

## U.S. – Japan Semiconductor Agreement Revisited

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### 1. Introduction

In June 1991, negotiators from two countries agreed to modify “The U.S.-Japan Semiconductor Agreement”, a well-known international instrument governing trade in semiconductors, and to extend its duration over the original expiration date of July 1991 until 1996.<sup>1</sup> There is a widespread impression that this Agreement is fraught with problems of international law, since, shortly after the signing the accord, the United States imposed sanctions against alleged Japanese violation of the Agreement, and measures taken by Japan under the Agreement were determined inconsistent with the General Agreement on Tariffs and Trade (GATT). A closer look reveals that these problems arose out of the following two elements of the Agreement: (i) an accompanying document of the Agreement contains a reference to the share of foreign semiconductors in the Japanese market where trade has been liberalized<sup>2</sup> and (ii) the Agreement attempts to prevent dumping by Japanese manufacturers in countries other than the United States (“third countries”) which are not parties to the accord.

Negotiators agreed in June on amendments relating to the above two elements and resolved international problems surrounding the Agreement. Specifically, it has now become clear that Japan does not guarantee the share of foreign semiconductors in the Japanese market,

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<sup>1</sup> Strictly speaking, the previous “Agreement” expired in July, 1991, and was superseded by the new “Agreement” which went into effect in August. These two agreements are both called in Japan the “Exchange of Notes between the Government of Japan and the Government of the United States concerning Trade in Semiconductor Products”. For the sake of convenience, this article treats these agreements as a single instrument which has been amended and extended.

Physics defines “semiconductor” as substance whose electric conduction increases at a higher temperature. More generally, it is used as a broader concept covering semiconductor devices (*e.g.*, transistors) which are made of such material, integrated circuits consisting of semiconductor devices, microprocessors placed on semiconductor chips which perform the functions of a central processing unit, or other semiconductor products. This article adopts the broader definition.

<sup>2</sup> Provisions relating to the market share can be found in a side letter which the two governments exchanged when they signed the Agreement. The Japanese side recognized the expectation held by the U.S. industry that the foreign-capital firms would be able to achieve a sales share over 20 per cent in 5 years and expressed welcome for its realization in the letter. *See* A. Wolff, M. Gadbow & J. Ragosta, Submission concerning : Identification of Japan’s Failure to Abide by the Semi-conductor Agreement as A Priority Practice and Japan as A Priority Country for Trade Liberalization under Section 301 of the Trade Act of 1974, as Amended 8 (Mar. 24, 1989).

and the provisions on monitoring of dumping in third countries have been deleted. However, this does not mean that the two elements no longer have a place in the new Agreement; a reference to the share of foreign semiconductors now exists in the main text of the accord (art. II, para.10) and dumping in third countries is dealt with in paragraphs 5 through 7 of article III.

Out of the two elements, the concept of preventing dumping in third countries has given the U.S.-Japan trade friction a unique dimension. The interests of the European Community and other third countries have been affected by the accord because of the concept, and the ensuing dispute led to an objective verdict in respect of the Agreement's consistency with GATT. Moreover, the issues surrounding this concept are illustrious, both legally and economically. This article attempts to evaluate policy implications of the Agreement and the issues it raised by analyzing the dispute over this concept.<sup>3</sup>

## 2. The Problem

### *A. A Summary of GATT Provisions Relating to Dumping*

Article VI of GATT provides that dumping is to be condemned when it entails injury to other contracting parties and authorizes imposition of antidumping duty on such dumping. The European Community, for example, may impose antidumping duty on importation of Japanese semiconductors if dumping causes material injury to the Community's industry. Imposition of antidumping duty against Japanese semiconductors is also lawful under certain conditions if such dumping injures the U.S. semiconductor industry which competes in the Community market (art. VI, para. 6 (b)).

### *B. History of Semiconductor Dispute and the European Community*

A brief history of the semiconductor dispute would be helpful in further analysis.

It was in 1985 that the U.S. government decided to investigate possible dumping of two categories of Japanese semiconductors, namely DRAM (dynamic random access memory)s and EPROM (erasable programmable read only memory)s which are used in computer main memory, thus bringing the semiconductor problem to the forefront of the U.S. -Japan trade dispute. After a series of bilateral negotiations, both governments reached a settlement in 1986 that (i), with respect to DRAMs with a memory capacity of 256 kilobits and more and EPROMs, dumping is to be prevented under a suspension agreement between the U.S. Department of

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<sup>3</sup> For Japanese articles published as the Agreement was concluded, *see, e.g.*, M. Matsushita, *Nichibei handotai kyotei to kanriboeki eno doko* [The U.S.- Japan Semiconductor Agreement and the Trend toward Managed Trade], 873 *Juristo* 16 (1986); T. Nogimura, *Tsushoho to dokusenkinshiho no chousei* [Synchronizing Trade Law and Competition Law], 31 *Keizaihogakukainenpo* 25 (1988). For a review of the impact of the Agreement on the European Community, *see* K. Flamm, *Semiconductors*, in *Europe* 1992, at 225 (G. Hufbauer ed. 1990).

Commerce and Japanese producers, and (ii) the Japanese government monitors and prevents dumping of a certain category of other semiconductors (art. II, para. 2 (2), (6), (7)). While these measures were meant for the U.S. market, paragraph 3 (2), article II of the original Agreement stipulated as follows concerning prevention of dumping in third country (such as the European Community) markets:

In order to prevent dumping, the Government of Japan will monitor, as appropriate, costs and export prices on the products exported by Japanese semiconductor firms from Japan.

One of the rationales given for this provision is prevention of “diversion” whereby semiconductors are once shipped to third countries and re-exported to the United States, which is crucial in ensuring efficacy of prevention of dumping in the U.S. market.<sup>4</sup> However, the language apparently goes beyond mere prevention of diversion and Japanese implementation of this clause resulted in restriction of exports of semiconductors, DRAMs in particular, below certain price levels to Hong Kong and other “gray markets”.<sup>5</sup>

Frustrated by this measure, the European Community filed a complaint with GATT and the ensuing proceedings highlighted the issues surrounding prevention of dumping by an exporting country. Of particular importance among the issues was the question whether or not an exporter (Japan) may lawfully prevent dumping which causes injury to the industry located in countries (*e.g.*, the United States) other than importers (third countries). In 1988, GATT delivered a conclusion on the complaint, which may be summarized as follows:

Japanese restriction of exports below certain process to third countries is unlawful as it constitutes an export restriction prohibited by Article XI of GATT. Article VI may not be invoked as justification, since the article is silent on prevention of “dumping” by an exporting country<sup>6</sup>.

### *C. An Issue Remains*

One may be puzzled by the far-reaching languages of the third country market clause and wonder why the two governments failed to create a more appropriate formula to deal with

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<sup>4</sup> D. Hatano, *Nihon wa kyotei wo junshuseyo* [Japan Ought to Abide by the Agreement], *Nihon keizai shinbun*, Apr. 17, 1987.

<sup>5</sup> A detailed analysis of the measures taken by the Japanese government may be found in Flamm, *supra* note 3, at 248-55. For an account by a Japanese firm’s employee, see M. Fujisawa, *Nichibei handotai kyotei; korega mitsuyakubunshoda* [The U.S. –Japan Semiconductor Agreement; This Is the Secret Compact], Bungeishunju, May 1988.

<sup>6</sup> Japan-Trade in semiconductors, GATT, Doc.No.L/6309 (1988) [hereinafter cited as Panel Report]. The European community filed a complaint with the GATT Contracting Parties in accordance with Article XXIII, paragraph 2. The GATT council then appointed an experts’ panel which studied the complaint and submitted this report to the council. In May 1988, the council adopted the report and its recommendations.

diversion; the question of GATT consistency must have been obvious to negotiators.<sup>7</sup> It would do injustice to the two governments, in my view, to attribute all to faulty drafting, because here lies a complex issue of law and economics which GATT did not address. Consider the following hypothetical case in order to clarify the point:

Suppose there are only two semiconductor manufacturers in the world: a Japanese firm (“Japan, Inc.”) and a U.S. firm. Suppose further that, in economic terms, the whole world constitutes a single semiconductor market. When Japan, Inc. attempts to monopolize the world market of semiconductors by dumping its products at process below production costs, one of the effective policy responses will be the issuance of a cease and desist order which prohibits sales below certain process by the Japanese authorities. Since the world constitutes a single market by assumption, the order should target not only sales in Japan and exports to the United States but exports to third countries including the European Community.<sup>8</sup> This, however, constitutes an export restriction by setting a minimum price for exports. How, then, should the Japanese government respond if the United States requests it to issue a cease and desist order?

Interpretation of GATT may vary under the above circumstances (see paragraph (d), Article XX). In any event, the most appropriate policy will be to consult the European Community, which would rather welcome such an order under Japan’s Antimonopoly Law. One may wonder then why the European community reacted strongly against the U.S. –Japan Semiconductor Agreement and what lies between the hypothetical case and the Agreement. Let us look at the interaction of law and economics surrounding this issue.

### 3. Concept of “Dumping” and Monopolization

The above hypothetical case reveals a certain tangential relationship between “dumping” and “monopolization” and that interests of the countries concerned vary around this relationship. In order to understand this mechanism, we must first discuss various concepts of “dumping” and its relevance to “monopolization”.

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<sup>7</sup> See, Matsuhita, *supra* note 3.

<sup>8</sup> Two issues are relevant in regulating global sales activities of a Japanese firm. First, the jurisdictional reach of Japanese Antimonopoly Law does not extend to overseas activities. Second, “substantial restriction of competition in a certain area of trade” (article 3) or “likelihood of hindering fair competition” (article 6, paragraph 1) is the requirement for invocation of the Law. See M. Matsuhita, *Dokusenkinshiho to kokusaitorihiki* [The Antimonopoly Law and International Transactions] 58 (1970). Export transactions are certainly within the jurisdictional reach of the Law. The second requirement will be met in the case of this firm because, by assumption, external dumping is the necessary condition of monopolization of the domestic market. See S. Itoda, *Jirei dokusenkinshiho* [Cases of the Antimonopoly Law] 204, (1988); A Uesugi, *Kokusai keiyaku no kisei* [Regulations of International Transactions], in *Saishin dokusenkinshiho no jitsumu* (K. Ueki ed. 1990).

### A. *Dumping as International Price Discrimination*

#### 1) Structure of Dumping as Defined by GATT

Article VI of GATT defines “dumping” primarily as a case where an export price falls below a domestic price charged for consumption in the exporting country. Obviously, dumping in this sense occurs even though the exporting firm earns profits from the export sales and prices need not be below cost under the GATT definition.<sup>9</sup>

Traditional economic theory has understood this phenomenon as a form of international price discrimination. Dumping occurs, according to this theory, when a firm serves two markets with different competitive conditions and possesses pricing power in at least one of the two (*i.e.* monopoly or oligopoly). More specifically, if a firm in an exporting country monopolizes its domestic market which, because of tariffs or other forms of trade barriers, is isolated in the international market, the domestic price charged by this firm will be higher than the export price which is equal to the price prevailing in the international market. This is the case of dumping as understood by the international price discrimination theory.<sup>10</sup>

#### 2) Welfare Analysis

Such dumping is assign of isolation and monopolization of the exporter’s domestic market, and is of course not desirable from the efficiency viewpoint. However, what is undesirable is not dumping *per se*, but the isolation and monopolization of the exporter’s domestic market. Second, while this inefficiency is detrimental to the economy of the exporting country, this importing country does not suffer, at least directly. Prevention of dumping of a particular product, therefore, may not enhance economic efficiency for either the exporting country or the importing country. Article VI of GATT is thus nothing more than a mechanism to protect the industry of the importing country from dumping.<sup>11</sup> Conversely, if the exporting country unilaterally prevents “dumping” vis-à-vis a third (importing) country, economic loss will be imposed on the importing country through a higher price.

It may appear, on the other hand, that prevention of “dumping” benefits an importing country if the industry competing with dumped imports offers external economy, as in the case of semiconductors where the presence of the advanced-technology industry is assumed to be desirable for the entire economy. However, effect for the importing country’s economy is

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<sup>9</sup> See generally J. Jackson, *Dumping in International Trade: Its Meaning and Context*, in Antidumping Law and Practice 1 (J. Jackson & E. Vermulst ed. 1990). In the following discussions, an export price is net of transportation cost.

<sup>10</sup> See, *e.g.*, R. Komiya & K. Amano, *Kokusai keizaigaku* [International Economics] (1972).

<sup>11</sup> A. Deardorff, *Economic Perspectives on Antidumping Law*, in Antidumping Law and Practice 23 (J. Jackson & E. Vermulst ed. 1990).

ambiguous.<sup>12</sup>

### *B. Dumping as Below-Cost Sales*

#### 1) Dumping and predatory Pricing

Another definition equates dumping with below-cost sales, a concept narrower than the GATT definition and its similar to the notion of predatory pricing under the U.S. antitrust law.

Predatory pricing is generally understood as pricing below cost with the intention of driving out competitors and recouping monopoly profits later. In fact, it is often difficult to judge if a particular pricing practice constitutes (economically inefficient) predatory pricing. For example, disposal of excess inventories to cope with a temporary decline in demand is a reasonable practice even though it results in apparent below-cost pricing. There is a general consensus in the antitrust law community that (i) “pricing below cost” means, in principle, to set a price intentionally below marginal cost, and (ii) predatory pricing is not practical, unless an entry barrier exists (easy entry will diminish the prospect of monopoly profits), the monopolist possesses sufficient financial resources (lack thereof drives the predator bankrupt) and other conditions are met.<sup>13</sup> Recently, the prevailing view considers predatory pricing an unlikely phenomenon because such conditions are met only very rarely. In the *Matsushita Electric* case, the U.S. Supreme Court declared that it subscribes to this view.<sup>14</sup>

#### 2) Welfare Analysis

If dumping of a particular product in international trade constitutes predatory pricing in this sense, prevention of the dumping is economically desirable because such pricing may lead to monopolization. This conclusion is drawn by native application of the predatory pricing theory which is concerned with overall efficiency in a single, world market, disregarding boundaries between the exporting and importing countries. From the standpoint of national

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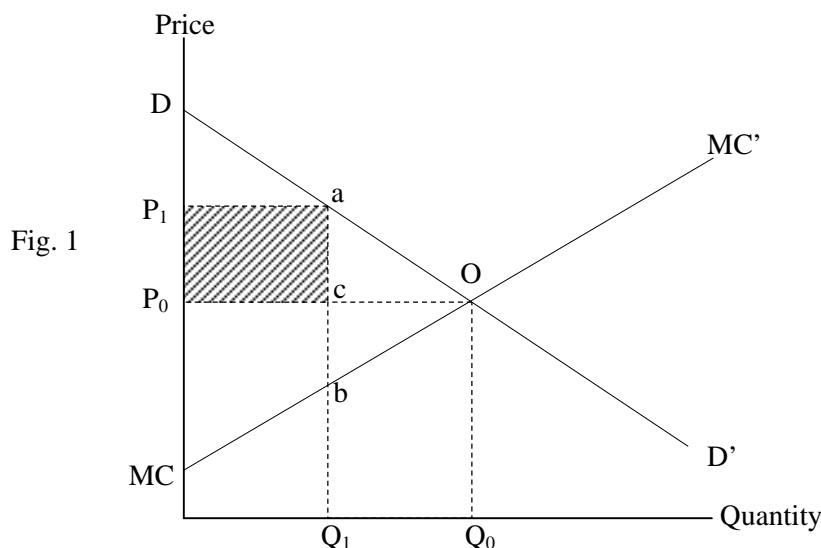
<sup>12</sup> *Id.* At 32-3. For the sake of convenience, external economies are assumed to be nonexistent in the following discussions.

<sup>13</sup> P. Areeda & D. Turner, *Predatory Pricing and Related Practices under Section 2 of the Sherman Act*, 88 Har. L. Rev. 697 (1975), partially reprinted in *Economic Analysis and Antitrust Law* 188 (2<sup>nd</sup> ed. T. Calvani & J. Siegfried ed. 1988); R. Bork, *The Antitrust Paradox* 144-60 (1978); O. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 Yale L. J. 284 (1978), reprinted in *Antitrust Economics* 225 (1987). I have assumed, in order to simplify the argument, that successful predatory pricing leads to exclusion of other competitors and monopolization of the market, although it may be accompanied by an objective to force losses on competitors and to deter their behavior.

The Japanese Antimonopoly Law’s “selling at unreasonably low prices” as designated under article 2, paragraph 9, judges unreasonableness by comparing the sales price with the purchase cost (which would be equal to the average variable cost) and is thus similar to predatory pricing. See, Itoda, *supra* note 8.

<sup>14</sup> *Matsushita Ele. Indus. Co., Ltd. v. Zenith Radio Corp.*, 106 S. CT. 1348, 1357-60 (1986).

economic welfare, however, the relevant issue is how the potential increase in efficiency affects welfare of individual economies of the countries concerned. A rudimentary figure may be helpful in the analysis.



Suppose the importing country does not produce the product and the exporting country exports all of its production. D-D' indicates the importing country's demand and MC-MC' is the marginal cost curve of the exporting country's entire industry. If perfect competition prevails initially, equilibrium will be reached at O, with the price at P<sub>0</sub> and the trade volume Q<sub>0</sub>. Now suppose further that a firm in the exporting country has monopolized the market by predatory pricing. Then the price will rise to P<sub>1</sub> and the trade volume will diminish to Q<sub>1</sub>. While the total amount of consumer's and producer's surpluses at the competitive equilibrium is equal to triangle D-O-MC, it decreases under monopolization to trapezoid D-a-b-MC, with a net loss of triangle O-a-b. Out of this dead-weight loss, triangle O-a-c falls on the importing country and the exporting country suffers by triangle O-b-c. However, rectangle P<sub>0</sub>-P<sub>1</sub>-a-c (shaded area) will be transferred from importing country to the exporting country under monopolization through payments for the higher value of imports at price P<sub>1</sub>. This transfer, or exploitation, further impairs economic welfare of the importing country, while generating for the exporting country net benefits equal to the area P<sub>0</sub>-P<sub>1</sub>-a-c minus O-b-c.

Next, let us consider the case where both countries consume the product. In this case, D-D' is derived by adding the demand curve of the exporting country and that of the importing country (net of transportation cost) along the X axis. If a producer monopolizes the market by successful predatory pricing, the exporting country may suffer as well. It could be beneficial for

both countries, under the circumstances, to prevent predatory pricing.<sup>15</sup>

### *C. Summary*

The foregoing analysis indicates that (i) preventing all kinds of dumping as defined by GATT does not make economic sense, (ii) an exporting country's unilateral measure to prevent dumping will impose economic loss on the importing country, and (iii) under rare circumstances, prevention of predatory dumping could serve overall efficiency of the world economy<sup>16</sup>, although predatory pricing may raise the level of the exporting country's welfare, potentially setting the countries concerned in diametrical positions.

By applying these conclusions to the case of semiconductors, one may conclude that if Japanese semiconductor producers engaged in predatory pricing against U.S. producers in the world market, it was beneficial for overall efficiency of the two countries as well as for welfare of the third (importing) countries for Japan to prevent dumping vis-à-vis the rest of the world.<sup>17</sup> Theoretical analysis says this much on the hypothetical case.

We must then consider if predatory pricing of semiconductor was conceivable. If not, the measure by the Japanese government vis-à-vis third countries was detrimental to these countries and should be viewed as an unreasonable policy taken under U.S. pressure.

## 4. Dumping of Semiconductor

It is necessary first to analyze characteristics of the semiconductor market which are attributable to the products. Specific analysis of dumping and the possibility of predatory pricing follows later in this section.

### *A. Attributes of Semiconductors and Market Characteristics*

Three attributes of semiconductors are relevant in analyzing their market: (i) they are small intermediate goods for production of a range of diverse final goods such as computers, telecommunications equipments, broadcast satellite tuners or TV games, (ii) the pace of technological innovation has been dramatic, resulting in frequent product renewal, (iii) "learning effect" exists in their production. These lead to peculiar market or industrial characteristics of semiconductors.

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<sup>15</sup> For more detailed treatment, see M. Ito, K. Seino, M. Okuno & K. Suzumura, *Shijo no shippai to hoseiteki sangyoseisaku* [Failure of the Market and Corrective Industrial Policy], in *Nihon no sangyosisaku 207* (R. Komiya et al. ed. 1984).

<sup>16</sup> Deardoff, *supra* note 11, at 35.

<sup>17</sup> The U.S. government stressed this as its defense before GATT. Panel Report, *supra* note 6, at 28.

1) Small Intermediate Goods for Diverse End Uses

a) Market Segmentation by Product

The argument so far assumed that semiconductors belong to one generic category. In fact, product differentiation and market segmentation by end use have been paramount. Semiconductor products destined for mainframe computers, office equipments and other industrial products are usually categorized distinctively as opposed to the other category of semiconductors for VTRs, audio equipments and other consumer products. Even in the same type of semiconductor products, development of products catering to specific needs of individual users (“design-in”) is a crucial part of the semiconductor producer’s strategy.<sup>18</sup>

Such market segmentation offers new entrants an opportunity to concentrate on specific varieties of products, generally making new entry easier.<sup>19</sup>

b) Borderless Markets

Needless to say, efforts to cut down the size of semiconductor products are successfully continuing. The size of a 4 megabit DRAM, the currently most popular memory chip, is approximately 1 square centimeter. This minimizes the question of transportation cost in international trade. Moreover, most users of semiconductors are manufacturers of final products (e.g., computers) who are ready to switch between supplies from domestic and foreign sources. Therefore it is not correct, economically speaking, to identify a market of semiconductors within the boundaries of individual countries. But for artificial barriers such as import restriction, the geographical reach of a semiconductor market would be global.<sup>20</sup>

If so, monopolization of semiconductor markets ought to take place globally and an attempt at monopolization, or predatory pricing, should be leveled against competitors of the whole world. This in turn makes it imperative to prevent predatory pricing globally.

c) Vertical Integration

Integrated circuits are relatively specialized for particular end uses and circuits designs must be tailored to requirements of final products. Vertical integration in production of semiconductors and final products would be conducive to achieving this goal.<sup>21</sup> In Japan’s case,

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<sup>18</sup> Electronic Industries Association of Japan, Second Statement on Semiconductors (Nov. 28, 1989)

<sup>19</sup> In 1987, 9 Japanese producers were manufacturing DRAMs while linear semiconductors, a consumer product category, were produced by 15 manufacturers.

<sup>20</sup> R. Baldwin & P. Krugman, *Market Access and International Competition: A Simulation Study of 16K Random Access Memories*, in *Empirical Studies of International Trade* (R. Feenstra ed. 1988) reprinted in *Rethinking International Trade* (1990). An executive of ICL, a Europe-based computer firm, is quoted to comment that the firm cannot afford to pay 50 cents more for a European chip. See *The Economist*, Jun. 8-14, 1991, at 22 (Survey). It was against this background that the question of diversion became extremely serious under the U.S. –Japan Agreement.

<sup>21</sup> Flamm, *supra* note 3, at 227-9.

major semiconductor producers are manufacturers of final products. Vertical integration was particularly pronounced in production of DRAMs, which are at the forefront of technological innovation, and other semiconductor memories in 1982 when 7 Japanese firms producing these memories were all final product manufacturers.<sup>22</sup>

Vertical integration can be efficiency-enhancing in various ways. In the cases of semiconductors it can serve, for example, to optimize the design process. It may, however, raise the entry cost for new entrants who would have to enter not only at the semiconductor level but at the final product level.<sup>23</sup> Even though the higher entry cost may reflect greater efficiency accruing from vertical integration, the existence of such a barrier is one of the conditions of successful predatory pricing and calls greater attention to the true nature of dumping.

## 2) Technological Innovation

DRAMs testify to the amazing pace of technological innovation in semiconductor products. Their memory capacity is measured by the amount of information stored on a piece of semiconductor chip which nowadays quadruples every three years as the product renewal completes its cycle. This has afforded a dramatic decline in prices per capacity of DRAMs and other products.<sup>24</sup>

In the 1970's, the bulk of technological innovations in the semiconductor industry required only a modest amount of capital, making new entry relatively easy. More recently, however, necessary R&D or investment outlays are rising in certain categories of semiconductor products. Such an increase in fixed costs may serve as a barrier to entry for competitors who encounter difficulties in raising needed capital.<sup>25</sup>

Entry thus crucially hinges on whether or not a new entrant could expect an appropriate level of demand to cover the fixed costs. Forecasting demand, however, is plagued by uncertainty and this risk becomes particularly serious with respect to merchandise of a short product cycle. This would place a new entrant at a disadvantage relative to existing producers in

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<sup>22</sup> Firms specializing in sales of semiconductor products account for the bulk of U.S. production while others such as IBM, GM, or AT&T manufacture semiconductors for internal use and do not emphasize outside sales. See The MIT Commission on Industrial Productivity, *Made in America* 248-61 (1990) [hereinafter cited as The MIT Commission].

<sup>23</sup> O. Williamson, *The Economics of Antitrust: Transaction Cost Considerations*, 122 U. Pa. L. Rev. 1439 (1974) reprinted in *Antitrust Economics* 71, 86 (1987).

<sup>24</sup> When IBM introduced SYSTEM/360, the forerunner of the third generation computers using integrated circuits, the price per capacity of the computer declined by more than 50 per cent. See F. Fisher, J. McGowan & J. Greenwood, *Folded, Spindled, and Mutilated* 150-63 (1983).

<sup>25</sup> See, e.g., M. Flaherty & H. Itami, *Shikin chotatsu* [Fundig], in *Nichibei handotai kyoso* 175 (D. Okimoto, T. Sugano & F. Weinstein ed. M. Tsuchiya trans. 1985); Flamm, *supra* note 3, at 229-30. Relatively small-scale U.S. firms maintain advantage in development of new products. See MIT Commission, *supra* note 22, at 259-60.

raising funds needed to pay for the fixed costs. It is accordingly reasonable to assume that the average cost of a new entrant will be higher than that of incumbent suppliers, reflecting the higher cost of capital. It should be noted, however, that the question of fixed costs makes new entry *relatively* difficult and that, even under such conditions, firms who have access to users (e.g., final goods producers) or who have acquired existing producers will nonetheless be able to enter the market. Another point to note is that firms of a larger size are not necessarily at an advantage in technological innovation, as in the case of microprocessors in which U.S. producers remain superior.

Thus entry barrier results from an assessment of risks based on limited information and is not unjustifiable. The existence of the barrier does raise, however, concern over the nature of dumping in specific categories of semiconductors as it could be a case of predatory pricing.

### 3) Learning Effect

Learning effect generally denotes a phenomenon in which the average cost is inversely related to the cumulative amount of goods produced. In semiconductors, the effect may result from two causes.<sup>26</sup>

The first cause is related to technological innovation. It is often pointed out that experience gained from development of a generation of semiconductors is indispensable for developing the next generation of products.<sup>27</sup> More theoretically, knowledge based on previous products is a crucial determinant of the efficiency of R&D expenditures and equipment investment outlays. Firms without such know-how will be forced to invest more in research and development and manufacturing equipments for new products and this constitutes another barrier to entry.

Caution is needed here so as not to overestimate this learning effect. Some of technical know-how in the semiconductor industry becomes available with relative ease through reverse engineering as in the case of integrated circuit designs.<sup>28</sup> Alleged free-riding by Japanese producers on American technology is perhaps a testimony to the degree of dissemination through this channel. Acquisition of incumbents will be another solution to this type of entry barrier.

Second, learning effect may represent increasing efficiency in the production process. The initial rate of faulty products to overall output sometimes reaches as high as 95 per cent in new

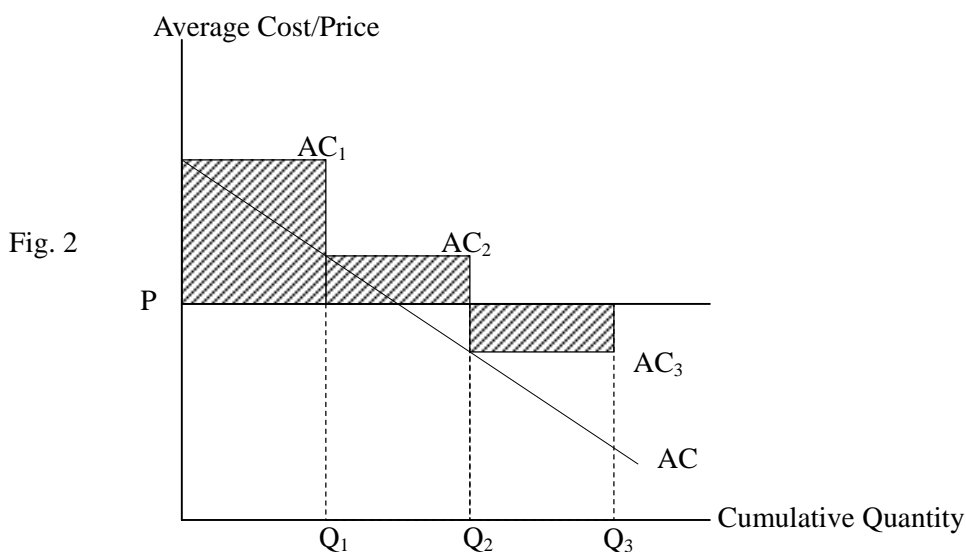
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<sup>26</sup> Baldwin & Krugman, *supra* note 20, at 202-4.

<sup>27</sup> Fraherty & Itami, *supra* note 25, at 226.

<sup>28</sup> See, P. Krugman, *The U.S. Response to Foreign Industrial Targeting*, 1984 Brookings Papers on Econ. Activity 77. Reverse engineering is by and large lawful under the present Japanese law. See, Handotai shusekikairo hoseimondai kenkyukai, Kaisetsu handotai shusekikariroho [Commentary Semiconductor Integrated Circuit Law] 62 (1986); N. Nakayama, Sofutouea no hoteki hogo [Legal Protection of Software] 127 (1988).

types of semiconductors. Progress of production leads to less incidents of failure and lower average cost through fine-tuning of the production process. Capturing this as a relationship between the cumulative amount of production and average cost, one may draw a curve which indicates the average cost decreasing with the increasing volume of cumulative production. This is generally known as the “learning curve” and recent studies estimate the elasticity of this curve to be between 0.2 and 0.3.<sup>29</sup> AC of figure 2 shows the learning curve a semiconductor manufacturer faces in producing new products.



Suppose this firm is small enough relative to the market size so that the demand curve is horizontal at  $P$ . Assume then that the production cycle is three years and production in the first, second and third year is  $Q_1$ ,  $Q_2 - Q_1$  and  $Q_3 - Q_2$ , respectively. Corresponding to the level of production, the average cost will be  $AC_1$ ,  $AC_2$  and  $AC_3$ .<sup>30</sup> Being unable to market the product above price  $P$ , this manufacturer must bear a deficit for the first two years and earns profits only in the third year (the size of the deficits or profits is equal to the shaded areas). The decision to produce this product will be made only if the profits are larger than the losses. Once this firm decides to enter the market, it cannot avoid an initial deficit for the two years, because average cost will be at the higher level in the third year if cumulative production remains zero.

A relevant question is if such a behavior of absorbing an initial deficit is rational.

<sup>29</sup> Baldwin & Krugman, *supra* note 20, at 214.

<sup>30</sup> Unlike the normal average cost curve, the AC in this model ( $AC_2$ , for example) reflects the amount of production of the previous year ( $Q_1$ ). Although cumulative output rises with an increase in the first-year production, the AC during the year remains at  $AC_1$ . See, Ito, Seino, Okuno & Suzumura, *supra* note 15, at 212-3.

Common sense replies positively; it cannot be unreasonable to prosecute a project which is profitable overall. Nevertheless, the learning curve and such business behavior have caused alarm as they allegedly cause "dumping" in the semiconductor market.<sup>31</sup> This alarm may seem justifiable in light of barriers to entry surrounding product development which could impede reentry by the producers driven out of the market by dumping. One may be tempted to conclude that predatory pricing is likely to take place in this setting. Let us move on to consider this issue in conjunction with the issues touched in I) and ii).

### *B. Predatory Pricing and Semiconductors*

#### 1) A Critique of Debate Surrounding The Learning Curve

It is considered a decent business strategy (generally known as the "Boston Consulting Group Strategy") in the United States to expand current production and absorb an initial loss in order to lower the average cost along the learning curve.<sup>32</sup> On other hand, there is some evidence to indicate that "dumping" in the sense of below-cost sales was taking place in DRAMs prior to the signing of the U.S. -Japan Semiconductor Agreement.<sup>33</sup> Assessing the evidence in light of the Boston Consulting Group Strategy, one might reach a conclusion that predatory pricing did take place because of the learning curve in DRAMS. This conclusion could provoke concern over other product categories as well. It may not be the case, however. As is obvious from Figure 2, "dumping" can be observed in sales by firms which are small enough and cannot conceivably monopolize the market. Whenever a learning curve exists, firms have incentives to absorb present losses for the sake of future profits as part of profit maximizing behavior. Profit maximization *per se* cannot be an issue, needless to say. The issue is whether or not such "dumping" is a conscious attempt to monopolize the market. Demonstrating the existence of a learning curve and the resultant possibility of "dumping" is not sufficient to reach a verdict on this issue.<sup>34</sup> Proof of predatory pricing ought to be sought in market conditions which the antitrust theory regards as essential for successful monopolization.

#### 2) Predatory Pricing: Application of Theory

Let us consider export behavior of Japanese semiconductor manufacturers at the time of signing of the Semiconductor Agreement in light of the predatory pricing theory. Specifically, we will look at (i) if the market structure was conducive to monopolistic profits, (ii) if the actual "dumping" prices were below marginal cost. Out of the product categories subject to dumping

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<sup>31</sup> For a former U.S. official's view, *see* C. Prestowitz, *Trading Places* 40-44 (1988).

<sup>32</sup> Krugman, *supra* note 28, at 121.

<sup>33</sup> The U.S. government believes this was the case. *See* White House, *Statement by The President* (Mar. 27, 1987). The Japanese government apparently admits its theoretical possibility. *See* Panel Report, *supra* note 6, at 14.

<sup>34</sup> Deardorff, *supra* note 11, at 38.

allegation, the focus will be set on DRAMs the Japanese share of which recorded a sharp ascent.<sup>35</sup>

a) Market Structure

As discussed previously, the DRAM market is global and is globally oligopolistic. In the "merchant market" which excludes the "captive producers" such as IBM who consume all of their DRAM production internally, the oligopolistic structure was observed with respect to 16 kilobit DRAMs whose production peaked in 1980.<sup>36</sup> Available evidence suggests the continuing existence of the oligopolistic structure in the later generations of DRAMS.<sup>37</sup> In this oligopolistic environment, Japanese producers have achieved remarkable success in expanding their share in the market. In 1984, two years before the Agreement was concluded, the Japanese share was 58 per cent in the merchant market of 64 kilobit DRAMS, then leading memory chips. The share soared to 82 per cent two years later in 256 kilobit DRAMS. In fact, the DRAM market has been a showcase of various entry barriers discussed previously; it has been punctuated by increasing fixed costs, the learning curve and other market conditions prevailing in semiconductors. Nonetheless, despite the oligopolistic structure and entry barriers, new firms continued to enter the DRAM market during the 1980s, maintaining a competitive environment.<sup>38</sup> For example, although National Semiconductor, Motorola and other major U.S. manufacturers abandoned DRAM production beyond 256 kilobit configuration, Sharp, NMB, Epson and Sony began serving the market from 1982 to 1989 and the number of Japanese DRAM producers rose from 7 to 11.

b) Actual "Dumping"

While the Agreement was negotiated, prices of Japanese DRAMs showed a dramatic decline. The wholesale price in Tokyo of a 256 kilobit DRAM, for example, fell from the 600 yen level of August 1985 to the 300 yen level of December of the same year, while the overall market environment recorded the following two developments: i) From 1985 to 1986, the U.S. market, the major importer of Japanese semiconductors, was hit by a serious recession and the demand fell by as much as 46.3 per cent on the order basis. Japanese users too were in a tough business climate because of the higher value of the yen following the Plaza Accord. Under these circumstances, Japanese manufacturers' semiconductor inventories recorded a surge in the latter half of these two years. If this represented accumulation of excess inventories, it would have been rational to dispose of them for even 1 yen.

ii) During this period, 256 kilobit DRAMS were taking over 64 kilobit chips as leading

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<sup>35</sup> A stricter view would reject the notion of the "DRAM market", in light of the technical substitutability between SRAMs and DRAMs.

<sup>36</sup> With respect to 16 kilobit DRAMS, *see* Baldwin & Krugman, *supra* note 20, at 204-5.

<sup>37</sup> Flamm, *supra* note 3, at 230.

<sup>38</sup> Flaherty & Itami, *supra* note 25, at 286; The MIT Commission, *supra* note 22, at 251.

memory products and it is reasonable to assume that Japanese producers took into account the learning curve in setting their price. The average cost of producing 256 kilobit DRAMs then ought to be calculated for the entire product cycle. Current losses do not necessarily mean that the price is below the true per product cost averaged over the whole period of production, for the losses may be offset by future gains in the lower average cost. Likewise, calculation of marginal cost should reflect the future savings in the average cost.

Lack of marginal cost data of Japanese producers prevents further discussions. Yet these circumstances caution against a premature discovery of "dumping" below marginal cost.

c) Concluding Analysis

Judging from the above evidence, there appears to be no likelihood of predatory pricing by individual Japanese manufacturers in DRAMs. Although the 8 Japanese producers as a whole held an impressive production share in 256 kilobit DRAMs, share figures of individual firms were fairly low and even NEC, the largest manufacturer of this category, is estimated to have had only 20 per cent in 1986. Considering that the predatory pricing theory centers around the behavior of a firm who has a monopolistic share in the market,<sup>39</sup> it seems reasonable to assume that dumping of DRAMs resulted from cyclical factors and from the learning effect in a competitive environment.

On the other hand, the possibility of a conspiracy by Japanese producers to drive foreign suppliers out of the market and to share future monopoly profits by way of cartelization cannot be brushed aside in light of the following:

i) As seen previously, the Japanese producers as a whole held a dominant share of 256 kilobit DRAMs, which, together with entry barriers, satisfies conditions of successful predatory pricing.

ii) Although one need not be concerned about "dumping" resulting from the learning curve as long as the market remains competitive, the concern turns justifiable if the dumping firms are expecting excess, monopolistic profits in the future. Indeed, the DRAM market has shown a considerably oligopolistic character.

iii) However unrealistic is the notion of joint predatory pricing in general,<sup>40</sup> governmental policy might raise the likelihood to a non-negligible level if all participants are Japanese. Against these arguments, the opposing view may be summarized as follows:

i) New entry by Japanese firms suggests that the relationship between Japanese manufacturers was not cooperative but competitive.<sup>41</sup>

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<sup>39</sup> See Bork, *supra* note 13, at 149; Williamson, *supra* note 13, at 233.

<sup>40</sup> 106 S.Ct. 1357-59.

<sup>41</sup> Flamm, *supra* note 3, at 259; D. Okimoto, *Seijiteki sokumen* [Political Aspects], in Okimoto, Sugano & Weinstein, *supra* note 25, at 105.

ii) It is inconceivable that foreign governments take a laissez-faire policy toward an industry of strategic importance. If the governments find domestic producers retreating from the semiconductor market because of predatory pricing by Japanese competitors, they will take appropriate policy actions, which could take the form of subsidy or antidumping duty and other protectionist measures. Subsidy will reduce the chance of successful monopolization and the protectionist measures will artificially divide the market and render global monopolization impractical. It is reasonable to assume that Japanese manufacturers were not expecting monopoly profits in the world market.

iii) It is improbable that acquiescing predatory pricing against foreign, U.S. in particular, producers was part of Japanese industrial policy.<sup>42</sup>

iv) Possible (extraterritorial) application of the U.S. antitrust law could deter Japanese manufacturers from anticompetitive behavior. In sum, judging from the above evidence, the notion of joint predatory pricing by Japanese producers seems unfounded.

### 3) Summary

It is inconceivable that the Japanese producers engaged in predatory pricing when the Agreement was signed. Prevention of "dumping" vis-a-vis the European Community and other third countries resulted simply in more expensive semiconductors which, protecting the U.S. producers, hurt the third parties' economic interests. Strong reaction by the Community against this measure was, in short, justifiable.

## 5. Japan's Industrial Policy

### A. *Beyond Predatory Pricing Theory*

The analysis thus far assumed various conditions surrounding the semiconductor industry are given and its scope has been limited to whether or not private parties engaged in anticompetitive behavior which would justify application of antitrust legislation. In concluding that the likelihood of such behavior was minimal, effects of governmental policy were considered only peripherally.

In fact, the Japanese government played an active role in the development of the Japanese semiconductor industry, by influencing industrial environment. Two often-cited examples of such activist policy are the VLSI (very large scale integrated circuits) subsidy, which was in effect for four years beginning fiscal 1976, and procurement by the former Nippon Telephone and Telegraph Public Corporation.<sup>43</sup> If these policies had a sizable effect, lack of predatory

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<sup>42</sup> The external economic measures of Apr. 27, 1984 and other official announcements of the Japanese government call for "creation of a harmonious external relationship".

<sup>43</sup> See, e.g., K. Shinjo, *Konpyuta sangyo* [Computer Industry], in *Nihon no sangyoseisaku* 297 (R.Komiya et al. ed. 1984); M. Anchordoguy, *Computers, Inc.* 136 (1989).

pricing may not necessarily mean that Japanese manufacturers were more efficient than American rivals. On the contrary, lower prices or better quality could have been an artificial advantage built by Japan's industrial policy. This problem becomes particularly important in the semiconductor industry which is characterized by intra-industry trade; export competitiveness of a country may well be determined by policy rather than by classical theory of comparative advantage when goods of the same industry are exchanged between trading partners.<sup>44</sup> One would be intrigued by the interaction of Japan's industrial policy with economic interests of Japan and foreign countries, and by the economic implications of prevention of "dumping".

It is obvious that theories which ignore involvement of the Japanese government are not equipped to analyze these issues; application of the predatory pricing theory is not enough. Let us consider the questions surrounding industrial policy.

### *B. Industrial Policy and Prevention of "Dumping"*

#### 1) Critique of Industrial Policy and Counterargument

Critics of Japan's industrial policy believe that the Japanese government and business are orchestrating a scheme to strengthen a particular industry over foreign competitors and they denounce this perceived strategy as a form of "predation".<sup>45</sup>

Japan has not been alone, however, in manipulating conditions surrounding the semiconductor industry through government policy. Historically, the development of the U.S. industry depended on government procurement for military and for space development. After the Agreement was concluded, the U.S. government and business joined in a consortium named SEMATECH to develop SRAM (static random access memory)s and DRAMs of large memory capacity in 1987. Moreover, Japanese policy for this industry has been devoid of the rigorous market intervention which was the hallmark of industrial policy in the steel industry.<sup>46</sup> Government intervention has thus been prevalent in both countries and it is virtually impossible to quantify the degree of artificial competitiveness. Certainly it runs against the notion of fairness to criticize Japan's policy alone.

Second, superiority of Japanese producers stems not only from lower prices but from higher quality. In the latter part of the 1980s, Japanese manufacturers were estimated to supply more than 40 per cent (value basis) of the electronic products consumed by the U.S. military, an entity which supposedly emphasizes quality.<sup>47</sup> However artificial Japan's competitiveness may

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<sup>44</sup> Recent research in this area shows remarkable progress. See P. Krugman, *Increasing Returns and the Theory of International Trade*, in *Rethinking International Trade* 63 (1990).

<sup>45</sup> See, e.g., Prestcwitz, *supra* note 31, at 42-44, 125; K. van Wolferen, *The Enigma of Japanese Power* 529-32 (1989).

<sup>46</sup> Okimoto, *supra* note 41, at 172-3.

<sup>47</sup> R. Reich, *The Rise of Techno-Nationalism*, in *The Resurgent Liberal* 107 (1989).

be, users of the importing countries, and their economies, benefit from the higher quality.

More theoretically, when industrial policy of an exporting country strengthens the exporting industry's competitiveness, it will enhance the economic welfare of importing countries, by making available less expensive products and by promoting development of higher-quality goods. In the supply-demand analysis of Figure 1, the exporting country's policy will lower  $MC \cdot MC'$  and the importing country receives a larger benefit at the expense of the exporting country's taxpayers. As long as the market remains competitive, importing countries will continue to enjoy higher economic welfare,<sup>48</sup> and this conclusion holds even if the importing countries have a competing industry. To this extent, prevention of "dumping" is pointless.

## 2) "Industrial Policy" and Importers

However, it should be born in mind that the presence of the competitive market is the critical condition of the above conclusion. This may be shown in the hypothetical case we considered earlier where Japan, Inc. and a U.S. producer are competing in the world market. Suppose now that Japan, Inc. has come to enjoy a competitive advantage because of industrial policy and the U.S. producer has abandoned the market. The above conclusion holds prior to the competitor's withdrawal, since Japan, Inc. presumably sets the price at a competitive level. The price, however, will rise once the U.S. producer has withdrawn, if the market is surrounded by entry barriers. The competitive edge built by industrial policy no longer serves the interests of importing countries who will be subject to impairment by Japan, Inc.'s excess profits.<sup>49</sup> If industrial policy was consciously administered to bring about this outcome, it indeed is a tool of predation.

Obviously, this result may materialize even if the Japanese manufacturers' advantage is not because of the industrial policy but has been achieved through the firms' efforts. At issue for the importing countries, therefore, is not the artificial advantage built by industrial policy per se. Broadly speaking, their interests will be impaired if (i) the Japanese producers are likely to become less competitive in a market where no foreign competitors exist, and if (ii) the Japanese government tolerates such behavior. Underlying the criticism of industrial policy is this justifiable concern.

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<sup>48</sup> See, e.g., A. Dixit, *How Should the United States Respond to Other Countries' Trade Policies*, in U.S. Trade Policies in a Changing World Economy 245 (R. Stern ed. 1987). Although industrial policy may inhibit imports and impair the economic welfare of other countries by assisting a disadvantaged industry, this issue of adjustment may not be relevant in the case of semiconductors.

<sup>49</sup> P. Krugman, *Strategic Sectors and International Competition*, in U.S. Trade Policies in a Changing World Economy 207 (R. Stern ed. 1987).

### 3) "Prevention of Mercantilist Policy"

The central problem in the above case is the hazard of a non-competitive market and the importing countries should primarily explore ways to correct the market structure. However, as a second best solution, it might be worthwhile to contain the Japanese producers' competitive advantage through, for example, prevention of "dumping" and to ensure the presence of U.S. suppliers. Increasing return to scale justifies global application of such measures whereby U.S. producers can compete in the global market; this could benefit each importing economy including the third countries in the long run. This argument may justify the antidumping measures on the ground of "prevention of mercantilist policy".

Needless to say, this approach has its weaknesses. If, for example, either one of the two conditions ((i) and (ii)) is not met, prevention of "dumping" is tantamount to a protectionist measure which merely serves the interests of American manufacturers. Such a policy will of course raise the price and hurt the third countries.

Second, even though the two conditions are met, other measures less restrictive than "dumping" prevention may be invoked to remedy Japanese anti-competitive behavior. In this case, *ex ante* prevention of mercantilist policy is not efficient.

Third, global prevention of "dumping" is justified only when the floor price is set at an adequate level. Setting the floor at too high a level will result in excess profits for U.S. as well as Japanese producers. It will be nothing but an international cartel sponsored by the United States and Japan as far as the third countries are concerned.

### 4) Summary

We saw that industrial policy by an exporting country to strengthen the export industry will benefit every importing country as long as the market retains a competitive character. On the other hand, the importing countries may suffer if the export industry of a particular country survives the competition and if the market becomes non-competitive, assuming the government of the exporting country being tolerant toward such a market environment. This holds whether or not the survivor's competitiveness results from industrial policy. If such an outcome is foreseeable, it may make economic sense in the long run to prevent, by an antidumping measure, the industry of the particular country from driving out other competitors. ("prevention of mercantilist policy"). Prevention of "dumping" for this purpose becomes unjustifiable, however, particularly vis-a-vis third countries if certain conditions are not satisfied.

Let us then consider if the anti-mercantilist argument could justify the prevention of dumping in third country markets under the Agreement, reviewing the trend of the DRAM market after the accord was signed.

C. "Dumping" of DRAMs and Prevention of The Mercantilist Policy

1) Competitive Conditions of DRAM Market

a) Japanese Dominance and Market Structure

After the Agreement was signed, Japanese manufacturers have come to dominate the DRAM market. Whether or not this resulted from Japan's industrial policy, the Japanese share in the merchant market has grown as the chip renewal progresses and reached 96 per cent, according to an estimate excluding Korean production, in 4 megabit DRAMs in 1989.

Japan's dominant share does not necessarily lead to less fierce competition; indeed, Samsung, a Korean manufacturer, has recorded remarkable growth in its share in the merchant market. Nevertheless, the Korean producer may still be an unpredictable factor for importing countries in light of its history as a state-sponsored venture. Moreover, entry barriers surrounding DRAMs might well render the market insular from potential competition.<sup>50</sup> If these factors lead to a lesser degree of competition, its effects will be felt in a variety of electronic products of strategic importance (computer systems or robotics, to name a few) and it might even cause concern over national security.<sup>51</sup> Being a versatile industrial commodity, semiconductors are immeasurably more important than other electric products which have been the target of previous trade disputes such as color TVs.

Thus, an *ex post* look reveals dominance by Japanese manufacturers after 1986 and the risk of a non-competitive market structure in DRAMs is not negligible.

b) Japanese Producers and The Government

We must next consider if the two conditions of (i) and (ii) were satisfied. Issues are; whether or not Japanese dominance of the DRAM market should lead to a greater possibility of oligopolistic behavior in the market (condition (i)), and whether or not the Japanese government would tolerate such behavior (condition (ii)).

Concern over the market condition appears to have been justifiable if one looks at the development in the DRAM market, *ex post*. Since the latter part of the 1980s, Japanese DRAM manufacturers reportedly ceased to engage in fierce price competition which had once been their trademark and even when the demand turned soft in 1989, Japanese producers raised their prices and earned high returns. However, these phenomena are probably not unrelated to the U.S. -Japan Semiconductor Agreement. On the contrary, the underlying spirit of U.S. -Japan cooperation could well have played some role in bringing about these developments.<sup>52</sup>

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<sup>50</sup> See, e.g., J. Stiglitz, *Technological Change, Sunk Costs, and Competition*, 1987 Brookings Papers on Econ. Activity 883.

<sup>51</sup> So far lacking in this paper dealing with the third country dumping has been the analysis of the effect of the semiconductor industry to national security, which caused concern in the U.S. Reich, *supra* note 47, at 107-20.

<sup>52</sup> Flamm, *supra* note 3, at 258-60.

More generally, possible behavior of Japanese firms in a market where they are dominant will not be independent from but will be influenced by the Japanese government. Rationality of "dumping" prevention then hinges on how the Japanese government is expected to react to such behavior; *i.e.*, condition (ii) Let us focus on this issue in the next subsection.

## 2) The Japanese Government and Mercantilism

### a) Theoretical Overview

We have assumed so far that the DRAM market is global and the geographical boundary of "a non-competitive market" encompasses both Japan and the rest of the world. It then appears unlikely that the Japanese government would tolerate such a market, because the government would not welcome higher domestic DRAM prices.

The picture turns quite different, however, if an export market for Japanese DRAMs can be insulated from the domestic market. By maintaining a competitive domestic market and having Japanese firms earning excess profits overseas, the government can raise the level of national economic welfare. This higher welfare becomes an incentive for the government to accept, and promote, excess profits in the export market.<sup>53</sup> Policy instruments for such rent promotion range from aggressive intervention by a government-sanctioned export cartel to conscious inaction to oligopolistic pricing. If we categorize these instruments as the "mercantilist policy",<sup>54</sup> it is the possibility of Japanese mercantilist policy that causes concern on the part of an importing country over Japanese competitiveness and their dominance of the market.

Looking at the domestic market structure, market insulation may not be ruled out theoretically.<sup>55</sup> Since major Japanese semiconductor manufacturers are vertically integrated and absorb the bulk of semiconductors for the production of downstream products, they could segregate DRAM shipments destined for one another, as well as DRAMs for internal consumption, from export shipments. It thus becomes necessary to review the policy of the Japanese government vis-a-vis mercantilism more specifically in order to assess its likelihood. Central to this exercise will be the following:

i) We must first look at application of the Japanese competition law to export transactions, as we defined the "mercantilist policy" as promotion of or conscious inaction toward excess profits. A policy to legalize anticompetitive behavior in the export market, such as exempting an

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<sup>53</sup> See R. Caves, *Industrial Policy & Trade Policy: the Connections*, in *Protection & Competition in International Trade* 68 (H. Kierzkowski ed. 1987).

<sup>54</sup> The Japanese government might take a more interventionist policy of directly setting export prices under the Foreign Exchange and Foreign Trade Control Law and the Export Trade Control Order, in order to artificially create excess profits for its industry. However, since this policy is obviously prohibited by Article XI of GATT, the following discussions focus on less interventionist forms of the mercantilist policy. See Panel Report, *supra* note 6, at 38.

export cartel from the competition law, is precisely a case of overt mercantilism.

ii) Excess profits do not necessarily result from violation of the competition law, however, and application of the competition law is not the only solution. A structural policy to promote competition could be even more important in redressing inefficiency in the Japanese environment. If the Japanese government adopts an affirmative policy to promote new entry, for example, trading partners would not have to worry about excess profits. The intentional absence of such a policy, on the other hand, may suggest the presence of a mercantilist orientation.

b) Japanese Competition Law and Mercantilism

**i) Principle of Non-Mercantilism**

There is a consensus that an export cartel is a case of unfair restraint of trade prohibited by Article 3 of the Antimonopoly Law.<sup>56</sup> Although Article 5 of the Export-Import Trade Law opens a way to lawfully executing a certain category of export cartels by filing them with the Minister of International Trade and Industry, an export cartel to earn excess profits would not satisfy statutory requirements stipulated in subsections I through 3 of the same Article.<sup>57</sup> Nor is anticompetitive behavior in the semiconductor trade sanctioned by other laws with provisions on exemption from the Antimonopoly Law. To this extent, the competition law articulates a principle of non-mercantilism.

This principle becomes somewhat ambiguous, however, with respect to behavior which falls short of an outright cartel. The 1977 amendment to the Antimonopoly Law introduced a mechanism to extract a report on a concerted price raise, in order to prevent activities less manifestly anticompetitive than a cartel (*e.g.*, downward price rigidity), which nonetheless represent oligopolistic behavior. This mechanism, however, applies only to oligopoly in domestic supply and the price in question is interpreted to mean a domestic price.<sup>58</sup> Whatever deterrence this mechanism might have, it certainly works only in domestic transactions.

**ii) Restraint on Government Behavior**

On the other hand, the non-mercantilist competition law does *not* prevent the government from executing a mercantilist policy under the administrative power.

In an often-cited case of a petroleum (price) cartel<sup>59</sup>, the Supreme Court held, concerning

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<sup>55</sup> Flamm, *supra* note 3, 260.

<sup>56</sup> K. Sato, *Shitekidokusen oyobi futona torihikiseigen* [Private Monopolization & Unreasonable Restraint of Trade], in Ueki, *supra* note 8, at 57.

<sup>57</sup> T. Nogimura, *Yushutsunyu torihiki to karuteru* [Export-Import Transactions and Cartels], in *Dokusenkinshiho koza* (1982).

<sup>58</sup> The Operating Guidelines of the Law nowhere mention this mechanism's interaction with the international economy other than stating that a concerted price raise can become reasonable "when the domestic market is apparently in close correlation with the international commodity market". Exports are disregarded, in other words.

<sup>59</sup> Judgment of Feb. 24, 1984, Supreme Court, 1108 Hanrei jiho 3 (1984). *See e.g.*, T.

the relationship between administrative guidance and a cartel, that administrative guidance not directly authorized by individual legislations is lawful as long as it is "executed by a socially permissive means" and as long as it is "not substantially inconsistent with the ultimate objectives of the Antimonopoly Law" and that a joint action which is otherwise illegal becomes lawful if the action is a result of such administrative guidance.

Whether or not such an interpretation is appropriate at the abstract level,<sup>60</sup> what remains unresolved is the question of the criteria by which the court judges "the ultimate objectives of the Antimonopoly Law" in individual cases. For example, it is widely believed that, in implementing the U.S.-Japan Semiconductor Agreement, the Ministry of International Trade and Industry (MITI) exercised administrative guidance on Japanese manufacturers' production by a quarterly forecast of supply and demand, despite the absence of statutory authority.<sup>61</sup> Such administrative guidance would raise the issue of consistency with "the ultimate objectives of the Antimonopoly Law" if it entails the producers' joint action to adjust production. A position to find it not substantially inconsistent rests on the assumption that the Antimonopoly Law's ultimate objectives justify a cartel which causes harm to third countries for the sake of settling a U.S. -Japan trade dispute. Whatever conclusion the court may arrive at, a finding without clear-cut criteria would invite suspicions from the importing countries.

One should not nevertheless overestimate the likelihood of the Japanese government's mercantilist policy. On the contrary, it may be difficult to imagine that the executive branch would intentionally adopt mercantilist policy today when settlement of economic frictions ranks high on the policy agenda.

#### c) Positive Structural Policy

As discussed earlier, one of the causes of concern in the DRAM market is the existence of entry barriers. A policy to lower the barriers would be manifestation of non-mercantilist orientation.

Up to the early 1980s, however, the government apparently did not place emphasis on elimination of entry barriers. In the VLSI project, for example, even Oki Electric was denied participation.<sup>62</sup> The bottleneck in the supply of venture capital during this period is another often noted obstacle for new entrants.<sup>63</sup> It was probably reasonable to assume, as of 1986 when the

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Hatakeyama, *Sekiyukaruteruhanketsu to gyoseishido* [The Petroleum Cartel Case and Administrative Guidance], 813 *Jurisuto* 6 (1984).

<sup>60</sup> For a view supporting this judgment's interpretation, see, e.g., M. Murakami, *Dokusenkinshiho no nichibei hikaku* (Jo) [1 Comparative Studies on The U.S. and Japanese Antimonopoly Legislations] 56 (1991).

<sup>61</sup> Panel Report, *supra* note 6, at 41.

<sup>62</sup> M. Katz & J. Ordover, *R&D Cooperation and Competition*, in 1990 *Brookings Papers on Econ. Activity* (microeconomics) 137.

<sup>63</sup> Flaherty & Itami, *supra* note 25, at 191

Agreement was signed, that the Japanese government was not keen on taking measures to rectify the industry structure and dissipate possible excess profits.

The Japanese government might be altruistic enough, on the other hand, to ensure the export supply at a competitive price while leaving excess profits in the domestic market. The wisdom of relying on Japanese altruism is debatable for importing countries, however, because the future of the policy should not be taken for granted.

### 3) Less Restrictive Remedies

Even if the Japanese laws and policies leave room for mercantilism which DRAM importers may find threatening, the most efficient response is a less restrictive remedy directly targeted at the problem. For the purpose of redressing excess profits, importing countries possess two countermeasures at their disposal. Let us consider pros and cons of the options.

#### a) GATT

When a Japanese mercantilist policy contravenes the prohibition of export restriction under GATT Article XI, an importing government may file a complaint with GATT and obtain a recommendation to eliminate the policy in accordance with Article XXIII. The reach of Article XI's prohibition has been redefined by the GATT report on the European Community's complaint on semiconductors; non-mandatory measures such as administrative guidance may also be prohibited, so long as they restrict exports. GATT thus provides a substantial remedy for mercantilist behavior.

Mere inaction to excess profits earned by domestic firms is not, however, subject to the GATT remedy.<sup>64</sup> An illustrious case is the downward price rigidity resulting from an oligopolistic structure. To this case neither the Japanese Antimonopoly Law nor GATT is applicable. Enforcing a positive structural policy on the Japanese government is of course beyond the mandate of GATT.

Second, administrative guidance can be structured in such a way to circumvent the prohibition of "export" restriction under Article XI. What was found inconsistent with the Article in the semiconductor case was the entire scheme of the Japanese government to prevent dumping, which includes the mandatory reporting of export prices under the Foreign Exchange and Foreign Trade Control Law.<sup>65</sup> Guiding semiconductor manufacturers to adjust production may not be illegal by itself.<sup>66</sup>

Third, for countries other than major powers such as the United States or the European

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<sup>64</sup> A GATT forum discussed the problem of regulating restrictive business practices from the late 1950s to 1960 and the majority opposed to application of the GATT procedure to such practices. *See* J. Jackson, *World Trade and The Law of GATT* 523-6 (1969).

<sup>65</sup> Panel Report, *supra* note 6, at 42.

<sup>66</sup> Paragraph 2, (c) (i) of GATT Article XI treats a restriction on "the quantities of the ...domestic product" and an "import restriction" as two different concepts.

Community, Japanese compliance with a GAIT verdict, on which their interests hinge, may not be taken for granted. Indeed, in the early part of 1987 when the Japanese government stepped up efforts to prevent dumping in the gray markets, it apparently gave particular consideration to the Community so that prices of semiconductors destined for the area would not rise excessively<sup>67</sup>.

b) Extraterritorial Application of Competition Law

An importing country may directly regulate behavior of the Japanese producers by extraterritorial application of its competition law. Richness of Japanese literature on this subject may be an indicator of Japanese manufacturers' sensitivity to this issue. From a foreign perspective, particularly worrisome is the possibility of private suits under the U.S. antitrust laws to recover treble damages.<sup>68</sup>

The government of an importing country would hesitate, however, to bring an extraterritorial case for the two reasons discussed below. In fact, the ratio of government suits in the U.S. extraterritorial cases against Japanese firms is reportedly declining from 1970 to 1983.<sup>69</sup>

i) Methods of investigating an extraterritorial case are subject to international legal constraints. The Japanese government may not cooperate with a foreign investigation into practices which are not illegal under the Japanese Antimonopoly Law, particularly when the investigation could lead to criminal prosecution, although it is the very case which calls for extraterritorial application.<sup>70</sup>

ii) Extraterritorial application could become an international problem when the Japanese government's policy is involved, the sovereign compulsion doctrine notwithstanding. If the foreign government wants to avoid confrontation with the Japanese government, unilateral application of its competition law is inadvisable; the best approach would be correction of the mercantilist policy through bilateral negotiation.<sup>71</sup> Needless to say, such negotiation will

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<sup>67</sup> Panel Report, *supra* note 6, App. II.

<sup>68</sup> For an analysis of the hazards of treble damage compensation, *see, e.g.*, W. Baumol & J. Ordover, *Use of Antitrust to Subvert Competition*, 28 J. of L. & Econ. 247 (1985).

<sup>69</sup> A. Uesugi, *Amerika* [The United States], in *Nihonkigyo to gaikoku dokusen-kinshiho* (1986).

<sup>70</sup> There is no established interpretation concerning the applicability of the Japanese law on international cooperation in criminal investigation to cases of antitrust violation.

<sup>71</sup> For an analysis of the sovereign compulsion doctrine under the U.S. Antitrust Law and Japanese export restrictions, *see, e.g.*, M. Matsushita, *Amerika dokusenkinshiho* [The U.S. Antitrust Law] 358 (1982); *Dokusenkinshiho shogai mondai kenkyukai, Dokusenkinshiho no ikigaitekiyo* [Extraterritorial Application of The Antimonopoly Law] 86 (1990).

Interests of foreign governments are normally taken into account in extraterritorial application on the ground of international comity. *See* Antitrust Division, Dep't of Justice, *Antitrust Enforcement Guidelines for International Operations* 31 (1988); *Dokusenkinshiho shogai mondai kenkyukai, supra*, at 91.

become a showcase of strategic manoeuvres on the part of the two governments and may not produce an efficient outcome.<sup>72</sup>

Moreover, excess profits do not necessarily result from violation of the competition law. Extraterritorial application is irrelevant if the excess profits can be best countered by the positive structural policy.

#### 4) Floor Price Level

Assuming that the anti-mercantilism argument could be a theoretical rationale for the prevention of "dumping", we must then discuss if the measures taken were adequate. In the process of preventing "dumping" vis-a-vis third countries under the Agreement, the Japanese government reportedly monitored export prices so that they do not fall below the "foreign market value", as calculated by the U.S. Department of Commerce.<sup>73</sup> The foreign market value is a policy variable which is equal to the production cost plus an appropriate margin not exceeding 8 per cent.<sup>74</sup> There is no ground to believe that the figure was at a level which was high enough to secure competition by U.S. manufacturers, and low enough compared to possible oligopolistic pricing by Japanese producers.

As a matter of technicality, setting the floor price at which dumping prevention vis-a-vis third countries becomes justifiable is an immeasurably difficult venture. The correct figure would vary substantially depending on the assessment of the learning effect, in particular. Prevention of mercantilism is extremely difficult to administer.

#### 5) Summary

The dominant share of Japanese producers in the DRAM merchant market as well as its industry structure leaves room for mercantilist manipulation by the Japanese government. The Japanese competition law is fundamentally, albeit imperfectly, non-mercantilist but does not eliminate the possibility of mercantilism under the executive power. Neither did the Japanese government attempt to dispel doubt over its philosophy by a positive structural policy at the time of the signing of this accord. In countering the mercantilist policy, or more directly the excess profits, the GATT procedure and extraterritorial application of the competition law may

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<sup>72</sup> This issue was highlighted in the Laker case where existing carriers allegedly engaged in a conspiracy of predatory price cutting in order to drive the Laker Airlines out of the North Atlantic air service market. Eventually, President Reagan instructed the Department of Justice to suspend the proceedings.

<sup>73</sup> Flamm, *supra* note 3, at 248 n.32.

<sup>74</sup> Under the Suspension Agreement of Aug. 1, 1986 concerning DRAMs signed by the Department of Commerce and 8 Japanese manufacturers (including Texas Instruments which has a production facility inside Japan), calculation of the foreign market value is to be made according to section 773 (e) of The U. S. Tariff Act of 1930.

For an overview of the U.S. antidumping legislation, see G. Horlick, *The United States Antidumping System*, in *Antidumping Law and Practice* 99 (J. Jackson & E. Vermulst ed. 1990).

serve as less restrictive remedies. Their utility is limited, however; most notably they fail to achieve the goal if an affirmative policy by the Japanese government is the appropriate response.

In sum, if one subscribes to the assumption that the Japanese government is likely to promote or tolerate excess profits by Japanese producers in the DRAM market ("tricky Japan hypothesis"), and wants to avoid the risk of relying on Korean competition, the anti-mercantilism argument might become a rationale for the dumping prevention under the Agreement.<sup>75</sup> If this was truly the case, prevention of "dumping" vis-a-vis third countries could have been beneficial for the third countries. Implementation of this Agreement, however, appears to have gone beyond the minimum level of restriction necessary for the purpose.

## 6. Conclusion

It is questionable to justify the implementation of the Agreement with respect to prevention of dumping in third country markets, of DRAMs in particular, as an attempt to contain predatory pricing. The renewed Agreement was modified in line with GATT provisions and the importing countries are now guaranteed full authority to take any measure necessary to counter dumping in third countries (art. 111, para. 5 through 7).

"Prevention of the mercantilist policy" becomes a valid policy concern, on the other hand, if one subscribes to the "tricky Japan hypothesis" and assumes dominance by Japanese producers will lead to excess profits. Along this argument, one may wish to support the Agreement as being beneficial not only for U.S. semiconductor manufacturers but, eventually, for consumers of DRAMs in the third countries as well. The European Community might have been myopic in opposing the Agreement. Indeed, deep-rooted distrust of Japan did exist in the background of this Agreement and economic theory could justify managed trade with a trading partner who is not trustworthy.

Looking at the debate over trade policy in the United States from the 1980s to the 1990s, one may be struck by an alarming shift. This shift tends to be understood by Japanese as a drift to protectionism. Yet, a closer look reveals that free-traders and managed trade advocates *do* have a common ground: suspicion toward the Japanese policy. This suspicion, in economic terms, boils down to concern about mercantilism. In fact, free-traders of the United States today call for strengthening of international antitrust regulation as an alternative trade policy, apparently to redress Japanese rent-seeking behavior. Needless to say, international antitrust

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<sup>75</sup> This is the ground on which certain U.S. economists base their argument in favor of the Agreement. See L. Tyson, *Managed Trade: Making the Best of the Second Best*, in *An American Trade Strategy* 142 (R. Lawrence & C. Schultze ed. 1990). Those who are critical of the Agreement tend to share the same concern. See R. Lawrence & C. Schultze, *Evaluating the Options*, in *An American Trade Strategy, supra*, at 1.

regulation is not a panacea; excess profits do not necessarily coincide with violation of the competition law and could be best countered by a positive structural policy. On Japan's part, it should not underestimate the foreign concern over its mercantilism and lack of trust in its Antimonopoly Law, in particular.

In my view, MITI is not the sole culprit for this phenomenon. Nor should Japanese dismiss the American concern as a rudimentary misunderstanding of the Antimonopoly Law. The blame ought to be shared by those who are charged with executing the Law or who serve in the dispute settlement process in Japan. For example, in a recent negotiation between the United States and Japan on semiconductors, the American side introduced a complaint over the slowness of Japanese DRAM supply to U.S. users to which the Japanese side promised a look into the matter. Intergovernmental consultation is obviously not the most efficient forum to settle disputes like this. The very fact that they are discussed testifies to the ineffectiveness of alternatives. Unfortunately, however, sporadic settlement of complaints through the negotiation will not resolve the problem of lack of trust in Japan, or more specifically the concern over its mercantilism, because the process is not institutionalized but depends on the Japanese government's goodwill. Nobody, even officials themselves, can tell when Japan might start saying "no". Japanese determination to become a major importing country does not imply that the country will cease to be a major exporter. The role expected of the Japanese Antimonopoly Law will be ever more important in this setting, since the language of the Law allows its application to foreign trade and, accordingly, the interests the Law serves spread globally, not confined to Japanese consumers' surplus. However limited its authority may be in international trade, as exemplified by the distribution of authority under the Export-Import Trade Law, the Japanese Fair Trade Commission should be duly concerned about the problem of the mercantilist policy. This is one of the lessons we ought to learn from the episode of the U.S.-Japan Semiconductor Agreement.