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SOVIET-EAST EUROPEAN TRADE RELATIONS*

HIROSHI KATO

AS we do not have adequate knowledge concerning the form and manner in which Soviet trade activities, which have become brisk in recent years, are conducted, this dissertation has been written with the intention of throwing some light on this subject. We will begin with an exposition of the present state of Soviet-East European trade.

1. TRANSITION OF SOVIET TRADE

Soviet trade seen as a whole, presents changes which are shown in Table 1. Trade with the socialist countries, of course, forms its nucleus, but trade with the capitalist countries is also expanding.

Comparing the present export-import structure with that of the pre-war period, the rapid increase in the relative importance of machinery and equipment especially of those items which have been produced on a top priority basis since Stalin's time, draws our attention.

TABLE 1
SOVIET TRADE (MILLION RUBLES)

	1955	1956	1957	1958	1959
Total	25935.7	28897.0	33277.4	34588.7	42056.3
Exports	13693.5	14446.3	17526.1	17190.2	21763.3
Imports	12242.2	14450.7	15751.3	17398.5	20293.0
Socialist countries					
Total	20565.6	21861.0	24520.3	25512.9	31654.4
Exports	10892.3	10917.9	13217.8	12545.0	16495.9
Imports	9673.3	10943.1	11302.5	12967.9	15158.5
COMECON countries					
Total	13819.7	14331.3	17858.6	18103.3	21880.0
Exports	7168.6	7071.2	10199.4	9280.5	11801.9
Imports	6651.1	7260.1	7659.2	8822.8	10078.1
Capitalist countries					
Total	5370.1	7036.0	8757.1	9075.8	10401.9
Exports	2801.2	3528.4	4308.3	4645.2	5267.4
Imports	2568.9	3507.6	4448.8	4430.6	5134.5

cf. "Vneshinaya Torgobri" No. 8. 1960.

* This was written with the cooperation of Haruki Niwa (Professor of Kansei Gakuin Univ.)

TABLE 2
SOVIET EXPORT IMPORT STRUCTURE (%)

	1938		1950		1958	
	Exports	Imports	Ex.	Im.	Ex.	Im.
Machinery, equipment	5.0	34.5	11.2	21.5	18.5	24.5
Metals, metal products	1.6	25.4	8.5	7.2	16.4	7.3
Ores	2.2	2.7	2.2	5.8	4.4	9.3
Fuel	8.8	1.2	3.9	11.8	15.2	4.9
Lumber	20.3	—	3.1		5.6	
Textile raw materials	4.2	9.7	11.2	7.7	6.8	7.1
Grains	21.3	—	12.1		8.3	
Industrial consumer goods	7.9	1.0	4.9	7.4	3.6	14.4
Rubber	—	3.5		3.5		4.2
Foodstuffs	—	12.7		17.4		14.9
Furs	9.4		2.3		0.8	

cf. Orloff "Voproshi Ekonomiki" No. 5. 1959.

The decrease in export and increase in import of consumer goods is understandable from the state of the domestic Soviet economy. The changes which have appeared in the Soviet trade structure reveal the Soviet Union, as a result of its increased domestic industrial production, to be the greatest supplier for the economic construction of the socialist countries (See Table 2).

Among its exports to the member nations of COMECON (Cema or CEB), machinery and equipment, metal cutters, sedans, roller-bearings, oil drilling equipment, and combines have made spectacular gains. Besides the foregoing, the Soviet Union exports fuel, metals and various raw materials including large quantities of raw cotton to the East European countries and supplies the greater part of their grain demands.

Next, concerning Soviet imports from communist countries, the ratio of finished goods has been increasing while that of raw material products has been gradually decreasing. Machinery and equipment account for half of the imports from the COMECON countries while cotton and silk textiles, staple fibers and vegetables are also important imports.

Next, the settlement system will be examined.

2. SETTLEMENT SYSTEM

At the Eighth COMECON Conference (June, 1957) a multilateral settlement agreement was signed under which loans arising from

bilateral agreements would be counterbalanced and payments made through the supply of goods outside the agreements. This multilateral settlement system, however, merely expands and supplements the bilateral settlement system which aims at enlarging the circulation of commodities. The clearing office (the Soviet Gosbank) merely provides short term credit and does not extend any long term credit. Under this arrangement the circulation of commodities will be hampered, as the backward nations will not be capable of paying for the goods produced by the advanced nations even if there is a big demand for them. Soviet credit, and East German and Czech joint credit supplement this shortcoming, but unless a special socialist joint bank capitalized by COMECON nations undertakes to perform joint banking operations, a complete answer cannot be found. Bulgaria in order to cope with the situation borrowed 33 million dollars from the Soviet Union in February, 1958, eight million dollars from East Germany in 1960, and is at present negotiating a loan of 54 million dollars from the Soviet Union. Hungary received a 100 million dollar credit from the Soviet Union in November-December, 1958. Albania in 1958-1960 received from the Soviet Union, credit and cancellation of unpaid debts amounting to 47 million dollars. But multilateral production naturally requires multilateral extension of credit and settlement. The problem of settlement is at last becoming a major problem for COMECON.

We shall explain the substance of the settlement system following a dissertation on the subject by F. Bystrov (*Voprosy Ekonomiki*, No. 2, 1960). Currency and payment relations among socialist countries follow from the commercial and other economic relations in the world socialist market. The economic relations among the socialist countries reflect their mutual assistance and cooperation and their mutual respect for each other's independence. The various forms of economic relations are based to an increasing degree on close coordination of economic development programs and cooperation and specialization in production.

The volume of trade among socialist countries is increasing with the rise in production and living standards. The trade turnover between the COMECON countries is expected to increase 70 percent over 1958 by 1965.

Since the COMECON countries develop on the basis of long term trade and other economic agreements, the payment relations among the socialist countries can be planned not for a year ahead but, in general outline, for a number of years ahead.

International settlements among COMECON countries can be divided into three categories: (a) International payments on current trade—

—mainly for the export and import of commodities; (b) international payments on credit and loans; (c) international payments on non-commercial transactions.

Inter-governmental agreements on trade and payments as well as credit agreements and agreements on non-commercial payments are concluded in rubles. Prices of commodities and payment for them are likewise established in rubles. Settlements between the central banks of these countries are also carried out in rubles. In the international turnover of the socialist countries, the ruble is not only the measure of the value of commodities and a means of currency settlements, but is also a means of purchase and payment. Inasmuch as all elements of trade settlements among the socialist countries are expressed in rubles, the problem of the exchange rate of the ruble in relation to other currencies does not arise in these settlements.

The system of international settlements is designed to stimulate the development of foreign trade, to expand other forms of economic relations among these countries and to ensure payment for commodities and other operations. Settlements among socialist countries are made in rubles containing 0.222168 gram of pure gold. The ruble, is the currency in international settlements among socialist countries. The purchasing power of the ruble in socialist countries corresponds to the purchasing power in the world markets of the same amount of gold as is contained in the ruble. For example, payments after foreign trade organizations fulfill their contracts, which are expressed in rubles, are made through a clearing account which is also in rubles. The ruble exchange rate is used in converting the prices of commodities obtained in the world markets in various currencies into prices expressed in rubles. This conversion is done according to an official rate based on the gold content of the ruble and other currencies.

The ruble exchange rate is also used in domestic export-import settlements between the central banks of the People's Democracies, on the one hand, and the foreign trade organizations of those countries, on the other. These settlements are made according to the official rate of the ruble in relation to the currencies of the People's Democracies.

Clearing is the form of settling accounts used by the socialist countries. Clearing is also used in settlements between capitalist countries, but whereas in these countries it is used because of the dislocation of currency relations, it is employed in the socialist countries for the planned coordination of transactions.

Clearing is used in the following ways:

(1) to pay for commodities from a debtor country on the clearing

- account;
- (2) to transfer sums to the clearing account of a third country, that is, to pay rubles for commodities received from the third country (such an operation can be performed by agreement among the creditor country, the debtor country and the third country);
 - (3) to transfer sums to a multilateral clearing account (this requires the agreement of both the creditor country and the debtor country); a sum transferred to a multilateral clearing account may be used to purchase commodities in any other country belonging to that clearing system;
 - (4) to obtain local currency of the debtor country required to cover expenditures made by the creditor country in the territory of the debtor country, for example, to pay for non-commercial operations in the currency of the country where the expenditures are made;
 - (5) to grant credit to a debtor country or a third country (with the agreement countries which have business transaction agreements).

There are two types of clearing accounts; for trade and for non-commercial operations.

The major share of international settlements are made through trade clearing accounts opened at central banks. Receipts and payments on the clearing accounts must balance for a year's period taken as a whole. To balance transactions with each other and clear them over a shorter period is not expedient, inasmuch as it may not be possible to clear reciprocal commodity deliveries in individual months of the year owing to seasonal production or other conditions leading to larger deliveries by one country than by another. In such cases, the terms for clearing accounts are fixed by agreement. In general, the greater the trade turnover, the higher the mutual credit on the clearing.

Again, there are times when through changes etc. in the volume of commodity deliveries, the accounts cannot be cleared at the end of the contracted period. In such cases the account is carried over into the next period. This method is used in the socialist countries today. In this case, the trade turnover plans for the following year provide that the value of the deliveries by the given country exceeds by the sum of the indebtedness, the value of the deliveries by the other country, in whose favor the indebtedness of the previous year's clearing account was formed. It also serves to encourage the productive use of raw materials. The interest rate is fixed at two per cent by agreement.

3. TRADE MATRIX

How economic cooperation and trade relations are managed in the East European countries centering around the Soviet Union, has been clarified to a certain extent from the academic standpoint, in the foregoing. However, regarding the scale of the multilateral settlement conducted or the measurability of the role of the Soviet Union in these settlements, only extremely fragmentary knowledge is available. In order to delve further into this subject, we have decided to compose a trade matrix as a first step. The trade matrix for the years 1948-1956 have already been estimated by the ECE, but it is not of too great a degree of accuracy, as will be explained later.¹ If we further consider the stimulation of trade activity within the socialist bloc since 1956 as a turning point, the composition of the matrix for the years after 1956 may be more important than the one for the preceding period.

The matrix was made for the year 1957, as this could be considered a normal year as the repercussions of the Hungarian rebellion had subsided and COMECON activities were revived after a period of hibernation. However, sufficient data concerning the value of trade transacted for that year could not be obtained for some of the countries. Because of this restriction, the year 1958 was selected as compared to preceding and succeeding years,² the most satisfactory year from the standpoint of data.

The following points should be noted in the composition of the matrix.

(1) Concerning the data on the trade turnover, the figures compiled by the exporting country and those by the importing country should in theory coincide. In fact there usually is a considerable discrepancy. These differences are not restricted to those of "cif" or "fob", "general trade" or "special trade" but include those originating from differences in customs clearance base and exchange base, differences caused by the time lag and tabulating and evaluating procedures. In order to avoid these difficulties we have followed the principle used by the IMF and the United Nations which is to give priority to the data of the exporting countries.

(2) Cif figures have been computed into fob, and exchange based statistics have been converted and unified into customs clearance statistics. Although it was necessary to ascertain whether the trade included re-exports or repair trade, as re-exports are frequently related

¹ U.N. ECE, Economic Survey of Europe in 1957, Chap. VI, p. 35.

² Haruki Niwa: "Estimate of the matrix of communist bloc trade." ("Keizaigaku Ronkyu" Volume 15, No. 1).

TABLE 3

	Trade symbol (according to U. N. classification)	Re-exports (—exports)	Evaluation of exports	Evaluation of imports	Base	Re- marks
Albania	S	Included (?)	f.o.b.	c.i.f.	Customs clearance (?)	
Bulgaria	G	Included	f.o.b.	f.o.b.	Customs clearance	(A)
Czechoslovakia	G	Included	f.o.b.	f.o.b.	Customs clearance	
East Germany	(Si)	Not included	f.o.b.	f.o.b.	Exchange basis (?)	
Hungary	G	Included	f.o.b.	c.i.f.	Customs clearance	(B)
Poland	G	Included	f.o.b.	f.o.b.	Customs clearance	
Soviet Union	S	Included	f.o.b.	f.o.b.	Customs clearance	(C)

- (A) Figure includes transactions with foreign countries concerning goods which do not cross the Bulgarian border.
- (B) Including goods re-sold to foreign countries even when they do not cross Hungarian border.
- (C) Including foreign transactions of goods even if these do not cross Soviet border.

to the differences in customs clearance basis and exchange basis computations, these have been ignored. Also ignored were differences between "General trade (United Nations classification symbol G)" and "Special trade (United Nations classification symbol S)" because these concern methods of book-keeping on goods entering and leaving bonded warehouses and are of negligible quantity. In computing cif into fob, it is the practise in the United Nations to discount 10 per cent, but as the East European countries are nearly all contiguous, five per cent has been discounted only for countries which are not contiguous and 10 per cent only for trade with Asian communist bloc countries.

Whereas most countries have customs clearance statistics (for example see the preface to the Soviet "Trade Statistics"), the figures for East Germany compared to those of her trading partners are considerably lower, so that deducing from the fact that the East German figures do not include re-export and repair trade figures, it would seem that they are not recognized statistics on an exchange basis. Hence an adjustment has been made by adding 10 per cent to the import statistics and 3 per cent to the export figures.

The trade matrix shown in the fourth chart was made with these considerations in mind. The ECE matrix for 1948-1956 reveals great

TABLE 4

1958 COMMUNIST BLOC TRADE MATRIX (OFFICIAL EXCHANGE RATE 1 MILLION DOLLARS) F.O.B.

(*ESTIMATE)

Ex. ↓	→ Im.	(1) Albania	(2) Bulgaria	(3) Czecho- slovakia	(4) East Germany	(5) Hungary	(6) Poland	(7) Rumania	(8) Capitalist countries	(9)		Export total
										Soviet Union	Asian communist countries	
(1) Albania			1.1	4.9	2.6	1.6	2.6	0.5	1.4	13.7	0.8	29.2
										14.5		
(2) Bulgaria		2.3		40.9	29.8	7.9	19.6	3.2	56.6	201.6	12.8	374.4
										214.4		
(3) Czecho- slovakia		9.6	36.3		157.5	77.5	95.0	37.8	473.0	497.0	130.0	1513.7
										627.0		
(4) East Germany		5.7	39.3	162.0		71.5	155.5	36.2	476.0	816.0	146.0	1908.2
										962.0		
(5) Hungary		3.8	9.8	92.5	75.2		33.6	15.1	230.0	158.7	62.0	680.7
										220.7		
(6) Poland		4.8	17.1	72.5	106.4	28.6		13.6	474.0	265.2	77.0	1059.2
										342.2		
(7) Rumania		2.8	4.7	22.6	30.2	14.1	12.5		116.4	235.3	29.6	468.2
										264.9		
(8) Capitalist countries		2.5	53.9	415.0	572.0*	196.0	542.0	155.3		1158.5	608.0*	3703.2
										1766.5		
(9) Soviet Union, Asian Communist countries		44.4 1.7	200.6 11.0	446.8 98.0	800.0 123.0*	200.5 34.0	376.9 41.0	251.3 17.7	1211.9 585.0*		765.2	4297.6 1897.0
										985.6		
Import total		77.6	373.8	1355.2	1896.7	631.7	1278.7	530.7	3624.3	4331.6	1831.4	15931.7
										6163		

errors because in the first instance no comparison of the data of the exporting country and that of the importing country has been presented. Secondly the special characteristic of East German statistics has been ignored and lastly because the data is based on Soviet foreign trade statistics when these were still inadequate.³

“Trade Coefficients” were calculated from Table 4 (Also called import coefficients, but called trade coefficients following Koo and Liang) and further, inverse-matrix was compiled. These can be used in exactly the same manner as in the case of ordinary correlated analysis of industry, and if the vector of the export amount of exogenous nations (the Soviet Union and Communist China) are multiplied against it from the right, the total amount of exports to the corresponding countries may be obtained. Thus, the repercussions that changes in the import pattern of exogenous countries have on East European trade relations and on East-West trade may be analyzed.⁴

The meanings of the Table symbols are as follows:⁵

X_i = the total amount of exports of country i .

X_{ij} = the amount exported from country i to country j .

F_i = the amount imported from country i by the country selected as the heterogenous country ($i, j = 1, 2, \dots, n$)

$$\text{then} \quad X_i = x_{i1} + x_{i2} + \dots + x_{in} + F_i$$

³ Soviet foreign trade statistics were first published in 1955, but a slight improvement in their accuracy was noted only in 1957. A. L. Allen “A Note on Soviet Foreign Trade Statistics” Soviet Studies Vol. X, No. 4.

⁴ At the 20th Japan International Economic Society (at Toyama University) the following critique of the method of analysis introduced above was published. It is briefly explained here.

Point One. Can matrix analysis, a modern economic instrument, be used in analyzing the socialist society which is exogenous?

Point Two: Is the belief that the Soviet Union is trying to enslave the countries of East Europe behind the reasoning that treats the Soviet Union and Communist China as exogenous?

Regarding the first point, it should be stated that the formulation of the matrix has been demanded by the communist bloc itself, and that for the diversification of trade and economic cooperation within the bloc, the first essentials are basic data. Of course in the socialist countries, the attempt is made to insert various different matter into the matrix (Refer to H. Kato: “Socialization and economic planning”), although up to the present, a matrix superior to this one has not been evolved. This matrix is a form, and it is strange that so much scrupulousness is paid to this matrix. Secondly, regarding the choice of the Soviet Union as an example of an exogenous country; any country would have served, but the choice is believed to be appropriate in view of the role the Soviet Union occupies in the intra-bloc trade.

⁵ Koo and Liang: “The Role of Japan in the Intraregional Trade of the Far East”, The Review of Economics and Statistics, Feb. 1953.

TABLE 5
1958 COMMUNIST BLOC TRADE COEFFICIENTS CHART

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)		0.0029	0.0032	0.0014	0.0024	0.0025	0.0011	0.0004
(2)	0.0788		0.0270	0.0156	0.0116	0.0185	0.0068	0.0153
(3)	0.3278	0.0969		0.0825	0.1139	0.0897	0.0807	0.1277
(4)	0.1952	0.1049	0.1071		0.1051	0.1468	0.0774	0.1286
(5)	0.1301	0.0262	0.0611	0.0394		0.0317	0.0322	0.0621
(6)	0.1644	0.0463	0.0479	0.0556	0.0420		0.0290	0.1280
(7)	0.0959	0.0125	0.0149	0.0158	0.0207	0.0118		0.0314
(8)	0.0856	0.1438	0.2742	0.2997	0.2878	0.5117	0.3318	

TABLE 6
1958 INVERSE MATRIX CHART

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	1.0042	0.0045	0.0049	0.0037	0.0043	0.0049	0.0029	0.0026
(2)	0.1161	1.0170	0.0459	0.0348	0.0336	0.0473	0.0274	0.0351
(3)	0.4945	0.1816	1.1170	0.1894	0.2295	0.2546	0.1950	0.2232
(4)	0.3982	0.1986	0.2250	1.1241	0.2332	0.3120	0.2024	0.2395
(5)	0.2211	0.0723	0.1153	0.0947	1.0634	0.1173	0.0921	0.1123
(6)	0.2990	0.1159	0.1390	0.1442	0.1401	1.1142	0.1263	0.1974
(7)	0.1391	0.0327	0.0410	0.0409	0.0485	0.0509	1.0270	0.0529
(8)	0.4821	0.3469	0.4983	0.5096	0.5287	0.8065	0.5502	1.2888

or if the trade coefficient is constant at

$$a_{ij} = x_{ij}/X_j$$

$$X_i = a_{i1}X_1 + a_{i2}X_2 + \dots + a_{in}X_n + F_i$$

If this is set down in matrix

$$(X \text{ is the vector of } X_i)$$

$$X = AX + F \quad (A \text{ is the matrix of } a_{ij})$$

$$(F \text{ is the vector of } F_i)$$

If I is made the unit matrix

$$(I - A)X = F$$

If $(I - A)$ and its reverse matrix $(I - A)^{-1}$ exist, X may be obtained from F through the formula $X = (I - A)^{-1}F$.

Materials used for the compilation of the matrix are as follows:

United Nations: Yearbook of International Trade Statistics.

United Nations: World Economic Survey

U. N. ECE: Economic Survey of Europe in 1959, 1960.

" : Economic Bulletin for Europe, Vol. 11, No. 1, 1959

Vneshtorg: Vneshnaya Torgovlya SSSR za 1958 g.

Sladskovsko; Pekshev, Ivanov, Zolotarev: Razbitie Ekonomiki Stran Narodnoy Demokratii, 1959.

Zolotarev: Mirovi Sotsialistcheskiy Ryinok. 1961.

Trade multipliers for 1957 and 1958 were calculated from the trade matrix and given in Table 7. (Those for 1957 were done by Mr. Sanbe). According to these calculations the trade multipliers for the communist bloc countries are extremely small and stand in marked contrast to those of the United States shown in the footnote to Table 7. The meaning of these trade multipliers lies in this: that when any change occurs in the total imports of the exogenous country it will affect the exports of the endogenous country. Consequently, the trade multipliers of the endogenous country will be greater to the extent that its dependency on the imports of the exogenous country is small, and the proportion the endogenous country occupies in the imports of the exogenous country (ϵ) is great. Hence if the value of k is

TABLE 7
TRADE MULTIPLIERS

	ϵ		k	
	1957	1958	1957	1958
(1)	0.0028	0.0023	0.0058	0.0047
(2)	0.0396	0.0347	0.0692	0.0608
(3)	0.0937	0.1017	0.2493	0.2456
(4)	0.1655	0.1560	0.3287	0.3096
(5)	0.0258	0.0358	0.0900	0.1104
(6)	0.0571	0.0555	0.1683	0.1718
(7)	0.0411	0.0429	0.0749	0.0759
(8)	0.2878	0.2866	0.6034	0.6008
\bar{k}			1.5896	1.5796

Compare the above figures (\bar{k}) with Mr. Nobuo Sanbe's calculations (World trade multipliers do not include communist bloc): 1950 = 9.780, 1953 = 10.329, 1954 = 10.550, 1958 = 10.051, 1959 = 9.553.

ϵ : row vector (ϵ_i = element)

ϵ_i : Imports from i -sector in A

A : Total imports of

X_i : Total exports of i -sector $k_i = \frac{\Delta X_i}{\Delta A}$

k : row vector (k_i = element)

\bar{k} : Total of k 's

small it means that the repercussions of the Soviet Union on and its power to create trade in the communist bloc is comparatively weak, and that trade within the communist bloc gives priority to bilateral settlement trade and that multilateral settlement trade is not developed. But if trade is considered in the sense of promoting mutual interests, then, needless to say, multilateral settlement is a closer trading relationship than bilateral settlement. A steady movement toward multilateral settlement can be observed in communist bloc trade. Let us review this trend from the development of the long term plan trade volume for 1965.

The following figures have been published concerning the long term trade plan for 1965.

- (1) The volume of trade between the Soviet Union and Czechoslovakia in 1965 will be 48 per cent greater than the 1959 volume (Pravda, April 28, 1960).
- (2) Soviet-Polish trade in 1965 will amount to over 5,000 million rubles. (Pravda, December 3, 1960).
- (3) Soviet-Bulgarian trade is expected to increase by 60 per cent in volume over the 1958 figure in 1965 (Pravda, November 4, 1960).
- (4) Soviet-East German trade in 1965 is expected to increase 60 per cent over the 1958 trade. (Pravda, November 21, 1960)
- (5) Czech-Polish trade in 1965 is expected to double in turnover 1958. (ANS, February 11, 1960).
- (6) Polish-Hungarian trade for 1960-1965 is expected to increase by 40 per cent in turnover. (Pravda, March 21, 1960)
- (7) Soviet-Rumanian trade for 1961-1965 is expected to increase 38 per cent from the preceding five years (ECE: Bulletin Vol. 12, No. 1, p. 23)
- (8) Soviet-Hungarian trade is expected to rise to 3,000 million rubles or twice the 1958 turnover (Pravda, May 6, 1960).
- (9) The plan for 1965 involves:

Czechoslovakia	(Exports 79 per cent increase from 1958	
	(Imports 70 per cent increase from 1958	
East Germany	(Exports 86 per cent increase from 1958	
	(Imports 63	"
Hungary	(Exports 55	"
	(Imports 55	"
Poland	(Exports 59	"
	(Imports 36	"
Soviet Union	(Exports 50	"
	(Imports 50	"

(U. N. Economic Survey of Europe, 1959, Chap. III, p. 45)

The satellite countries with which the Soviet Union is known to have trade agreements at the present time have been listed above. This is a plan for trade turnover. A study of the import figures alone will show an almost equivalent increase in trade by the trading partners.

If further, the regional structure of Soviet imports is based on actual figures for 1957-1960, i.e. at 27 per cent from the capitalist countries, 23 per cent from the Asian communist bloc and 50 per cent from the COMECON countries and if the imports from Albania are assessed at 0.62 per cent of total imports from the COMECON countries, the Soviet imports for 1965 by countries may be computed in the following manner. Taking the Soviet imports by country as the exogenous sector, and by using the inverse matrix Table of the "1958 Communist bloc trade matrix" and trade multipliers, the "trade matrix" for 1965 may be calculated. However, the inverse matrix for 1958 is an eight column eight row Table computed with the Soviet Union and the Asian communist bloc as exogenous. This Table has treated the Soviet Union alone as exogenous as official figures for its long term trade agreements are available, while the Asian communist bloc countries have been treated as endogenous. Consequently, it is necessary to prepare a nine column nine row Table when making an inverse matrix. This is, however, a "calculation to increase basic figures" which enables the elimination of a considerable amount of calculation. An inverse matrix may be re-calculated by approximately 300 multiplications and divisions.

The 1965 trade multipliers were computed on the above bases. According to these multipliers, the \bar{k} will increase compared to 1958 and the rate of import dependency on exogenous countries will decrease, and intra-bloc intercourse will become more active. As far as 1957

TABLE 8
TREND OF INVERSE MATRIX (1957~1958)

4 places of decimals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	2	2	- 1	0	- 31	- 2	- 42	- 6
(2)	- 334	0	- 101	- 4	- 124	- 4	- 125	- 53
(3)	1489	41	40	54	-1064	- 114	- 124	- 344
(4)	951	173	- 87	114	- 10	- 468	- 103	- 274
(5)	633	136	119	226	- 146	192	142	114
(6)	1052	221	396	- 14	- 596	1	7	9
(7)	411	- 7	- 52	28	- 338	- 45	10	- 11
(8)	541	94	- 248	377	-2281	- 48	1028	-1798

and 1958 were concerned there were no great changes in the trade multipliers (See Table 8), so that they were considered as constant; but as the unexpected usually happens in countries with planned economies, the trade multipliers may show a drastic change in 1965. But as there is no information concerning changes, they have been considered stable.

We shall next examine the relationship between the Soviet Union and the East European countries as seen through the export and import prices.

4. EXAMINATION OF DISCRIMINATORY PRICES

Spokesmen of the Soviet Union have always maintained that trade in the communist bloc has been conducted at prices comparable world market ones. Especially after the Polish and Hungarian incidents in 1956 has this fact been stressed. The Soviet Union maintains that the world market prices are capitalistic speculation prices, and that they have to be revised before they can be fixed as prices for the socialistic markets.

Byshov states as follows: (Problems of Economics, 1960 No. 2).

One of the important elements of trade and international settlement is the fixing of prices of export and import commodities. Transactions between socialist states must be conducted at fair and stabilized prices which are fixed by agreement, based on the prices of various commodities on the world market, and set for a long term. Prices on the capitalist market cannot be transposed as they are to socialist markets. As capitalistic market prices are speculative prices susceptible to extreme changes, they are not suited to the socialistic market which attempts to promote transactions based on stabilized prices. Moreover, unlike in the capitalistic market where there are several prices for one commodity, the principle of one commodity, one price is observed in the socialistic market. If there are variations in price in the socialistic market, these are due to transportation costs and qualitative differences. The stability and fixed nature of prices make it possible to plan transactions between socialistic countries, and also stabilizes the purchasing power of the ruble as an international payment currency.

How are prices fixed in actual trade? These have been calculated for 1958 and 1959 and given in Table 9 (Import prices), and Table 10 (Export prices). These calculations have been made for commodities selected from those listed in the Soviet "Trade Statistics" for which there would be little qualitative difference and for which per unit calculations were feasible. The per unit prices were calculated by

TABLE 9
SOVIET IMPORTS FOR 1965 (1958 VALUE, UNIT 1 MILLION RUBLES)

1. From Albania	23
2. From Bulgaria	322
3. From Czechoslovakia	870
4. From East Germany	1,310
5. From Hungary	317
6. From Poland	530
7. From Rumania	365
Sub-total	3,737
8. From Capitalist countries	2,016
9. From Asian socialist countries	1,717
Total	7,470

Converted at old rate

TABLE 10
INVERSE MATRIX WITH THE SOVIET UNION AS ONLY EXOGENOUS COUNTRY
(CALCULATED FROM THE 1958 COMMUNIST BLOC TRADE MATRIX)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	1.0046	0.0047	0.0052	0.0040	0.0046	0.0052	0.0032	0.0030	0.0016
(2)	0.1230	1.0207	0.0515	0.0403	0.0390	0.0541	0.0324	0.0429	0.0311
(3)	0.5416	0.1841	1.1550	0.2270	0.2665	0.3006	0.2292	0.2758	0.2109
(4)	0.4500	0.2014	0.2668	1.1655	0.2739	0.3626	0.2400	0.2975	0.2321
(5)	0.2447	0.0849	0.1344	0.1136	1.0820	0.1404	0.1093	0.1387	0.1060
(6)	0.3337	0.1344	0.1670	0.1719	0.1673	1.1481	0.1515	0.2362	0.1554
(7)	0.1500	0.0385	0.0498	0.0496	0.0571	0.0616	1.0350	0.0651	0.0490
(8)	0.6225	0.4215	0.6111	0.6215	0.6386	0.9433	0.6519	1.4456	0.6276
(9)	0.2554	0.1357	0.2052	0.2036	0.1999	0.2490	0.1850	0.2852	1.1420

commodity and by country and divided for the COMECON and free world countries. As a result most of the commodities chosen have been raw materials. This merely heightens the accuracy of these calculations as the Soviet Union exports mainly raw materials.

Examining the Table thus calculated, it is seen that the Soviet export prices are higher on the whole for the COMECON countries than for the free world countries. On the other hand, it is seen that import prices from the COMECON countries are lower than those applied to imports from the free world countries. Table 11 shows the price differentials calculated in the event the Soviet Union exports to the COMECON at the prices it exports to the free world countries, while Table 12 shows these differentials calculated for imports. These

TABLE 11
1965 COMMUNIST BLOC TRADE MATRIX (ESTIMATED VALUE)

(1 million dollar 1958 value)

Importing country \ Exporting country	1	2	3	4	5	6	7	8	9	10	Ex. total
1 Albania	—	1.8	8.4	4.5	2.9	4.7	0.8	2.6	1.3	23.0	50.0
2 Bulgaria	3.8	—	70.7	49.9	14.1	34.8	5.2	98.4	22.4	322.0	621.3
3 Czecho.	15.9	60.2	—	263.9	138.5	168.8	62.1	821.0	225.6	870.0	2,626.0
4 East Germany	9.5	65.1	280.5	—	127.8	276.2	59.5	827.0	253.6	1,310.0	3,209.0
5 Hungary	6.3	16.3	160.0	126.1	—	59.7	24.8	399.3	107.7	317.0	1,217.0
6 Poland	8.0	28.7	125.5	177.9	51.1	—	22.3	822.6	133.7	530.0	1,899.8
7 Rumania	4.7	7.8	39.0	50.6	25.2	22.2	—	201.8	51.4	365.0	767.7
8 Capitalist countries	4.2	89.3	719.4	959.0	349.9	963.0	255.1	—	1,055.4	2,016.0	6,411.3
9 Asian Communist Countries	2.8	18.3	169.4	206.3	60.8	72.8	29.1	1,055.3	—	1,717.0	3,291.8
10 Soviet union	73.9	332.4	773.5	1,341.9	358.0	669.4	412.7	2,103.3	1,329.0	—	7,394.1
Im. total	129.1	619.9	2,346.4	3,180.1	1,128.3	2,271.6	871.6	6,291.3	3,180.1	7,470.0	27,488.4

SOVIET-EAST EUROPEAN TRADE RELATIONS

TABLE 12
1965 TRADE MULTIPLIERS

	ϵ	k
(1)	0.003	0.006
(2)	0.043	0.083
(3)	0.116	0.351
(4)	0.175	0.429
(5)	0.042	0.162
(6)	0.070	0.254
(7)	0.048	0.102
(8)	0.269	0.858
(9)	0.230	0.440
		2.685

TABLE 13
AVERAGE UNIT VALUE OF SOVIET IMPORT

(1 Ruble)

Item		1959			1958		
		Comecon	Asian Communist Countries	Free World Countries	C.	A. C.	F. W.
Copper	1 ton	2,976.7	2,500	2,622.5	3,286.7	3,025	2,266.5
Wheat	1 ton	—	310	235.3	309.3	—	241.6
Crude oil	1 ton	62.0	—	74.9	62.0	—	75.0
Rolled steel materials	1 ton	326.7	1,506.1	856.9	560.2	5,063.7	707.3
Cotton textiles	1 m	2.2	1.3	2.5	2.3	7.5	2.9
Caustic soda	1 ton	279.4	307.6	309.9	277.9	283.5	307.0
Ethyl alcohol	1 ton	—	477.3	—	—	480.6	524.7
Methyl alcohol	1 ton	1,148.0	—	1,173.9	1,144.0	—	—
Calcium carbide	1 ton	359.2	339.1	360.0	391.1	339.8	360.0
Silk textiles	1 m	3.1	3.2	2.0	2.4	5.0	2.5
Cement	1 ton	57.7	31.8	40.3	57.4	41.9	41.1
Paper	1 ton	2,372.8	—	1,551.2	2,228.1	—	1,779.9
Wool	1 ton	—	7,494.3	6,522.4	—	7,513.0	6,852.9
Tobacco (leaf)	1 ton	3,470.9	771.6	3,893.0	3,957.3	2,150.5	3,596.7
Leather shoes	1 pair	17.7	18.3	23.0	16.9	17.6	22.3
Rubber shoes	1 pair	5.883	6.337	—	7.688	7.806	—
Sewing machines for home use	1 machin	292.5	180.1	231.5	274.0	180.0	231.2
Woolen textiles	1 m	9.1	15.8	15.7	10.7	19.0	16.1

TABLE 14
AVERAGE UNIT VALUE OF SOVIET EXPORTS (1 Ruble)

Item		1959			1958		
		Comecon	Asian Communist Countries	Free World Countries	C.	A. C.	F. W.
Coal	1 ton	61.9	—	39.3	63.1	—	48.1
Anthracite Coal	1 ton	99.5	—	68.3	92.6	—	80.9
Cokes	1 ton	99.6	85.0	70.0	98.9	56.0	82.6
Crude oil	1 ton	89.2	94.0	56.6	86.0	104.4	61.7
Manganese ore	1 ton	168.9	—	119.6	178.4	—	155.9
Chromium ore	1 ton	174.1	155.4	110.6	170.0	156.3	140.8
Asbestos	1 ton	857.7	646.7	557.3	736.6	402.1	599.9
Phosphate ore	1 ton	34.6	—	23.0	26.4	—	30.0
Steel ingoto	1 ton	—	—	254.8	—	—	279.1
Zinc	1 ton	939.1	—	897.8	936.3	—	737.0
Lead	1 ton	1,184	—	795	1,168	—	784
Aluminum	1 ton	2,078.3	2,533.3	1,869.3	2,089.4	1,826.4	1,866.8
Benzol	1 ton	333	—	319	300	—	279
Toluol	1 ton	338.1	—	283.0	351.2	—	327.9
Naphthalene	1 ton	391.9	—	411.4	408.7	—	323.6
Coal tar pitch	1 ton	—	—	107.7	105.4	—	100.7
Turpentine	1 ton	665.3	—	627.5	669.1	—	570.9
Rosin	1 ton	721	714	730	732	737	744
Selected phosphate ore	1 ton	71.1	—	61.3	73.0	—	69.0
Raw Cotton	1 ton	3,171.2	3,065.5	2,191.9	3,197.4	3,098.3	2,520.6
Lumber	1 m ³	165.5	—	150.7	171.4	—	164.8
Flax	1 ton	1,492	—	1,021	1,394	—	1,173
Flax short fiber	1 ton	591.4	—	454.1	554.5	—	473.2
Hemp	1 ton	1,372.5	—	801.6	1,319.7	—	580.0
Wool	1 ton	7,000.8	—	10,403.2	7,181.2	—	8,866.4
Tobacco (Leaf)	1 ton	5,776.4	—	4,987.3	5,777.5	—	5,236.7
Sawn lumber	1 m ³	85.2	—	80.3	85	—	70.7
Pulp	1 m ³	57	—	38.5	58.9	—	48.3
Rye	1 ton	247.1	—	217.6	266.8	—	233.6
Barley	1 ton	287.0	—	212.7	254.6	—	214.1
Oats	1 ton	225.2	—	209.9	195.1	—	176.7
Sunflower seeds	1 ton	475.5	—	—	475.3	—	—
Canned crab meat	1 ton	2.551	—	2.559	2.46	—	2.503
Cotton textiles	1 m	1.60	1.15	0.53	2.60	2.60	0.959
Cold rolled strip	1 ton	723.9	108.9	390.0	101.7	732.0	361.0
Wheat	1 ton	310.0	319.0	247.0	314.4	—	257.0
Wool (semi-finished product)	1 ton	—	—	—	740.0	—	14,600

TABLE 15
TERMS OF TRADE (EXPORT)

(1,000 rubles)	Year	a.	b.	c. %	d.	d × (1 - c)
Albania	58	21,262	28,979	73.2	177,200	47,489.6
	59	31,455	39,812	79.0	195,500	41,055
Bulgaria	58	386,181	252,040	153.0	802,300	(-)425,219
	59	376,309	302,827	124.0	1,159,700	(-)278,328
Hungary	58	357,377	459,027	77.9	802,200	177,286.2
	59	338,550	472,443	71.7	1,039,300	294,121.9
East Germany	58	1,540,422	1,959,410	78.6	1,199,000	684,786
	59	1,649,849	2,199,257	75.0	4,120,400	1,030,100
Poland	58	378,434	483,297	78.3	1,507,200	327,062.4
	59	497,722	678,435	73.4	1,945,500	517,503
Rumania	58	348,939	499,217	69.9	1,005,600	302,685.6
	59	293,281	436,309	67.2	929,500	304,776
Czechoslovakia	58	414,594	542,944	76.4	1,787,000	421,732
	59	473,344	599,154	79.0	2,412,000	506,520
Total	58	3,447,207	4,224,914		9,280,500	1,535,822.8
	59	3,660,511	4,728,237		11,801,900	2,415,747.9

(-) indicates that the Soviet Union exported at lower price

- a. Hypothetical price assuming that the Soviet Union exports the goods listed in Table 10 to the COMECON countries at the prices it exports them to the free world nations.
- b. gives the actual export prices of the goods listed in Table 10.
- c. is the % of a/b.
- d. is the total export value.

results show that Soviet COMECON trade both in exports and imports contains a considerable "price differential". In 1958 export differential amounted to 1,535,820,800 rubles and the import differential to 748,866,000 rubles for a total of 2,284,688,800 rubles.

If our sampling is representative, it means that the above figure is approximately correct, while if our sampling is not, then the export differential will offset the import differential. The reality in all probability lies somewhere in between.

It is most difficult to interpret this "differential". Two interpretations are possible. One interpretation is that this differential means that the Soviet Union has exploited the COMECON countries. To be sure the Soviet international payments always shows a favorable balance (for example, in 1958, exports amounted to 9,280 million rubles, and

TABLE 16
TERMS OF TRADE (IMPORTS)

(1,000 rubles)	Year	a.	b.	c. %	d.	d × (1 - c)
Albania	58	19,310	22,951	84	56,200	8,992
	59	17,664	14,611	120	59,000	(-) 11,800
Bulgaria	58	120,804	118,315	101	812,200	(-) 8,122
	59	180,635	182,624	98	1,043,200	20,864
Hungary	58	77,796	47,487	164	647,700	(-)414,528
	59	134,668	84,332	160	826,200	(-)495,720
East Germany	58	25,920	32,597	80	3,263,700	652,740
	59	20,410	35,897	66	3,557,900	1,209,686
Poland	58	109,580	101,472	108	1,060,600	(-) 84,848
	59	116,064	91,502	126	1,266,300	(-)329,238
Rumania	58	38,405	38,996	98	934,000	18,680
	59	35,361	35,527	98	997,900	19,958
Czechoslovakia	58	256,222	176,258	145	2,048,400	(-)921,780
	59	277,667	201,095	138	2,327,600	(-)884,488
Total	58	648,037	538,076		8,822,800	(-)748,866
	59	782,469	640,588		10,078,100	(-)488,738

(-) shows that the Soviet Union imports at lower price

imports to 8,823 million rubles for a favorable balance of 457 million rubles). If, however, the differential is considered, then the balance becomes unfavorable. (If the export differential is subtracted from the export value, and the import differential is added to the import value, the result is an unfavorable balance of 1,828 million rubles). The interpretation may therefore be made that this is exploitation. This interpretation is open to question for the following reasons. (a) Would the COMECON nations allow such flagrant exploitation even if the exploiter were a power like the Soviet Union? In 1955, there was a clear case of Soviet exploitation in Soviet exports of coal to Poland. On that occasion the Soviet Union made concessions only when violence broke out. It does not seem probable that the Soviet Union would wilfully want to repeat such an experience. (b) If the unit prices used by the Soviet Union in trade with the free world and COMECON countries are compared with world market unit prices, the latter are found to be considerably higher than the former, so that if anything there is a tendency on the part of the Soviet Union to dump goods on the free world market. It may be possible that

TABLE 17
1958 COMPARISON OF PRICES

	Comecon price	Free world price	World market price
Coal	63.1	48.1	97
Manganese	178.4	155.9	231
Chromium	170	140.8	224
Asbestos	736.6	599.9	396
Zinc	936.3	737.0	770
Lead	1168	784	1100
Aluminum	2089	1866	2160
Wheat	314	257	275

Compiled from International Financial Statistics

TABLE 18
SOVIET CREDIT TO EASTERN EUROPE

(1 mil. dollars)

1947	124	1956	505
48	513		2,020 mil. rubles
49	—	1957	784
50	100		3,136 mil. rubles
51	—	1958	249
52	—		996 mil. rubles
53	—	1959	150
54	26		600 mil. rubles
55	—		

ECE: Economic Survey of Europe in 1957. Chap VI—pp. 55~57.

U.N: World Economic Survey 1960. Chap 3. p. 120.

the Soviet export price to the COMECON countries may be the Soviet production price. If such is the case, the Soviet Union is defraying the loss for the amount of commodities dumped. (Trade with the free world countries accounts for approximately one quarter of the total trade turnover).

The second interpretation is that the Soviet Union, if it is exploiting the COMECON countries, is returning the approximately equivalent amount exploited through extension of credits to them. As, of course, credits are not outright gifts, and they are all of them not for equal lengths of time, some of them being long term credits, there is little point in accurately comparing them with "differentials". Moreover, if these credits are to be returned to the Soviet Union in the future, it is still exploitation, if postponed exploitation. It is, notwithstanding, interesting to speculate that the "differentials" are the source of the

credits which the Soviet Union appears to be forcing itself to extend despite the stringent conditions prevailing at home in the "differentials". It is believed that the rapidity with which the credits have increased to enormous amounts and become stabilized at these high levels, seems to corroborate this surmise. As, moreover, the creditor nation is in a position to stipulate the conditions for the use of the extended credit, it may well be that the Soviet Union is attempting to establish a division of labor within the East European bloc under Soviet leadership. Both the interpretations forwarded are probably extreme, the true situation probably being that the Soviet Union is distributing the slight surplus it has in the form of credit.⁶

The former has compared the free world prices with those of Western Europe and not with world market prices, and furthermore has slight distortions in its "differentials". The latter treats only a few items and moreover includes in its selection, items which have a wide qualitative range. It is interesting to note that "differentials" appear in all three calculations including our own. The first interprets the "differential" to mean import surplus in the trade balance, while the second considers it to be exploitation. But even according to the latter, the import surplus for 1955-1958 is estimated at 6,000 million rubles, which is exactly equal to total credits extended by the Soviet Union during the same period. This would appear to corroborate our speculation.

International division of labor, and cooperation therefore, are the two principal subjects taken up for discussion in the matter of the economic integration of the Communist bloc. Literally interpreted, division of labor means the production in each country of whatever may most advantageously be produced and the exchange of such products with those of other countries. The purpose of such procedure is efficient production. When all the constituent elements are considered, however, different kinds of division of labor, or specialization, can be readily distinguished. Where the movement of capital was free, as exemplified by England in the 19th century, the criterion for the prevailing division of labor was difference between skilled labor in one country and natural wealth in another. Products of skilled labor may be supplied by one party, while those derived from propitious nature by another. Such division of labor is complementary; it stimulates

⁶ The calculation of the unit differential has been made according to H. Mendershausen: *The Terms of Soviet-Satellite Trade: A Broadened Analysis* (The Review of Economics and Statistics, May, 1960) and *The Soviet-East European Economy* (Swiss Review of World Affairs, 1961, No. 2, 3).

mutual growth, and levels income in the countries concerned.

Subsequently, the criterion for specialization was switched over to comparison between capital and labor. This was caused by the progress made in techniques through which limitations due to nature were overcome, and by the simultaneous expansion of protective trade eliminating differences in nature. This capital versus labor specialization is more uncertain than the one due to natural differences, and is subject to perpetual competition. As a result, the production function in all countries may become equal, thus bringing about a change in the character of specialization from that of comparative cost to that of economy to scale. This type of division of labor is called voluntary and cooperative specialization.

Such specialization is being aimed at by COMECON. But actually, COMECON has to integrate two different types of country, one like Albania, where specialization due to differences in nature is the rule, and the other, like East Germany or Czechoslovakia, whose specialization is due to differences in nature and labor. Here lies the difficulty for COMECON. For the former the terms of trade will naturally deteriorate. The Soviet Union for her part is trying, by the formation of a customs union, to prevent such industrial countries as East Germany and Czechoslovakia from profiting by a union with the free nations, particularly with those of EEC. It is for this reason that profits from trade with COMECON flow into the Soviet Union. Therefore, Prof. Holzman's criticism of Dr. Mendershausen, though very important in itself, does not amount to denying the profits that the Soviet Union is gaining. The case of Bulgaria, taken as an example by Prof. Holzman,⁷ may probably be the result of Dr. Mendershausen's inaccurate calculation. According to the present writer's calculation, Bulgaria is the only exception in COMECON; in general, the advantageous position of the Soviet Union is undeniable. Whether this constitutes exploitation on the part of that country is a matter for separate discussion.

⁷ F. D. Holzman: Soviet Foreign Trade Pricing and the Question of Discrimination, "The Review of Economics and Statistics, May, 1962".