

THE TERMS OF TRADE BETWEEN THE SOVIET UNION
AND COMMUNIST CHINA, 1956-1959

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by

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I. INTRODUCTION

1. Definition

The terms of trade are determined by the relationship between prices a country gets for its exports and imports. As Professor C. P. Kindleberger pointed out, "the nearest comparable concept in domestic trade is the notion of farm parity as a base for farm prices. Farm prices today, or any particular agricultural price, may be compared with parity by ascertaining whether it has changed as much as and in the same direction as have the prices of those things farmers buy in relation to some specified period of time in the past. By the same token, the terms of trade of a country have improved or deteriorated relative to a base period if the price level of exports has increased or decreased, respectively, relative to the prices of imports."¹

As in the Marshall-Edgeworth two country-two commodity example, the terms of trade can be expressed as a price line OP , in Figure 1, which determines the relationship of the quantities of a country's exports to its imports. These terms of trade are neither favorable nor unfavorable, except as they are more favorable to both countries than the prices without trade. But a change in the terms of trade, by shifting the price line OP in either direction, may be favorable to one country and unfavorable to the other. In the case of the example, a shift of the price

¹C. P. Kindleberger, "International Economics" (3rd ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1963), pp. 168-69.

line from OP to OP' would be a favorable movement in the terms of trade for country B. On the contrary, a shift of OP line in the other direction would be unfavorable. Further suppose that country A produces wheat and country B produces cloth. The initial transaction between A and B are determined at the point P where A's offer curve, OA^2 , and B's offer curve, OB , are intersected and by

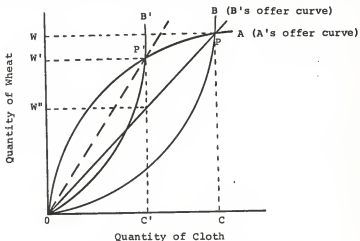


Fig. 1. The terms of trade under general equilibrium

the price line OP . Suppose that country B reduces the demand for wheat of country A by shifting its offer curve from OB to OB' and the demand of country A for cloth remains unchanged. Thus, country B is willing to exchange its cloth for wheat according to

²A's offer curve refers as a series of amounts of wheat which A is willing to exchange for a given amounts of cloth. B's offer curve refers as a series of amounts of cloth which B is willing to exchange for a given amounts of wheat.

its new offer curve OB' which intersected OA at P' . OP' becomes a new equilibrium price. At the new equilibrium level, country B trades OC' amount of cloth for OW' of wheat. Since the slope of OP' is greater than that of OP , country B is able to trade the same amount of cloth for a larger amount of wheat than she demanded at the old level of price, i.e., OP . Therefore, country B moves to more favorable the terms of trade because she trades OC' of cloth for OW' of wheat which is larger than OW . Again, it is clear that any shift of price line OP would change the terms of trade of the country.

The Marshall-Edgeworth diagram expresses the terms of trade under the conditions of general equilibrium. Exports and imports are assumed in balance. No transportation cost and no retaliation of a country against the other country are assumed. The terms of trade can therefore be shown either as the price of wheat in terms of the price of cloth or the quantity of wheat exchanged for a quantity of cloth. Hence, in the real world, there are more than two commodities and more than two countries, exports and imports are not always in balance. Further, it is not known what prices would be in the absence of trade.¹

2. Objective of Study

Since the Soviet Union published its foreign trade statistics in 1958, there have been many studies concerning the terms of trade between the Soviet Union and Communist bloc countries.

¹C. P. Kindleberger, "International Economics" (3rd ed., Homewood, Illinois: Richard D. Irwin, Inc., 1963), p. 170.

The first intensive analysis of the terms of trade between the Soviet Union and small communist countries appeared in articles "Terms of Trade between the Soviet Union and Small Communist Countries, 1955-1957" and "The Terms of Soviet-Satellite Trade: A Broadened Analysis" written by Horst Mendershausen. In his study, Mendershausen compared the average unit values of Soviet exports to and imports from the small communist countries with the average unit values of the small communist countries' exports to and imports from free European countries. He further concluded that the Soviet Union discriminated against the European satellites by charging them higher prices for Soviet exports and paying them lower prices for Soviet imports than they do for comparable commodities in trade with Free Europe. This enabled the Soviet Union to enjoy a position of monopolistic-monopsonistic.¹ Later study by Holzman indicated that

"The apparent Soviet anti-Bloc price discrimination which Mendershausen uncovered is not evidence of superior bargaining power at all but appears to be the natural consequence of what we have called the 'customs union' of Soviet Bloc nations, a group of nations committed to a high degree of autarky as a major objective and implementing this objective not by discriminatory tariffs but by direct controls. On the basis of this customs union model, it was predicted that not only would the Soviets 'discriminate' against other Bloc nations in comparison with Western Europe but that each member of the Bloc might (but

¹Horst Mendershausen, "Terms of Trade Between the Soviet Union and Small Communist Countries, 1955-1957," Review of Econ. and Stat., Vol. 41: No. 2, May 1959, pp. 117-118; "The Terms of Soviet Satellite Trade: A Broadened Analysis," this review (May, 1960), p. 152-163.

would not necessarily) discriminate in the same way against every other member of the Bloc. This was borne out in a processing of newly available Bulgarian trade statistics which showed, as a matter of fact, even greater so-called 'discrimination' against the Bloc by Bulgaria than by the Soviet Union."¹

However, the above articles did not include the analysis of the trade between the Soviet Union and Communist China. Feng-Hwa Mah, using a similar approach as Mendershausen did in his article, compared the unit values of Sino-Soviet trade with that of Soviet-Western Europe trade and Sino-Western Europe trade. According to his article, Communist China paid on the average about 30 per cent more for its imports from the Soviet Union than non-Communist Europe did. On the other hand, there was no such clear-cut differential on the export prices. In 1955 and 1956, the Soviet Union paid slightly more for its imports from Communist China than for those from Western Europe while the reverse was true, again only to a small extent, in 1957, 1958, 1959.² He further remarked that "transport cost effect is a major reason for 'China differential'. The quality difference effect and the 'lean-to-one-side' effect are both also partly responsible for the 'China differential', but in a less significant way. These observations refer to the measured differentials in the level of unit values.

¹ Franklyn D. Holzman, "Soviet Foreign Trade Pricing and the Question of Discrimination, A Customs Union Approach", Review of Econ. and Stat., Vol. 44; no. 2, May 1962, pp. 145-46.

² Feng-Hwa Mah, "The Terms of Sino-Soviet Trade", The China Quarterly, no. 17, Jan.-Mar. 1964, pp. 179-187.

The changes over time of Sino-Soviet unit values follow closely those of the non-Communist Asian countries. Communist China's terms of trade with the Soviet Union, compared with those of the non-Communist Asian countries' trade with the rest of the world, do not show relative deterioration during this period, except for 1959."¹

The purpose of my study is to further investigate the terms of trade of Communist China in its trade with the Soviet Union during 1956-1959 and to find the factors affecting the change of the terms of trade in the period and to discover why Communist China changed its trade partner from the Soviet Union to Non-Communist countries as political relations deteriorated after 1960. We know that the Sino-Soviet trade had sharply declined since 1960. On the other hand, Sino-Non-Communist countries trade has been gradually increasing since then, especially Sino-Japanese trade. The statistics show that the total values of the Soviet imports from Communist China were US\$ 764.2 millions in 1956; US\$ 738.1 millions in 1957; US\$ 881.2 millions in 1958; US\$ 1,100.3 millions in 1959; US\$ 848.1 millions in 1960; US\$ 551.4 millions in 1961; US\$ 516.3 millions in 1962; and US\$ 413.0 millions in 1963. The total values of Soviet exports to China were US\$ 733.0 millions in 1956; US\$ 544.1 millions in 1957; US\$ 634.0 millions in 1958; US\$ 954.5 millions in 1959; US\$ 817.1 millions in 1960; US\$ 367.3 millions in 1961; US\$ 233.4 millions in 1962; and US\$

¹ Ibid. p. 191.

187.2 in 1963.¹ Evidently, the Sino-Soviet economic relation had deteriorated since 1960. The terms of trade between these two most powerful communist countries prior to 1960 seem worth exploring.

¹The data are taken from "Current Economic Indicators for the U.S.S.R.", 89th Cong., 1st Sess., 1965 (Washington: U.S. Government Printing Office, 1965), p. 161.

II. COMPILATION OF DATA AND METHOD OF COMPUTATION

1. Source and Characteristics of Data

Because of the limited availability and inaccuracy of Communist China's foreign trade statistics, the compilation and computation of foreign trade data is an important item in a study of the terms of trade between the Soviet Union and Communist China. A study made by Kang Chao indicated that "China's foreign trade data are not as reliable as some people tend to believe. The overall foreign trade data published by Peking give a distorted picture because of the unrealistic and inconsistent exchange rate used by China and the different pricing bases used in her trade with the West and in her trade with Communist countries."¹ Unfortunately, China's foreign trade statistics are not available in KSU Library. Though some world trade statistics have been published by many international organizations, like United Nations and International Monetary Fund, the data related to quantities of commodities traded are not included in those statistics. Therefore, the compilation must be based on Soviet trade statistics. The statistics appeared in "Foreign Trade of the U.S.S.R.", World Trade Information Service Report, published by the U.S. Department of Commerce, Bureau of Foreign Commerce. But only four-year data are available (1956-1959). In addition, only the

¹Kang Chao, "Pitfalls in the Use of China's Foreign Trade Statistics", *The China Quarterly*, no. 19, July-Sept. 1964, p. 64.

selected commodities of Soviet imports and exports statistics were printed in the Reports. But the quantities of commodity imports and exports are not indicated in some heterogeneous goods. Therefore, over-all computation and long-term analysis of the terms of trade between the Soviet Union and Communist China seem impossible because of lack of complete data. However, some homogeneous commodities with trade quantity indication were chosen from the "Foreign Trade of the U.S.S.R." as sample commodities for calculation. Because the terms of trade are indicated in the form of an index number, the trade aggregates of some homogeneous commodities may be qualified for the estimation of total trade.

As the "Foreign Trade of the U.S.S.R." indicated, the statistics represent "general" trade in the years 1955-1959. Imports include all merchandise entering the countries whether for domestic consumption or for re-export. Exports include the produce and manufactures of the Soviet Union and re-exports of goods imported into the U.S.S.R. and subsequently exported. Exports are credited to the country of destination and imports to the country of origin. Most of the data were compiled from official Soviet trade statistics, as published by the Ministyerstovo Vnyeshnyei Torgovli SSSR, Planovo-Ekonomicheskoye Upravlyeniye, in Vneshnyaya Torgovlya SSR: Statisticheskiy Obzor. Both exports and imports are valued f.o.b. in the years 1955-1959.¹

¹The note is prepared by the Internatl. Economic Analysis Div., Office of Economic Affairs, U.S. Dept. of Commerce in the "Foreign Trade of the U.S.S.R." 1958-59, World Trade Information Service Report, Part 3, No. 61-9 U.S. Dept. of Commerce (Washington D.C.: U.S. Government Printing Office, 1961), p. 8.

2. Method of Computation

(1) Formula of Index Numbers

Different unit-value (price) indexes were computed for various comparisons.

a.) In computing Comparison of Unit Values of Selected Commodities in Sino-Soviet Trade with that of Similar Commodities in Soviet-Other Communist Countries¹ Trade and in Soviet-Non-Communist Countries² Trade during 1956-1959 (Table 1 and 2), Paasche's current-weight price index formula, $P = \frac{\sum Q_n \cdot P_n}{\sum Q_n \cdot P_o}$, was used. Thus, the comparison of the two sets of prices was weighted by quantities of China's exports to or imports from U.S.S.R. in the current year. Since two comparisons are made, P_n stands for the prices of Communist China's exports to or imports from U.S.S.R. while P_o stands for the prices of Other-Communist countries exports to or imports from U.S.S.R. in one case and the prices of Non-Communist countries exports to or imports from U.S.S.R. in the other case.

b.) In computing Index Numbers of Selected Commodities Traded Between Communist China and the Soviet Union, 1956-1959 (Table 3), 1956 was selected as a base year. The value index, V, (either

¹ Other Communist Countries include Albania, Bulgaria, Czechoslovakia, Finland, East Germany, Hungary, North Korea, Outer Mongolia, Poland, Rumania, and Yugoslavia.

² Non-Communist countries are the countries other than Communist Bloc which includes Afghanistan, Egypt, France, West Germany, India, Italy, Malaysia, Sweden, and United Kingdom, etc.

exports or imports) was expressed in a percentage form, $V = \frac{V_n}{V_0}$, i.e. a percentage increase or decrease from base year (0) to current year (n). The volume index, Q, (either exports or imports) was calculated by means of base year price weighted volume index, $Q = \frac{\sum Q_n \cdot P_0}{\sum Q_0 \cdot P_0}$. The ratio of these two totals was a measure of the change in exports or imports by volume; no price changes were involved. The price index, P, (either exports or imports) was computed by current year volume weighted price index, $P = \frac{\sum Q_n \cdot P_n}{\sum Q_n \cdot P_0}$, i.e., the comparison of two sets of prices was by means of the quantity exports or imports in the current year.

"The method is standard, adopted by many countries in their compilation of index numbers of volume and price. It can be readily extended to cover wide groups or the total of exports or imports."¹

(2) Computation of Unit Values

Unit values (unit prices) were calculated by dividing values of specific transactions (converted into dollars) by quantities traded (mostly converted to metric tons) for sizable aggregates of fairly homogeneous commodities (Appendix Table 1-8). Seven commodities in 1956-57 and nineteen in 1958-59 were selected to compute the unit values for China's exports to U.S.S.R.. Six commodities in 1956-57 and sixteen in 1958-59 were selected to calculate the unit values for China's imports from U.S.S.R.. The

¹R. G. D. Allen and J. Edward Ely, "International Trade Statistics" (New York: John Wiley & Sons, Inc., 1953) p. 189.

commodities selected for computing unit values entirely depended upon the availability of data. Further, the commodities computed with unit values were not all listed to calculate the index number of the terms of trade because of lack of data availability. The number of commodities selected for computing the index number of the terms of trade were indicated in each related table.

(3) Computation of the Terms of Trade

a.) The Gross (Barter) Terms of Trade

$$G = \frac{Q_i}{Q_e} \times 100 \quad \text{where} \quad \begin{array}{l} Q_i \text{ is volume index for imports} \\ Q_e \text{ is volume index for exports} \end{array}$$

The volume of imports in percentage of the volume of exports for the current year (n) relative to the base year (0). Both Q_i and Q_e are in index form with year 1956 as 100. G measures the real gain from trade, comparing imports actually received with exports actually dispatched.

b.) The Net (Barter) Terms of Trade

$$T = \frac{P_e}{P_i} \times 100 \quad \text{where} \quad \begin{array}{l} P_e \text{ is price index for exports} \\ P_i \text{ is price index for imports} \end{array}$$

T measures the real cost of imports in terms of exports. Thus, the price of exports in percentage of the price of imports, for the current year (n) in relation to the base year (0). Both P_e and P_i are again in index number form with year 1956 as 100.

c.) The Income Terms of Trade

$$I = Q_e \times T$$

The index I is the product of volume index for exports, Q_e , and the index of the net barter terms of trade, T, again with year 1956 as base year.

The above methods of computing the terms of trade are taken from R. G. D. Allen's article "Index Numbers of Volume and Price".¹ In order to construct Table 4 "The Terms of Sino-Soviet Trade" during 1956-1959 (1956=100) as indicated above, the computation of the index numbers of volume and prices for both exports and imports is necessary. This computation is presented in the Table 3, Appendix Table 9 and 10. The numbers of commodities selected for these tables and the total values of selected commodities for either China's exports to or China's imports from U.S.S.R. as the percentage of total value of transaction are also indicated in the tables.

¹R. G. D. Allen & J. Edward Ely, "International Trade Statistics", Chapt. 10 (New York: John Wiley & Sons, Inc., 1953) pp. 207-209.

III. THE TERMS OF TRADE OF COMMUNIST CHINA

1. Unit Value Comparison and the Terms of Trade

(1) A comparison of the unit values of selected commodities in the Sino-Soviet trade with the unit values of the similar commodities in the Soviet-Other Communist countries trade during 1956-1959 was made and the result was presented in Table 1. The recorded values of China's exports to or imports from U.S.S.R. were expressed in terms of the values China would have received if she had enjoyed the prices of the same commodities which Other-Communist countries exported to or imported from U.S.S.R.. The comparison was shown in the form of index numbers. The calculated result showed that China had a comparative price disadvantage¹ over its trade with U.S.S.R.. The receipts which China received from its export goods to U.S.S.R. were 19 per cent lower in 1956, 9 per cent higher in 1957, and 9 per cent lower in 1958-59 than the amount Soviet Union would have paid if she had imported the same quantity of goods from Other-Communist countries. On the other hand, the payments which China paid for its import goods from U.S.S.R. were 36 per cent higher in 1956, 33 per cent higher in 1957, 4 per cent higher in 1958, and 14 per cent higher in 1959 than the payment the Soviet Union would have received if she

¹The terms "comparative price advantage" (or disadvantage) was suggested by Joseph Berliner and coined by Franklyn D. Holzman in his article, "Soviet Foreign Trade Pricing and the Question of Discrimination", Review of Econ. and Stat., May 1962, p. 137.

she had exported to Other-Communist countries. This meant that Communist China received unfavorable treatment on both its exports and its imports. The terms of trade was definitely unfavorable to China. Since the international transactions in Communist bloc countries were mostly based on bilateral treatment, the price differential very often exists in the Communist intra bloc trade. According to the study made by Holzman, the Communist intra trade prices were not always equalized but discriminated against each other.¹ The terms of trade of China for the four years were unfavorable because they were all below 100, i.e., 59.6 in 1956; 82.0 in 1957; 87.5 in 1958; and 79.8 in 1959. However, it is clear the terms of trade were relatively tending more favorable to China year by year.

(2) The results of the comparison shown in Table 2 in which the recorded values of selected commodities in the Sino-Soviet trade were expressed in terms of the values China would have received if she had enjoyed the prices of Soviet-Non-Communist countries trade were different from that of the previous comparison. The index numbers of China exports to U.S.S.R. during 1956-1959 were 133, 122, 118, and 116 respectively. These showed that China received quite favorable treatment on its exports. If using Mah's terms to interpret, China had 33%, 22%, 18% and 16%

¹ Franklyn D. Holzman, "Soviet Foreign Trade Pricing and the Question of Discrimination", Review of Econ. and Stat., May 1962, p. 143-145.

of over-receipts on its export goods from U.S.S.R. in 1956, 1957, 1958 and 1959 respectively. But the favorable treatment was offset by the unfavorable treatment on its imports. Let us look at the index numbers of China's imports from U.S.S.R.. The values of the index numbers are 131 in 1956; 133 in 1957; 105 in 1958; and 120 in 1959. Thus China made 31%, 33%, 5%, and 20% of over-payments to U.S.S.R. on its import goods in the corresponding years. Hence, the favorable treatment China had received on its exports was offset by the unfavorable treatment on its imports; therefore, the terms of trade of China were in the neighborhood of 100. The values are 101.5 in 1956; 91.7 in 1957; 112.4 in 1958; and 96.7 in 1959. The results were consistent with Holzman's conclusion, Soviet sometimes appear to "discriminate" against the Bloc, and other times appear to "discriminate" in favor of the Bloc.¹

2. Gross, Net, and Income Terms of Trade

The methods of computing gross, net and income terms of trade have been presented in the previous section. The results of the calculation will be interpreted as follows:

$$(1) \text{ Gross Barter Terms of Trade } (G = \frac{Q_i}{Q_e} \times 100)$$

By comparing volume index for imports with volume index for exports, the gross barter terms of trade measure the real gain from trade. "Changes over time in the index G then show

¹Franklyn D. Holzman, "Soviet Foreign Trade Pricing and the Question of Discrimination", Review of Econ. and Stat., Vol. 44; no. 2, May 1962, pp. 138-40.

variations in the real gains from trade actually realized. A rising value of G shows that more imports are purchased for a given volume of exports. This may be because import prices have fallen or because of other factors in the balance of payments, such as increased use of invisible receipts."¹ The result was shown in Table 4. The G value drastically declined to 72.6 in 1957 from the base year 1956 = 100. This indicates that the terms of trade became markedly unfavorable to China. Thus, more of exports were sent out, in comparison to the imports that came in. This might be due to the higher import prices China was required to pay. In 1958 and 1959, the situation was the other way, G value rose to 130.7 and 108.1 respectively. The terms of trade were more favorable to China resulted from less exports in relation to the imports. The fluctuation might be due to the appreciation of the yuan against the rouble resulting from the adjustment of the foreign exchange rate between the Soviet Union and Communist China at the end of 1957.²

$$(2) \text{ Net Barter Terms of Trade } (T = \frac{p_e}{p_i} \times 100)$$

The net barter terms of trade measure the real cost of imports in terms of exports. The purpose of the measurement is

¹ R. G. D. Allen & J. Edward Ely, "International Trade Statistics" (New York: John Wiley & Sons, Inc., 1953), p. 208.

² Kang Chao and Feng-Hwa Mah, "A Study of the Rouble-yuan Exchange Rate," The China Quarterly, no. 17, Jan.-March, 1964, p. 193.

to isolate the price effect from other factors by calculating the price of exports in percentage of the price of imports for a current year (n) in relation to the base year (0). A change in T value shows a varying volume of imports which could be obtained from a given volume of exports on the basis of price relations. A rise in T value represents that imports are becoming relatively cheaper than exports and the terms of trade are becoming more favorable.¹ The net barter terms of trade did not change appreciably during 1956-1959, except in 1958. The T value went up to 111.7 in 1958. The reason for rising T value in the year might be mainly due to a fall in import price. The T value in 1957 and 1959 was 101.5 and 101.0 respectively. Some reader may wonder why the T value in 1957 remained in 101.5 while the G value in the year declined to 72.6. The inconsistency of these values are attributed to the partial concepts of the terms of trade because T value is determined by the ratio of P_e to P_i and G value is determined by the ratio of Q_i to Q_e . However, we know that the T value did not change and the G value did decline in 1957. Accordingly, $G/T = \frac{Q_i/Q_e}{P_e/P_i} = \frac{Q_i}{Q_e} \times \frac{P_i}{P_e} = \frac{V_i}{V_e}$, and $G = \frac{V_i}{V_e} \times T$, where V_i is value index for imports and V_e is value index for exports. If T remains unchanged, a change in G will be due to a change in the ratio of V_i to V_e . For the same reason, the decline in the G value in 1957 was due to a large decrease in the value index for imports

¹R. G. D. Allen and J. Edward Ely, "International Trade Statistics" (New York: John Wiley & Sons, Inc., 1953), p. 208.

relative to a small decrease in the value index for exports as the T value remained unchanged. According to the Soviet foreign trade statistics, the recorded values of China's exports to U.S.S.R. were US\$ 764.2 millions in 1957 and US\$ 738.1 millions in 1957, and recorded values of China's imports from U.S.S.R. were US\$ 733.0 millions in 1956 and US\$ 544.1 millions in 1957. In addition, the weakness of the gross and net barter terms of trade is supplemented by the income terms of trade.¹

(3) Income Terms of Trade ($I = Q_e \times T$)

The income terms of trade is the net barter terms of trade multiplied by the volume index of exports. It refers to the volume of imports obtainable from the income earned from exports. This concept has also been called the "capacity to import." According to Kindleberger, if there is a strong pull toward equilibrium in the balance of payments (i.e., $P_e Q_e = P_i Q_i$), then $\frac{P_e Q_e}{P_i}$ determines Q_i . A country can buy more imports if any of three things happen: (1) The price of exports goes up; (2) The price of imports goes down; (3) The volume of exports goes up.² The values of I shown in Table 4 are 97.3 in 1957; 129.7 in 1958; and 127.4 in 1959. The slight fall in 1957 might be due to a small decrease in the volume of exports. A large rise in 1958 and 1959 might be attributed to an increase in the volume of exports and a decline in imports price as well.

¹G. S. Dorrance, "The Income Terms of Trade," Review of Economic Studies, (1948-49), pp. 50-56.

²C. P. Kindleberger, "International Economics", 3rd ed. (Homewood, Illinois: Richard D. Irwin, Inc., 1963), p. 172.

The "gains from trade" can be derived from the income terms of trade. The gains from trade is represented by the income terms of trade $\frac{P_e Q_e}{P_i}$ less the volume index of exports Q_e , or $Q_e \left(\frac{P_e}{P_i} - 1 \right)$.¹ Further, the formula can also be rewritten as

$$\text{Gains from trade} = Q_e \left(\frac{P_e}{P_i} - 1 \right) = \frac{Q_e (P_e - P_i)}{P_i}$$

The gains from trade of China were 1.4 in 1957; 13.6 in 1958; and 1.3 in 1959 as compared to the base year 1956 (calculated from Table 3 and 4). In 1958, the gains from trade of China were attributed to a drastic decrease in import prices; a great difference between export prices and import prices; and a substantial increase in the volume of exports. In 1957 and 1959, there were no gains. The main reason for no gains in these two years were no significant difference between export prices and import prices.

¹C. P. Kindleberger, "The Terms of Trade: A European Case Study" (New York: John Wiley & Sons, Inc. & The Technology Press of MIT, 1956), pp. 288-89.

IV. FACTORS AFFECTING THE TERMS OF TRADE OF CHINA

From the previous results, we know that Communist China had improved the terms of trade as a result of the increase in the volume of exports since 1956. Further, we know that an improvement in the terms of trade will expand the export industries. The main commodities of China's exports during 1956-1959 were agricultural products and minerals which are considered as relatively labor-land-intensive (relative to the capital) commodities. The expansion of export industries due to the improvement of the terms of trade in China would cause high utilization of labor and land.

Communist China, since it had improved conditions in foreign trade after 1956, had a better domestic economy, especially in 1958 and 1959. In addition, the improvement of the terms of trade tends to increase the demand for import goods. For most of China's import commodities were machinery, transport equipment, manufactured goods and mineral fuels which are considered as capital goods. It is quite possible that the higher industrial production and rate of economic growth in 1958-1960 was due to the improvement of the terms of trade.

In the remainder of this section, a discussion of some factors which might affect the terms of trade of China during 1956-1959.

1. A study by Kang Chao pointed out that "the Soviet loans had been extended to Communist China since 1950 and they had been exhausted by the end of 1957. The loan receipts by China in 1956,

as Chao estimated, 117 million yuan, and the loan receipts in 1957 were 23 million yuan. According to the Sino-Soviet agreement signed on February 14, 1950, the commodities to be purchased by China with the loan proceeds were specified. The detailed types, quantities, prices and date of deliveries were to be determined by 'special agreements'. This commodity list was later designated as 'Commodity List C' to be distinguished from the 'Commodity List A' (the Soviet exports) and the 'Commodity List B' (the China exports) in the ordinary bilaterally balanced Sino-Soviet trade. The same provision had been renewed every year in the annual trade agreement until December 31, 1957."¹

Since Communist China received Soviet loans in 1956 and 1957, the transactions related to the loans were governed by specific provisions, i.e., some commodity prices on China's imports from U.S.S.R. were fixed. Besides, the Western embargoes and controls on trade with China forced China to trade with the Soviet Union. For these reasons, China had no other choice, then had to pay higher import prices. Apparently, the terms of trade were becoming unfavorable to China, especially in 1957. However, the improvement of the terms of trade in 1958-1959 was found partially by the enlargement of the volume of exports and partially by a fall in import prices relative to export prices in these years.

¹Kang Chao, "Pitfalls in the Use of China's Foreign Trade Statistics", *The China Quarterly*, no. 19, July-Sept., 1964, pp. 54-56.

2. The Rouble-yuan exchange rate had been adjusted during 1956-1959. According to Kang Chao and Feng-Hwa Mah's article "A Study of the Rouble-Yuan Exchange Rate",¹

"it is quite certain that from the signing of the Sino-Soviet trade agreement on April 19, 1950 to the end of 1957, the effective rouble-yuan exchange rate was approximately 1 to 1 or more precisely 1.03 rouble = 1 yuan. We believe that it was either toward the end of 1957, or at the beginning of 1958, that the rouble value of the yuan was appreciated from 1 roubles = 1 yuan. Apparently at the same time, a non-commercial exchange rate of 6 rouble = 1 yuan was also introduced. The doubling of the rouble value of the yuan at the new foreign trade exchange rate, together with the introduction of the non-commercial rate, has corrected to some extent the overvaluation of the rouble at the old rouble-yuan rate, and made it less embarrassing for Peking to begin to publish the adjusted rouble-yuan rate along with the exchange rates between the yuan and other currencies." They further concluded that "the appreciation of the rouble value of the yuan from 1 to 2 roubles also made the new rouble-yuan rate consistent with the foreign trade exchange rates of Eastern European countries."²

From their study, we know that the rouble value of the yuan was appreciated from 1 yuan = 1 rouble to 1 yuan = 2 roubles either at the end of 1957 or at the beginning of 1958. The yuan value of the rouble was depreciated at the time. Under the classical presumption, the terms of trade of a country will worsen if the country's foreign exchange is depreciated because the export prices will fall and import prices will rise. But under the

¹Kang Chao and Feng-Hwa Mah, "A Study of the Rouble-Yuan Exchange Rate", *The China Quarterly*, No. 17, Jan.-March, 1964, p. 192-204.

²Ibid., pp. 193-195.

contemporary presumption, "the export prices fall in foreign exchange, and import prices rise in domestic currency. In domestic currency, export prices rise, and in foreign exchange, import prices fall. The extent to which export and import prices fall abroad or rise at home will depend upon the elasticities."¹ We know that most of China's export goods are agricultural products and minerals, and its import goods are machinery and industrial equipments. Both China's domestic demand for its export goods and its demand for import goods have low elasticities. If Sino-Soviet trade had been carried on under the free market situation, and if the contemporary presumption is correct, the appreciation of Chinese currency against Soviet currency would have led to a rise in its export prices and a fall in its import prices. Therefore, we may conjecture that the terms of trade moved in favor of China in 1958 and 1959 due to the appreciation of the yuan against the rouble.

3. Transportation cost played an important role in determining the term of trade between the Soviet Union and Communist China. It might be a cause of the price differential between Sino-Soviet trade and Soviet-Other-Communist countries trade and Soviet-Non-Communist countries trade as well. Since exports and imports were valued at f.o.b. price base, the transportation cost, especially inland transportation, should be considered by both exporting and

¹C. P. Kindleberger, "International Economics" (3rd ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1963), p. 173.

importing countries. In the first unit value comparison of Sino-Soviet trade with Soviet-Other-Communist countries trade as shown in Table 1, China seemed to receive lower export prices from U.S.S.R. and to pay higher import prices to U.S.S.R.. Indeed, this may be interpreted in terms of transport costs. Because the bulk of China's exports to U.S.S.R. (Soviet imports) and Soviet exports to China (China imports) must move over long distance of inland via Trans-Siberian railways,¹ the prices of the Soviet exports to or the Soviet imports from China should cover the costs of long and expensive hauls. On the other hand, Soviet transports to the other communist countries (most are East European satellites) were much shorter; besides, some of the goods could be shipped by sea. Therefore, the Soviet Union would bid up its export prices on China's import goods and undercut its import prices on China's export goods. This Soviet behavior might have resulted in the unfavorable terms of trade of China as shown in Table 1.

The price differential as shown in Table 2 obtained by comparing the unit value of selected commodities of Sino-Soviet trade with the unit value of similar commodities of Soviet-Non-Communist countries trade might be explained in terms of different types of transportation used. The situation of Soviet-Non-Communist countries was different from that of the Sino-Soviet trade. The so-called Non-Communist countries include Afghanistan,

¹Eckstein, Alexander, "Communist China's Economic Growth and Foreign Trade: Implications for U.S. Policy" (New York: McGraw-Hill Book Co., 1966), p. 172.

Egypt, France, West Germany, India, Italy, United Kingdom, Malaysia, and Sweden. These countries are not closely located along the Soviet border. The Soviet hauls to these countries or these countries hauls to the Soviet Union were not necessarily through the long inland distance. Thus, the inland transport cost are not significant in the total cost of commodities. However, the large bulk of commodities are shipped by waterways. This means that the export goods are only moved from a point of manufacture to a port. If foreign transactions are based on f.o.b. price, an importing country would consider ocean freight. Under the combination of the above-mentioned circumstances, it would be possible for the Soviet Union to pay higher import prices on China's exports if the ocean freight which the Soviet Union was required to pay were greater than the inland transport costs. By the same token, the Soviet Union might possibly raise its export prices on China's imports because she had to bear expensive inland transport costs. In general, Communist China received favorable prices on its exports and paid unfavorable prices on its imports. This might be the reason that the results shown in Table 2 are neither favorable nor unfavorable to China.

Again, if the Sino-Soviet trade is carried on by means of bilateral agreement with f.o.b. price base, and if there is no other competition involved, and if the cost of production and the percentage of profit markup are the same in both countries, the terms of trade will move in favor of China because of the less inland transport costs she is required to pay. Since the Soviet

Union has to bear a larger amount of inland transport costs, she will, of course, try to bid up the price of her own commodities and undercut the price of other's in order to cover the cost.

4. The quality of a commodity might affect the price differential. Usually, a higher quality commodity is sold at a higher price, and a lower, at a lower price. Since the measurement of the quality of a commodity is very difficult and the commodities involved in international trade are so complicated, the quality of an international commodity is assumed to be homogeneous. In addition, the index of the terms of trade is calculated by aggregating fairly homogeneous commodities; therefore, the quality differential is assumed to have no effect.

V. CONCLUSION

The concepts of "the terms of trade" were developed mostly by classical and neoclassical economists. Because the concepts are partial, it is easy to be misled. For this reason, the use of the concepts of "the terms of trade" to illustrate economic phenomena should be carefully and thoroughly evaluated.

Since 1956, Communist China's income terms of trade with the Soviet Union had improved up to 1959. This largely due to the increase in the volume of exports and the decrease in the prices of imports. The enlargement of the volume of exports might be attributed either to the technological improvement or to the depression of domestic consumption, and the decrease in import prices might be resulted from the adjustment of the foreign exchange rate. Even though the price differential still existed between Sino-Soviet trade and Soviet-Other countries (Other-Communist and Non-Communist countries) trade, Communist China had obtained some gains from trade during 1956-1959. To what extent had Communist China improved the terms of trade and gained from trade? This is a crucial question. Because we do not know what the real situation of China in 1956 was, an exact quantitative illustration seems impossible. The results indicated in this study are only the comparison of the given years (1957, 1958, 1959) relative to 1956.

The terms of trade have been favorable to Communist China. But Communist China did shift her foreign trade away from the Soviet Union and moved toward the free world after 1960. This

move could be explained as a change in the political policy of Communist China because of the deterioration of Sino-Soviet relations. The political decision always plays an important role in determining the international trade of non-market oriented economies such as the Soviet Union and Communist China.

Table 1
COMPARISON OF UNIT VALUE OF SELECTED COMMODITIES IN SINO-SOVIET TRADE WITH
THAT OF THE COMMODITIES IN SOVIET-OTHER COMMUNIST COUNTRIES TRADE, 1954-59

Terms of trade	Year		Number of Commodities Selected	Selected Commodities as % of Total
	Index numbers	Index Numbers		
(1) China exports to U.S.S.R.:				
$\frac{P_{A,59}^C}{P_{A,54}^C} = \text{Valued at recorded prices}$		81	4	39.3%
$\frac{P_{A,59}^S}{P_{A,54}^S} = \text{Valued at Other Communist Countries prices}$				
(2) China imports from U.S.S.R.:				
$\frac{P_{A,59}^C}{P_{A,54}^C} = \text{Valued at recorded prices}$		134	6	17.5%
$\frac{P_{A,59}^S}{P_{A,54}^S} = \text{Valued at Other Communist Countries prices}$				
(3) Terms of trade: (1)/(2)		59.6		

Notes: (1) Calculated from Appendix Tables 1-8.
(2) If (1)/(2) x 100 is greater than 100, the terms of trade is favorable to China.
If (1)/(2) x 100 is less than 100, the terms of trade is unfavorable to China.

Index Numbers	1957			1958		
	Number of Commodities Selected	Selected Commodities as % of Total	Index Numbers	Number of Commodities Selected	Selected Commodities as % of Total	
109	4	28.6%	91	14	50.4%	
133	5	15.6%	104	15	35.9%	
82.0			87.5			

Index Numbers	1959		
	Number of Commodities Selected	Selected Commodities as % of Total	
91	14	42.0%	
114	15	21.0%	
79.8			

Table 2
COMPARISON OF UNIT VALUE OF SELECTED COMMODITIES IN SINO-SOVIET TRADE WITH
THAT OF THE COMMODITIES IN SOVIET-NON-COMMUNIST COUNTRIES TRADE, 1956-59

Terms of trade	Year		1956	
	Index numbers	Index Numbers	Number of Commodities Selected	Selected Commodities as % of Total
(1) China exports to U.S.S.R.:				
$\frac{I_{A}^{C} P_{A}}{I_{A}^{*} P_{C}} =$ Valued at recorded price Soviet and Non-Communist Countries prices		133	6	29.24
(2) China imports from U.S.S.R.:				
$\frac{I_{C}^{*} P_{A}}{I_{A}^{*} P_{C}} =$ Valued at recorded price Valued at Non-Communist Countries Prices		131	6	17.54
(3) Terms of trade: (1)/(2)		101.5		

Notes: See Table 1.

1957			1958		
Index Numbers	Number of Commodities Selected	Selected Commodities as % of Total	Index Numbers	Number of Commodities Selected	Selected Commodities as % of Total
132	6	28.64	118	17	50.44
133	5	15.64	105	15	35.34
91.7			112.4		

1959		
Index Numbers	Number of Commodities Selected	Selected Commodities as % of Total
114	16	42.04
120	15	21.04
96.7		

Table J

 INDEX NUMBERS OF SELECTED COMMODITIES TRADED BETWEEN COMMUNIST CHINA
 AND SOVIET UNION, 1954-1959 (1956 = 100)

(1) China Exports to U.S.S.R.				
Year	1956	1957	1958	1959
Value Index, V_e	100	$\frac{EV_{A1}}{EV_{A0}} \times 100 = 98.8$	$\frac{EV_{A2}}{EV_{A0}} \times 100 = 109.5$	$\frac{EV_{A3}}{EV_{A0}} \times 100 = 110.1$
Volume Index, Q_e	100	$\frac{EQ_{A1} \cdot P_{A0}}{EV_{A0}} \times 100 = 95.9$	$\frac{EQ_{A2} \cdot P_{A0}}{EV_{A0}} \times 100 = 116.1$	$\frac{EQ_{A3} \cdot P_{A0}}{EV_{A0}} \times 100 = 126.1$
Price Index, P_e	100	$\frac{EV_{A1}}{EQ_{A1} \cdot P_{A0}} \times 100 = 103.1$	$\frac{EV_{A2}}{EQ_{A2} \cdot P_{A0}} \times 100 = 94.3$	$\frac{EV_{A3}}{EQ_{A3} \cdot P_{A0}} \times 100 = 87.3$
(2) China Imports from U.S.S.R.				
Year	1956	1957	1958	1959
Value Index, V_i	100	$\frac{IV'_{A1}}{IV'_{A0}} \times 100 = 70.7$	$\frac{IV'_{A2}}{IV'_{A0}} \times 100 = 128.0$	$\frac{IV'_{A3}}{IV'_{A0}} \times 100 = 117.8$
Volume Index, Q_i	100	$\frac{IQ'_{A1} \cdot P'_{A0}}{IV'_{A0}} \times 100 = 69.6$	$\frac{IQ'_{A2} \cdot P'_{A0}}{IV'_{A0}} \times 100 = 151.7$	$\frac{IQ'_{A3} \cdot P'_{A0}}{IV'_{A0}} \times 100 = 136.3$
Price Index, P_i	100	$\frac{IV'_{A1}}{IQ'_{A1} \cdot P'_{A0}} \times 100 = 101.6$	$\frac{IV'_{A2}}{IQ'_{A2} \cdot P'_{A0}} \times 100 = 84.4$	$\frac{IV'_{A3}}{IQ'_{A3} \cdot P'_{A0}} \times 100 = 86.4$

Note: (1) Notation see Appendix Tables 1 and 9.

$$(2) V_{A0} = Q_{A0} \cdot P_{A0}; V_{A1} = Q_{A1} \cdot P_{A1}; V_{A2} = Q_{A2} \cdot P_{A2}; V_{A3} = Q_{A3} \cdot P_{A3}$$

$$V'_{A0} = Q'_{A0} \cdot P'_{A0}; V'_{A1} = Q'_{A1} \cdot P'_{A1}; V'_{A2} = Q'_{A2} \cdot P'_{A2}; V'_{A3} = Q'_{A3} \cdot P'_{A3}$$

(3) Calculated from Appendix Tables 9 - 10

Table 4

THE TERMS OF SINO-SOVIET TRADE OF SELECTED COMMODITIES, 1956-1959
(1956 = 100)

Year	1956	1957	1958	1959
Terms of trade				
Gross (barter) terms of trade:				
$G = \frac{Q_I}{Q_E} \times 100$	100	72.6	130.7	108.1
Net (barter) terms of trade:				
$T = \frac{P_E}{P_I} \times 100$	100	101.5	111.7	101.0
Income terms of trade:				
$I = Q_E \times T$	100	97.3	129.7	127.4

Note: (1) Calculated from table 3.

(2) If the values of G , T and I are greater than 100, the terms of trade are favorable to China.
If the values of G , T , and I are less than 100, the terms of trade are unfavorable to China.

Note: (1) Calculated from: U.S. Department of Commerce, Bureau of Foreign Commerce, "Foreign Trade of the U.S.S.R.: 1956-57", World Trade Information Service Report, Part 3, no. 59-12, 1959, pp. 1-6.

(2) Complete figures are not provided by the Bureau.

(3) a indicates that the commodity is not included in the sum of V_A and $Q_A \cdot P_B$ (or V'_A and $Q'_A \cdot P'_B$) of the corresponding comparison.

b indicates that the commodity is not included in the sum of V_A and $Q_A \cdot P_C$ (or V'_A and $Q'_A \cdot P'_C$) of the corresponding comparison.

(4) Q_A = quantities of China's exports to U.S.S.R.; Q_B = quantities of other Communist countries exports to U.S.S.R.; Q_C = quantities of Non-Communist countries exports to U.S.S.R.

V_A = recorded value of China's exports; V_B = recorded value of Other-Communist countries exports; V_C = recorded value of Non-Communist countries exports.

P_A = unit value of China's exports; P_B = unit value of Other-Communist countries exports; P_C = unit value of Non-Communist countries exports.

(5) The notation with apostrophe means imports which include quantities, recorded value, and unit value.

(6) Conversion rates (U.S. dollars per rouble): \$0.25 = 1 rouble.

(7) Metric ton = 2,204.6 pounds.

(8) Meter = 1.0936 yards.

Appendix Table 2
 EXPORT EARNINGS OF SELECTED COMMODITIES TO COMMUNIST CHINA,
 OTHER-COMMUNIST AND ISO-COMMUNIST COUNTRIES, 1956

Commodity	Communist China Imports				Other Communist Countries Imports				Non-Communist Countries Imports					
	Q_A^1	F_A^1	Q_A^2	F_A^2	Q_A^3	F_A^3	Q_A^4	F_A^4	Q_A^5	F_A^5	Q_A^6	F_A^6	Q_A^7	F_A^7
Passenger cars, bus and trucks, number	3,369	10,596	3-13	5,047	6,443	20,142	35,346	1-75	8,191	16,055	1-04	15,449	0-95	28,572
Fertilizers, crude	297	14,843	37-39	8,430	6,123	1,226	53,435	28-23	974	19,023	15-42	43,899	1-04	19,464
Seedline	641	56,112	54-70	25,245	28,146	633	24,930	39-38	1-67	7,346	43-89	43,899	1-04	19,464
Diesel oil	377	16,085	42-67	9,951	16,208	522	13,778	26-39	1,109	30,029	27-08	43,899	1-04	19,464
Iron and steel rolling mill product	332	43,470	135-63	30,019	40,224	975	115,110	118-70	533	66,582	134-99	43,899	1-04	19,464
Copper, unwrought and copper wire	6,800	8,203	1-19	7,193	6,281	24,200	25,297	1-04	20,600	19,449	0-95	28,572	1-04	19,464
Equipment for complete ^{a,b} industrial plants		216,950					60,075							
Total imports of selected commodities		128,509		94,175	97,375	265,766								194,654
Total Communist China imports from O.R.R.		733,025												
Percent of selected commodities as % of total		17-56												

Note: See Appendix Table 1.

Appendix Table 3

SOVIET EXPORTS OF SELECTED COMMODITIES FROM COMMUNIST CHINA,
 GREEN-COMMUNIST AND RED-COMMUNIST COUNTRIES, 1957

Units: (1) 1,000 metric tons
 (2) metric tons
 Receipts not indicated

Commodity	Q _A	Communist China Exports				Other Communist Countries Exports				Non-Communist Countries Exports			
		V _A	T _A	Q _A X _A E	Q _A X _A O	Q _B	V _B	T _B	Q _C	V _C	T _C	P _C	
Rubber, natural, crude ^a	48,100	37,304	0.77	--	33,400	--	--	--	97,400	87,654	0.60	--	
Fuel, raw	13,700	23,904	1.74	26,218	34,027	10,500	21,627	2.06	33,100	89,211	2.46	--	
Tobacco, manufactured	4,400	41,011	0.99	41,062	41,951	28,000	29,594	0.92	15,500	14,645	0.94	--	
Meat and meat preparation	57,400	33,830	0.59	36,710	18,858	25,000	16,113	0.68	35,000	11,006	0.33	--	
Rice ^a	123,100	25,437	0.14	--	12,154	--	--	--	129,400	18,986	0.10	--	
Wool fabrics, 1000 meters	8,100	49,661	6.13	31,468	26,820	4,500	17,482	3.80	2,600	8,409	3.31	--	
T/A, unweighted ^{a,b}	22,000	45,527	2.07	--	--	--	--	--	--	--	--	--	
Total exports of selected commodities		211,047		136,498	173,210		84,816				203,091		
Total Communist China exports to U.S.S.R.		730,125											
Exports of selected commodities as % of total		28.65											

Note: See Appendix Table 1

Appendix Table A

SOVIET REPORTS OF SELECTED COMMODITIES TO COMMUNIST CHINA,
CHINA-COMMUNIST AND NON-COMMUNIST COUNTRIES, 1957

Units: (1) 1,000 TIR
(2) Metric Tons
Except as indicated

Commodity	Communist China Imports				Other Communist Countries Imports				Non-Communist Countries Imports				
	Q_1^1	V_1^1	F_1^1	$Q_1^1 \times P_1^1$	Q_1^2	V_1^2	F_1^2	$Q_1^2 \times P_1^2$	Q_1^3	V_1^3	F_1^3	$Q_1^3 \times P_1^3$	P_1^3
Passenger cars, bus and truck, number	579	1,807	3,376	845	1,022	15,628	29,228	1,37	15,089	25,996	1,90		
Petroleum, crude	380	14,211	37,40	8,516	6,916	4,222	94,018	22,41	1,321	24,042	10,20		
Gasoline	573	31,426	54,56	23,290	23,952	826	35,516	40,58	306	12,791	41,80		
Iron and steel	350	16,201	42,63	12,542	11,062	599	19,770	33,01	1,720	50,975	29,64		
Rolling mill product	149	21,409	143,66	19,017	20,677	1,317	175,165	133,00	497	63,419	138,77		
Copper, unwrought ^{a,b} and copper wire		5											
Shipments for ^{a,b} complete industrial plants		259,025					37,200	36,487	0,82	23,400	17,557	0,75	
Total imports of selected commodities	85,064	64,970	63,828	352,285									
Total Communist China imports from U.S.S.R.	544,100												
Imports of selected commodities as % of total	15.6%												

Notes: See Appendix Table 1

Appendix Table 5
 SOVIET IMPORTS OF SELECTED COMMODITIES FROM COMMUNIST CHINA,
 OTHER-COMMUNIST AND NON-COMMUNIST COUNTRIES, 1950

Commodity	Communist China Exports				Other Communist Countries Exports				Non-Communist Countries Exports						
	Q _A	V _A	T _A	Q _A P _A	Q _B	V _B	T _B	Q _B P _B	Q _C	V _C	T _C	Q _C P _C	Q _D	V _D	P _D
Rubber, natural ^a	26,100	22,044	0.61	--	21,313	--	--	--	322,600	131,419	--	34,000	65,617	2.01	
Wool, raw	12,100	21,219	1.75	24,235	24,277	8,950	17,856	2.0	34,000	65,617	2.0	21,700	20,737	0.96	
Tobacco, unmanufactured	39,500	21,415	0.80	37,559	37,747	23,100	21,956	0.95	21,700	20,737	0.96	16,500	3,359	0.20	
Meat and meat preparation	129,300	66,667	0.53	94,018	84,859	14,500	10,650	0.75	--	--	--	47,700	4,560	0.10	
Rice ^b	452,000	60,803	0.13	--	46,134	--	--	--	1,900	5,607	2.95	1,900	5,607	2.95	
Wool fabrics, 1000 meters	9,000	42,828	4.76	30,845	26,559	3,200	10,967	3.43	100	124	1.24	100	124	1.24	
T/A, unroughed ^c	19,300	59,346	2.04	--	25,932	--	--	--	59	761	13.28	4,400	1,280	0.29	
Oval, 1000 N. tons	808	2,796	3.44	3,252	2,753	3,559	35,300	15.54	0.20	4,400	1,280	0.29	4,400	1,280	0.29
Refractory articles and shells, unroughed	7,100	9,561	1.35	2,007	2,065	58,900	16,651	0.28	12,870	10.9	41	737	17.98		
Beans, 1000 N. tons	978	14,794	15.13	10,658	17,580	1,151	12,870	10.9	90	21,953	217.09	--	--	--	
Live animals for food ^d 1000 N. tons	12	2,260	189	2,615	--	90	21,953	217.09	--	--	--	--	--	--	

Unit: (1) 1,000 US\$

Unit: (2) Metric Tons

Except as Indicated

Appendix Table 3 (continued)

Item	Q ₁	V _A	F _A	Q ₁ X ₂ B	Q ₁ X ₂ G	Q ₂	V _B	F _B	Q ₂	V _G	F _G
Vegetable	13,000	15,677	1.20	--	19,952	--	--	--	12,700	19,459	1.53
Fruits and nuts, fresh	25,200	3,272	0.12	4,831	2,232	57,400	9,534	0.17	51,800	4,054	0.08
Vegetable oils, edible	137,200	21,250	0.15	22,590	26,551	95,200	15,647	0.16	112,000	21,074	0.19
Cotton fabrics, 1000 meters	67,900	21,120	0.31	27,205	32,238	3,100	1,274	0.41	2,300	1,032	0.47
Silk fabrics, 1000 meters	2,000	3,773	1.89	939	808	17,400	8,169	0.47	4,300	1,736	0.40
Woolwear, leather	39,900	20,876	0.77	37,852	20,085	6,000	5,692	0.95	5,100	2,567	0.50
Soybeans ^{a,b}	9,446	34,203	3.62	37,121	44,206	12,039	50,537	3.94	2,225	10,530	4.75
	475,400	50,107	0.10	--	--	--	--	--	--	--	--
Total exports of selected commodities		443,742		356,427	373,339		259,956			296,648	
Total Communist China exports to U.S.S.R.		561,250									
Exports of selected commodities as % of total		50.4%									

Notes: (1) Calculated from U.S. Department of Commerce, Bureau of Foreign Commerce, Foreign Trade of the U.S.S.R.: 1956-59, MOBILE TRADE INFORMATION BOARD.

(2) MOBILE TRADE INFORMATION BOARD, MOBILE TRADE INFORMATION BOARD, MOBILE TRADE INFORMATION BOARD, MOBILE TRADE INFORMATION BOARD.

(3) Excludes the other states of Appendix Table 1.

Appendix Table 6
 SOVIET EXPORTS OF SELECTED COMMODITIES TO COMMUNIST CHINA,
 OTHER-COMMUNIST AND BIR-COMMUNIST COUNTRIES, 1950
 (Units: (1) 1,000 TMS
 (2) Metric Tons
 Except as Indicated)

Commodity	Communist China Exports				Other Communist Countries Exports				Non-Communist Countries Exports			
	Q'_A	V'_A	F'_A	$Q'_A V'_A$	Q'_B	V'_B	F'_B	$Q'_B V'_B$	Q'_C	V'_C	F'_C	$Q'_C V'_C$
Passenger cars, number	1,244	2,124	1.71	3,630	1,617	13,652	1.2	6,804	8,842	1.36	3,96	2,549
Trucks, number	20,595	51,723	2.51	52,070	81,037	6,256	16,130	2.57	2,549	10,196	3.96	14,97
Petroleum crude, 1000 K. tons	672	14,966	22.27	13,943	10,057	4,992	107,560	20.75	3,429	53,216	14.97	37,53
Gasoline, 1000 K. tons	640	26,044	40.69	23,301	24,020	884	32,185	36.43	369	13,049	37.53	29,42
Steel coil, 1000 K. tons	663	22,209	33.77	19,631	16,944	698	26,697	29.61	2,123	53,927	59.42	377
Iron and steel rolling-mill products, 1000 K. tons	189	36,768	194.54	26,662	21,654	1,596	242,033	131.65	377	43,193	114.57	122,471
Industrial plants		166,162					51,239					
Machinery, ball and roller, ground	835	1,674	2.00	1,559	1,038	3,732	6,970	1.87	3,633	4,492	1.24	2,72
Tractors, number	2,656	10,769	4.05	12,284	7,232	2,096	11,136	4.05	3,546	9,661	2.72	472,200
Excavators	352,800	11,878	0.04	10,695	9,212	39,100	1,280	0.03	472,200	13,256	0.03	

Appendix Table 4 (continued)

	Q^*	V^*	Z^*	Q^*/Z^*	Q^*/V^*	Q^*/Z^*	Q^*/V^*	V^*	Z^*	Q^*	V^*	Z^*	Q^*	V^*	Z^*
Lubricating oils	194,100	14,435	0.08	20,119	14,315	40,800	4,136	0.10	47,000	4,091	0.07	4,811	32,92	4,811	32,92
Chromium ore	31	1,213	39.10	1,020	2,333	62,400	17,622	0.10	36,300	7,769	0.21	5,844	27,000	5,844	27,000
Iron and steel pipes lines and fitting	10,000	4,123	0.30	3,078	2,333	62,400	17,622	0.23	27,192	8,236	0.46	25,423	52,100	24,059	0.46
Aluminum, unwrought	20,100	9,178	0.46	11,625	9,270	42,700	23,423	0.55	52,100	24,059	0.46	1,744	369	1,744	369
Clanks, basehold, thousands	333	2,066	6.20	1,752	1,574	1,536	8,736	5.08	369	1,744	4.73	533,997	207,650	533,997	207,650
Locomotive, rian ^{a,b}	50	3,932	78.64	--	--	--	--	--	--	--	--	--	--	--	--
Total imports of selected commodities				218,796	217,318										
Total Communist China imports from U.S.S.R.				634,000											
Imports of selected commodities as % of total				36.9%											

Note: See Appendix Table 5

Appendix Table 7

SOYBEAN IMPORTS OF SELECTED COUNTRIES FROM COMMUNIST CHINA,
OTHER-COMMUNIST AND NON-COMMUNIST COUNTRIES, 1959

Commodity	Communist China Exports					Other Communist Countries Exports					Non-Communist Countries Exports						
	Q ₁	V ₁	P ₁	Q ₁ × P ₁	Q ₁ × P ₂	Q ₂	V ₂	P ₂	Q ₂ × P ₂	Q ₃	V ₃	P ₃	Q ₃ × P ₃	Q ₄	V ₄	P ₄	Q ₄ × P ₄
Rubber, natural ^a	23,000	18,084	0.76	--	14,153	--	--	--	--	--	--	--	--	225,200	147,740	0.66	0.60
Wool, raw	13,000	21,926	1.69	26,777	21,482	9,200	18,990	2.06	2.06	35,600	59,922	1.68	1.68	--	--	--	--
Tobacco, unmanufactured	36,300	29,481	0.81	37,119	22,760	30,200	29,662	1.02	1.02	22,100	13,869	0.63	0.63	--	--	--	--
Heat and heat preparation	82,500	42,102	0.51	53,044	18,156	13,900	10,273	0.64	0.64	14,400	3,169	0.22	0.22	--	--	--	--
Rice ^b	655,400	82,574	0.13	--	72,202	--	--	--	--	20,700	2,403	0.11	0.11	--	--	--	--
Wool fabrics, 1000 meters	12,600	49,248	3.96	41,241	29,263	3,900	12,468	3.20	3.20	2,900	8,139	2.81	2.81	--	--	--	--
Tire, unwrought ^b	20,800	41,707	2.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coal, 1000 K. tons	204	2,649	12.99	3,242	2,640	4,124	69,530	15.89	15.89	56	727	12.98	12.98	--	--	--	--
Nonferrous metals and alloys, unwrought	12,500	13,196	1.06	3,371	13,034	70,600	19,041	0.27	0.27	7,800	8,133	1.04	1.04	--	--	--	--
Cement, 1000 K. tons	560	5,325	9.52	6,146	6,182	1,044	11,498	10.96	10.96	95	276	11.04	11.04	--	--	--	--
Live animals for food ^b 1000 K. tons	13	2,422	201.69	2,895	--	301	22,415	221.93	221.93	--	--	--	--	--	--	--	--

(Unit: 1,000 U.S. dollars unless indicated as excepts as indicated)

Appendix Table 7 (continued)

Item	Q ₁	Y ₁	P ₁	Q ₂ P ₂	Q ₂	T ₂	P ₂	Q ₃	Y ₃	T ₃
Vegetables	17,300	19,441	1.12	--	85,654	--	--	12,500	18,536	1.48
Fruits and nuts, fresh	24,700	2,010	0.12	3,622	2,157	15,390	0.15	52,300	4,560	0.09
Vegetable oils, edible	1,291,700	19,419	0.15	26,054	23,053	15,220	0.16	90,400	15,579	0.18
Textile fabrics, 1000 meters	64,300	21,017	0.33	25,124	29,327	4,600	0.44	2,700	1,234	0.46
Silk fabrics, 1000 meters	140,300	59,065	0.34	59,160	59,049	14,065	0.40	6,000	2,049	0.34
Woolen fabrics, 1000 meters	54,000	41,136	0.76	52,271	31,080	6,000	0.97	4,500	2,590	0.58
Footwear, leather	5,981	36,703	4.09	37,070	25,603	13,751	4.22	3,338	9,516	2.85
Apparel ^{a,b}	636,900	67,423	0.11	--	--	--	--	--	--	--
Total exports of selected commodities		461,911		375,106	394,993	312,763			300,459	
Total Communist bloc exports to U.S.S.R.		1,106,275								
Exports of selected commodities as % of total		42.05								

Notes: See appendix Table 5

Appendix Table 8
 1972: REPORTS OF RELATED COMPANIES TO COMMERCE CHINA,
 OTHER-COMMERCIAL AND NON-COMMERCIAL COMPANIES, 1959

Commodity	Upper Commercial Sensitive Imports										Lower Commercial Sensitive Imports									
	Q_1^*	V_1^*	V_1^*	V_1^*	$Q_1^*V_1^*$	$Q_1^*V_1^*$	$Q_1^*V_1^*$	$Q_1^*V_1^*$	V_1^*	V_1^*	Q_1^*	V_1^*	V_1^*	Q_1^*	V_1^*	V_1^*	Q_1^*	V_1^*	V_1^*	
Passenger cars, number	1,546	2,692	1.74	1,890	1,072	26,643	32,577	1.22	7,811	9,459	1.21									
Trucks, number	0,046	29,366	3.15	13,933	36,227	12,178	25,656	2.25	3,076	12,435	4.04									
Automotive axle 1000 K. tons	636	13,739	21.60	13,039	6,731	6,601	125,331	20.5	5,248	72,046	13.73									
Gasoline, 1000 K. tons	1,256	51,519	41.26	46,103	47,037	953	34,921	36.71	415	15,740	37.83									
Diesel oil, 1000 K. tons	527	19,730	37.65	16,533	14,327	899	26,624	29.68	3,127	22,376	25.65									
Iron and steel rolling- mill product, 1000 K. tons	130	29,380	266.06	19,191	14,398	1,210	221,963	147.62	396	43,252	110.74									
Equipment for agriculture ^{a,b} Industrial plants		399,762					85,001													
Beer, wine, liquor, and other alcoholic beverages	2,969	5,077	1.71	5,560	4,089	4,255	7,911	1.86	3,476	4,782	1.28									
Tractors, number	941	2,049	2.18	3,270	2,789	11,836	41,132	3.40	4,723	13,999	2.98									
Gasoline	280,100	13,157	0.03	12,540	10,415	49,800	1,643	0.03	469,600	13,073	0.03									

(1) 1,000 US\$

(2) Metric tons

Except as indicated

Source: U.S. Commerce Dept.

Country Reports

Appendix Table 4 (continued)

	Q'_1	V'_1	F'_1	F'_1	$Q'_1 x'_{15}$	Q'_1	V'_1	F'_1	F'_1	$Q'_1 x'_{15}$	Q'_1	V'_1	F'_1	F'_1	Q'_1	V'_1	F'_1	F'_1	
Lubricating oils	215,600	18,458	0.09	21,613	15,672	44,900	4,609	0.10	93,100	6,124	0.07								
Chromium	33	1,282	30.25	1,442	945	55	2,403	43.69	134	5,269	28.64								
Ferrous alloys	4,500	1,597	0.35	1,334	815	59,600	17,672	0.30	67,100	12,146	0.18								
Iron and steel pipes tees and fitting	3,700	14,401	0.37	13,331	10,679	120,500	29,213	0.25	27,800	7,517	0.20								
Aluminum, wrought	300	130	0.63	128	140	42,300	22,209	0.53	24,800	16,195	0.47								
Clocks, household, thousands	379	2,308	6.09	1,929	1,269	2,645	12,950	5.09	367	1,286	5.25								
Locomotive, steam ^{a,b}	950	73,649	77.53	--	--	--	--	--	--	--	--								
Total imports of selected commodities		200,222		176,531	167,289		600,724												317,621
Total Communist China imports from U.S.S.R.		994,575																	
Imports of selected commodities as % of total		21.05																	

Note: See Appendix Table 5

Appendix Table 9
COMMERCE DATA REPORTS OF SELECTED COMMODITIES TO U.S.A.S., 1956-1959
ENCLOSURE VALUE AND VALUE AT 1956 PRICES

Commodity	1956			1957			1958			1959				
	Q ₅₆	V ₅₆	F ₅₆	Q ₅₇	V ₅₇	F ₅₇	Q ₅₈	V ₅₈	F ₅₈	Q ₅₉	V ₅₉	F ₅₉		
Rubbers, vulcan. sheets	14,900	12,577	0.77	48,100	37,024	0.77	36,208	22,034	0.61	27,197	19,965	0.73	31,084	22,825
Tea, raw	13,000	21,436	1.65	13,700	23,904	1.74	12,200	21,719	1.82	10,965	13,000	1.18	11,284	12,825
Tobacco, manufactured	20,000	89,847	0.95	44,400	41,011	0.92	36,500	31,425	0.86	30,305	26,300	0.87	29,601	33,033
Meat and meat preparations	123,000	53,130	0.53	97,400	33,030	0.34	116,300	66,507	0.57	63,903	62,500	0.98	42,102	42,075
Rice	497,000	64,204	0.13	321,100	28,877	0.09	451,500	62,803	0.14	63,300	695,400	1.11	21,574	92,116
Wool, shoddy, 1000 netwts	5,000	35,473	7.07	5,100	41,601	8.16	9,000	42,120	4.68	54,000	12,000	0.22	41,340	75,756
Total exports of selected commodities	15,700	34,827	2.27	29,200	45,537	1.56	18,300	36,346	2.00	30,921	20,800	0.67	41,707	43,056
Total Communist China exports to U.S.A.S.	259,674			266,574			246,195			301,403			259,933	327,404
Total Communist China exports of selected commodities	794,225			770,145			821,290			1,100,275			1,100,275	1,100,275
Exports of selected commodities as % of total	34.0%			34.0%			34.0%			34.0%			34.0%	34.0%

Notes: (1) Calculated from Appendix Tables 1, 2, 5, and 7.
(2) Base 1956 is shown by subscript 01 and current year is shown by subscript 1, 2, 3, 4, 5 for indicating particular current year.

Appendix Table 10
 COMMERCE DATA IMPORTS OF SELECTED COMMODITIES FROM U.S.S.R., 1954-59
 ENCLOSED VALUE AND VALUES AT 1954 PRICE

Commodity	1956			1957			1958			1959		
	Q_{10}^i	V_{10}^i	V_{10}^i / Q_{10}^i	Q_{11}^i	V_{11}^i	Q_{11}^{i*} / Q_{11}^i	Q_{12}^i	V_{12}^i	Q_{12}^{i*} / Q_{12}^i	Q_{13}^i	V_{13}^i	Q_{13}^{i*} / Q_{13}^i
Passenger cars, new and used trucks, motor	3,309	20,596	3.13	539	1,607	1.607	21,039	53,882	68,266	9,596	20,053	20,075
Petroleum, crude	397	14,843	37.39	300	14,211	14,208	678	14,966	25,126	636	13,739	23,780
Gasoline	641	35,112	54.78	573	31,436	31,309	680	26,044	35,059	1,296	21,819	60,204
Steel and steel rolling mill product	377	16,285	42.67	300	14,301	14,215	683	22,389	28,290	557	18,730	23,787
	302	43,070	135.62	149	21,409	20,207	139	36,768	25,632	130	29,303	17,630
Total imports of selected commodities	120,306			95,084	83,706			154,029	182,443		142,734	161,204
Total Commerce Data Imports from U.S.S.R.	733,020			544,100				624,000			554,575	
Imports of selected commodities as % of total	16.4%			15.6%				24.2%			14.2%	

Note: (1) Calculated from Appendix Tables 2, 4, 6, and 8.

(2) Entries see Appendix Table 1 and 9.

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THE TERMS OF TRADE BETWEEN THE SOVIET UNION
AND COMMUNIST CHINA, 1956-1959

by

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

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MASTER OF ARTS

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Several partial concepts of the terms of trade were developed by classical and neoclassical economists to evaluate a bilateral international transaction. Because the concepts are partial, it is easy to misunderstand the concept. The terms of trade are always expressed in the form of index. Thus, the prices a country gets for its exports in relation to its imports are shown in percentage. Several fairly-homogeneous commodities were selected as a sample from the Soviet foreign trade statistics during 1956-1959 for computing the terms of trade between the Soviet Union and Communist China in the period. The comparisons of the unit value of Sino-Soviet trade with that of Soviet-Other Communist countries trade and with that of Soviet-Non-Communist countries trade were made. From these comparisons, a price differential in Communist intra bloc trade as well as in outside bloc trade was found. The price differential might be due to the differential costs of transportation incurred in each country because the trade was based on f.o.b. price. Gross, Net, and Income terms of trade were calculated to measure the results of Sino-Soviet trade during 1956-1959. As the result, Communist China had obtained some gains from its trade with the Soviet Union owing to the relative move of the terms of trade in favor of China, especially in 1958. This favorable move might be due to the increase in the volume of China's exports and the decrease in the prices of China's imports. The increase in the volume of China's exports to U.S.S.R. during 1956-1959 might be due either

to the technological improvement or to the depression of domestic consumption. But the decrease in the prices of China's imports might be due to a relatively-favorable adjustment of foreign exchange rate. The shift in China's foreign trade from the Soviet Union to the free world after 1960 was conjectured by a change in political policy of Communist China resulting from the deterioration of Sino-Soviet relations.