

INTERNATIONAL INDUSTRIAL ORGANIZATION AND COMPETITION POLICY*

By KEN-ICHI IMAI**

Introduction

This paper attempts to consider a diversity of problems relating to international competition policy from the standpoint of industrial organization. This paper consists of the following 3 sections;

1. International cartels in major manufacturing industries;
2. International commodity agreements and shipping cartels—so-called publicly recognized cartels;
3. Some proposals on international competition policy.

In Section 1, international cartel problems are investigated chiefly in terms of the “effectiveness of cartel”. For this purpose, an attempt is made to examine the possibilities of international cartels being established and their probable effectiveness on the basis of estimated data on the elements of market structure such as market share, number of firms, degree of product differentiation, and growth rate of demand in selected major industries, and moreover, to single out the industries where the so-called evils of cartel might occur.

In Section 2, an attempt will be made to evaluate the widely recognized international cartels such as commodity agreements mainly relating to developing economies, and shipping cartels by developed countries, in the light of recent developments. It is open to question whether the arguments supporting these cartels are still valid under today's prevailing conditions. For the purpose of such examination, the costs of resource misallocation due to such cartels will be statistically estimated, and alternative policies will be suggested.

In Section 3, the writer will endeavor to find out policy measures for international competition, drawing upon the foregoing analyses, and will propose some of them as the core of the effort to contribute to international competition policies.

I. International cartels in selected manufacturing industries

[1] An “International cartel” is defined as “business arrangements which have the

* This is a revised version of the paper presented to the Tokyo Conference on International Economy and Competition Policy (Oct. 1973).

** Professor (*Kyōju*) of the Institute of Business Research.

purpose or effect of reducing or regulating competition in international trade".¹ The majorities of these are private business arrangements, including even those that are guided by governmental action or based on intergovernmental agreements, such as export cartels and international commodity agreements.

In this section private cartels are mainly investigated, while in the next section the problem of governmental cartels will be dealt with.

[2] It is well known that international cartels saw their best in the period between 1929 and 1937, as they were given a wide publicity appearing to control over half of world trade.

We must remember that even in those days each international cartel was not always managed effectively. Many international cartels, especially those in depressed industries with large unutilized capacity, have been constantly subject to disruption, because of opportunistic actions by cartel members, new entries into the industries, competitors' squabbles for large slices of the market, and recurrent misunderstanding among cartel members due to differences in language, business customs, and national loyalty. We have learned that the establishment, and effective operation, of an international cartel is extremely difficult even in the absence of public regulation affecting its activities.

To begin with, let us examine what conditions will make international cartels effective, for this will suggest what industries may produce the so-called evils of an international cartel, and will give a proper direction to our discussion. Given limited information on international cartels, we will be justified in supposing that such an approach would be a most workable one.

[3] The organizations of international cartel, according to Professor Fritz Machlup,¹ are classified in increasing tightness of organization as follows: 1) loose association memberships; 2) informal understandings; 3) straight agreements; 4) patent license agreements; 5) trade mark arrangements; 6) joint selling agencies; 7) strict association memberships and 8) arrangements with government participation.

We will examine which of these classified organizations will be adapted to what kind of industrial structure. For this examination, let us select such elements of industrial structure as: 1) number of firms, 2) concentration ratio, 3) degree of product differentiation, 4) growth of demand, and 5) substitution possibilities.

[4] Table 1 presents a summarized list of international cartel organization and industrial structures.

In oligopolistic industries with a limited number of firms, a small degree of product differentiation and moderate rate of demand growth, international cartels may take the form of loose association membership or informal understandings. Though many international cartels are not managed effectively as mentioned before, in such industries it is possible for cartels to be set up without difficulty and to be operated without conflicts even in the absence of formal organizations or explicit communications. In these industries the restrictive effects of international cartel will tend to emerge in high probabilities. The copper, nickel or aluminum industries can be cited as such examples, wherein the old-fashioned raw material cartels will in fact continue survival under new arrangements reflecting environmental changes as discussed in detail later.

In such industries as characterized by a relatively small number of firms and a wide

¹ F. Machlup (16), p. 5.

TABLE 1. MARKET STRUCTURE AND FORM OF INTERNATIONAL CARTEL

| Market Structure | | | | Demand Condition | | Form of Cartel | Example |
|------------------|----------------------------------|-------------------------|------------------|------------------|----------------------------|--------------------------|-------------------|
| Type | Number of firms or Concentration | Product Differentiation | Entry | Demand Growth | Substitution Possibilities | | |
| A | a few | a little | difficult | low | no | informal understandings | Diamond |
| B | a few | a little | rather difficult | high | yes | " | Aluminum |
| C | a few | much | | low | | " | |
| D | a few | much | | high | | " | Computer |
| E | many | a little | | low | | loose association | Steel |
| F | many | a little | | high | | straight agreement | Pertoleum |
| G | many | much | easy | low | | patent license agreement | Textile machinery |
| H | many | much | easy | high | | government-sponsored | Sugar |
| I | very many | a little or much | easy | low or high | | export cartel | Textile products |

availability of opportunities for product differentiation, or a remarkable rate of growth of demand, there will be little prospect for an international cartel being implemented, for with the products widely differentiated concerted actions between the firms would be troublesome to the extent that they may disturb effective cartel operations. In the old days, however, even in these industries, it was possible to divide the market as an effective means for cartel operation, while such an apparent restrictive practice now will immediately be banned by the force of existing antitrust laws.

In industries with a relatively large number of firm and a small degree of product differentiation, tacit coordination or informal organization will not suffice to manage an international cartel effectively without the help of any other instruments, such as patent license agreements or trade-mark arrangements. In recent years the patent agreements have been discovered to be the most notorious invisible mantle of cartel—a topic which will be discussed at another session of this conference. Nylon and electric machinery will possibly be cited as such examples.

In industries with a very large number of small producers, only association with strict regulations or centralized selling organizations can be at work effectively. Generally speaking, government participation becomes necessary to keep such cartels together. Export cartels can be said to be their best example. As a matter of fact, many countries exempt the export cartels from the application of the antitrust law; they are set up chiefly under intergovernmental agreements. Now we must note a doctrine, sometimes asserted, that the export cartel often leads to an international cartel.

[5] Within the foregoing conceptual framework, let us now analyse the possibility of establishing an international cartel in each selected manufacturing industry.

In Table 2-A relevant data are compiled for the three digit manufacturing industries, where the total number of firms in the world is not large. In Table 2-B, market shares of leading firms in the world production of major oligopolistic industries; in Table 2-C,

data on export cartels; in Table 2-D, data relating to the multinational enterprises are shown.

From these tables the following observations which are suggestive for international competition policies are made:

- 1) The number of the industries where the number of firms is not large enough to prevent effective international cartel operations is at most twenty as listed in Table 2-A. In the industries other than those, an international cartel could not have been set up without governmental support or some other kind of instrument.

TABLE 2-A. NUMBER OF FIRMS, DEGREE OF PRODUCT DIFFERENTIATION, ETC.,
IN THE SELECTED MANUFACTURING INDUSTRIES

| Industry | Total Number of Companies | | | | | Degree of Product Differentiation | Growth Rate of Demand |
|---------------------------------------|---------------------------|-------|-------------|--------|-------|-----------------------------------|-----------------------|
| | France | Italy | Netherlands | U.S.A. | Japan | | |
| Sugar | 92 | 36 | 6 | 35 | 98 | 0.47 | 3.0% |
| Beer & malt | 211 | 38 | 41 | 171 | 4 | 0.50 | 4.2 |
| Tobacco | 1 | 564 | 134 | 355 | 1 | 0.18 | 3.0 |
| Petroleum | 157 | 134 | 21 | 288 | 50 | 0.46 | 7.9 |
| Pulp, paper & board | 210 | 598 | 37 | 333 | 29 | 0.23 | 5.3 |
| Artificial & synthetic fibres | 28 | 14 | 4 | 33 | 39 | 0.38 | 5.1 |
| Steel mill | 54 | 398 | 3 | 167 | 9 | 0.69 | 5.4 |
| Wire-drawing, rolling, cold finishing | 273 | 183 | 147 | 217 | 80 | 0.69 | 5.7 |
| Primary non-ferrous metal | 279 | 1,125 | 33 | 107 | 45 | 0.64 | 3.7 |
| Textile machinery | 539 | 419 | 246 | n.a. | 2,413 | 1.20 | 4.1 |
| Transmission equipment | 28 | 225 | 26 | 199 | 26 | 0.88 | 8.4 |
| Electric wires | 68 | 118 | 11 | 217 | 496 | 0.90 | n.a. |
| Electrical measuring instruments | 201 | 400 | 66 | 490 | 858 | 0.53 | n.a. |
| Lamp & lighting fixtures | 60 | 285 | 154 | 108 | 1,483 | 0.53 | n.a. |
| Batteries | 115 | 27 | 35 | n.a. | n.a. | n.a. | n.a. |
| Railroad & street cars | 59 | 38 | n.a. | 110 | 4 | 0.85 | 3.1 |
| Motorcycle & parts | 494 | 271 | 95 | 70 | 557 | 0.51 | n.a. |
| Aircraft construction | 152 | 21 | 5 | 114 | 4 | 1.02 | 15.2 |

Note: a) In industries other than those, there are too many companies to establish an international cartel.

b) Hufbauer's estimate (10). Product differentiation is measured as the coefficient of variation in unit value of 1965 United States exports destined to different countries. Differentiated goods are marked by higher coefficients of variation.

Source: L. Philips, *Effects of Economic Concentration*, North-Holland, 1971; R.L. Nelson, *Concentration in the Manufacturing Industries of the United States*, Yale Univ. Press, 1963; G.C. Hufbauer (10), and other materials.

- 2) Considering the relationships between market structure and cartel effectiveness or cartel forms mentioned above, and noting other information such as the history of industrial cartels, we could single out a tentative list of the industries, that have been the focus of international restrictive business practices.

TABLE 2-B. MARKET SHARES IN THE SELECTED MANUFACTURING INDUSTRIES

| Copper | | | Aluminum | | |
|---|-----------|-------|--|---------------|-------|
| Kennecott | (U.S.A.) | 13.2% | Alcoa | (U.S.A.) | 17.8% |
| Anaconda | (U.S.A.) | 11.3 | Alcan | (Canada) | 15.8 |
| A.A.C. | (U.K.) | 8.0 | Leynolds | (U.S.A.) | 12.6 |
| GECOMIN | (Belgium) | 7.5 | Kayser | (U.S.A.) | 11.2 |
| AMAX | (U.S.A.) | 6.9 | Pecine | (France) | 7.3 |
| ASARCO | (U.S.A.) | 5.6 | Alsuisse | (Switzerland) | 6.4 |
| Phelps Dodge | (U.S.A.) | 5.4 | | | |
| Newmont | (Canada) | 3.5 | Total of 6 companies | | 71.1 |
| INCO | (Canada) | 2.1 | | | |
| Noranda | (Canada) | 2.1 | | | |
| Total of 10 companies | | 65.6 | | | |
| <i>note:</i> market shares are measured by ingot production volume in 1970 | | | <i>note:</i> market shares are measured by ingot production volume in 1970 | | |
| Crude Steel | | | Synthetic-fibre | | |
| Nippon Steel | (Japan) | 5.3% | Dupon | (U.S.A.) | 20.9% |
| U.S. Steel | (U.S.A.) | 4.3 | ICI | (U.K.) | 12.8 |
| British Steel Corp. | (U.K.) | 3.8 | Monsanto | (U.S.A.) | 6.9 |
| Bethlehem Steel | (U.S.A.) | 2.8 | Celanese | (U.S.A.) | 6.7 |
| Nippon-Kokan | (Japan) | 2.1 | Rhône-Poulenc | (France) | 6.1 |
| Thyssen Group | (Germany) | 2.0 | AKZO | (Netherlands) | 5.7 |
| Sumitomo-Kinzoku | (Japan) | 1.9 | Toray Industries | (Japan) | 5.5 |
| Kawasaki-Seitetsu | (Japan) | 1.8 | Hoechst | (Germany) | 4.3 |
| FINSIDER | (Italy) | 1.7 | Teijin | (Japan) | 3.2 |
| National Steel | (U.S.A.) | 1.6 | Courtoalds | (U.K.) | 3.0 |
| Total of 10 companies | | 27.3 | Total of 10 companies | | 75.1 |
| <i>note:</i> market shares are measured by crude steel production volume in 1970. | | | <i>note:</i> market shares are measured by production capacities of synthetic fibre in 1970. | | |

food: sugar, tea

raw material: pulp, petroleum, copper, aluminum, tin, beryllium, magnesium

steel: pig-iron, iron and steel products

chemical: fertilizer, dyestuff, explosives, plastics, synthetic-fibre, pharmaceutical

machinery: surgical instruments, lamp & lighting fixture, measuring instruments, camera

miscellaneous: match, photo-films

Under the category of food and raw material, industries such as sugar, tea and petroleum are related with international commodity agreements as we shall see

later. In the group of raw material, non-ferrous metal processing such as copper, aluminum and tin are the industries noted for having a small number of firms and limited product differentiation where an international cartel would be in operation with ease. In the machinery group, on the other hand, the listed sectors having wide differentiation in their products would make an international cartel in these sectors a special one as it is based on a specific arrangement such as a patent license agreement. The case of lamp and lighting fixture is evident of this observation.

In the steel and chemical industries, dyestuff and explosives are classic examples of an international cartel. However, the steel product and synthetic-fibre sectors require our serious attention. These sectors are border line cases as far as the number of firms and the degree of product differentiation are concerned. This is to say that even if the total number of firms are not small in these sectors, big companies still dominate large market shares as shown in Table 2-B. Though their products are differentiated, the degree of differentiation is not as large as the machinery industry, and therefore would be rather controllable from the standpoint of cartel operation. Contrary to the sectors as cited as classical examples, the demands for steel and synthetic fibre are making steady growth, but their growth is not so rapid as to discourage the incentive for making a cartel. Considering that expenditures for steel and synthetic-fibre occupy high shares in total national expenditures, we could say that cartel movements in these sectors have deep influences on social welfare.

- 3) In the export cartel, there are two sorts of cartel to be distinguished. The first category is the cartel which comprises a very large number of small producers. If an international export cartel is established based on a national industrial cartel, its power to increase the price may be weakened, since its strong incentives for small producers to chisel the price will not make the price cartel operational without disruption.

TABLE 2-C. EXPORT CARTEL IN JAPAN
Number of cartels which are authorized by
Export and Import Trading Act

| | 1960 | 1965 | 1970 |
|---|------|------|------|
| Agricultural products, processed foods | 16 | 20 | 12 |
| Textile | 89 | 75 | 56 |
| Wood products, and miscellaneous products | 23 | 23 | 16 |
| Ceramics, stone, gray | 14 | 15 | 13 |
| Chemistry | 6 | 15 | 16 |
| Steel and non-ferrous metal products | 15 | 22 | 26 |
| Machinery | 8 | 21 | 30 |
| Electrical machinery | 1 | 6 | 7 |
| Total | 172 | 197 | 176 |

Source: Fair Trade Commission of Japan.

TABLE 2-D. SUBSIDIARIES OF 187 U.S.-CONTROLLED
MULTINATIONAL ENTERPRISES

| Area | Number of Enterprises having at least One Subsidiary in a Specified Area Engaged Principally in ^a | | | |
|---------------------------|---|-------|------------|-------------------|
| | Manufacturing | Sales | Extraction | Total Enterprises |
| All foreign areas | 185 ^b | 162 | 45 | 186 |
| Canada | 161 | 59 | 17 | 174 |
| Latin America | 171 | 100 | 28 | 182 |
| Mexico | 138 | 28 | 10 | 162 |
| Argentina | 80 | 17 | 3 | 99 |
| Brazil | 92 | 21 | 2 | 111 |
| Europe and United Kingdom | 183 | 136 | 10 | 185 |
| European Community | 171 | 112 | 5 | 179 |
| France | 122 | 52 | 3 | 151 |
| Germany | 113 | 59 | 1 | 149 |
| Italy | 106 | 36 | 1 | 132 |
| EFTA | 161 | 98 | 4 | 181 |
| United Kingdom | 145 | 59 | 4 | 167 |
| Southern dominions | 135 | 64 | 11 | 154 |
| Asia and other Africa | 134 | 79 | 18 | 158 |
| Japan | 90 | 37 | 0 | 117 |
| India | 53 | 8 | 0 | 64 |
| Black Africa | 27 | 20 | 12 | 62 |

^aThe sum of the three categories for any area is unrelated to the total enterprises figure for that area, partly because an enterprise may be represented in more than one of the three categories of subsidiaries and partly because some minor categories of subsidiaries have been omitted.

^bThe list of 187 enterprises was based on their status in 1963 and 1964; by 1967, however, a number of mergers and divestitures had occurred.

Source: R. Vernon, *Sovereignty at Bay—The Multinational Spread of U.S. Enterprises*, 1971, p. 123.

The second category is seen in export cartels as in the case of steel export, where high probabilities for effective cartel to develop are expected. In such a case national export cartels may lead to the establishment of an international cartel.

- 4) In industries which had once been under market-sharing agreements, especially in the chemical and machinery industries, direct investments by multinational enterprises have been proliferating to a point where sales by owned subsidiaries have been taking the place of the market-sharing agreements. This trend suggests that simple market divisions no longer prevail with the advent of today's compound market sharing.

[6] In addition to these observations, we shall make two other points in connection with the international cartel policy.

The first point is how the government will participate in the formation of a private cartel. As is well known, private international schemes have been frequently arranged under the sponsorship of the government and sometimes effected by tacit governmental support even without any formal agreements. For example, in recent years, Japanese industrialists have often made proposals to the government for its supervision in securing cartel policies in accordance with national interests and for the promotion of an orderly marketing in exports. In fact, the government has sometimes been persuaded to participate in this kind of scheme. If the concerted unilateral actions of the governments concerned are hidden in the establishment of an international cartel, we must focus our attention to such government arrangements from the standpoint of international competition policy.

The second point is that the misallocation effects of international cartels are supposed to be aggravated when they are combined with natural resource scarcities or depletion. If scarce natural resources were under the control of international cartels, a speculative motive for forward sale would dominate the market, and the effects of such unstable speculations would culminate to extraordinary price increases. Here is another field where we must take special care in the making of policy arrangements.

[7] The main conclusions we can make with regard to international cartels in the manufacturing industries after all the foregoing considerations are summarized as follows:

- 1) Of the industries at issue, non-ferrous metal, steel products and synthetic fibre are cited as the major industries to which special attention must be directed. Furthermore, non-ferrous metal, especially copper and aluminum, are related with the resource depletion problems, so that special attention and discrimination should be given to them in international competition policies.
- 2) Government participation in the establishment of a private cartel such as an export cartel must be done away with *reciprocally* in each country. If one country participates in the setting-up of an export cartel for some specific reasons, it will just give an excuse to other countries to do the same. In the process the basis of an international cartel movement is being formed.
- 3) Unfortunately, confronted with limited information of international cartels, a continued endeavor in obtaining it must be done by international collaboration, especially in the face of complexities and compound characters of restrictive business practices due to multinational activities of firms.

II. *International commodity agreements and shipping cartels*

—*The problem of publicly recognized cartels*

[8] International commodity agreements will be, if undertaken privately, clearly enough cartel agreements violating the antitrust laws. They are, however, officially approved for the socio-political reasons which will soon be critically examined.

Most international trade experts or economists take a skeptical view of the international commodity agreements. As Prof. H. Johnson summarized,² in principle, some combination of trade liberalization and cash transfer would always be more economically efficient

² H. Johnson (12), p. 137.

than the commodity agreement.

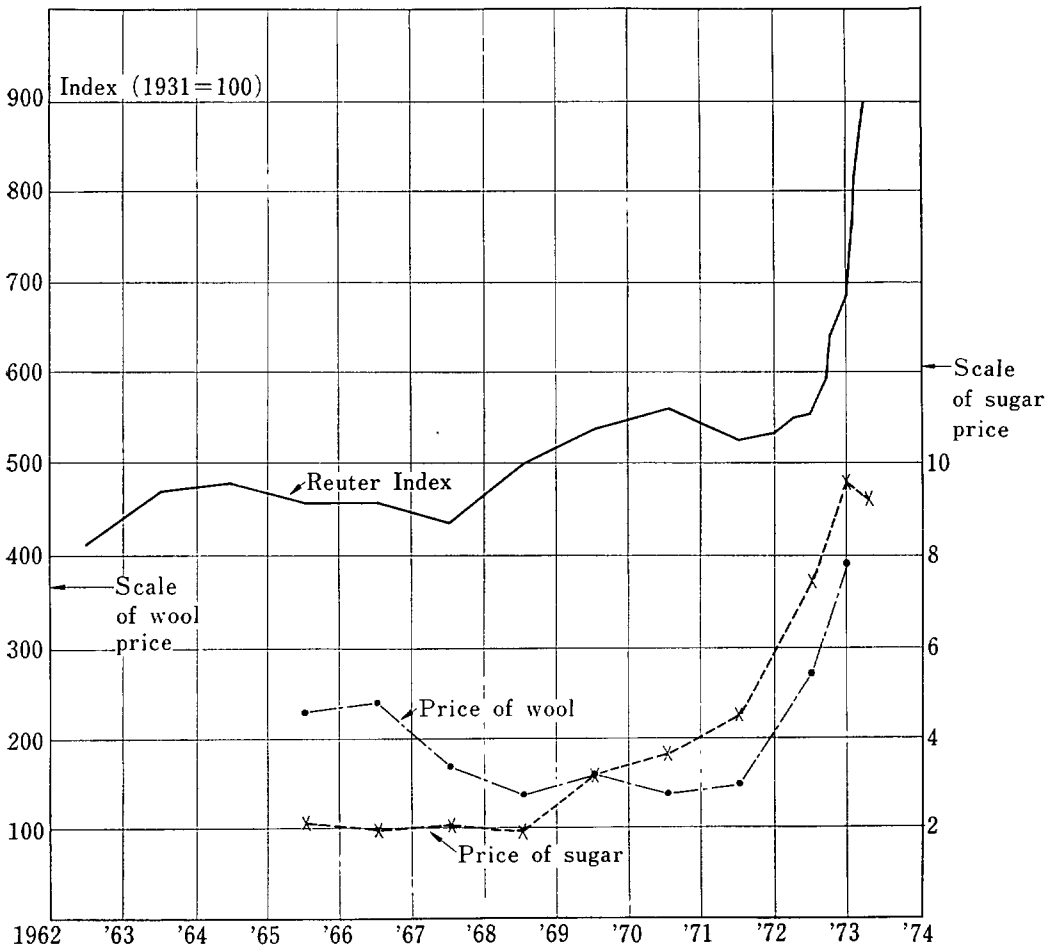
The cases for the international commodity agreement are based on the theory of a second best of a sort. They are not being proposed as an optimum, but as a second best device for transferring aid from rich to poor countries without going through a formal appropriation process.

Now, we would like to give a second thought on this second best argument. Could we really say that an international commodity agreement has effectively achieved the second best goals ?

[9] The history of international commodity agreements shows clearly that the participation of government in such agreements is no guarantee that the price will not be raised unreasonably, that a cartel umbrella will not be held over high-cost producers, and that the interests of consuming countries will not be disregarded.

In recent years, the demand for primary commodities, such as sugar, cotton, wool, or non-ferrous metals has made an unexpected growth, increasing their prices sharply as

FIG. 1. PRICE MOVEMENTS OF THE PRINCIPAL PRIMARY COMMODITIES



shown in Fig. 1. This demand growth is due to the so-called "re-evaluation" of natural products compared to synthetic products, and to bottlenecks in the supply capacities of substitute products which the environmental problems are responsible for.

In the light of this new circumstance, where surplus capacities that have constituted a strong reason for commodity agreements are being wiped out, we must reappraise the *raison-d'être* of the international commodity agreements. If the prices are increasing steadily reflecting the demand-supply conditions, why will we need such cartel-like agreements to support a price stabilization?

If applied to a wider range of primary commodities than now, such cartel-like agreements might produce a serious problems of resource misallocation. We shall have to examine whether or not the benefits of the commodity agreements may be worth the costs of resource misallocation they will entail.

[10] Let us now estimate the possible monopoly revenue, by commodity, due to the cartel-like commodity agreements.

Some years ago, John Pincus tried to make such estimates in his 1965 books (22) for five commodities: coffee, sugar, tea, cocoa and banana. He estimated that monopoly pricing for these commodities might have increased export earnings of the producing countries in 1961 from \$4,358 million to \$5,042 million, i.e. an increase of 15.7 per cent. However, these estimates were based on rather specific assumptions, as Prof. H. Johnson's comment³ rightly points out. Prof. H. Johnson has suggested an estimation procedure that is based on alternative general assumptions. We shall make our estimates following his suggested procedure.

Let us make a notation to the effect that a free market price and quantity are respectively represented by P and Q , while a cartel price and quantity are respectively represented by P' and Q' . Then the price elasticity of the demand for a commodity is defined as:

$$\varepsilon = \frac{(Q' - Q)/Q}{(P' - P)/P}.$$

If the cartel price is determined so as to maximize total revenue $P'Q'$, the following equations are to be derived:

$$(1) \quad P'/P = (\varepsilon - 1)/2\varepsilon$$

$$(2) \quad Q'/Q = (1 - \varepsilon)/2$$

$$(3) \quad P'Q'/PQ = -(1 - \varepsilon)^2/4\varepsilon.$$

Alternatively, assuming that P is equal to production cost, the cartel price that will maximize profit, namely $(P' - P)Q$ will be:

$$(4) \quad P'/P = (2\varepsilon - 1)/2\varepsilon$$

and at that price

$$(5) \quad Q'/Q = \frac{1}{2}, \text{ and}$$

$$(6) \quad (P' - P)Q = -PQ/4\varepsilon.$$

According to these formulas, the cartel price increase and the degree of production restriction by the commodity agreement corresponding to each assumed elasticity are shown in Table 3.

³ H. Johnson (12), pp. 159—162.

TABLE 3. RELATIONSHIP BETWEEN PRICE ELASTICITY AND PRICE INCREASE, AND PRODUCTION RESTRICTION

| elasticity | when profit is maximized | | | when revenue is maximized | | |
|------------|--------------------------|----------------|-------------------|---------------------------|----------------|-------------------|
| | $\frac{P'}{P}$ | $\frac{Q'}{Q}$ | $\frac{P'Q'}{PQ}$ | $\frac{P'}{P}$ | $\frac{Q'}{Q}$ | $\frac{P'Q'}{PQ}$ |
| -0.1 | 5.50 | 0.55 | 3.03 | 6.00 | 0.50 | 3.00 |
| -0.2 | 3.00 | 0.60 | 1.80 | 3.50 | 0.50 | 1.75 |
| -0.3 | 2.10 | 0.65 | 1.41 | 2.67 | 0.50 | 1.34 |
| -0.4 | 1.75 | 0.70 | 1.23 | 2.25 | 0.50 | 1.13 |
| -0.5 | 1.50 | 0.75 | 1.13 | 2.00 | 0.50 | 1.00 |
| -0.6 | 1.25 | 0.80 | 1.07 | 1.83 | 0.50 | 0.92 |
| -0.8 | 1.13 | 0.90 | 1.01 | 1.56 | 0.50 | 0.78 |
| -1.0 | 1.00 | 1.00 | 1.00 | 1.50 | 0.50 | 0.75 |

[11] Now, we are ready to estimate possible monopoly revenues by commodities.

Supposing that prices of primary products during the 1960's are close to free market prices, we can be justified in assuming that the prices and quantities in 1967, when the Reuter index of primary commodities prices were lowest in the 1960's are P and Q in our notations.

In Table 4 we see that column (1) stands for realized 1967 exports values of the principal commodities from developing countries; column (2) for assumed elasticities for the commodities; and column (3) for computed monopoly revenues for these assumed elasticities.

[12] From these estimates the following observations may be made.

- 1) Recent prices of principal primary commodities such as sugar, wool, copper, etc. are almost close to the monopoly prices. It can be said that though considerably influenced by demand shifts, the price increase is mainly accounted for by monopolistic production restrictions.
- 2) If we suppose that the price elasticities for the primary commodities are high, monopoly pricing for these commodities will increase export earnings of the producing countries from \$12,121 million to 13,790 million, i.e. an increase of 13.7 per cent. If the elasticities are relatively low as most quantitative researches suggest, the total monopoly revenue will reach \$23,542 million, i.e. an increase of 94.2 per cent.

These figures suggest the magnitude of the cost of resource misallocation due to the commodity agreements.

[13] Could we say that the above-mentioned misallocation costs are required to achieve the goals which the proponents of the commodity agreements have aimed at? Most economists will probably disagree with such a proposition.

As mentioned earlier, the international commodity agreements are nothing but second best measures, attempting to achieve the so-called price stabilization and assistance to developing countries.

If price stabilization is the goal, however, the commodity agreements now in effect can hardly be thought of as a good measure. Now more effective methods are being proposed from the standpoint of industrial organization theory.

If aid to developing countries is the goal, more effective measures including insurance

TABLE 4. POSSIBLE MONOPOLY REVENUE BY THE INTERNATIONAL COMMODITY AGREEMENT

| Commodity | (1) | (2) | | (3) | | (4) | | (5) |
|-----------------------------------|----------------------------------|------------|------|-------------------|--------------------|-------------------|--------------------|-----------------|
| | 1967 export | Elasticity | | Monopoly Revenue | | Monopoly Price | | Price (1973) |
| | <i>PQ</i> (million dollar) | low | high | low elasticity | high elasticity | low elasticity | high elasticity | |
| | | | | (million dollar) | | (dollar) | | (dollar) |
| Food-stuff | | | | | | | | |
| Coffee | 2,100 | -0.2 | -0.5 | 3,780 | 2,373 | 125.8 | 62.9 | 72.8 |
| Sugar | 1,400 | -0.2 | -0.6 | 2,520 | 1,498 | 6.3 | 2.6 | 9.2 |
| Oil-seeds & Oils | 950 | -0.2 | -0.5 | 1,710 | 1,074 | 37.2 | 18.6 | 18.3 |
| Cocoa | 620 | -0.2 | -0.5 | 1,116 | 706 | 89.7 | 44.9 | 33.1 |
| Tea | 580 | -0.2 | -0.4 | 1,044 | 713 | 139.2 | 81.2 | 47.9 |
| Rice | 500 | -0.2 | -0.4 | 900 | 615 | | | |
| Coarse Grain | 460 | -0.2 | -0.4 | 828 | 566 | | | |
| Wheat | 150 | -0.2 | -0.4 | 270 | 185 | 5.0 | 2.9 | 2.7 |
| Agricultural raw materials | | | | | | | | |
| Cotton | 151 | -0.3 | -1.0 | 213 | 151 | 48.3 | 23.0 | 35.8 |
| Natural rubber | 940 | -0.1 | -0.3 | 2,848 | 1,325 | 105.2 | 40.2 | 22.4 |
| Wool | 230 | -0.3 | -1.0 | 324 | 230 | 71.8 | 34.2 | 78.9 |
| Jute | 230 | -0.3 | -1.0 | 324 | 230 | 653.0 | 311.0 | 400.0 |
| Hard fibers | 90 | -0.3 | -1.0 | 127 | 90 | | | |
| Ores and Metals | | | | | | | | |
| Copper | 1,770 | -0.2 | -0.8 | 3,186 | 1,788 | 141.6 | 53.2 | 91.4 |
| Iron-Ore | 770 | -0.1 | -0.4 | 2,333 | 947 | 151.3 | 48.0 | 48.1 |
| Tin | 530 | -0.2 | -0.5 | 954 | 599 | 460.8 | 230.4 | 172.4 |
| Aluminum | 180 | -0.3 | -1.0 | 254 | 180 | | | |
| Bauxite | 150 | -0.2 | -0.5 | 270 | 170 | | | |
| Zinc | 130 | -0.2 | -0.5 | 234 | 147 | 40.17 | 20.1 | 19.7 |
| Manganese ore | 100 | -0.2 | -0.5 | 180 | 113 | | | |
| Lead | 90 | -0.3 | -1.0 | 127 | 90 | 21.7 | 10.4 | 15.4 |
| Total | 12,121 | | | 23,542 | 13,790 | | | |

Note: Monopoly revenues are computed using the equation (3).

Source: UNCTAD (35) for 1967 export; IMF International Financial Statistics for 1973 price.

programs should be designed.

Next, we shall consider these problems respectively.

[14] Much discussions have been given to the price stabilization schemes,⁴ especially to their practicabilities and their welfare implications. Without repeating them, let us take up one point which suggests an alternative scheme for the commodity agreement—the problem of future trade.

⁴ See, for example, T. Geer (6), C.E. Staley (29), B.C. Swerling (31).

The commodity-price-stabilization literature implicitly assumes that the word "price" refers to the spot price, ignoring the continuum of future prices, and thus failing to examine the role of private future markets. It is also a matter of fact that government interventions in commodity markets have been confined to the manipulation of spot prices.

Only recently were these problems investigated by R.L. Mckinnon in his 1967 paper (20). As he demonstrated, direct manipulation of spot prices is likely to be a very inefficient and unnecessarily costly method of achieving governmental policy goals. In fact, this is a fundamental reason why so many international commodity agreements prove to be unsuccessful or abortive.

If individual exporters hedge optimally by forward sales and buffer stock holding, then fairly wide variations in spot prices will not necessarily lead to a wide variation in their export proceeds. Therefore, if private future markets were provided, government manipulation of spot prices to achieve export earning stability would be redundant.

It may do us well to conclude by quoting Mckinon's summarized statement. "Public policy should actively encourage more future trading—particularly by primary producers in longer-term contracts who also hold buffer stocks. This process can be greatly helped if commodity authorities confine their activities to stabilizing distant future prices. With such a program, one can move away from existing commodity controls with all their technical complexities and inefficiencies and obtain a far more efficient allocation of the world's primary commodity resources at the same time that risk to primary producers is minimized."⁵

[15] Aids to developing countries are the *raison d'être* of the international commodity agreement. However, could we really say that these aids have been made effectively and equitably?

The history of the post-World War II agreements was not one of success, for none of them was able to cope up with the underlying problem of excess capacity during the 1960's. Though they are now succeeding in increasing prices as mentioned earlier in (9) the aid by such manipulation would bring serious problems of unequal distribution between the developing countries.

As far as the study of commodity stabilization is concerned, attention has already shifted to a search for financial alternatives of commodity price stabilization.⁶ Recent contributions in this field concern investigations of various kinds of insurance against price or income changes, rather than multilateral long-term contracts, quota agreements, or buffer stocks.

For example, the U.N. exports' report, *International Compensation for Fluctuations in Commodity Trade* (1961) already presented a detailed example of a general scheme to compensate for deficiency in export proceeds, and proposed the so-called "Development Insurance Fund."

This proposal is regarded as a form of an international social insurance wherein the risk of being exporters is insured against a deficiency in export proceeds, and wherein the affluent countries are expected to contribute to the insurance fund more than what they receive from it, and wherein the developing countries are expected to contribute less.

These suggested proposals could perhaps be more efficient as an assistance scheme than

⁵ R.L. Mckinnon (20), p. 860.

⁶ On this point, see C.E. Staley's survey (29).

the commodity agreement. However, we should not be indifferent to a more orthodox policy relating to this problem. The fundamental goal should be to eliminate the causes of export earning instability, if this problem is viewed as one of instability; or, to eliminate the causes of insufficient export growth, if the problem is viewed as one of secular trend. The orthodox policy to these problems is *for the advanced countries* to eliminate quota, tariffs, and consumption taxes on the imports of raw materials and the products of newly established manufacturing industries from the developing countries. At the same time, fundamental changes will be necessary in the structuring of the export sectors and general economic conditions in the developing countries. If it takes time to make possible this fundamental solution, short-run solutions should be looked for with the view of contributing to the long-run solution of the problem. As such attempt the insurance program will be better than the commodity agreement.

[16] Taking these points into consideration, we are now in the position of summarizing our arguments and drawing some conclusions about the international commodity agreements.

First, the possible monopoly revenue by the commodity agreements would amount to substantial figures. Recent price increases of the principal primary commodities may reflect such monopolistic action. If the entry into production industries is easy, as the experience of coffee market shows, such price increase can be prevented. However, if this entry is blocked by some barriers, monopolistic pricing will prevail in the industry. Scarce natural resource industries are good examples. In this respect, more attention should be given to the relationship between the commodity agreements whose purpose is to conserve natural resources and the policy of curbing restrictive cartel arrangements.

Secondly, in principle, an effort should be made to find a fundamental solution rather than to continue to depend on the commodity agreement alone. It is generally assumed that primary commodities can be defined unambiguously and that their production will tend to be natural resources intensive. This is a fallacy. Not only do many products falling into the category of primary commodities involve much processing, but does their export promotion require well-organized markets, marketing channels, and adequate educational institutions. An economic aid program must be the one which will contribute to the long-run solution of these problems of the developing countries. In this respect we find ourselves against the international commodity agreement and much more so in theoretical reasoning. An alternative aid fund will be suggested in Section 3. This suggestion may also contribute to the solution of the problem of conserving natural resources.

[17] So far we have been dealing with the publicly recognized cartels relevant to the developing countries.

Now turning our eyes to the other side of the picture, let us consider a traditionally approved cartel in developing countries, which is related to the subject of the commodity agreements. Concretely, this is the problem of the shipping conference.

There are some similarities between the problems of the international commodity agreement and those of the shipping conference. As Daniel Marx pointed out in his *International Shipping Cartels* (17), both international commodity agreements and shipping conferences have been significantly influenced by war-stimulated surplus capacity, and both seem to be frequently characterized by the failure of demand and supply to respond with sufficient promptness to changes in price.

On the other hand, there are important differences between the two. Shipping services, unlike agricultural and mineral products, cannot be stored. And the apparent difference with respect to the administrative purpose of price regulation is the great multiplicity of shipping rates. For these complexities, multinational control of the rates is not feasible. As Daniel Marx says, the conflict of national interests and the bureaucratic disadvantage that might arise in an international organization with the power to regulate rates may produce greater evils than the one it intends to correct. Therefore, it appears advisable to permit the industry to regulate itself.

According to this logic, the conference system, despite its wellknown shortcomings, has been considered a reasonably satisfactory form of self-regulation.

There have been many discussions on the pros and cons of the shipping conference system. The argument for it is based, in essence, on the point that competition cannot ensure a satisfactory level of rate in an industry like shipping, since it is likely to degenerate into cutthroat pricing. The argument against the shipping conferences emphasizes the fact that the increasing concentration of power in the hands of selected shipping companies is abused.

The author himself is skeptical about the cutthroat competition argument which does not represent the reality, and sympathizes with the monopolistic abuse argument. But we must refrain from drawing an ultimate conclusion on this problem because there remains too much to be done in detail about finding fact.

However, one point must be made clear. It should be asserted that the problem varies, depending on whether shipping capacity is scarce or plentiful. In discussing the shipping conference, the cutthroat competition argument is based on the experience when the war-made tonnage was plentiful or capacity remained unused. However, we are now in the period when substantial unused capacity would not prevail. Furthermore, market conditions in this industry are now in a state of flux, especially with the entry of container carriers. In these circumstances, monopolistic aspects of the shipping conferences should be critically scrutinized from the standpoint of international competition policy.

Though we are not prepared to give policy proposals in concrete terms, however, we would like to emphasize this point: that the secrecy of the conference operations must be done away with. For this purpose international cooperation could be undertaken. The shipping conference originally created with the character of public utility regulation; that is, if it regulates industry by itself, without need of utility regulation, fundamental data on its activities should always be disclosed for scrutiny by proper authorities. Disclosure of such data will be the starting point of all policy discussions.

III. *Some proposals on international competition policies and concluding remarks*

[18] In what industries should the international competition policy be encouraged? Where is the policy focus? These questions have been implicitly answered in the foregoing pages. But before attempting to advance more explicit replies, it will do us good to review briefly the major observations that have already been made and add some further comments.

With regard to the international cartels in the manufacturing industries, as is discussed in Section 1, we have seen that there are possibilities of having effective cartels in industries with relatively small number of firms and a limited product differentiation. Most natural resource oriented industries, such as copper and aluminum, fall into such a category. If the monopolistic power of the cartel were combined with depletion of the resources in these industries, the monopolistic price increase would run wild.

As for the international commodity agreements, we have estimated the possible monopoly revenue through the cartel-like agreements. Though substantial parts of it are occupied by the tropical goods such as coffee, sugar or banana, the possible monopoly revenue in the non-ferrous metal industries would also be substantial if they were controlled under a commodity agreement—Therefore, we should take note of the recent remarkable price increases in these industries.

Monopolistic evils in the commodity agreement, if any, will be soon lessened if new entries into the industry are not prevented by any barriers, as the experience of the coffee industry shows. However, in the exhaustible resource industries where new deposits of substitutable products are not expected to be found, new entry into the existing framework is severely blocked, as seen in the copper and aluminum industries. In fact, the monopolization of strategic raw material deposits has been one of the most common means of controlling markets. Though the persistent tendency towards forward-integration in this field has recently been weakened by the strength of host governments, an arrangement along the line of the international commodity agreement has been emerging as a new instrument for restricting output at the raw material stage.

[19] So much for the summary of our observations. Now the focus of the international competition policy has been made clear. To repeat, our utmost care and discrimination should be given to cartel-like movements in both the exhaustible resource and the exhaustible resource-oriented industries. Needless to say, another important problems such as those now created by multinational enterprises, and cartel activities based on patent license agreements, should be carefully noted. However, wishing that these problems are discussed at length at other sessions of this conference, we should like to confine our attention to the foregoing problem. Generally speaking, the competition policy must be focused upon the fields where it will be instrumental in improving market performance to a substantial degree. In the category of raw materials or natural resources, where there are wide range of governmental actions taken, the substantial improvements will be expected if the policy is taken in the right direction.

[20] In this respect, we shall now consider the specific policy problem relating to the exhaustible resource industries. As Prof. Mason pointed out,⁷ the unregulated overcropping of certain resources and wasteful exploitation of irreplaceable deposits may be difficult to prevent without any international control. Such a control has been applied benefiting a certain branch of the fishing industry. And this may have a potential utility in the metal and mineral industries if it is rightly applied.

Such a control or planning, however, is apt to bring monopolistic or cartel elements into the market structure. We must recall that a cartel system will tend to “boomerang” over a long period.

⁷ E.A. Mason (18), p. 86.

Therefore, the best we must do is seeking an optimal mix of control and competition in the international industrial organization, by means of international collaboration as discussed a little later.

There is another important movement in these industries. As typically represented by OPEC and SIPEC, the organizations of the resource-possessing countries have been strengthening their power to increase price, and to participate in business activities. Opinions on the evaluation of the power of these organizations are very conflicting. Nonetheless, as viewed from the concentration of production in Table 5, it would be impossible to underestimate their monopolistic power. In the case of crude oil, production being fairly diversified between the countries which are different from each other in many respects, a strong opinion exists that the power of OPEC is not expected to last for a long time. Recently, however, reserve-production years of each producing country are coming almost the same, and that the conflicts between the producing countries are disappearing with astonishing rapidity.

TABLE 5. MEASURES OF CONCENTRATION OF PRODUCTION IN
MAJOR INTERNATIONAL COMMODITIES, 1925-1965
(Percent of world production accounted for by
four largest producing nations)

| Year | Copper ore | Iron ore | Natural rubber | Crude oil | Tin ore |
|------|------------|----------|----------------|-----------|---------|
| 1925 | 99.2% | 80.9% | 92.7% | 90.5% | 83.8% |
| 1935 | 65.2 | 72.0 | 89.6 | 84.2 | 71.7 |
| 1955 | 72.4 | 70.0 | 83.5 | 74.5 | 75.1 |
| 1965 | 71.4 | 60.0 | 81.4 | 60.8 | 79.2 |

Source: Vernon, R. (33)

Therefore, these organizations can be considered as the countervailing monopolistic power against the monopolistic power of the international cartels.

Here emerges an economic image of bilateral monopoly or oligopoly. As it is well known, the equilibrium of bilateral monopoly is unstable, and the allocation of profits is determined by the balance of the bargaining power between the two. At any rate, the profit allocation problem is one only between them. But as far as the consumers are concerned, it is a fact that they appear as monopolists. Therefore, a policy measure must be taken from the consumers' standpoint.

[21] From all these considerations including the specific one relating to the exhaustible resource industries, one proposal can be advanced—this is the depletion tax proposal.

Several years ago, Boris Swerling, an established expert on commodity problems, recommended an international tax on petroleum products so as to increase the revenue for aid to developing countries.⁸ Recently, Prof. I.M.D. Little has made a similar proposal in curbing the monopolistic price increase of petroleum. In line with these, our proposal is to institute an international depletion tax on the outputs of exhaustible resources including petroleum.⁹

⁸ B.C. Swerling (31), pp. 16-17.

⁹ Refer to K. Imai (11).

This depletion tax has two purposes. A first is to conserve the depleting resources by restricting consumption through tax per ton and by developing substitutable resources by promoting research and development effort. For this purpose not only the per-ton tax but a lump-sum tax as a license fee had better be used. This is a policy-measure devised to avoid unregulated overcropping and wasteful exploitation as mentioned before. A second purpose is, needless to say, to provide aid for developing countries, stopping the use of the commodity agreement as a tool for economic aid.

At a first glance, this proposed tax may seem irrelevant, or too indirect as viewed from the standpoint of international competition policy; however, it can be the core of all the measures in this field, for by providing direct aid rather than using the commodity agreement it will be possible to separate the cartel problem from the aid problem or the natural resource problem. And, we shall be able to establish thereby international competition policies to curb restrictive business practices on the purely economic grounds.

These proposed schemes may as well be condemned as visionary or unpractical, but we should not forget that we are living in a critical period when the established institutions are really pressed for improvements. A growing concern over the problem of equity in international burden sharing is eloquent evidence of the wide recognition of the urgent need for our suggested policy. The writer should conclude that a rational international tax system should be designed by all means, for obtaining development funds, for conserving natural resources, and for encouraging fair business practice at an international level.

References

- (1) Coppock, J.D., *International Economic Instability: The Experience after World War II*, McGraw-Hill, 1962.
- (2) Edwards, C.D., "Economic and Political Aspects of International Cartel," in (3).
- (3) Edwards, C.D. et al., *A Cartel Policy for the United Nations*, Columbia University Press, 1945.
- (4) Edwards, C.D., *Control of Cartels and Monopolies: An International Comparison*, Ocean Publications, 1967.
- (5) Farnsworth, H.C., "International Wheat Agreements and Problems, 1949-56," *Quarterly Journal of Economics*, 1956, pp. 217-248.
- (6) Geer, T., *An Oligopoly: The World Coffee Economy and Stabilization Schemes*, Dunellen, 1971.
- (7) Haley, B.F., "The Relation between Cartel Policy and Commodity Agreement Policy," *American Economic Review*, 1946, pp. 717-734.
- (8) Hotelling, H., "The Economics of Exhaustible Resources," *Journal of Political Economy*, 1931, pp. 137-175.
- (9) Houthakker, H.S. and S.P. Magee, "Income and Price Elasticities in World Trade," *The Review of Economics and Statistics*, 1969, pp. 111-198.
- (10) Hufbauer, G.C., "The Impact of National Characteristics & Technology on the Commodity Composition of Trade in Manufactured Goods," in Vernon, R. ed., *The Technology Factor in International Trade*, Columbia University Press, 1970.
- (11) Imai, K., "Resource Conservation and Industrial Organization," (in Japanese),

- Business Review*, (Hitotsubashi University) 1973.
- (12) Johnson, H.G., *Economic Policies toward Less Developed Countries*, Brookings Institution, 1967.
- (13) Komiya, R. & A. Amano, *International Economics* (in Japanese), Iwanami, 1972.
- (14) Kozima, K. & R. Komiya, *Non-Tariff Barriers in Japanese Trade* (in Japanese), Nippon Keizai Shinbun, 1972.
- (15) Kronstein, H., *Das Recht der Internationalen Kartellen*, J. Schweitzer Verlag, 1972.
- (16) Machlup, F., "The Nature of the International Cartel Problem," in (3).
- (17) Marx, D., *International Shipping Cartels: A Study of Industrial Self-Regulation by Shipping Conferences*, Princeton University Press, 1953.
- (18) Mason, E.A., "International Commodity Controls: Cartels and Commodity Agreements," in Mason, E.A., *Economic Concentration and the Monopoly Problem*, Harvard University Press, 1957.
- (19) Massell, B.F., "Some Welfare Implications of International Price Stabilization," *Journal of Political Economy*, 19, pp. 404-417.
- (20) Mckinnon, R.I., "Future Markets, Buffer Stocks, and Income Stability for Primary Producers," *Journal of Political Economy*, 1967, pp. 844-861.
- (21) Mckinnon, R.I., "Futures Markets and Buffer Stocks: A Reply to William Poole," *Journal of Political Economy*, 19, pp. 351-355.
- (22) Michaely, M., *Concentration in International Trade*, North-Holland Publishing Company, 1962.
- (23) Pincus, J.A., *Economic Aid and International Cost Sharing*, Johns Hopkins Press, 1965.
- (24) Pincus, J., *Trade, Aid and Development*, McGraw-Hill, 1967.
- (25) Poole, W., "Mckinnon on Futures Markets and Buffer Stocks," *Journal of Political Economy*, 1970, pp. 1185-90.
- (26) Porter, R.C., "Some Implications of Postwar Primary-Product Trends," *Journal of Political Economy*, 1969, pp. 586-597.
- (27) Robertson, W., "The Tin Experiment in Commodity Market Stabilization," *Oxford Economic Papers*, 1960, pp. 310-335.
- (28) Rowe, J.W.F., *Primary Commodities in International Trade*, Cambridge University Press, 1965.
- (29) Staley, C.E., "An Evaluation of Some Recent Contributions to the Political Economy of the Stabilization of International Price and Commodity Fluctuations," *Zeitschriften für Betriebswirtschaftliches Archiv*, 1965, S. 337-347.
- (30) Swerling, B.C., "The International Sugar Agreement of 1953," *American Economic Review*, 1954, pp. 837-853.
- (31) Swerling, B.C., *Current Issues in Commodity Policy*, Princeton University Press, 1962.
- (32) Swerling, B.C., "Problems of International Commodity Stabilization," *American Economic Review*, 1963.
- (33) Tyszynski, H., "Economics of the Wheat Agreement," *Economica*, 1949, pp. 27-39.
- (34) Vernon, R., "Antitrust and international business," *Harvard Business Review*, 1962.
- (35) UNCTAD, *Commodity Survey*, United Nations, 1968.