

THE PATTERN OF INTERNATIONAL TRADE AMONG ADVANCED COUNTRIES*

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I. *Problem*

Recent studies on international trade, especially by the United Nations and GATT, disclose two significant trends in trade since World War II: a rapidly increasing trade among advanced industrial countries and a stagnating trade between advanced industrial countries and underdeveloped non-industrial countries.¹ Although both trade tendencies merit further investigation, this paper focuses on the increasing trade among advanced countries in order to enable a more rigorous analysis on the kinds of commodities which have influenced the recent upsurge in trade.²

Our findings reveal that the rapid expansion of trade among these countries has been primarily in the "horizontal trade" among manufactures, particularly heavy industrial and chemical products, rather than in the "vertical trade" between primary and manufactured goods. This significant feature is clearly evident in the intrabloc trade of the EEC (the European Common Market) and in the international trade among such highly advanced countries and areas as the United Kingdom, the United States, and the EEC. Among these countries, horizontal trade is extensive, covering the entire range of commodities exchanged. Among Japan, Canada, Australia, and New Zealand, however, horizontal trade is only partially developed, and trade is confined to a smaller range of commodities and only between particular partner countries.

These findings present interesting questions relating to policy. To begin with, we need to know the causes or impetus of the recent growth of horizontal trade among the advanced countries. What new philosophy underlies this recent development? These and other questions relating to the future trade development of these countries are discussed in the conclusion.

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¹ Especially, United Nations, *World Economic Survey 1958 and 1962*, New York, 1959 and 1963; GATT, *International Trade 1959-1960*, Geneva, 1960; and Ragnar Nurkse, *Patterns of Trade and Development*, Wicksell Lectures 1959, Stockholm, 1959. In the GATT and U.N. studies, Australia and New Zealand are usually not included among advanced industrial countries.

² For a report on the trade between advanced and underdeveloped countries, see Kiyoshi Kojima, "Trends and Fluctuation in the Terms of Trade of Primary Exports: Pattern, Causes and Mechanism," presented to the Seminar on Asian Trade, 25th December, 1961 to 2nd January, 1962, the Institute of Development Economics, Karachi; and D. Seers, "A Model of Comparative Rates of Growth in the World Economy," *The Economic Journal*, March 1962.

II. *Method of Analysis*³

Commodities traded internationally can be classified as natural-factor-intensive, labor-intensive, and capital-intensive goods. In line with the theory of factor endowments or the Heckscher-Ohlin theorem, it is also possible to identify the pattern of international trade between two countries or between a country and the rest of the world by comparing the countries' relative abundance of natural factors, skilled labor, and capital.

In this paper, the SITC (Standard International Trade Classification) three digit commodities are reclassified into eight categories which correspond to subgroups of determinants of comparative advantages.

The comparative advantage of a country's N -goods is theoretically supposed to be determined by the relative abundance of natural factors such as land and other natural resources, fertility, suitable climate, etc. N -goods are subdivided into four groups:

1. N_1 -goods: staple foods (rice, wheat, and other grains), covering the SITC code number as follows: 041, 042, 043, 044, 045, 046, 047, 048.
2. N_2 -goods: other foodstuffs, including manufactured goods: 001, 011, 012, 013, 021, 022, 023, 024, 025, 026, 029, 031, 032, 051, 052, 053, 054, 055, 061, 062, 071, 072, 073, 074, 075, 081, 091, 099, 111, 112, 121, 122, 921.
3. N_3 -goods: agricultural raw materials: 211, 212, 221, 231, 241, 242, 243, 244, 261, 262, 263, 264, 265, 291, 292, 411, 412, 413.
4. N_4 -goods: minerals, metals, and fuels: 271, 272, 281, 282, 283, 284, 285, 311, 312, 313, 314.

The comparative advantage of a country's L -goods is supposed to be determined by the relative abundance of labor with appropriate skills and the cheapness of its wages compared to its efficiency. L -goods are subdivided as follows:

5. L_1 -goods: labor-intensive goods of light industry, both intermediate and final products: 267, 611, 612, 613, 621, 629, 631, 632, 633, 641, 642, 651, 652, 653, 654, 655, 656, 657, 665, 666, 672, 673, 831, 841, 842, 851, 891, 892, 899.
6. L_2 -goods: labor-intensive final goods of heavy and chemical industry origin (cameras, sewing machines, bicycles, precision type equipment, medicine, etc.): 541, 691, 699, 733, 811, 812, 821, 861, 862, 863, 864.

The comparative advantage of a country's K -goods is supposed to be determined by the abundance of capital stocks, which are usually accompanied a high quality of technology. K -goods are subdivided as follows:

7. K_1 -goods: capital-intensive intermediate goods of heavy and chemical industry origin (pig-iron, steel, chemical fibre, fertilizer, etc.): 251, 266, 511, 512, 521, 531, 532, 533, 551, 552, 561, 591, 599, 661, 662, 663, 664, 671, 681, 682, 683, 684, 685, 686, 687, 689.
8. K_2 -goods: capital-intensive heavy machines and equipment: 711, 712, 713, 714, 715, 716, 721, 731, 732, 734, 735.

Although this classification is useful and has, in the opinion of this writer, given fairly

³ The same method of analysis is applied in Kiyoshi Kojima, "The Pattern of Triangular Trade Among the U.S.A., Japan, and Southeast Asia," The Institute of Asian Economic Affairs, *The Developing Economies*, Preliminary Issue No. 1, March-August 1962.

good results in this preliminary trial, a few limitations should be pointed out which may indicate need for a more accurate method of classification.

First is the problem of arbitrary classification due to some overlapping of categories. For example, since the three-digit SITC classification does not distinguish new machines and equipment from other goods of heavy and chemical industry origin, these goods have been segregated as many as possible in this paper as L_2 and K_2 respectively. Due to the inadequacy of three digit-classification, the number and amount in trade of L_2 -goods are probably underestimated. A similar problem is found in the classification of N_2 -goods; manufactured food is included with other foodstuffs.

Conversely related to the first problem is the degree of commodity specification or classification. This, of course, depends on the utilization of commodity data. If commodities are classified very specifically so that cars, for example, are classified as Volkswagens and Fiats, no horizontal trade would exist since all trade would be resultant of complete specialization. A more feasible approach is to set up categories which take into account substitutability of demands and a country's capability to produce alternative commodities. In this way, both Volkswagens and Fiats fall in the same category, cars. Also, industrial machines can be classified in the same category as cars, since a country that has a comparative advantage in producing cars is likely to also have a potential comparative advantage in producing industrial machines.

A third difficulty is the ambiguity in measuring the factor intensities of commodities. Because the technical coefficient of production for a certain commodity varies from country to country according to each country's economic progress, the question is—how should the coefficient be calculated? Should only the direct inputs of a particular product or the total inputs (inclusive of direct and indirect inputs) be accounted for? Further, should only the domestic content of inputs or the total inputs (inclusive of import contents) be considered? This problem, among others, presents difficulties in the application and verification of the Heckscher-Ohlin Theorem.⁴

In order to minimize these conflicts and difficulties, rigid adherence to commodity classification is avoided, and commodities are loosely categorized by two steps as follows: firstly, primary (N) goods are differentiated from manufactures according to their comparative advantage which is determined by the relative abundance of natural factors, the typical specific factors of production; secondly, manufactured goods are grouped either as labor-intensive (L) or capital-intensive (K) goods on the assumption that the comparative advantage of manufactured goods is determined by the relative abundance of such non-specific factors as labor and capital.

The data have been taken from the United Nations' *The Commodity Trade Statistics* and have been recompiled for two periods: 1956–58 averages and 1960.

The following symbols are used in tables and figures to represent the advanced countries involved in this analysis: a —United States; b —United Kingdom; c —EEC countries⁵ (c_1 —West

⁴ For questions cast on the Heckscher-Ohlin theorem, see Charles P. Kindleberger, *Foreign Trade and the National Economy*, Yale University Press, 1962. The Heckscher-Ohlin theorem has some significance in connection with this paper in the sense that the more similar to each other are the factor endowments and industrial structure between two countries, the further is the horizontal trade developed while the vertical trade dominates among those countries where factor endowments and industrial structure, due to the difference in the stage of development, are widely varied.

⁵ Unless otherwise indicated, EEC is treated as a single country.

Germany, c_2 -France, c_3 -Italy, c_4 -Belgium and Luxemburg, c_6 -Netherland); d -Japan; e -Canada; f -Australia; g -New Zealand.

In the first phase of this study, the commodity composition of total exports and total imports of the above seven countries are delineated to show each country's pattern of comparative advantage with the rest of the world or, in brief, *global comparative advantage*.

Secondly, the commodity composition of each bilateral trade, such as that between a and b , a and c , etc., are calculated.⁶ Results reveal the pattern of comparative advantage between each two countries. This we call *bilateral comparative advantage* which differs substantially from, though it basically depends upon, the pattern of global comparative advantage of each country. The intensity of a particular country's bilateral trade can be measured by the extent of its diversion from the country's global trade. Theoretically, we assume the degree of intensity to be determined by such factors as the structural similarity of the industry and trade of the two countries, their geographical closeness, historical relations, etc. If this does not prove to be true in any particular case, it behooves us to investigate the existent difficulties and find some means to correct them.

Thirdly, results of the investigation are given concisely and concretely by two indices: intensity of trade⁷ and degree of horizontal trade. Calculation of the intensity of trade can be illustrated as follows, where the intensity of country j 's imports from country i are denoted by I_{ij} :

$$I_{ij} = \frac{i\text{'s exports to } j \text{ or } j\text{'s imports from } i}{i\text{'s total exports}} \left(\text{denoted by } \frac{X_{ij}}{X_i} \text{ or } \frac{M_{ij}}{X_i} \right) \\ \div \frac{j\text{'s total imports}}{\text{world imports} - i\text{'s total imports}} \left(\text{denoted by } \frac{M_j}{W - M_i} \right) \times 100.$$

$M_j/(W - M_i)$ shows country j 's relative purchasing power (or demand) of world imports.⁸ X_{ij}/X_i or M_{ij}/X_i shows country i 's concentration of exports to country j or country j 's

⁶ Trade figures are taken from the importing country's statistics in cases of bilateral trade.

⁷ "Intensity of trade" was first used, as far as we know, in A. J. Brown, *Applied Economics, Aspects of the World Economy in War and Peace*, London, 1947, pp. 212-226.

⁸ It might be argued that the denominator of $M_j/(W - M_i)$ should be W , instead of $W - M_i$. This does not seem a valid argument, however, since M_i , country i 's imports, do not consist of the demand for country i 's exports. To support our point, let us use both denominators in the formula for calculating intensity of trade:

Let $W = M_1 + M_2 + M_3 = 30 + 50 + 20 = 100$, and $X_1 = X_{12} + X_{13} = 15 + 15 = 30$. Using W in the formula, the index is calculated as follows:

$$\left(\frac{X_{12}}{X_1} / \frac{M_2}{W} \right) \times 100 = \left(\frac{15}{30} / \frac{50}{100} \right) \times 100 = 100$$

$$\text{and } \left(\frac{X_{13}}{X_1} / \frac{M_3}{W} \right) \times 100 = \left(\frac{15}{30} / \frac{20}{100} \right) \times 100 = 250.$$

Using $W - M_i$, the index is calculated as follows:

$$\left(\frac{X_{12}}{X_1} / \frac{M_2}{W - M_1} \right) \times 100 = \left(\frac{15}{30} / \frac{50}{70} \right) \times 100 = 70$$

$$\text{and } \left(\frac{X_{13}}{X_1} / \frac{M_3}{W - M_1} \right) \times 100 = \left(\frac{15}{30} / \frac{20}{70} \right) \times 100 = 175.$$

Since the index should total 200 or average 100, the first index which totals 350 is biased upwardly. The latter index, totalling 245, also seems to have upward bias, but its harmonic mean gives us 100, i.e., $\frac{1}{2} \left(\frac{1}{0.7} + \frac{1}{1.75} \right) \times 100 = 100$. Credit goes to Professor Harry G. Johnson for suggestions on this point.

concentration of imports from country i .⁹ A trade intensity of 100 would indicate that country i exports to each j country in accordance with the latter's relative purchasing power. Similarly, an intensity more (or less) than 100 would indicate that the trade between i and j countries is more (or less) intensive than the trade between other countries since country i exports to country j a greater (or smaller) amount than the latter's relative purchasing power of world imports; or, from country j 's point of view, its imports depend more (or less) heavily on country i than on any other country.

The degree of horizontal trade between two countries for a certain commodity category (denoted by D)¹⁰ is calculated as follows; where country A 's imports of commodity h from country B is A_h and country B 's imports of the same commodity h from country A is B_h :

$$D = \frac{B_h}{A_h} \times 100 \quad \text{if } A_h > B_h, \quad \text{or} \quad D = \frac{A_h}{B_h} \times 100 \quad \text{if } A_h < B_h.$$

The degree of aggregate horizontal trade (denoted by \bar{D}) can also be calculated as the weighted average of D of several commodities by using as weights the percentage ratio of the total of A_h and B_h in the total trade of the two countries, or it is shown as follows:

$$\bar{D} = \sum \frac{B_h}{A_h} \cdot \frac{A_h + B_h}{M_A + M_B} \quad (\text{if } A_h > B_h) + \sum \frac{A_h}{B_h} \cdot \frac{A_h + B_h}{M_A + M_B} \quad (\text{if } A_h < B_h),$$

where M_A represents country A 's total imports from country B and M_B , country B 's total imports from country A .¹¹

D is calculated for eight commodity categories and \bar{D} for N , L , K , $L+K$ (manufactured goods) and T (total trade). The degree of horizontal trade is always less than 100 and the closer it is to 100, the further the horizontal trade is carried out and balanced within the same commodity category or aggregate categories.

III. Intra-Bloc Trade of EEC

First, some outstanding features of recent growth in the intra-bloc trade of the EEC countries are analysed.

⁹ An excellent and valuable study on concentration of trade has been done by Michael Michaely, *Concentration of International Trade*, North-Holland Pub. Co., Amsterdam, 1962.

¹⁰ An estimation of horizontal trade or "a specialization within-categories-of-products" was first tried, so far as we know, by P. J. Verdoorn in "The Intra-Block Trade of Benelux," in Austin Robinson, ed., *The Economic Consequences of the Size of Nations*, Lohdon, 1960, pp. 310-312.

¹¹ It has been suggested by Mr. P. J. Lloyd of Wellington, New Zealand, that $\frac{B_h}{M_B} / \frac{A_h}{M_A}$ and $\frac{A_h}{M_A} / \frac{B_h}{M_B}$ be used in the formula in place of $\frac{B_h}{A_h}$ and $\frac{A_h}{B_h}$. His suggestion takes into consideration the inequality in the sizes of countries engaged in bilateral trade, for example, New Zealand and the United States. As far as a balanced bilateral trade is concerned, where $M_A = M_B$, the revision does not alter results. But the revision does seem, at first glance, to give a better index in instances of large imbalances of bilateral trade. However, upon reflection, this writer feels that the revision may be unnecessary. For, one should take into consideration the fact that imbalance does not occur systematically. A small country that has a large trade deficit against a big country may, at the same time, have a large trade surplus to another big country—thus usually maintaining a trade balance with the rest of the world as a whole. Therefore, it is important to identify the type of trading partner with whom a country maintains a greater or smaller degree of horizontal trade. If any modification of our formula is needed, it would be to discount from our calculation the imbalance of the total trade of a country vis-a-vis the rest of the world.

1. *Trade Growth.* As shown in Table 1, the rate of EEC's trade growth between 1956-58 averages and 1960 has been very large, particularly in its intra-bloc trade which has expanded by 54%. In comparison with intra-bloc trade, the EEC's overseas trade has lagged far behind and, especially, increased by a slight 2% with least growth in imports of primary (*N*) commodities.¹² Although these facts seem to indicate the *trade-diverting effects* of the EEC in agricultural products, to conclude this would be premature; further investigation on the subject is necessary, for example, on the income elasticities of the EEC both prior to and following the economic integration.

TABLE 1. THE RATE OF GROWTH IN TRADE

		$\frac{1960}{1956-58 \text{ averages}} \times 100$							
		Exports				Imports			
		<i>T</i>	<i>N</i>	<i>L</i>	<i>K</i>	<i>T</i>	<i>N</i>	<i>L</i>	<i>K</i>
<i>W</i>	World	119	111	-127-		119	111	-127-	
<i>a</i>	U. S. A.	106	106	97	110	115	103	140	126
<i>b</i>	United Kingdom	109	98	99	116	116	103	160	150
<i>c</i>	EEC	135	119	131	145	125	108	143	162
<i>c'</i>	EEC's intra-bloc trade	154	137	163	164	154	137	163	164
<i>c''</i>	EEC's overseas trade	126	104	121	136	114	102	125	149
<i>d</i>	Japan	152	132	147	166	128	126	135	133
<i>e</i>	Canada	112	111	116	111	110	109	116	107
<i>f</i>	Australia	95	93	127	108	144	118	151	156
<i>g</i>	New Zealand	121	121	116	124	101	96	97	106
<i>s</i>	Southeast Asia	111	102	138*	524*	114	119	104	117

Note: *T*=total trade; *N*=primary products; *L*=labor intensive manufactures; *K*=capital intensive manufactures.

* These figures are misleading since their absolute base amounts are very small and small increments might appear as large rates of increase.

In comparative analysis, Table 1 shows that Japan's exports have risen as rapidly as that of the EEC's intra-bloc trade. Also, slow expansion of exports and imports of *N*-goods and rapid expansion of manufactured (*L*+*K*) products are disclosed for the United States and the United Kingdom as well as the EEC and Japan. Among manufactured goods, exports of capital-intensive heavy and chemical (*K*) goods have been outstanding in growth. It should be noted, however, that this trend is not shown consistently by other advanced countries, Canada, Australia, and New Zealand.

2. *Global Comparative Advantage.* Figures 1 to 5 delineate the commodity composition of imports and exports for the five EEC countries, showing the global comparative advantage of each of the countries. The figures, which give 1956-58 averages, show total imports and exports of the eight commodity categories by the length of blocked areas on the left

¹² The growth rates of sub-group in *N*-commodity categories for the EEC's intra-bloc trade and overseas imports, respectively, are as follows; 21% and -4% in *N*₁-goods, 44% and 7% in *N*₂-goods, 42% and 9% in *N*₃-goods, 30% and -7% in *N*₄-goods.

FIG. 1. COMMODITY COMPOSITION OF TRADE
 c_1 : West Germany (1956-58 averages)

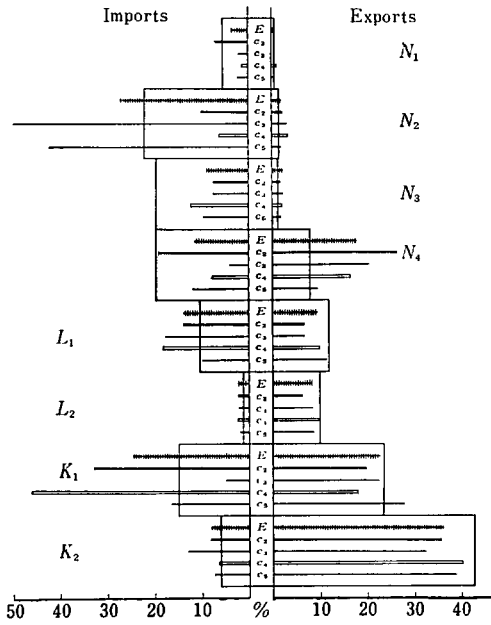


FIG. 2. COMMODITY COMPOSITION OF TRADE
 c_2 : France (1956-58 averages)

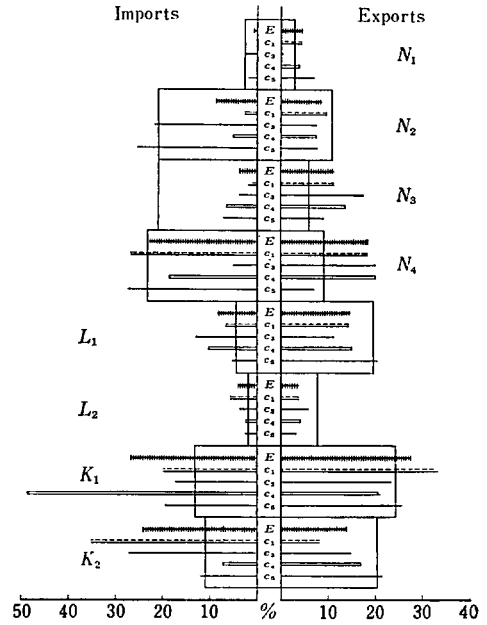


FIG. 3. COMMODITY COMPOSITION OF TRADE
 c_3 : Italy (1956-58 averages)

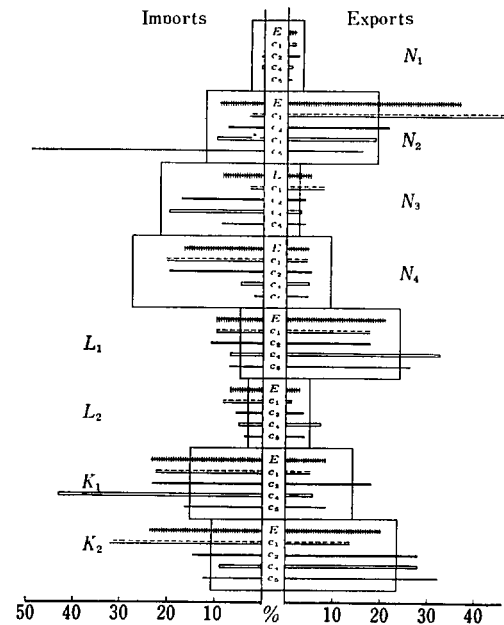


FIG. 4. COMMODITY COMPOSITION OF TRADE
 c_4 : Belgium-Luxembuug (1956-58 averages)

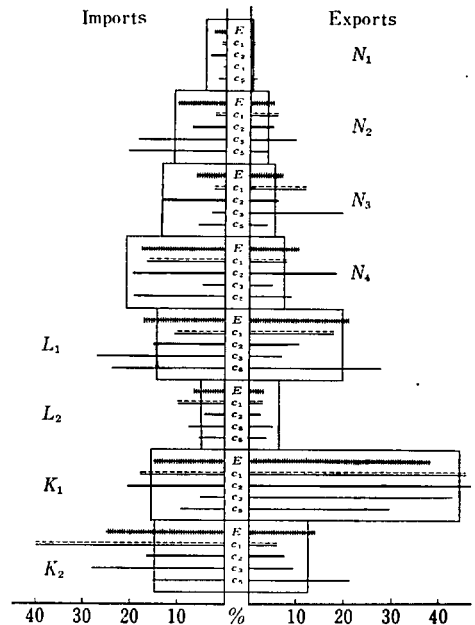
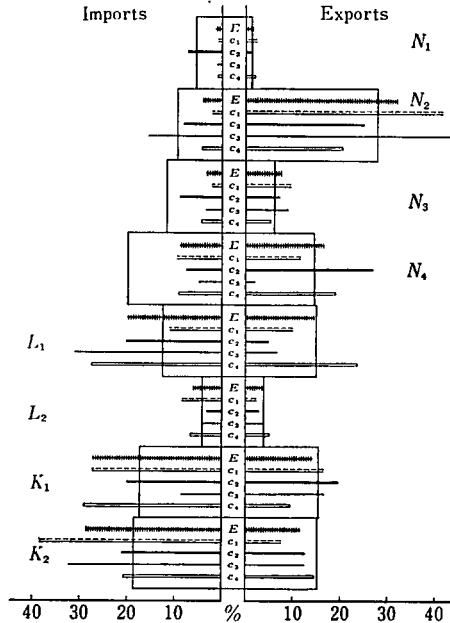


FIG. 5. COMMODITY COMPOSITION OF TRADE
 c_5 : Netherland (1956-58 averages)



(imports) and right (exports) of the vertical column.

In studying the figures, we find that all the countries, except Netherland, conform to a pattern of global comparative advantage expected of advanced countries. Most typical of this pattern is the commodity composition of West Germany whose exports increase gradually from the top category downward and, reversely, imports increase from the bottom category upward, excluding N_1 in the case of imports. This observation indicates each EEC country's strong comparative advantage in K_2 and K_1 goods, strong comparative disadvantage in N_2 , N_3 , and N_4 goods, and a less strong comparative advantage in L_1 and L_2 goods.

Although ranking among the EEC's highly industrialized countries, Netherland is unique in that she is a relatively agricultural country with a strong comparative advantage in N -goods and a weak comparative disadvantage in manufactured goods. The over-all shape of Netherland's import and export trade is, therefore, the reverse of, say, West Germany's.

Nevertheless, all the EEC countries are more or less homogeneous industrial countries with similar global comparative advantages. And, as such, they are highly competitive among each other. How such a group can create specialization and promote trade among each other is an interesting question. A study of bilateral trade may furnish us with the answer.

3. *Bilateral Comparative Advantage.* Figures 1 to 5 also depict, by horizontal bars, the commodity make-up of each EEC country's trade with partner countries. Interestingly, the bars in each commodity category extend on the side of imports as well as exports so that the whole shape of bilateral comparative advantage and disadvantage forms a symmetry resembling a triangle. Such an observation indicates, on the one hand, that the global

comparative advantage of each EEC country is weakened in bilateral trade due to their highly homogeneous and competitive make-up, and, on the other hand, that horizontal specialization and trade within the same category¹³ promoted and prosperous. This horizontal trade is greatest in capital-intensive goods, less in labor-intensive goods, and least in primary goods.

4. *Intensity of Trade.* Table 2, which shows the trade intensity of each of the five EEC countries with each other, with EEC as a whole (*E*), and with the rest of the world (*R*), discloses that:

TABLE 2. INTENSITY OF TRADE IN EEC

upper column=1956-58 averages
lower column=1960

Exports from	Imports to						<i>E</i>	<i>R</i>
		<i>c</i> ₁	<i>c</i> ₂	<i>c</i> ₃	<i>c</i> ₄	<i>c</i> ₅		
<i>c</i> ₁ West Germany		—	124	146	185	217	163	88
			163	151	182	222	178	84
<i>c</i> ₂ France		144	—	110	252	66	140	91
		162		151	251	68	157	87
<i>c</i> ₃ Italy		188	103	—	77	56	124	94
		210	135		81	71	145	88
<i>c</i> ₄ Belgium-Luxemburg		134	177	67	—	605	224	70
		182	206	87		643	252	59
<i>c</i> ₅ Netherland		233	95	74	500	—	209	71
		266	116	103	478		228	69
<i>E</i> . EEC		163	127	117	246	225	—	90
		188	158	140	238	223		85

Note: *R*=the rest of the world (outside the EEC)

(1) The intensity of trade within EEC is, with a few exceptions, larger than that of overseas trade.

(2) The intensity of trade within EEC between 1956-58 averages and 1960 has increased rapidly, with a few exceptions, especially in three of the larger EEC countries, West Germany, France, and Italy.

(3) The intensity of trade of EEC with overseas countries has decreased.

Thus, the question again arises—why and how is the trade among homogeneous industrial countries intensified?

5. *Degree of Horizontal Trade.* As with Table 2, Table 3 shows the degree of horizontal trade for each EEC country with another, with the EEC as a whole, and with the rest of the world. Let us concentrate primarily on the degree of aggregate horizontal trade, \bar{D}_T , \bar{D}_N , \bar{D}_L , \bar{D}_K , and \bar{D}_{L+K} .

In the trade of each country with the EEC as a whole, \bar{D}_T is very large, ranging from 43 to 72 in 1956-58 averages and from 47 to 74 in 1960. With the exception of $c_4 \cdot E$ which remains at the same level, \bar{D}_T has increased with time and maintained a close correlation with \bar{D}_{L+K} . The increase in \bar{D}_K is most spectacular, with the exception of $c_4 \cdot E$. Like \bar{D}_K ,

¹³ A vertical trade might originally have meant an exchange of primary goods and manufactured final goods, and horizontal trade, an exchange of the latter. However, the definitions in this paper are more simple: horizontal trade is the exchange of commodities within the same category, and vertical trade is the exchange of commodities belonging to different categories. Only the degree of horizontal trade is calculated and, consequently, the difference of this from 100 represents the degree of vertical trade.

TABLE 3. DEGREE OF HORIZONTAL TRADE

upper column=1956-58 averages

lower column=1960

(a) Trade between each two countries in EEC

	$c_1 \cdot c_2$	$c_1 \cdot c_3$	$c_1 \cdot c_4$	$c_1 \cdot c_5$	$c_2 \cdot c_3$	$c_2 \cdot c_4$	$c_2 \cdot c_5$	$c_3 \cdot c_4$	$c_3 \cdot c_5$	$c_4 \cdot c_5$
$D: N_1$	2	8	81	55	21	3	27	100	50	67
	2	59	59	84	22	9	46	33	43	99
N_2	32	8	56	6	42	61	24	58	22	27
	23	10	38	7	79	62	18	72	18	33
N_3	29	49	28	29	16	35	91	11	24	94
	15	73	32	28	16	27	90	12	41	96
N_4	58	16	28	90	20	78	18	84	65	70
	38	19	29	95	27	59	17	41	39	66
L_1	55	73	97	63	76	58	33	24	31	59
	30	35	72	98	72	43	25	22	33	63
L_2	30	11	15	16	51	45	78	69	81	96
	39	23	25	28	56	47	72	88	79	91
K_1	73	18	65	45	62	51	94	12	36	19
	77	35	44	54	34	62	97	11	50	29
K_2	20	34	9	14	64	37	81	36	56	50
	52	59	13	29	99	26	72	39	69	55
$\bar{D}: T$	47	28	43	34	50	53	55	32	36	50
	49	37	37	49	59	49	54	31	34	55
N	46	15	60	35	27	60	33	43	26	58
	29	24	32	39	43	49	31	44	16	60
L	48	56	69	47	70	55	42	35	40	64
	32	32	59	77	68	44	35	35	41	67
K	48	28	38	29	63	47	89	22	48	34
	67	49	31	42	69	51	86	21	60	42
$L+K$	48	37	46	33	65	49	76	27	45	47
	58	43	38	51	69	49	73	26	53	53

Note: c_1 =West Germany, c_2 =France, c_3 =Italy, c_4 =Belgium and Luxemburg, c_5 =Netherland, E =EEC, R =the rest of the world.

D_L is also high but it has decreased in 3 large countries and increased in 2 small countries.

These facts again point out that horizontal trade within the EEC is highly promoted. Because of its significance and the continual trade growth of manufactured goods, particularly capital-intensive heavy and chemical goods, this horizontal trade can be regarded as the primary accelerant of the rapid growth and prosperity of the EEC's intra-bloc trade.

Moreover, in the trade of each EEC country with the rest of the world, a trend similar to that within EEC is noted, although the absolute degree of horizontal trade is certainly lower. Evidently, the horizontal trade of manufactured goods is not confined within the EEC but reaches out to overseas industrial countries.

(b) Trade of each country with EEC as a whole

	$c_1 \cdot E$	$c_2 \cdot E$	$c_3 \cdot E$	$c_4 \cdot E$	$c_5 \cdot E$
$D: N_1$	21 33	13 7	19 48	39 68	98 96
N_2	12 12	95 82	32 45	46 59	15 15
N_3	32 42	35 27	50 27	95 93	59 42
N_4	48 41	77 71	21 28	59 50	72 74
L_1	92 53	62 44	60 40	85 89	57 67
L_2	18 29	76 74	31 40	46 52	46 59
K_1	82 80	95 86	28 32	41 42	41 51
K_2	17 36	52 94	68 81	55 52	31 42
$\bar{D}: T$	46 48	72 74	43 47	59 59	43 49
N	31 30	69 63	32 36	63 62	45 41
L	68 46	66 52	53 40	77 82	55 65
K	48 60	77 89	51 58	47 46	36 47
$L+K$	54 56	74 80	51 52	57 58	42 53

(c) Trade of each country with the rest of the world

	$c_1 \cdot R$	$c_2 \cdot R$	$c_3 \cdot R$	$c_4 \cdot R$	$c_5 \cdot R$	$E \cdot R$
$D: N_1$	10 12	68 52	64 20	8 9	10 9	25 27
N_2	8 7	39 49	73 58	24 19	65 64	42 43
N_3	5 5	13 12	5 6	23 24	25 19	11 10
N_4	24 16	20 26	24 28	19 30	40 50	25 27
L_1	66 69	20 17	22 20	69 84	60 66	45 45
L_2	11 18	20 20	54 49	39 53	80 71	24 30
K_1	66 60	55 48	85 67	34 40	79 87	62 63
K_2	11 24	44 39	42 40	69 76	83 76	28 36
$\bar{D}: T$	23 31	31 33	26 36	38 46	57 59	35 38
N	13 10	24 31	33 28	21 24	43 44	26 27
L	80 50	20 17	29 27	61 75	65 67	39 40
K	9 38	50 43	11 53	42 50	81 80	45 48
$L+K$	28 41	40 35	17 44	49 57	75 76	43 46

IV. Trade Among U.S.A., U.K., EEC and Japan

Now, a wider spread of horizontal trade among such highly industrialized countries as U.S.A., U.K., and EEC is analysed with a similar manner as in the previous section. The pattern of the Japanese trade is also examined, but its degree of horizontal trade is limited.

1. *Global Comparative Advantage.* Figures 6 to 9 show the global as well as bilateral comparative advantages of each of these countries by the same method used for earlier figures. The following symbols are used to represent the advanced industrial countries: *a*-U.S.A., *b*-United Kingdom, *e*-EEC, *d*-Japan.

The whole shape of global comparative advantage for the United Kingdom is quite similar to that of the EEC, particularly to Germany's in Figure 1. Both the United Kingdom and the EEC are highly industrialized and specialized in the international trade of manufactures. Owing to their homogeneity, horizontal trade between the two should be promoted within every commodity category.

The shape of American global comparative advantage is similar to that of the United Kingdom and the EEC in import pattern but slightly different in export pattern. American exports consist of a larger amount of K_1 - and K_2 -goods but her exports are still well-diversified since all other commodity groups are exported fairly equally. Such an export

FIG. 6. COMMODITY COMPOSITION OF TRADE
a. U. S. A. (1956-58 averages)

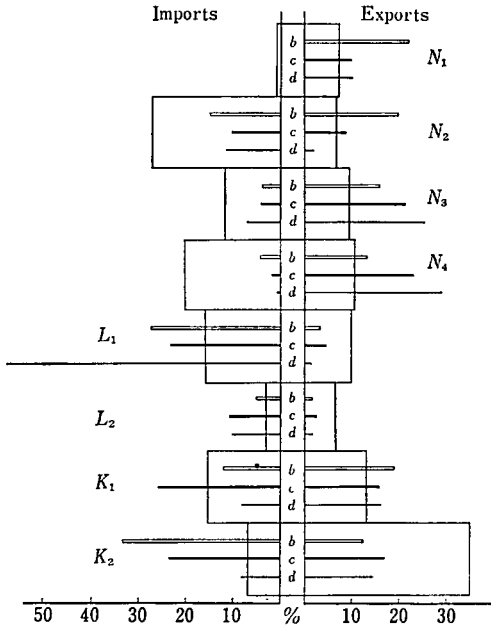


FIG. 7. COMMODITY COMPOSITION OF TRADE
b. U. K. (1956-58 averages)

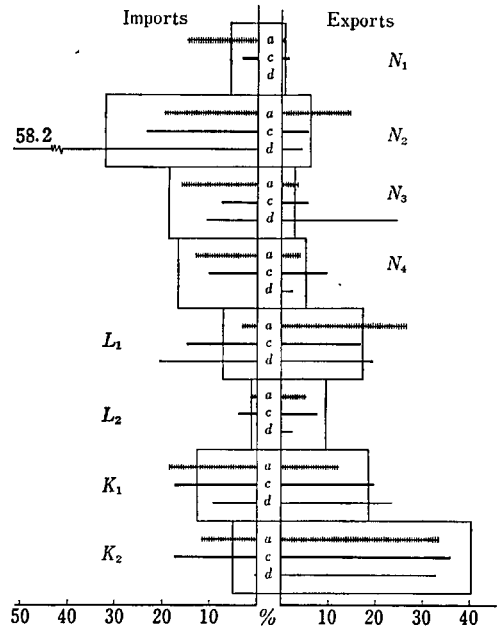


FIG. 8. COMMODITY COMPOSITION OF TRADE
c. EEC (1956-58 averages)

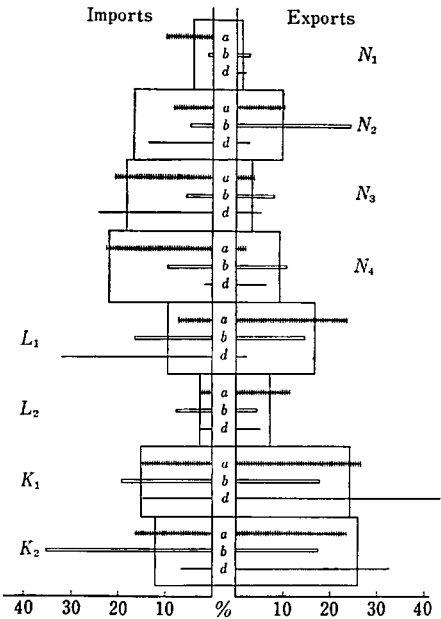
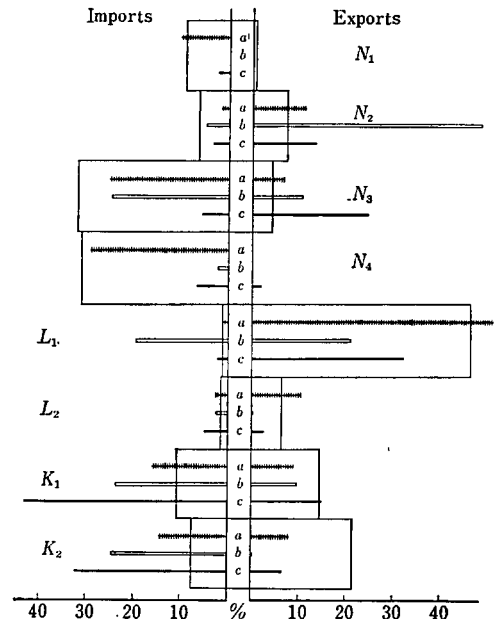


FIG. 9. COMMODITY COMPOSITION OF TRADE
d. Japan (1956-58 averages)



pattern characterizes an economy that is of the non-international specialization type, and, moreover, in view of the very small import/GNP ratio, the self-sufficient type. Compared to other advanced industrial countries such as the United Kingdom, the EEC, and Japan, American has a strong comparative advantage, not only in capital-intensive goods, but also in primary goods, and a comparative disadvantage in labor-intensive goods.

Japan's figure is quite different from other advanced industrial countries. Her exports are concentrated in L_1 -goods (46.6%), and imports in N_3 - and N_4 -goods (31.7% and 31.2% respectively). While she has a strong comparative disadvantage in raw-materials and fuels, Japan's comparative advantage in capital-intensive goods has not yet matured fully. Like the U. K. and the EEC, Japan is an industrial country of the international specialization type.

2. *Bilateral Comparative Advantage.* Let us examine trade between each two countries :

(1) Trade between U. K. and EEC.

The whole shape of bilateral trade between the U. K. and EEC resembles a triangle as does the intra-bloc trade of the EEC. So we find, as we anticipated, that horizontal specialization or trade within each same commodity category is promoted and prosperous among homogeneous industrial countries such as United Kingdom and EEC.

(2) U. S. A.'s trade with U. K. and EEC.

The whole shape of American global comparative advantage is rather reversed in the bilateral trade with U. K. and EEC. Both American global comparative advantage in primary exports and disadvantage in labor-intensive imports are strengthened, but her advantage in capital-intensive goods is weakened. Horizontal trade of K_1 -, K_2 - and N_2 -goods is prosperous. The U. S. A. naturally inclines to promote her trade with Western Europe. To expand horizontal trade particularly in capital-intensive heavy and chemical products is one of the main aims of the Trade Expansion Act of 1962 as it is clearly shown in its original 80 percent provision.

(3) Japan's trade with U. S. A., U. K. and EEC.

Japan—U. S. trade is fairly harmonious and successful. For Japan exports to America her comparative advantage L_1 - and L_2 -goods in excess of her global comparative advantage ratio : while she imports heavily from America her global comparative disadvantage N_4 -, N_3 - and N_1 -goods. Horizontal trade of K_1 - and K_2 -goods has been increasing. There remains, however, some difficulties in competitive imports of primary products either from America or Australia, New Zealand and Southeast Asia. However, Japan's trade with U. K. and EEC is not favorable or successful for Japan. Japan exports to Western Europe mainly her global comparative disadvantage goods such as N_2 and N_3 . Exports of her strong global comparative advantage goods, *i. e.*, labor-intensive L_1 - and L_2 -goods, are much less than her global advantage ratio. In other words, Japan's exports to Western Europe are confined to her traditional speciality goods such as canned fish, ceramics, whale oil, silk, toys, pearls, pottery, etc. Japan imports heavily from Western Europe capital-intensive heavy and chemical industry products, and, on the whole, Japan has a large imports surplus.

Such a profound difference between Japan's trade with the U. S. A. and with Western Europe necessitates further inquiry that will provide explanations.

3. *Intensity of Trade.* Table 4 shows the intensity of trade between each two countries :

(1) U. S.—Japan. The intensity of trade between the U. S. and Japan ($a \rightarrow d$ and $d \rightarrow a$) is very great and has increased with time, indicating a harmonious and successful development of trade.

TABLE 4. INTENSITY OF TRADE AMONG U. S. A., U. K.,
EEC AND JAPAN

upper column=1956-58 averages
lower column=1960

Exports from \ Imports to	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
<i>a</i> U.S.A.	—	43 71	59 71	180 197
<i>b</i> U.K.	65 81	—	62 60	21 26
<i>c</i> EEC	46 52	50 49	107 115	19 15
<i>d</i> Japan	191 236	28 28	21 16	—

(2) Western Europe—Japan. Japan's trade with the U.K. and EEC is of a very low intensity in both her exports ($d \rightarrow b$ and $d \rightarrow c$) and imports ($b \rightarrow d$ and $c \rightarrow d$), and the intensity has not increased with time except $b \rightarrow d$. This tells us that Japan's trade with Western Europe is competitive, disharmonious and unsuccessful.

(3) U.S.—Western Europe. The intensity of America's trade with the U.K. and EEC is less than 100 but fairly large and has increased rapidly with time, both in her exports ($a \rightarrow b$ and $a \rightarrow c$) and imports ($b \rightarrow a$ and $c \rightarrow a$). This leads us to ask how this rapid increase of intensity was obtained and to what commodities growth is attributable.

(4) Within EEC ($c \rightarrow c$), the intensity of trade is naturally high and has increased with time.

(5) U.K.—EEC. The intensity of British trade with EEC ($b \rightarrow c$ and $c \rightarrow b$) is fairly high but less than 100, having unexpectedly decreased slightly.

Having calculated the above intensities of trade, we need to uncover the causes of these differences in trade intensities and of the periodic changes in each bilateral trade.

4. *Degree of Horizontal Trade.* Table 5 shows the degree of horizontal trade between each two countries. Let us concentrate solely on the degree of aggregate horizontal trade, \bar{D}_T , \bar{D}_N , \bar{D}_L , \bar{D}_K , and \bar{D}_{L+K} .

(1) \bar{D}_T in $b \cdot c$, $a \cdot b$ and $a \cdot c$ is very large as comparable with that of trade within EEC, ranging from 36 to 66 in 1956-58 averages and from 46 to 76 in 1960. \bar{D}_T has increased rapidly with time for $b \cdot c$ (from 66 to 76) and $a \cdot b$ (from 36 to 55) but minutely for $a \cdot c$ (from 45 to 46). Increases in the first two cases closely correlates with their increase in \bar{D}_L and \bar{D}_K , particularly \bar{D}_K . The small increase in $a \cdot c$ corresponds to the decrease in \bar{D}_K from 81 to 73.

These relationships indicate that horizontal trade within the same commodity category is highly promoted, not only within the EEC, but also among advanced industrial countries such as the U. S. A., U. K., and EEC. Further, like within the EEC, this horizontal trade is expanding in manufactured goods, particularly in capital-intensive heavy and chemical goods. The countries that have successfully promoted mutual trade in these goods have increased their total degree of horizontal trade. This is the prime mover of the prosperous expansion of trade among advanced industrial countries and this may also be the reason for the U. K.'s attempt for membership in EEC as well as purpose behind America's Trade Expansion Act of 1962.

(2) In comparison with the \bar{D}_T among advanced industrial countries, that of Japan with

TABLE 5. DEGREE OF HORIZONTAL TRADE AMONG
U. S. A., U. K., EEC AND JAPAN

	upper column=1956-58 averages			lower column=1960		
	$b \cdot c$	$a \cdot b$	$a \cdot c$	$b \cdot d$	$c \cdot d$	$a \cdot d$
$D : N_1$	30	1	1	*	*	0.2
	56	2	2	*	*	0.4
N_2	20	58	64	7	29	33
	14	52	68	5	33	49
N_3	65	18	10	47	30	13
	71	20	10	62	21	10
N_4	86	24	4	*	18	0.6
	73	51	6	2	*	1.4
L_1	96	16	30	81	9	5
	86	70	40	58	19	3
L_2	60	34	44	20	33	55
	96	84	52	55	84	33
K_1	96	52	91	50	23	25
	96	45	82	35	27	51
K_2	51	45	77	2	14	25
	80	99	65	8	10	57
$\bar{D} : T$	66	36	45	35	20	14
	76	55	46	28	26	22
N	49	32	17	20	27	8
	46	35	7	22	27	10
L	86	19	36	76	14	15
	88	73	44	58	39	10
K	70	48	81	31	19	25
	87	65	73	19	19	54
$L+K$	75	39	68	51	18	20
	87	67	65	35	24	31

Note: a =U. S. A., b =U. K., c =EEC, d =Japan

*=negligible

each of these countries ($a \cdot d$, $b \cdot d$ and $c \cdot d$) is very low, ranging from 14 to 35 in 1956-58 averages and from 22 to 28 in 1960. Japan's \bar{D}_T in $b \cdot d$ has decreased with time (from 35 to 28) while it has increased slightly in $c \cdot d$ (from 20 to 26) and substantially in $a \cdot d$ (from 14 to 22). The first decrease is due to the reduction in \bar{D}_L as well as \bar{D}_K ; the second mild increase, to the gain in \bar{D}_L ; and the third big increase, to the gain in \bar{D}_K . Apparently Japan's horizontal trade has been successfully expanding only with America and primarily in capital-intensive goods, while it has not been successful with relation to Western Europe. Japan has not yet fully developed horizontal trade in manufactured goods which is the growing stream of world trade and prosperity.

V. Trade of Canada, Australia and New Zealand with Advanced Industrial Countries

Finally, trade patterns of Canada, Australia and New Zealand is investigated.

1. *Global Comparative Advantage.* In Figures 10 to 12, the global and bilateral

FIG. 10. COMMODITY COMPOSITION OF TRADE
e. Canada (1956-58 averages)

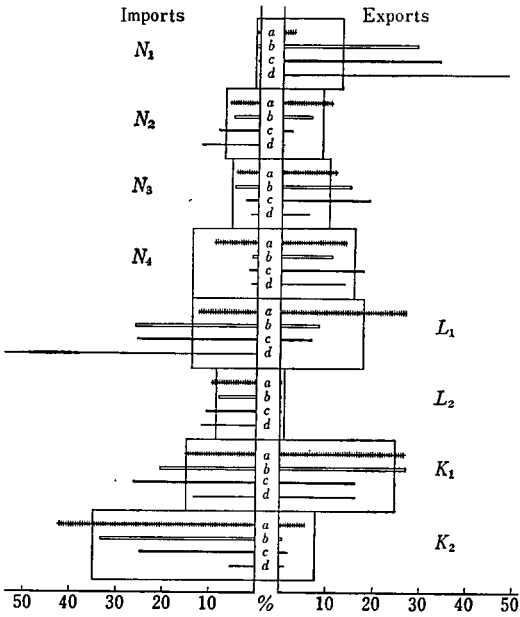


FIG. 11. COMMODITY COMPOSITION OF TRADE
f. Australia (1956-58 averages)

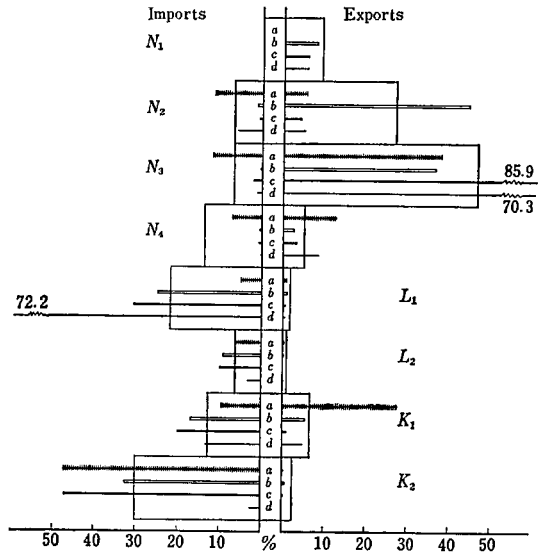
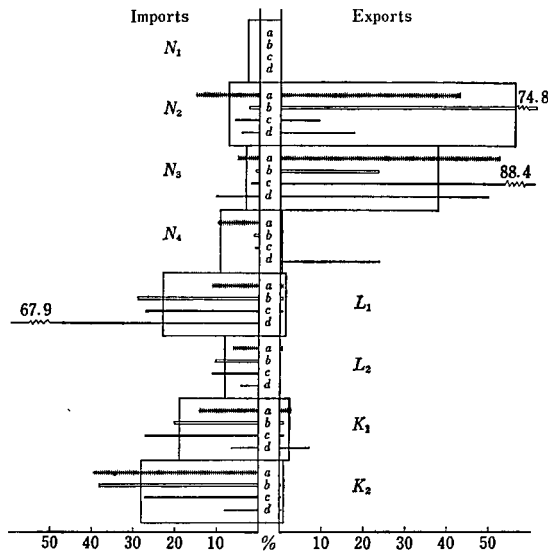


FIG. 12. COMMODITY COMPOSITION OF TRADE
g. New Zealand (1956-58 averages)



comparative advantages of Canada, Australia, and New Zealand are shown. With respect to global trade, figures for Australia and New Zealand follow similar patterns which are the reverse of advanced industrial countries. They show a pattern of typical primary producers of the international specialization type; their exports are concentrated in primary products such as N_2 , N_3 and N_1 while almost all the manufactured goods depend on imports.

Canada's figure is a little different from those of the above two countries. Although Canada's import pattern is of the primary producer's type, as are Australia's and New Zealand's, her export pattern resembles as America's, except that Canada's exports of K_2 -goods are far smaller than America's. Hence we may call Canada a semi-industrial countries.

But, of course, all three countries, Canada, Australia, and New Zealand, are highly advanced countries in the sense that they all enjoy a very high per capita income.

2. *Bilateral Comparative Advantage.* Australia's and New Zealand's bilateral trades with advanced industrial countries such as the United States, the United Kingdom, EEC, and Japan are strengthened in the two countries' comparative advantages as well as disadvantages. In other words, their trade resembles that of primary exporting countries to an extent greater than what is indicated by their global comparative advantages. Horizontal trade is almost non-existent.

Canada's trade with the advanced industrial countries is likewise strengthened in her comparative advantage for primary exports and disadvantage for manufactured imports. But, unlike New Zealand and Australia, Canada maintains very close trade ties with America with whom horizontal trade of N_2 , N_3 , N_4 , L_1 , and K_1 -goods is promoted. And, in K_1 -goods, Canada's horizontal trade is extended to also include the United Kingdom, EEC, and Japan. Her maturity in horizontal trade is largely due to close relations with the United States and her relatively advanced stage of industrialization compared to Australia and New Zealand.

Japan's exports to Canada, Australia, and New Zealand are highly concentrated in L_1 -goods, followed by K_1 - and L_2 -goods, but Japan's exports of K_2 -goods lag behind those of other highly industrialized countries.

In brief, although Canada differs slightly from Australia and New Zealand, all three countries are essentially exporters of primary products and importers of manufactured goods, and their trade with advanced industrial countries is primarily a vertical pattern.

3. *Intensity of Trade.* As shown in Table 6, the intensity of trade between Canada and the U. S. A. ($e \cdot a$) is very high for both Canada's exports and imports. Whether this is an outcome of intensive vertical trade or the spread of horizontal trade between them is an interesting question. Canada maintains a fairly high and increasing intensity of trade with the U. K. both in exports and imports. This may be largely due to their vertical trade.

Australia maintains a very high intensity of trade with the U. K. and Japan, but trade with the former has decreased with time while that with the latter has increased markedly.

New Zealand also maintains a very high but decreasing intensity of trade with the U. K. and a rapidly increasing one with Japan as well as the U. S. A.¹⁴

The spread of the lower and upper figures in Table 6 regarding the intensity of trade among these advanced countries is larger than that within EEC, which is fairly equalized except for the trade between Belgium-Luxemburg and Netherland. An explanation for this

¹⁴ As shown in Table 7, the intensity of trade between Australia and New Zealand is, as expected, very high, particularly in Australian exports to New Zealand.

TABLE 6. INTENSITY OF TRADE OF CANADA, AUSTRALIA AND
NEW ZEALAND WITH U. S. A., U. K., EEC, AND JAPAN
upper column=1956-58 averages
lower column=1960

Imports to Exports from		<i>e</i>	<i>f</i>	<i>g</i>
		Canada	Australia	New Zealand
<i>a</i> U.S.A.		366	66	34
		364	98	56
<i>b</i> U.K.		106	445	572
		125	376	501
<i>c</i> EEC		17	38	24
		17	37	22
<i>d</i> Japan		48	102	44
		59	170	81
Exports from Imports to		<i>e</i>	<i>f</i>	<i>g</i>
		Canada	Australia	New Zealand
<i>a</i> U.S.A.		440	52	98
		421	63	123
<i>b</i> U.K.		168	301	707
		179	281	618
<i>c</i> EEC		33	105	90
		33	91	84
<i>d</i> Japan		83	411	83
		98	501	135

TABLE 7. INTENSITY OF TRADE BETWEEN AUSTRALIA
AND NEW ZEALAND

Imports to Exports from		<i>f</i>	<i>g</i>
		Australia	New Zealand
<i>f</i> Australia		—	893
			1,132
<i>g</i> New Zealand		228	—
		217	

may boil down to the difference in the vertical trade prevalent in the former case and the horizontal trade in the latter.

4. *Degree of Horizontal Trade.* Table 8 shows the degree of horizontal trade of Canada, Australia, and New Zealand each with another of the advanced countries, U. S. A., U. K., EEC, and Japan; and between Australia and New Zealand.

As expected, \bar{D}_T is high only for U. S.—Canada trade (*a·e*), registering 53 and 51. All other \bar{D}_T are very low, ranging from 36 to 1.9 for 1956-58 averages and from 29 to 2 for 1960. Compared to the degree of horizontal trade of Canada, those Australia and New Zealand are much lower. Even the high \bar{D}_T between the U. S. A. and Canada is due to the high degree of horizontal trade in *N*-goods (76 and 75), and that in manufactured goods (44 and 41) is far lower than the trade within EEC or among U. S. A., U. K., and EEC. Some \bar{D}_T 's have increased but others decreased with time. This may reflect on the instability of

TABLE 8. DEGREE OF HORIZONTAL TRADE OF CANADA, AUSTRALIA AND NEW ZEALAND WITH U.S.A., U.K., EEC, AND JAPAN; AND BETWEEN AUSTRALIA AND NEW ZEALAND

upper column=1956-58 averages
lower column=1960

	<i>a·e</i>	<i>b·e</i>	<i>c·e</i>	<i>d·e</i>	<i>a·f</i>	<i>b·f</i>	<i>c·f</i>	<i>d·f</i>	<i>a·g</i>	<i>b·g</i>	<i>c·g</i>	<i>d·g</i>	<i>f·g</i>
<i>D:N</i> ₁	31 63	1 2	1 2	* *	* *	0.2 0.5	* 0.4	* *	* *	* *	* *	* *	* *
<i>N</i> ₂	82 97	42 44	46 48	13 57	51 31	3 6	32 46	20 29	21 12	2 2	19 14	9 4	32 40
<i>N</i> ₃	55 59	18 16	8 11	6 4	56 84	1 3	0.7 1	0.3 0.2	5 6	2 1	0.6 0.3	9 2	71 41
<i>N</i> ₄	91 71	6 7	5 2	4 *	60 97	21 31	8 14	0.4 0.3	4 *	26 6	60 8	* *	2 *
<i>L</i> ₁	65 62	59 95	46 7	1 *	7 1	4 5	5 4	4 3	6 *	0.6 0.1	1 2	* *	79 96
<i>L</i> ₂	3 6	11 12	5 6	1 1	4 1	2 4	* 0.4	13 6	4 *	0.5 *	2 *	* *	1 *
<i>K</i> ₁	82 71	43 31	95 52	37 50	64 26	32 27	13 9	44 32	32 45	6 8	13 21	39 56	15 20
<i>K</i> ₂	10 13	7 10	14 23	22 61	0.1 0.3	2 2	0.6 0.4	31 3	0.5 0.3	0.4 0.6	0.8 *	17 *	19 4
$\bar{D}:T$	53 51	26 29	31 23	8 15	36 26	6 7	3.0 3.8	4 6	12 9.4	1.9 2	3.4 3	7.5 6	25 27
<i>N</i>	76 75	12 15	8 9	2 4	56 61	3 6	2 4	2 2	13 9	2 2	3 2	6.5 3	23 21
<i>L</i>	50 49	50 82	36 7	0.7 0.3	5 1	4 5	4 3	4 3	5 *	0.6 0.1	1 1	* *	53 66
<i>K</i>	41 37	30 23	67 42	36 53	22 8	11 10	6 3	43 28	11 14	2.4 3	7 11	32 36	14 15
<i>L+K</i>	44 41	37 38	55 33	17 31	20 7	9 8	5 3	19 14	9 11	1.7 2	5 7	10 11	27 31

a=U. S. A., *b*=U. K., *c*=EEC, *d*=Japan, *e*=Canada, *f*=Australia, *g*=New Zealand
* =negligible

vertical trade and immaturity of horizontal trade. The degree of horizontal trade between Australia and New Zealand (*f·g*) also remains at low levels (25 and 27).

In order for Canada, Australia, and New Zealand, to expand their trade rapidly, must they promote horizontal trade in manufactured goods? This is an important question which should be explored further.

VI. Conclusion

From our analysis, the advanced countries can be conveniently grouped into three types that represent the kinds of trade characteristic of these countries: (1) whole-range horizontal trade, (2) partial horizontal trade, and (3) vertical trade.

Although the trade pattern of America differs in some respects from that of the United

Kingdom and EEC, all three maintain a prosperous and intense horizontal trade in almost all commodity categories. These countries, which are equally advanced and industrialized, can thus be classified as the whole-range horizontal trade type.

Japan and Canada are the partial horizontal trade type. They maintain horizontal trade only with particular partner countries and the number of commodity categories involved in horizontal trade are limited. At the same time, these countries maintain vertical trade with other partner countries. The fact that they are not as highly industrialized as the United Kingdom, EEC, and the United States explains their partial rather than full development of horizontal trade.

Countries that carry out vertical trade almost exclusively are Australia and New Zealand. Predominantly exporters of primary products, these countries have not yet fully developed their export manufacturing industries.

Recognizing these differences in trade patterns, how can a harmonious and prosperous trade be achieved among these countries? We have found that an intense and expanding trade is maintained within the EEC and among the United States, United Kingdom, and EEC, and that horizontal trade of manufactured goods, particularly capital intensive heavy and chemical goods, is highly promoted among these countries. Even the trade of Japan, and perhaps Canada, has expanded most in the horizontal trade of manufactured goods exchanged with the United States.

In view of these facts, we then come to ask—should Japan follow the pattern laid by the United Kingdom and EEC and join the group of advanced industrial countries on an equal standing? And should Canada strive to be a second United States since, like the United States, she is endowed with abundant natural resources lacking in Japan, the United Kingdom, and EEC. If yes, should she also join this advanced industrial group? Lastly, in view of the possible decline of their primary exports, should Australia and New Zealand also industrialize by shifting emphasis from vertical to horizontal trade?

Although finding answers to these policy questions is beyond the confines of this paper, a few theoretical reconsiderations should be made. In accordance with the static theory of international trade, it is claimed that all harmful trade policies should be abolished¹⁵ so that world-wide free trade will attain the best utilization of world resources.

However, the static theory of international division of labor is not sufficient to deal with changing patterns of international trade which develop through dynamic economic progress of the nations in the world. A dynamic theory of international trade should be advanced.¹⁶ Our morphological analysis of international trade in this paper is also insufficient and the causes of changes in trade pattern should be related with patterns of growth in demand and

¹⁵ Since the war Japan has successfully advanced her trade with America, even in the horizontal trade in capital intensive goods, but her trade with Western Europe has been extremely small so far considering the import capacities of America and Western Europe. This is partly due to the remoteness between Japan and Western Europe, but mainly due, it seems to me, to Western Europe's trade discrimination of several kinds against Japan. We are earnestly interested in mutually abolishing trade restrictions so that our trade with Western Europe can advance. In order to do this, Japan should increase her imports of manufactured goods from Western Europe. Our trade with America has been harmonious, since America has, while Western Europe has not, an abundance of inexpensive primary products which Japan wants in return for her manufactured exports.

¹⁶ Harry G. Johnson presents us one of the most excellent methods of dynamic analysis of international trade in his *International Trade and Economic Growth*, London, 1958, Part II.

production of a country and the rest of the world or each trading partner country.

A significant finding of this paper which presents opportunities for further inquiry is the rapid growth of horizontal trade of manufactured goods among highly developed, homogeneous and industrial countries. We need to uncover the force underlying this conspicuous trend and define any new philosophy that may have evolved which is contrary to the traditional comparative costs theory. Only by learning these causes can we explain why economic integration is sought and has thus far been prosperous among these homogeneous but seemingly competitive industrial countries in Europe. And, only then, can sound policy recommendations be made to other countries.

There are several plausible explanations for the prosperity of this horizontal trade among homogeneous countries. One is that higher income creates a large mutual trade and the faster the economic growth is, the greater the increment of demand is met by trade. The demand in a high income economy is so diversified that a small variety of tastes creates mutual trade, stimulated by a lot of new commodities, differences in design and quality, etc. Also, the more similar the demand structure, the greater the possibility of mutual trade.¹⁷ These seek reasonings for demand aspects of international trade.

Another explanation is in production sides that differences in comparative costs exist even among highly industrial countries due to differences in natural resource endowments, technological development, skill of labor, research, and organization. In addition, it should be emphasized that to take mutually advantage of the economies of large-scale production is a great stimulus for promoting horizontal trade in manufactured goods.

Since differences in comparative costs among homogeneous industrial countries ought to be smaller than that between industrial and non-industrial countries, we expect vertical trade among the latter group to be greater. But we find that horizontal trade among the homogeneous group is greater and still rapidly growing. Apparently, the bigger differences in comparative costs, which ordinarily brings bigger gains per unit of trade, are being undermined by other dynamic factors such as greater growth of demand, greater technological progress, the utilization of economies of scale, and the creation of new commodities.

Another problem remains. Is horizontal trade among industrial countries inherently more unstable than traditional vertical trade? If so, some institutional arrangements, one of which may be economic integration, must be firmly established so that a harmonious pattern of horizontal trade can be promoted among these countries.

¹⁷ This is suggested by Staffan Barenstam Linder, *An Essay on Trade and Transformation*, New York, 1961, Chap. III.