfully delayed the entry of Texas Instruments into Japan. By agreement reached in 1968, MITI did not allow the establishment of 100% subsidiary (50-50 JV with Sony, later became a 100% subsidiary).</p> <p>2. Liberalization of import and foreign investment in December 1974, which was later than other industries.</p>	None	<p>1. Japan Development Bank provided low-interest loans for capital investment from 1966. Amounted to only ¥6 billion (\$14 million) in 10 years.</p> <p>2. Accelerated depreciation of production equipment from 1960s.</p>	<p>1. MITI electronic research lab produced the first domestic IC in 1956.</p> <p>2. 50% subsidy for LSI development: 1973-74, ¥3.5 billion (\$9.7 million)</p> <p>3. VLSI project (1976–86) ¥130 billion – 22% that was financed by the government led to advancement in the manufacturing technology.</p> <p>4. Intellectual property rights for the design of LSI strengthened in 1985.</p> <p>5. The number of college graduates with electronics engineering degree was 1.8 times higher than that in the US in the 1970s.</p>	<p>1. Semiconductor manufacturing equipment suppliers benefited from the VLSI project (though not official members).</p>	<p>1. Establishment of the computer leasing company (JECC) in 1961 – Japan Development Bank loan for the purchase of computer – JECC accounted for 30-70% of the domestic computer demand until 1980s.</p> <p>2. Series of computer joint development projects since 1962.</p>

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Sewing machines	1. Little or no allocation of foreign exchange for the import of light machinery in the early postwar period. Sheltered the domestic industry.	1. Price controls: fixed the manufacturer's selling price and the resale price of the standardized model, HA-I, at the low level from 1946 to 1951. Helped stimulate demand forced manufacturers to cut costs.	1. Temporarily set the exchange rate at 415 yen to the dollar in 1948, versus 170 yen to the dollar previously, to provide incentives for manufacturers to allocate production for export to sewing machines.	1. The Sewing Machine Technology Council, under the guidance of MITI, set uniform standards for sewing machines and components and created the first standardized model, the HA-I, with 130 components in 1947. Allowed the entry of numerous small and medium sized subcontractors into the industry, reducing costs. 2. Voluntary inspection councils judged products on a number of dimensions in 1947. This stimulated product quality improvement and upgrades.	(See technology)	1. Mandatory sewing classes for girls at public elementary and junior high schools, Ministry of Education provided subsidies toward sewing machine purchases – helped stimulate demand. 2. MITI designated four companies to manufacture 800 household sewing machines for export, and MITI served as a trading company in 1947 – stimulated exports and opened the industry to international competition early on. 3. Elimination of cumbersome paper work and government approval procedures for export in 1948 –drove exports further. 4. Termination of the export quality inspection system in 1960 – government involvement came to an end.
Soy sauce	None	None	None	None	None	1. Establishment of product standards in 1953 to ensure consistency of product quality.
Tires for trucks and busses	None	1. Recession cartel in 1965. Restriction of production volume/allocation of market share. 2. Government "guidance" encouraged reduction in the number of varieties from 167 to 58. Encouraged revision of the production system in 1965.	None	None	None	None

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Trucks	<p>1. Restriction on the number of trucks produced by foreign makers in Japan in 1936.</p> <p>2. Tariff increase in 1936.</p> <p>3. Required permits for production: only Toyota, Nissan, and Isuzu received permits in 1936. this policy encouraged industry consolidation during the pre-war period.</p> <p>4. Import prohibition was lifted in 1961. Few imports occurred because of the low domestic price and different local needs (small trucks).</p>	None	<p>1. Prioritized allocation of materials, capital and labour, special loans in the immediate post-war years helped the development of the industry.</p> <p>2. Low interest rate loans, a reduction or exemption from taxes, special depreciation rules, reduction or exemption of taxes related to importing of equipment from 1951. Loans only accounted for a small percent of total investment.</p>	None	<p>1. Low interest rate loans to parts manufacturers from 1956 – accounted for 30% of total equipment investment.</p>	None
Typewriters	None	None	None	None	Support to the semiconductor industry.	None
VCRs	None	None	None	<p>1. MITI provided R&D subsidy in 1958. Sony and NHK copied Ampex's (US) VCR, learning the technology.</p> <p>2. Government attempted through guidance to build an industry consensus around the beta standard. The effort failed.</p>	Support to the semiconductor industry.	None

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Video games	None	None	None	None	Support to the semiconductor industry	None

Source: Porter *et al.* (2000)

Appendix I.B: The role of government policy in uncompetitive Japanese industries

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Apparel	None	None	None	1. R&D consortia on the automated sewing system (1983-91).	1. Support to synthetic fibre industries.	1. Large-Scale Retail Store Act limited the development of alternative channels, encouraging strong relationship between apparel makers and department stores.
Chemicals	1. Government owned plants to provide raw material for the chemical fertilizer industry dating back to the 1870s. 2. Petrochemicals: entry approved (1956-72). Though virtually all the applications were ultimately approved, this policy hindered competition. Even though a minimum scale was set for approval, many plants did not achieve economies of scale.	1. Chemical fertilizers price control (1946-89) and supply control (1946-89). Delayed the chemical sector's shift to petrochemicals. 2. Petrochemicals – approval of capacity expansion, promotion of joint investment (1956-87). 3. Recession cartels for petrochemicals (1972, 1982), synthetic resin (1959, 1966, 1972, 1977, 1982), and fibre (1975, 1978-79, 1981). 4. Excess capacity scrap by petrochemicals (1978-88), synthetic fibre and chemical fertilizers (1978) through cartel formation, with favourable loans and tax incentives. 5. Promotion of mergers, joint production, and sales.	1. Prioritized foreign exchange allocation to the chemical fertilizer industry in 1946. 2. Chemical fertilizers: aid for production facilities, low-interest loans, preferred allocation of raw materials for the introduction of new production facilities since 1954. 3. These policies delayed the chemical sector's shift to petrochemicals. 4. Synthetic resin and fibre (1949), petrochemicals: tax incentive and favourable loans. 5. Petrochemicals: low-interest loans, accelerated depreciation, approval of the import of technologies, allocation of foreign exchange, and tariff exemption for the import of equipment were provided for the government-approved investment plans since 1956.	1. Approval to import foreign technology through foreign exchange allocation (1949-1972). 2. Process patents prior to 1975. This discouraged new product development. 3. Cooperative R&D to reduce energy, reduce raw materials costs, and develop new products since 1967. 4. Favourable loans for new technology commercialization (1951-).	1. Support to the Iran-Japan Petrochemical project (1973-mid-1980s) – discontinued after the Iran-Iraq war. 2. Petroleum industry: approvals for entry, production, capacity expansion, allocation of crude oil throughput to each company (1934-192) – petroleum industry remained uncompetitive. 3. Insufficient number of college graduates with chemical degrees. 4. Weak research in chemicals – limited new product development.	1. Government procurement of synthetic fibres (1953) – effect unknown. 2. Formation of joint sales companies for polyvinyl chloride (four companies from 1982) – MITI's intention was to induce industry consolidation and promote competition between joint sales companies, but in effect the policy worked to establish a joint monopoly.

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Chemicals continued		6. All these practices nurtured the cartel nature of the industry, let the weakest players survive, removed upgrading pressure, delayed product innovation, and reduced rivalry, resulting in few strategy differences among companies.				
Civil aircraft	1. Licensing requirements for manufacturers and repairers. Though virtually all the companies that had planned to enter did enter, this practice fostered the cartel nature of the industry.	1. All aircraft and engine development projects since 1953 are collaborative with predetermined work allocation. No rivalry developed-	None	1. Limited support for basic research facilities and university research.	1. Small military demand.	1. Military procurement since 1930, restarted in 1956 – helped the development of the industry, but limited supply of pilots (compared with US and European countries) as a springboard to develop commercial aircraft. Domestic development of the military aircraft largely ceased by 1977. 2. Prohibition of exports of military aircraft I 1967. Firms could only serve domestic markets. 3. Heavily regulated airline industry and stunted domestic demand because of the policy choice to promote public ground transportation and the limited capacity at major airports and commuter airports – limited demand for commuter airlines.

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Chocolate	1. Imported quota abolished in 1974. 2. 35% tariff since 1974 – reduced to 20% in 1983 and to 10% in 1988.	None	1. Export promotion: subsidy (1939-1949) and tariff relief on primary ingredients in the 1930s. Limited success in promoting exports.	None	1. Promotion of the establishment of sugar and cacao plantations in [former] Japanese colonies in 1939. 2. Abolition of import tariffs on cacao beans in 1929. Helped the development of the industry, but did not continue because of WWII. 3. Restriction of imports of cacao beans in 1937; imports prohibited in 1941. 4. Import quotas on cocoa in the 1950s. Abolished in 1960. 5. Import quotas and domestic subsidies on sugar and milk since 1961. 35% tariff on sugar and milk since 1974. Made essential chocolate ingredients more expensive, Japanese companies were driven to develop a chocolate substitute.	1. Lax regulation of the percentage requirements of cocoa and cocoa butter in grades of chocolate. Indirectly sanctioned the domestic productions of inferior quality products.
Detergents	1. Restriction of inward FDI until 1970. Delayed foreign entry.	1. Abolition of the Resale Price Maintenance System in 1973. Invited price reduction, made the industry even less profitable.	None	1. Process patent (not product patent) on chemicals prior to 1975 discouraged new product development.	1. Support of the petro-chemical industry.	None

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Securities	1. Registration system from 1948 to 1965. 2. Licensing system by the line of business since 1965. 3. Branch office licenses were not granted to foreign firms until 1971. 4. Tokyo Stock Exchange membership was not granted to foreign firms until 1986. 5. These policies all effectively worked as entry barriers and suppressed competition.	1. Allocation of corporate bond underwriting shares since 1951. 2. Allocation of government bond underwriting shares (1965-77). 3. Approval or guidance for setting up new branches, mergers, entry to new businesses since 1965. 4. Fixed commission for brokerage and underwriting until the mid-1980s. 5. Fixed pricing scheme for bond issues. 6. Division of work between banks and securities firms since 1948. 7. All of these policies allowed the weakest player to survive, and discourages innovation. 8. Encouraged the sales-driven nature of the business and contributed to stock price manipulation.	1. Emergency loans during the 1964 securities panic and the stock market crash in the 1990s – allowed the weakest player to survive, though Yamaichi eventually went bankrupt.	None	None	1. Securities purchase during the 1964 securities panic – effectively weathered the market downturn. 2. Lenient disclosure requirements and complicated rules for take-over bids – discourages M&A and related businesses. 3. Restrictions on overseas issuance of debt securities by Japanese firms until 1973 – discouraged overseas business.

Policies towards...	Entry	Rivalry	Operating subsidies	Technology	Suppliers	Demand
Examples of such policies...	Importing controls; foreign entry restrictions; entry restrictions	Subsidies; low-interest loans; tax incentives	R&D support; standards setting	R&D support; standards setting	Interventions in supplier industries	Government procurement; influence on demand
Software	1. MITI represented computer makers in negotiating with IBM for licensing agreements in return for allowing IBM production in Japan in 1960. Government approval requirements delayed IBM's full-fledged entry to the Japanese market.	None	1. Loan guarantees by IPA to computer service company. 2. Tax incentives for software companies to promote after-sales maintenance, packaged software development (1979), and system integrators. Effects hard to quantify, but apparently did not yield visible results.	1. R&D subsidy. 2. R&D consortia since 1962. 3. Formation of three groups to develop new computers in 1971, 50% subsidy provided. Contributed to the establishment of computer businesses and software business to some extent, but market forces (that is, US dominance in software) are far stronger than what Japanese companies can do to obtain <i>de facto</i> standards.	1. Training centre for programmers, SEs. 2. Qualification exam for programmers. 3. Lagged in software research and education at the university level. Shortage of programmers and software engineers, low productivity. 4. The Law for Labour-Dispatching Business in 1986 discouraged the practice of dispatching software development. This contributed to correct the "body shop" nature of the industry.	1. Establishment of a government-sponsored computer leasing company, low-interest loan provided – contributed to increase the installed base of computers. 2. Prohibition of on-line data transmission until 1972, data exchange via computer until 1982 – regulation lasted longer than the US (allowed the connection of computers in 1968, total deregulation of data communication in 1980), discouraged on-line Data processing and the development of computer networking. 3. Promotion of general-purpose software development and sales through IPA in 1979 – did not play a major role. 4. Copyright law to protect software in 1986 – discouraged illegal software copying. 5. Promotion of computer education at junior and senior high school level in 1993 – came much later than the US.

Source: Porter *et al.* (2000)

Appendix II.A: Contributions to the Working Group relevant to core principles, including transparency, non-discrimination, and procedural fairness

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REFERENCE	MATTERS DISCUSSED
W/26	Hong Kong, China	page 1	non-discriminatory trade liberalization tends to enhance microeconomic "technical efficiency"
W/42	Canada	page 2	importance of non-discrimination; transparency; and procedural fairness
W/45	European Community	pages 4-6	the principles of transparency and non-discriminatory treatment of foreign and domestic firms are common to both competition law and the multilateral trading system
W/57	Canada	<i>passim</i>	application of the principle of national treatment to competition law
W/89	Switzerland	pages 2 <i>et seq.</i>	preliminary elements concerning the relevance of the principles of national treatment and transparency
W/100	Brazil	pages 3 <i>et seq.</i>	extension of WTO principles of transparency and national treatment to the antitrust sphere
W/115	European Community	pages 3 <i>et seq.</i> pages 8 <i>et seq.</i> pages 11 <i>et seq.</i>	key elements of competition law and policy and their relationship to transparency and non-discrimination the contribution of competition law towards ensuring non-discrimination and transparency in international trade Scope for developing within WTO core principles of Competition law and its enforcement
W/117	Switzerland	pages 2 <i>et seq.</i>	reference to the experience acquired in the area of TRIPS
W/119	Japan	page 3	importance of basic principles of "most-favoured-nation treatment", "national treatment", "transparency" and "competition-oriented principle"

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REFERENCE	MATTERS DISCUSSED
W/120	Japan	pages 1 <i>et seq.</i> pages 4-5	applicability of WTO Principles to Competition Policy in light of Japan's experience implications that the basic philosophy of competition policy has for the WTO principles
W/131	United States	page 1 <i>et seq.</i>	relationships of WTO principles to antitrust law enforcement and competition policy
W/149	India	page 1	importance of the principles of non-discrimination and transparency to the multilateral trading system
W/160	European Community	page 2	there is a need for the inclusion of the principle of non-discrimination in a WTO framework agreement on competition by way of a separate specific provision
W/165	Czech Republic	page 3	a WTO framework agreement should be based on the principles of non-discrimination and transparency
W/173	Canada and Costa Rica	page 1	the Canada-Costa Rica Free Trade Agreement contains commitment to the principles of transparency; non-discrimination; and procedural fairness
W/174	Canada	page 3	importance of a commitment to transparency and non-discrimination in a multilateral agreement on competition
W/175	European Community	page 3-4	how a number of developing country interests and concerns could be addressed in relation to certain core principles such as transparency and non-discrimination
W/209	Secretariat	Entire document	Role of core principles
W/210	New Zealand	Entire document	Role of core principles
W/211	Australia	Entire document	Role of core principles
W/212	Korea	Entire document	Role of core principles
W/213 Rev1	Thailand	Entire document	Role of core principles
W/214	Switzerland	Entire document	Role of core principles
W/215	India	Entire document	Role of core principles
W/216	India	Entire document	Role of core principles
W/217	Japan	Entire document	Role of core principles
W/218	United States	Entire document	Role of core principles
W/219	United States	Entire document	Role of core principles
W/220	South Africa	Entire document	Role of core principles

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REFERENCE	MATTERS DISCUSSED
W/221	OECD	Entire document	Role of core principles
W/222	EC and member States	Entire document	Role of core principles

SOURCE: WTO (2002a).

Appendix II.B: Contributions to the Working Group relevant to the treatment of hardcore cartels

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REF.	MATTERS DISCUSSED
W/17	UNCTAD	para. 12 (c)	techniques of cartel control
W/21	OECD	<i>passim</i>	OECD experiences with cartels
W/23	Poland	page 1	national institutions lacking means to deal with international cartels
W/28	Singapore	para. 11, 15 (b)	implications of exemptions for import and export cartels
W/42	Canada	page 3	implications of exemptions for export cartels
W/43	Turkey	pages 3, 4, 6	necessity of suppression of cartels
W/45	European Community	page 5	analysis of horizontal restraints
		page 8	problems of developing countries with international cartels
		page 9	priority for examination of hardcore cartels
W/48	United States	page 4	mentioning the OECD Recommendation on Cartels
W/51	Canada	page 19	international cartels as emerging problem for competition policy
W/56	Korea	page 2	implications of exemptions for export cartels
W/61	European Community	page 3	role of competition authorities in preventing cartels
W/62	European Community	pages 4 <i>et seq.</i>	analysis of cartel cases in European law
		pages 13 <i>et seq.</i>	proposals for WTO discussions on cartel issues
W/66	United States	<i>passim</i>	experiences with international cartels
W/70	Canada	pages 2-3	examples of enforcement action against cartels
W/71	Czech Republic	page 3	export cartels
W/72	Canada	page 5	focus of Canadian authorities on cartel cases
W/78	European Community	page 14	benefits of a WTO commitment on hardcore cartels
W/95	Kenya	para. 9 (e)	significance of cartels in the informal sector
W/100	Brazil	page 1	impact of cartels
		page 2	cooperation to prevent cartels
W/104	Hong Kong, China	para. 13	exemption of export cartels from competition law in some countries
W/108	Japan	page 2	competition policy as a tool for addressing hardcore cartels
		page 3	cooperation between national competition authorities

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REF.	MATTERS DISCUSSED
W/115	European Community	page 5 <i>et seq.</i>	implications of exemption of export cartels from national competition laws
W/116	United States	page 5	cooperation agreements and control of cartels
		page 7	reference to OECD Recommendation on Hardcore Cartels
W/117	Switzerland	para. 8 (and 16)	desirability of prohibition of hardcore cartels
		para. 12	publication of anti-cartel laws
W/118	Hong Kong, China	para. 9	implications of exemption of export cartels from national competition laws
W/119	Japan	pages 2, 4	importance of suppressing hardcore cartels
		page 4	exemption of export cartels
W/124	Korea	page 3	OECD Recommendation on Hardcore Cartels
W/126	Zimbabwe on behalf of the African Group	page 2	cartels as priority for developing countries in their approach to competition policy
W/130	European Community	page 4	need for provisions on hardcore cartels
W/133	Korea	para. 12	feasibility of common understanding on prohibition of hardcore cartels
W/134	Japan	page 1-2	cartels and development (including in domestic markets)
		pages 2-3	formerly authorized cartels in Japan
W/135	Japan	<i>passim</i>	impact of cartels on international trade
W/140	European Community	page 3	impact of international cartels on developing countries
		pages 6, 8-9	cooperation in cartel cases
		page 8	need for agreement of WTO Members on hardcore cartels
		pages 13 <i>et seq.</i>	cartel cases: examples
W/141	Hong Kong, China	para. 10 (a)	relevance of differing approaches to export and import cartels among WTO Members
W/143	Trinidad and Tobago	page 3	impact of international cartels on small open economies
W/145	Japan	page 4	anti-cartel legislation as priority for competition law enforcement
W/149	India	page 2	potential advantages of cartels as reflected in some countries' industrial policies
W/151	Switzerland	pages 2, 4	anti-cartel provisions necessary on a multilateral level

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REF.	MATTERS DISCUSSED
W/152	European Community	page 2	importance of anti-cartel law enforcement
W/154	Korea	pages 5, 7, 8	feasibility of a multilateral framework to address anti-competitive practices
		pages 11-12	cooperation and assistance in regard to cartels
		pages 2-3	cartels as problem for the international trading system
W/155	Canada	page 2	importance of national rules and international cooperation
W/156	Japan	page 4	OECD Recommendation on Hardcore Cartels
		page 6	common enforcement action as first step of cooperation
		para. 3 (b)	unique added value of multilateral agreement in area of export cartels
W/160	European Community	pages 4-5	examples of EC cartel cases as argument for international cooperation
W/161	Romania	page 7	cartel legislation as priority for developing countries and for a multilateral agreement
		pages 1-2	cartels as major topic for multilateral agreement
W/164	United States	page 2	anti-cartel law enforcement as priority of antitrust agencies
W/165	Czech Republic	pages 1, 4	anti-cartel legislation as a priority for a multilateral agreement
W/168	Japan	para. 2, 5 <i>et seq.</i>	cartels as a problem for trade and development; examples
W/173	Canada and Costa Rica	page 1	provisions addressing cartels/other matters in a bilateral free trade agreement
W/175	European Community	<i>passim</i>	effects of cartels, development dimension
W/176	Japan	para. 8 <i>et seq.</i>	adverse effects of cartels on development
W/177	Japan	<i>passim</i>	status of cartel exemptions in Japan
W/179	Trinidad and Tobago	page 2	enforcing anti-cartel legislation as a priority for small developing economies in area of competition policy
W/184	European Community	page 3	importance of universal ban on hardcore cartels
		page 5	exchange of information in cartel cases
		page 8	impact of cartels on developing countries

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REF.	MATTERS DISCUSSED
W/185	United States	<i>passim</i>	importance of anti-cartel provisions as component of national competition policy
W/188	Thailand	Entire document	Provisions on hardcore cartels
W/189	Korea	p. 6	Provisions on hardcore cartels (national experience)
W/191	Secretariat	Entire document	Provisions on hardcore cartels
W/193	EC and member States	Entire document	Provisions on hardcore cartels
W/194	Switzerland	Entire document	Provisions on hardcore cartels
W/196	Mexico	Entire document	Provisions on hardcore cartels
W/197	UNCTAD	Entire document	Provisions on hardcore cartels
W/200	Korea	Entire document	Provisions on hardcore cartels
W/201	Canada	Entire document	Provisions on hardcore cartels
W/203	United States	Entire document	Provisions on hardcore cartels
W/208	OECD	Entire document	Provisions on hardcore cartels

Source: WTO (2002b).

Appendix II.C: Contributions to the Working Group on the matter of international cooperation

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REF.	MATTERS DISCUSSED
W/48	United States	Whole document	Experience with cooperation especially at the bilateral level
W/116	United States	Whole document	Objectives of cooperation; approaches at bilateral, regional and multilateral levels
W/121	Japan	Pages 1 and 2	International cooperation
W/124	Korea	Whole document	Approaches to cooperation at bilateral, regional and multilateral levels
W/125	Australia	Page 1	Approaches to cooperation and communication among WTO Members
W/126	Zimbabwe on behalf of WTO African Group	Pages 2 and 3	Competition policy and development; role of international cooperation
W/129	European Community and its member States	Pages 9 to 13	Proposal for cooperation on competition policy in context of WTO
W/132	Romania	Pages 1 and 2	Objectives of cooperation and enforcement measures at national and international level
W/140	European Community and its member States	Pages 7 to 10	Key elements of a multilateral framework agreement, and perceived benefits for LDCs
W/143	Trinidad and Tobago	Pages 2 to 6	Role of cooperation at multilateral level; concerns of smaller countries
W/148	Australia	Pages 2 to 5	Australia's experience with cooperation agreements
W/151	Switzerland	Pages 2 to 6	Possible elements of cooperation at the multilateral level
W/152	European Community and its member States	Whole document	Multilateral negotiations; elements of possible future WTO agreement; types of cooperation
W/154	Korea	Page 2, para. 1	Effects of companies' anti-competitive behaviour and governmental measures; WTO as appropriate forum
W/155	Canada	Pages 3 to 7	Cooperation in a multilateral setting
W/156	Japan	Pages 2 to 5	Role of international cooperation; need for a multilateral agreement
W/160	European Community and its member States	Whole document	Elements of a WTO framework agreement
W/161	Romania	Paras. 3 and 5	Anti-competitive practices; progressivity and flexibility in a multilateral framework
W/162	Colombia	Whole document	Anti-competitive practices and cooperation in context of WTO

SYMBOL: (WT/WGTCP/-)	MEMBER/ OTHER SOURCE	PARAGRAPH/ PAGE REF.	MATTERS DISCUSSED
W/165	Czech Republic	Sections B and C	Objective of international cooperation; principles for a multilateral framework
W/167	Japan	Sections II, III and IV	International cooperation and WTO; relation to economic development
W/168	Japan	Whole paper	International cartels and WTO's role
W/169	Uruguay	Pages 3 to 5	Development dimension and S&D in a multilateral framework; importance of comparative law perspective
W/173	Canada and Costa Rica	Page 2, para. 3	Cooperation on competition policy in a bilateral trade agreement
W/174	Canada	Pages 2 to 5	Nature of cooperation at different levels
W/175	European Community and its member States	Whole paper	Elements and benefits of a WTO competition agreement
W/176	Japan	Pages 1 to 3	Impact of anti-competitive practices on developing countries
W/177	Japan	Page1, para. 1	Progressivity and flexibility in a multilateral framework
W/184	European Community and its member States	Whole paper, especially pages 2-5	Modalities for voluntary cooperation in a multilateral framework
W/189	Korea	<i>Passim</i>	International cooperation activities
W/192	Secretariat	Whole paper	Modalities for voluntary cooperation
W/195	Japan	Whole paper	Modalities for voluntary cooperation
W/199	Australia	Whole paper	Modalities for voluntary cooperation
W/202	Canada	Whole paper	Modalities for voluntary cooperation
W/204	United States	Whole paper	Modalities for voluntary cooperation
W/205	Thailand	Whole paper	Modalities for voluntary cooperation
W/207	OECD	Whole paper	Modalities for voluntary cooperation

Source: WTO (2002c).

Appendix II.D: Contributions to the Working Group on the matters relating to the progressive reinforcement of competition institutions in developing economies through capacity building

Symbol (WT/WGTCP/ -)	Member/Other source	Section/Paragraph/Page reference (where relevant)
W/17	UNCTAD	Pages 3 - 5
W/18	APEC	Page 4
W/67	United States	Paragraphs 7 and 9
W/116	United States	Section II.B
W/121	Japan	Section III
W/125	Australia	Page 2
W/126	Zimbabwe on behalf of the African Group	Sections III and IV
W/129	European Community and Member States	Sections I.C and II.E
W/130	European Community and Member States	Sections I.C(a) and II
W/137	Mauritius	Whole paper
W/138	Republic of South Africa	Paragraphs 4 and 6
W/139	New Zealand	Paragraphs 6-10 of APEC Principles to Enhance Competition and Regulatory Reform
W/140	European Community and Member States	Sections 2.1, 3.1, 3.2 and 3.3
W/142	United States	Whole paper
W/143	Trinidad and Tobago	Sections III, IV, VII and VIII
W/145	Japan	Section II.D
W/148	Australia	Sections I and IV
W/151	Switzerland	Section C
W/152	European Community and Member States	Pages 3, 4, 6, 7, 10 – 12
W/154	Korea	Paragraph 4(3)
W/155	Canada	Section IV:A
W/156	Japan	Paragraph 2(b)
W/158	Republic of Croatia	Paragraph 4
W/159	Australia	Paragraphs 11-14
W/160	European Community and Member States	Paragraph 4
W/161	Romania	Page 3
W/162	Colombia	Paragraph 4
W/164	United States	Whole paper
W/165	Czech Republic	Section B.5
W/167	Japan	Whole paper
W/175	European Community and Member States	Paragraph 1(c)
W/179	Trinidad and Tobago	Page 2

Source: WTO (2002d).

Appendix II.E: Framework agreements on cooperation on competition law enforcement and related matters with the European Commission or European Communities

Party	Framework
Argentina	Framework Agreement of 1990
Austria	European Economic Area Agreement (EEA) of 1993
Belarus	CIS Agreement of 1995
Brazil	Framework Agreement of 1995
Bulgaria	Europe Agreement of 1991
Canada	Bilateral Cooperation Agreements of 1999 and 2000
Central American republics	Framework Agreement of 1993
Chile	Framework Agreement of 1996
Cyprus	Free Trade Agreement
Estonia	Europe Agreement of 1995
Finland	European Economic Area Agreement (EEA) of 1993
Hungary	Europe Agreement of 1991
Iceland	European Economic Area Agreement (EEA) of 1993
Israel	Euro-Mediterranean Agreements of 1995
Jordan	Euro-Mediterranean Agreements of 1997
Kazakhstan	CIS Agreement of 1995
Kyrgyz Republic	CIS Agreement of 1995
Latvia	Europe Agreement of 1995
Liechtenstein	European Economic Area Agreement (EEA) of 1993
Lithuania	Europe Agreement of 1995
Member countries of ACP	Cotonou Agreement of 2000
Member countries of MERCOSUR	Framework Agreement of 1995
Member countries of the Andean Pact	Framework Agreement of 1993
Moldova	CIS Agreement of 1994
Morocco	Euro-Mediterranean Agreements of 1996
Norway	European Economic Area Agreement (EEA) of 1993
Palestinian Authority	Euro-Mediterranean Agreements of 1997

Party	Framework
Poland	Europe Agreement of 1991
Russia	CIS Agreement of 1994
Slovakia	Europe Agreement of 1995
Slovenia	Europe Agreement of 1995
Sweden	European Economic Area Agreement (EEA) of 1993
Tunisia	Euro-Mediterranean Agreements of 1996
Turkey	Free Trade Agreement of 1961 and 1995
Ukraine	CIS Agreement of 1994
United States	Bilateral Cooperation Agreements of 1991 and 1998

Source: UNCTAD, Experiences gained so far on international cooperation on competition policy issues and the mechanisms used, TD/B/COM.2/CLP/21, 19 April 2002

Appendix II.F: Documented number of cases notified by and to the European Commission during 1991 - 2001

Cases notified	Merger cases		Non-merger cases		Total	
	EC-US	US-EC	EC-US	US-EC	EC-US	US-EC
1991	3	9	2	3	5	12
1992	11	31	15	9	26	40
1993	20	20	24	20	44	40
1994	18	20	11	15	29	35
1995	31	18	11	17	42	35
1996	35	27	13	11	48	38
1997	30	20	12	16	42	36
1998	43	39	9	7	52	46
1999	59	39	11	10	70	49
2000	85	49	19	9	104	58
2001	71	25	13	12	84	37

Cases notified	6.1999-12.1999	1.2000-12.2000	1.2001-12.2001
EC – Canada	4	9	8
Canada – EC	3	10	10

Key : X-Y means notifications by X to Y.

Source: Annual Reports from the European Commission to the European Council and the European Parliament on the application of the Agreement between the European Communities and the Government of United States (and in the relevant years Canada) regarding the application of their competition laws.