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RESEARCH AID

1950 RUBLE-DOLLAR PRICE RATIOS FOR GOODS AND SERVICES IN THE USSR AND THE US

CIA/RR RA-15
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CENTRAL INTELLIGENCE AGENCY

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CIA/RR RA-15

(ORR Project 10.824)

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CIA/RR RA-15
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S-E-C-R-E-T

1950 RUBLE-DOLLAR PRICE RATIOS FOR GOODS AND SERVICES IN THE USSR AND THE US*

Summary and Conclusions

This analysis of 1950 ruble - 1950 dollar market price ratios for final products (goods and services) common to the Soviet and the US economies indicates that the over-all purchasing power of the 1950 ruble is approximately 6 cents if the ratios are averaged with US weights (expenditure pattern) and about 12 cents if the ratios are averaged with Soviet weights. If the purchasing power of the ruble is examined for the various end-use categories of the Soviet and the US economies substantial variations are to be found. Thus, depending upon whether US or Soviet weights are utilized in averaging the ratios, the consumer ruble is worth 5 or 10 cents, the investment ruble 10 or 11 cents, the defense ruble 18.5 or 20 cents. The administration ruble, for which identical Soviet-US weights were assumed, is valued at 40 cents.

If the 1950 ruble - 1950 dollar aggregate end-use (gross national product -- GNP) ratio is adjusted to a 1953 ruble - 1955 dollar basis by means of appropriate price indexes, the purchasing power of the 1953 ruble can be calculated at about 8 cents (US weights) or 16 cents (Soviet weights).

Because the application of the Soviet-weighted and the US-weighted GNP ruble-dollar ratios to Soviet GNP estimates in rubles results in an overstatement and understatement, respectively, of Soviet GNP in dollars relative to US GNP, an average of the two ratios is utilized to avoid the two extremes. The average of the 1953 ruble - 1955 dollar GNP ratios of 6.5 to 1 (Soviet weights) and 12.3 to 1 (US weights) is 9.4 to 1. Thus 1955 Soviet GNP in 1953 rubles is converted to 1955 US dollars at the rate of 9.4 rubles per dollar.

An analysis of ruble-dollar ratios for both consumer goods and producer goods reveals that (1) the median ratio for consumer goods and services of 19.8 rubles per dollar is almost 3 times greater than

* The estimates and conclusions contained in this research aid represent the best judgment of ORR as of 1 February 1957.

the median ratio for producer goods of 7.7 rubles per dollar and that (2) within the category of producer goods the median ratio for industrial materials and energy items of 11.2 rubles per dollar is approximately twice as high as the median ratio of 5.9 rubles per dollar for machinery and equipment items.

An important factor contributing to the absolute difference between producer and consumer goods ratios is the turnover tax levy on consumer goods, which constituted, on the average, about 60 percent of the Soviet retail prices in 1950. Within the producer goods category the high ratios for industrial materials compared with the ratios for machinery and equipment items may indicate that the technology and productive efficiency of the machinery and equipment-producing sector is superior to the technology and productive efficiency of the industrial materials sector.

I. Introduction.

This research aid has the following objectives:

1. To present, partly as a supplement to, and partly as a revision of, the ruble-dollar ratio research already completed [redacted] 25X1A5a1
25X1A5a1 [redacted] a detailed catalog of 1950 ruble-dollar price ratios for intermediate and final products of the US and Soviet economies along with supporting documentation and methodology.

2. To construct 1950 ruble - 1950 dollar market price ratios for end-use components of gross national product (GNP) for the purpose of converting ruble estimates of Soviet GNP to dollars and by means of appropriate adjustments to develop 1953 ruble - 1955 dollar ratios for GNP.

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The extent to which these two objectives have been attained in this research aid is heavily dependent upon previous empirical and methodological analysis conducted [redacted] by the Organization for European Economic Cooperation (OEEC). [redacted] 25X1A5a1

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* For serially numbered source references, see Appendix D.

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[redacted] The OEEC has published an analysis of international comparisons of the national product of the US with the national products of the UK, France, Germany, and Italy. 3/

The need for a study of ruble-dollar ratios stems from attempts to compare the GNP of the US and the USSR. In order to be able to make direct comparisons of GNP for the two countries, it is necessary to measure the product of both economies in both dollars and rubles. The application of a set of end-use price ratios -- either ruble-dollar or dollar-ruble -- to US GNP in dollars or Soviet GNP in rubles enables the comparison of GNP in units of the same currency. It would be possible, of course, to utilize the official Soviet exchange rate of 4 rubles to the dollar for this purpose. The official exchange rate, however, bears no particular relationship to the actual purchasing power of the ruble and, as will be seen below, grossly overstates the actual purchasing power. The absence of a relationship between official rates of exchange and the purchasing power of currencies was strongly brought out in the OEEC study mentioned above.

The basic data of this research aid are 1950 US and Soviet prices for intermediate and final products common to the US and the Soviet economies. These data provide the basis for calculating ruble-dollar or dollar-ruble price ratios. The calculation of such price ratios, however, is complicated by numerous difficulties, some of which are inherent in international price comparisons. The more important problems which must be dealt with in international price comparisons are (1) product comparability, (2) the representativeness of the sample of prices, and (3) the development of systems of weights for the purpose of aggregating the ratios. In this research aid each of these problems has, in certain instances, had to be dealt with somewhat summarily due to the scarcity of Soviet statistical data. Because of the lack of data, it becomes difficult to evaluate the impact of somewhat arbitrary assumptions which have to be made, as will become evident in II and III, below.

II. Ruble-Dollar Ratios for Producer and Consumer Goods.

1. General Characteristics of Ratios. 25X1A5a1

Ruble-dollar ratios computed by [redacted] CIA for producer and consumer goods and services are grouped by 19 categories and arranged

by class intervals of 5 rubles per dollar in Table 1.* Several interesting observations on the characteristics of ruble-dollar ratios can be made from the data in Table 1, some of which are the following: (a) the median ratio for consumer goods and services of 19.8 rubles per dollar is almost 3 times greater than the median ratio for producer goods of 7.7 rubles per dollar**; (b) within the category of producer goods the median ratio for industrial materials of 11.2 rubles per dollar is approximately twice as high as the median ratio of 5.9 rubles per dollar for machinery and equipment items; (c) the ratios for consumer goods and services show more dispersion than the ratios for producer goods, as do the ratios for industrial materials relative to machinery and equipment ratios; and (d) approximately 25 percent of the total number of ratios are equal to or greater than 15.0 rubles per dollar.

It is also of interest to inquire into the kinds of items with ruble-dollar ratios of an unusually high magnitude -- for example, ratios of 30.0 rubles per dollar and greater. Producer goods falling into this category are principally nonferrous metals and chemicals, among which are the following: (a) nonferrous metals -- antimony (32.6:1),*** magnesium (34.0:1), nickel (37.1:1), mercury (47.2:1), cadmium (56.2:1), tin (67.9:1), and cobalt (103.4:1); and (b) chemicals -- hydrofluoric acid (31.7:1), phosphoric acid (39.3:1), calcium chloride (54.4:1), ethyl acetate (63.2:1), borax (123.6:1), and ethyl alcohol (114.5:1). A sample of consumer goods and services shown in [redacted] Appendix A with ratios greater than 30.0 rubles per dollar includes ham (34.7:1), canned tomatoes (47.9:1), sugar (53.6:1), cotton towel (60.5:1), a man's wool suit (45.2:1), a woman's wool dress (37.4:1), bed and mattress (30.5:1), pipe tobacco (41.1:1), and dry cleaning (31.0:1).

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Having summarized the substantial variations in ruble-dollar ratios between and within the categories of producer and consumer goods, it is pertinent to consider some of the factors which underlie this variation. Probably the most important factor contributing to the absolute difference between producer and consumer goods ratios is the turnover tax which is levied on consumer goods in the Soviet economy.

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* Table 1 follows on p. 5. For a listing of ratios grouped and weighted in accordance with the US Standard Industrial Classification by four-digit categories, see Table 13, p. 40, below. 4/

** Median of ratios for industrial materials and machinery and equipment items.

*** Ruble-dollar ratios in parentheses.

Table 1

Distribution of 1950 Ruble-Dollar Ratios by Branch of Industry

Branch of Industry	Number of Ratios	Median Ratio	Number of Ratios in Class Intervals of 5 Rubles per Dollar						
			0-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0 and Over
Solid fuels, petroleum, and electric power	38	17.0	0	1	11	20	5	1	0
Textile mill products	76	18.8	10	5	2	31	10	7	11
Lumber and wood products	89	8.1	14	50	22	2	1	0	0
Paper and allied products	6	13.2	0	1	3	2	0	0	0
Chemicals	110	15.3	6	13	34	15	12	6	24
Construction materials	48	5.1	22	12	4	8	1	1	0
Abrasives	85	2.4	84	1	0	0	0	0	0
Iron and steel	58	8.9	0	39	10	6	2	0	1
Nonferrous metals	94	14.0	0	2	53	29	3	0	7
Total industrial materials	604	11.2	136	124	139	113	34	15	43
Fabricated structural and other fabricating metal products	65	5.7	18	42	4	0	1	0	0
Transportation, construction, and mining machinery	36	4.5	20	13	3	0	0	0	0
Metalworking machinery	54	3.8	36	15	2	1	0	0	0
Other machinery (except electric)	112	5.6	47	48	12	3	1	0	1
Electrical machinery and equipment	218	5.6	90	65	36	14	6	1	6
Professional and scientific equipment	9	6.9	2	6	0	1	0	0	0
Communications equipment	6	5.6	2	2	1	0	0	1	0
Total machinery and equipment	500	5.9	215	191	58	19	8	2	7
Food	37	27.0	1	3	5	5	3	5	15
Manufactured goods	57	20.6	6	6	6	9	8	3	19
Services	19	6.9	6	7	3	0	1	1	1
Total	113	19.8	13	16	14	14	12	9	35
Rail freight transport	29	3.9	24	5	0	0	0	0	0
Total all ratios	1,246	8.2	388	336	211	146	54	26	85
Cumulative total			388	724	935	1,081	1,135	1,161	1,246
Cumulative percentages			31.1	58.1	75.0	86.8	91.1	93.2	100.0

On the average, turnover taxes in 1950 constituted about 60 percent of the retail prices of consumer goods. A lesser factor is the lower productivity of consumer goods industries relative to producer goods industries, stemming principally from the relatively obsolete equipment of light industry.

Within the producer goods category, the high ratios for industrial materials relative to those for machinery and equipment items may reflect a possible relative superiority of the machinery and equipment sector with respect to technology and productive efficiency. That is, the machinery and equipment sector of the Soviet economy may compare more favorably with its US counterpart on the basis of comparative technology and productive efficiency than the industrial materials sector. Because of the lack of sufficient research on comparative US-Soviet technology, however, it is not possible either to support or to refute this hypothesis.

2. Effective Dates of US and Soviet Prices.

The Soviet retail prices for food and manufactures are those which prevailed in Moscow state stores during March-December 1950. The US retail prices for food are averages for the first quarter of 1950 for 56 large cities, and the prices of manufactured goods are 1950 averages for the city of Chicago. The prices for services are 1950 average annual prices prevailing in Moscow and Chicago.

In general, the wholesale ruble prices utilized in this research aid were those in effect as of 1 July 1950.* Prices in effect on 1 July 1950 differed from those in effect on 1 January as a result of 1 July 1950 price reductions for the following commodities: lumber, ordinary shapes of rolled ferrous metals, construction materials and equipment, petroleum products, trucks, and metalworking machinery. Also reduced were tariffs on rail, river, truck, and animal transportation. Prices effective 1 July 1950 for construction materials, petroleum products, trucks, and metalworking machinery were utilized in the construction of the ruble-dollar ratios.

In most instances the US wholesale prices were those in effect during the first quarter of 1950. In some instances, mid-year and annual average prices were used. The principal reason for utilizing

* See Appendix B.

first-quarter or first-half 1950 prices for the US was to minimize the effect of the Korean War on the relative price structure.

III. Ruble-Dollar Ratios for End-Use Components of Gross National Product.

1. Nature and Significance of End-Use Ratios.

Estimates of 1950 market price ruble-dollar ratios for end-use components of GNP -- consumption, investment, defense, administration -- are shown in Table 2.

Table 2

1950 Ruble-Dollar Ratios for Gross National Product and End-Use Components a/

Rubles per Dollar

Category	Soviet Weights	US Weights
Consumption	10.4	19.6
Food	18.1	25.3
Manufactured goods	14.5	26.4
Services (other than medical and education)	4.3	5.9
Medical services	1.5	1.5
Education	3.0	3.0
Investment	8.9	9.8
Producer durables	6.0	6.8
Construction	11.0	12.0
Additions to inventory	8.8	8.8
Defense	4.9	5.4
Administration	2.4	2.4
Gross national product b/	8.3	16.4

a. For the derivation of these ratios, see 2a, b, c, and d, below.
b. For the end-use weights used to construct the GNP ratio, see Appendix A.

The ratios in Table 2 provide a means for assessing the purchasing power of the 1950 ruble, in terms of 1950 dollars, for the various components of GNP. Thus the consumer ruble is worth about 5 cents (US weights) to 10 cents (Soviet weights). The investment ruble has a purchasing power of about 10 cents (US weights) to 11 cents (Soviet weights), and an even higher purchasing power can be attributed to the defense ruble -- approximately 18.5 cents (US weights) to 20 cents (Soviet weights).

The 1950 ruble - 1950 dollar ratios shown in Table 2 are the appropriate ratios for translating 1950 Soviet GNP components in 1950 rubles into 1950 dollars. If it is desired to convert a ruble estimate of 1955 Soviet GNP in 1953 rubles into 1955 dollars, the 1950 ruble - 1950 dollar ratios must be adjusted to reflect Soviet price changes during 1950-53 and US price changes during 1950-55. Adjustment of the 1950 ruble - 1950 dollar ratios with these price indexes will provide a set of 1953 ruble - 1955 dollar ratios for end-use components which can be weighted with 1955 US and Soviet end-use components in 1953 rubles and 1955 dollars. The price indexes for adjusting the 1950 ruble - 1950 dollar ratios are shown in Table 3.*

The sharp gradations in the relative purchasing power of the ruble between GNP components are a reflection of past and present Soviet resource allocation policy. The armaments and machinery industries of the USSR have long been favored claimants of resources with respect to allocations of skilled labor, raw materials, investment funds, and technological research programs. On the other hand, consumer goods industries in the USSR have been forced into a position as residual claimants of resources. As a consequence, the Soviet armaments and machinery industries compare much more favorably with their counterpart US industries from the point of view of technology and productive efficiency than do Soviet consumer goods industries with their US counterparts.

Soviet prices reflect the current stage of development of the machine building and consumer goods industries. Generally speaking, relative prices reflect relative scarcities in these two areas of production -- that is, on a relative basis, machinery and equipment items in the USSR are cheap and plentiful, whereas consumer goods are scarce and expensive. In this sense, Soviet prices may be said to be "rational" or economically meaningful. In the same sense the relative ruble-dollar

* Table 3 follows on p. 9.

Table 3

Adjustment of 1950 Ruble - 1950 Dollar Ratios
for End-Use Components of Gross National Product
to 1953 Ruble - 1955 Dollar Ratios a/

	(1) 1950 Rubles ÷ 1950 Dollars		(2) Index b/	(3) Index c/	(4) 1953 Rubles ÷ 1955 Dollars d/	
Category	Soviet Weights	US Weights	1950 Rubles ÷ 1953 Rubles	1955 Dollars ÷ 1950 Dollars	Soviet Weights	US Weights
Consumption	10.4	19.6	117.9	111.1	7.9	15.0
Investment	8.9	9.8	108.1	114.3	7.2	7.9
Defense	4.9	5.4	108.9	115.5	3.9	4.3
Administration	2.4	2.4	96.5	112.4	2.2	2.2
Gross national product a/	8.3	16.4			6.6	12.3

a. For the end-use weights used to construct the 1953 ruble - 1955 dollar GNP ratio, see Appendix A.
b. 5/
c. GNP deflators constructed by US Department of Commerce. 6/
d. 1953 ruble - 1955 dollar ratios for GNP categories are calculated by the following formula:

$$\frac{\text{Column (1)}}{\text{Column (2) x Column (3)}}$$

ratios for consumption goods as against the ratios for investment and defense may be viewed as economically meaningful.

A problem that remains to be dealt with, however, is which ratio should be selected for the conversion of Soviet GNP to dollars -- the Soviet-weighted ratio, the US-weighted ratio, or a combination of the two. There are two available alternatives for determining the size of Soviet GNP relative to US GNP. Final products of the USSR can be valued in dollars and compared with US GNP in dollars, or, alternatively, final products of the US can be valued in rubles and compared with Soviet GNP rubles. If both the composition of final product and the relative price structure are the same for the two countries, then either method would show the same proportion between Soviet and US GNP. In fact, the same proportion will be obtained under the less stringent condition that only the relative price structure or the composition of the product be identical. Because both the relative price structure and the composition of output are different for the US and the USSR, however, two different answers will be obtained for the relative size of Soviet and US GNP.

In valuing the national product of the USSR in dollars and that of the US in rubles, an upward bias is imparted to the national product of each in the event of an inverse relationship between the price ratios and the quantity ratios* for the two countries, for an inverse relationship between price and quantity ratios means that relatively high (low) prices are being applied to relatively large (small) quantities when each country's output is valued in the prices of the other. To elucidate further the statistical and economic aspects of this inverse relationship, it is useful to carry out a sample calculation.

Consider the problem of comparing the value of output of wine and beer in France and the UK. Hypothetical data for the prices and quantities of these two commodities are the following:

	p_o	q_o	p_1	q_1
Wine	2	4	4	3
Beer	3	1	2	5

where p_o and q_o represent French prices and quantities and p_1 and q_1 represent British prices and quantities. Note that an inverse relationship exists between the price and quantity ratios. Therefore, in

* A quantity ratio for a given commodity is obtained by dividing Soviet output by US output.

valuing the French output of wine and beer in pounds, for example, a relatively large French quantity, 4 units of wine, is multiplied by a relatively high British price, 4 pounds, and a relatively small French quantity, 1 unit of beer, is multiplied by a relatively low British price, 2 pounds. It is this direct application of relatively high (low) prices to relatively large (small) quantities which results in an overstatement of French output in pounds relative to British output in pounds.

The economic rationale of the inverse relationship between the price and quantity ratios for wine and beer is clear. Both countries emphasize the production of commodities which they can produce most cheaply -- beer in the UK and wine in France.

Carrying through the valuation of each country's output in both francs and pounds, the following four value measures of output are available:

$$\begin{aligned} \Sigma\, p_o\, q_o &= 11 = \text{French output in francs} \\ \Sigma\, p_o\, q_1 &= 21 = \text{British output in francs} \\ \Sigma\, p_1\, q_o &= 18 = \text{French output in pounds} \\ \Sigma\, p_1\, q_1 &= 22 = \text{British output in pounds} \end{aligned}$$

Thus the franc comparison shows that French output is about 50 percent of British output, and the pound comparison reveals that French output is about 80 percent of British output. But on the basis of the discussion above it is concluded that the output comparison in francs understates the size of French output relative to British output and that the output comparison in pounds does just the opposite.

As stated initially, the upward bias imparted to the national product of each country by valuing it in the prices of the other is a resultant of an inverse relationship between price and quantity ratios. What empirical evidence is available, therefore, on the existence of an inverse relationship? [redacted] in a study of 1950 ruble-dollar ratios for consumer goods and services, has found that price ratios correlate inversely with quantity ratios. 7/ This finding was in agreement with similar results obtained by Gilbert and Kravis in their study of comparisons of US national product with each of the national products of the UK, France, Germany, and Italy. 8/ Thus, although the existence of an inverse relationship underlying US-Soviet comparisons of the investment and defense components of GNP remains to be demonstrated,

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it will be assumed for the purpose of this research aid that an inverse relationship does prevail.

Granting this assumption, comparisons of the relative size of Soviet and US GNP by means of Soviet-weighted and US-weighted price ratios lead to an overstatement and understatement, respectively, of Soviet GNP. To avoid these extremes of estimation, an average of the two ratios may be employed. It should be pointed out, however, that there is no economic meaning that can be imparted to the average ratio, which is in fact a hybrid. Of course, if the spread between the two ratios is fairly narrow, little obscurity is introduced by recourse to an average ratio. If the spread is substantial, however, as is the case with the US-weighted and Soviet-weighted ruble-dollar ratios, there can be no unambiguous economic interpretation of the average ratio.

It is probable, moreover, that the gap between the Soviet-weighted and the US-weighted ruble-dollar ratio would become larger as the sample number of ruble-dollar ratios for end items increased. This would be due to a tendency for the product mixes of the USSR and the US to become increasingly dissimilar as the output of each country was considered in greater detail. The increasingly greater dissimilarities in product mix would in turn be simply a manifestation of underlying differences in tastes, resource endowment, and technology.

2. Derivation of End-Use Ratios.

a. Consumption.

Ruble-dollar ratios for the consumption sector of GNP are based primarily upon detailed comparisons of US and Soviet prices for food, manufactured goods, and services conducted [redacted] 25X1A5a1 25X1A5a1 [redacted] Ruble-dollar ratios for medical services and education which were not included [redacted] have also been computed. [redacted] 25X1A5a1 25X1A5a1 studies include ratios for 37 food items, 57 manufactured goods, and 17 services.* The ratios for manufactured goods are based on (1) Soviet retail prices effective in Moscow state stores during March-December 1950 and (2) US average 1950 retail prices effective in the city of Chicago. Both the Moscow and Chicago prices are representative of prices in other large cities of the two countries. Prices for services

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* [redacted] studies have been adjusted to take account of revised ratios computed by CIA for a man's wool suit, a woman's wool dress, and civilian radio receivers. See Appendix A for the revised ratios.

(other than medical and education) are average annual prices prevailing in Moscow and Chicago. Soviet retail food prices are those in effect in Moscow state stores during March-December 1950. US food prices are average first-quarter 1950 prices for 56 large cities.

The construction of ruble-dollar ratios for food items is complicated by the existence of two general sets of food prices in the USSR -- prices prevailing in state stores and prices effective on the collective farm market. [redacted] a limited amount of comparative price data for these two sectors (for the Moscow area) which tends to show that collective farm market prices are not appreciably higher than state store prices. Such a similarity of prices may not prevail for other areas of the USSR.

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The estimation of ruble-dollar ratios for medical services and education is a problem which must be resolved largely on the basis of arbitrary assumptions. This situation is due, in part, to the fact that most medical and dental services are available to the Soviet population without charge and to the lack of data on fees charged by doctors who supplement incomes by engaging in private practice. In the case of education, tuition fees do not accurately reflect the costs of educational services. In this circumstance the possibility of constructing ruble-dollar ratios on the basis of the costs of medical service and education must be considered. This procedure involves the estimation of ruble-dollar ratios for the various input categories such as wages, materials, heat, and light. An important assumption must be made, however, with respect to ruble-dollar ratios for wages. The assumption is that the productivity of doctors and teachers is the same for the USSR and the US. Because it is exceedingly difficult to define and measure the productivity of doctors and teachers (differences in quality of service are extremely important in this area), it is more or less impossible to test the validity of this assumption. Nevertheless, the assumption is arbitrarily made in the construction of ruble-dollar ratios for medical and educational services.

A ruble-dollar ratio for the wage costs of medical services of 1.5 to 1 was computed on the basis of estimated 1950 average wages for medical personnel (physicians and surgeons, dentists, and nurses) in the US and the USSR. A 1950 average wage of 5,770 rubles for Soviet medical personnel was obtained by moving the 1941 plan average wage for medical personnel of 3,120 rubles to 1950 on the assumption that average wages for this category increased during 1941-50 by the same estimated percentage above 1941 as did wages for the national economy --

85 percent. 10/ An average 1950 wage of $5,260 for US medical personnel was obtained by computing a weighted average of the incomes of physicians and surgeons, dentists, and nurses.* The ratio of 1.1 to 1 which was obtained by dividing the Soviet wage by the US wage was then adjusted upward to 1.5 to 1 to take into account incomes which are received from private practice in the USSR and which are not included in the Soviet average wage statistic. For the remaining input categories of medical services, such as drugs, medical supplies, food for hospitals, heat, and light, it was assumed that the average ratio for consumer goods and services other than medical and educational services would apply.

A ruble-dollar ratio for education was computed in a similar manner. An estimated average 1950 wage of 8,000 rubles for education personnel in the USSR was obtained by starting with a 1941 plan average wage for education personnel of 4,330 rubles and assuming that average wages for this category increased by the same percentage above 1941 as did wages for the national economy -- 85 percent. The 1950 average wage for education personnel in the US was estimated to be $2,700.* The ratio of the Soviet average wage to the US average wage was then calculated to be 3.0 to 1. The ruble-dollar ratio for the remaining inputs to education, as in the case of medical services, was assumed to be the same as that for consumer goods and services other than medical and education services.

Ruble-dollar ratios for food, manufactured goods, and services are shown in Table 4.** The Soviet weights for food, manufactured goods, and services (other than medical and education) are for 1937,*** and the US weights are for 1950. The Soviet weights for commodities are based on data on the structure of retail sales in 1936, 1937, and 1938. The weights for services were extrapolated from 1928 weights which are based upon 1927-28 budget studies of Soviet urban workers conducted by the USSR. The US weights are based upon Bureau of Labor Statistics data on the relative importance of items in the BLS Consumer Price Index.

The average ratio for medical and education services was calculated by weighting the individual ratios for medical and education services by 1950 expenditures for both countries. The ratio for

* For data and methodology, see Appendix A.
** Table 4 follows on p. 15.
*** [redacted] developed a set of 1952 weights, but they are believed to be less reliable than those for 1937. 11/

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Table 4

1950 Ruble-Dollar Ratios for Consumer Goods and Services

Rubles per Dollar

Consumption Category	Soviet Weights	US Weights
Food	18.1	25.3
Manufactured goods	14.5	26.4
Services (other than medical and education)	4.3	5.9
Medical and education services	2.3	2.4
Consumption (other than medical services and education)	13.5	20.4
Total consumption	10.4	19.6

medical and education services was then combined with the ratio for consumption (other than medical and education services) on the basis of 1950 expenditures data for both categories.*

b. Investment.

Weighted ruble-dollar ratios were calculated for the three principal categories of investment -- producer durables, construction, and additions to inventory. Ruble-dollar ratios for producer durables, construction, inventories, and total investment are shown in Table 5.

Table 5

1950 Ruble-Dollar Ratios
for Producer Durables, Construction, and Inventories

Rubles per Dollar

Category	Soviet Weights	US Weights
Producer durables	6.0	6.8
Construction	11.0	12.0
Inventories	8.8 a/	8.8 a/
Total investment b/	8.9	9.8

a. Median of all ratios except all services and electric power.
b. For the weights used to construct the ratio for total investment, see Appendix A.

* For data and methodology, see Appendix A.

(1) Producer Durables.

The producer durables ratio is based upon an extensive sample of machinery and equipment items -- a total of 289 ratios. An approximation of the coverage of the sample with respect to US output can be gained by comparing 1947 purchases of producer durables for the categories represented in the sample -- $6.8 billion -- with total producer durables expenditures in the US in 1947 -- $16.7 billion. 12/

There are some significant omissions from the machinery and equipment sample. Not included in the sample are agricultural machinery (other than tractors), locomotives and railroad equipment, commercial aircraft, ships and boats, commercial machines, food machinery, printing machinery, petroleum refining equipment, and most chemical equipment.

Weighted ratios for the machinery and equipment categories constituting producer durables are shown in Table 6.* In most instances the ratios within each category were weighted by 1947 value of shipments data. These ratios, in turn, were weighted by purchases of producer durables for 1947 to obtain an aggregate US-weighted ratio of 6.8 to 1.

Because of the lack of Soviet gross value output data for machinery and equipment items, it was not possible to calculate directly a Soviet-weighted producer durables ratio. However, by examining the magnitude of the ratios for the various machinery and equipment categories and by making some judgments about the relative gross value weights for these categories in the USSR, it is possible to make a guess of a Soviet-weighted producer durables ratio. It is probable that sectors 110, 112, 114, 116, 117, 131, 132, and 133 shown in Table 6, for which the US-weighted average is 5.7 to 1, have a substantially higher relative weight in total producer durables in the USSR than in the US. On the basis of this probability, an estimate of 5.5 - 6.0 to 1 is made for the Soviet producer durables ratio.

(2) Construction.

Research that has been completed up to the present time on comparative construction costs for the USSR and the US is insufficient

* Table 6 follows on p. 17.

Table 6

1950 Ruble-Dollar Ratios for Selected Categories of Producer Durables

Sector Number a/	Type of Machinery or Equipment	Number of Ratios in Sector	Average Ruble-Dollar Ratio (US Weights)	US 1947 Purchases of Producer Durables b/ (Million Dollars)	Source
110	Steam engines and turbines	10	3.0 c/	58.3	CIA
112	Farm and industrial tractors	3	7.2 c/	547.1	CIA
114	Construction and mining machinery	27	5.0	466.0	[redacted] 25X1A5a1
116	Machine tools and metal-working	30	5.9	577.0	CIA
117	Cutting tools, jigs, and fixtures	24	3.5	72.2	[redacted]
118	Special industrial machinery	55	7.7	1,221.0	
119	Pumps and compressors	5	6.5	252.6	
126	Valves and fittings	19	6.5	106.5	
130	Electrical measuring instruments	18	12.4	111.5	
131	Motors and generators	79	5.0	218.1	
132	Transformers	8	5.1	223.3	
133	Electrical control apparatus	9	5.9 c/	325.0	
145	Motor vehicles	2	7.3 c/	2,618.3	CIA
	Total	289	6.8	6,796.9	25X1A5a1

a. Sector numbers are the industry classification numbers employed in the US 192-Sector Classification of the US 1947 Interindustry Relations Study. 13/
b. 14/
c. Simple average of ratios.

to permit the estimation of a reliable ruble-dollar ratio for construction. Only two ruble-dollar ratios are currently available for construction "end items" -- roadbuilding and residential construction.* A limited number of ratios for various types of construction components such as foundation construction, wall construction, and excavation work have been computed [redacted] A summary of currently available construction ratios is shown in Table 7. 25X1A5a1

Table 7

1950 Ruble-Dollar Ratios for Various Types and Components of Construction

Type of Construction	Rubles per Dollar Ratio
Blacktop highway	11.3
Multistory apartment house	15.4
Pipelines	2.2 to 9.5
Pile driving	9.0
Interior painting	2.3 to 9.9
Brick wall	5.2
Wood framing	2.0 to 5.0
Hardwood floor	3.7
Roofing work	6.3 to 37.7
Concrete work	4.5 to 6.2
Girder assembly	2.4 to 2.9
Excavating work	9.9 to 11.8
Foundation work	4.1 to 5.9

The ratios shown in Table 7 are based upon input requirements for labor and materials. US 1950 costs are based, in part, upon cost data from actual jobs. Soviet 1950 costs, with the exception of the apartment house costs, which are actual costs, are based upon input "norms" for the Leningrad area. Because actual construction costs in the USSR are frequently higher than norm costs, particularly for labor inputs, the ruble-dollar ratios in Table 7 are probably underestimated to a substantial degree. In a Soviet

* For the derivation of these ratios, see Table 40, p. 112, below.

text on the construction industry, for example, the average monthly earnings of Soviet construction workers during 1950-51 are stated to be about 650 rubles or in excess of 150 percent of the wage norm. 16/

Principally on the basis of the ruble-dollar ratios for highway and apartment house construction -- 11.3 and 15.4 rubles per dollar, respectively -- and considering the high probability of substantial underestimation of the construction components ratios in Table 7, it is estimated that a Soviet-weighted construction ratio would be about 11.0 rubles per dollar. It is estimated that a US-weighted ratio would be slightly higher -- about 12.0 to 1 -- because of the relatively larger proportion of residential construction in the US in comparison with the USSR. This estimate is based, in turn, upon the assumption that the ruble-dollar ratio for residential construction is greater than the ratio for industrial construction.

(3) Additions to Inventory.

The ruble-dollar ratio for net additions to inventory is the median ratio of 8.8 rubles per dollar for the total number of physical commodities considered in this research aid. A median ratio for all commodities is utilized because of the sparsity of data on the composition of commodities entering into inventory. Since additions to inventory are composed of a wide variety of items falling into both the producer and the consumer goods categories, a median ruble-dollar ratio for all commodities appears to be as adequate a ratio as can be constructed at the present time.

c. Administration.

A ruble-dollar ratio for administration of 2.4 to 1 was computed by comparing an estimated annual average wage for administrative and internal security employees in the USSR with an average annual wage for federal, state, and local employees in the US. The average wage for administrative and internal security employees in the USSR was obtained by assuming that it was approximately the same as the annual average wage for all workers in the national economy, which is estimated at 7,500 rubles for 1950. 17/ The average annual wage for US Government employees in 1950 was $3,122.*

* For data and methodology, see Appendix A.

As in the case of ruble-dollar ratios for medical services and education which were based on ratios of average wages, it is assumed that the productivity of workers in administration in the US and USSR is the same. In view of the many recent attempts by the Russians to reduce overstaffing and considering what appears to be a meager equipping of Soviet administrative agencies in comparison with US agencies, it is probable that the productivity of the Soviet administrative employee is lower than that of his US counterpart. Hence the ruble-dollar ratio for administration may be understated.

d. Defense.

The ruble-dollar ratio for the defense sector is based upon a weighted average of ratios of highly uneven quality for the various types of defense expenditures. The uneven quality of the ratios stems partly from the uneven quality of the data and partly from the somewhat arbitrary assumptions which had to be made with respect to the representativeness and applicability of available ratios in the absence of price data for certain types of expenditures. In order to be able to gain a limited appreciation of the procedures and assumptions involved and their impact on the reliability of the ratios, the following categories of ratios, in descending order of reliability, are briefly discussed:

(1) For many types of items other than armaments, sufficient ruble and dollar price data were available to permit the calculation of generally representative ratios. The major items for which this could be done are the following: personnel pay and subsistence, automotive equipment and tractors, petroleum products, transportation, construction, some miscellaneous supplies and services, civilian wages, pensions, reserves, MVD-KGB personnel costs, and some research and development.

(2) For some categories of armaments a small sample of ratios within each category was presumed to be representative for each category. Armaments for which this procedure was believed to be generally reliable are aircraft, ships, and armored vehicles. Items for which this procedure was less reliable, because of the smaller number of ratios and lesser representativeness, are communications equipment and installations, ammunition, electronics, and certain weapons (principally towed artillery, small arms, and mortars).

(3) When prices were not available, ratios were estimated on the basis of known ratios, taking into account analogous technology,

estimated differences in costs, and the like. This procedure was followed in the case of atomic energy, guided missiles, some research and development, some equipment spares, and other miscellaneous items.

3. Comparisons of US and Soviet Gross National Product.

On the basis of the end-use ruble-dollar ratios shown in Tables 2 and 3*, it is now possible to compare the GNP of the US and the USSR in market prices for 1950 and 1955. Depending upon whether the comparisons are made in rubles or dollars, 1950 Soviet GNP is about 22 or 42 percent, respectively, of 1950 US GNP (see Table 8**). These widely differing comparison ratios reflect, as previously indicated, marked differences in the relative price structure and the composition of output for the two countries. Because of these fundamental differences underlying the comparison, any attempt to obtain a single estimate of the ratio of Soviet GNP to US GNP must be largely arbitrary. It is simply that there are two different ways of carrying out the comparison.

As previously argued, however, a ruble comparison of the final products of both countries does tend to underestimate the ratio of Soviet GNP to US GNP, and a dollar comparison does just the opposite. Thus, if there is any justification at all for an average ratio, it must rest on the contention that the alternative ruble and dollar comparisons of Soviet and US GNP are subject to downward and upward biases, respectively.

Ignoring conceptual difficulties, however, an average ratio for the year 1950 would show Soviet GNP to be about 32 percent of US GNP. For 1955 the ratio of Soviet GNP to US GNP increases to about 38 percent.

* Pp. 7 and 9, above, respectively.
** Table 8 follows on p. 22.

Table 8

US and Soviet 1950 Gross National Product
in 1950 Rubles and 1950 Dollars

End-Use Category	Soviet Gross National Product		US Gross National Product	
	Billion Rubles a/	Billion Dollars b/	Billion Dollars a/	Billion Rubles b/
Consumption	681	65	205	4,018
Investment	179	20	56	543
Defense	118	24	19	103
Administration	29	12	6	14
Gross national product c/	1,008	121	286	4,678

a. For the derivation of the estimates for the end-use components, see Appendix A.
b. The formula for conversion of Soviet GNP in rubles to dollars is

$$\sum \frac{P_1}{P_0} P_0Q_0 = P_1Q_0$$

where $\frac{P_1}{P_0}$ represents the weighted dollar-ruble ratio (inverse of ruble-dollar ratio) for each end-use category and P_0Q_0 represents the ruble estimate for each end-use category. Similarly, in converting US GNP in dollars to rubles the formula is

$$\sum \frac{P_0}{P_1} P_1Q_1 = P_0Q_1$$

c. Totals are derived from unrounded figures and do not always agree with the sum of rounded components.

APPENDIX A

METHODOLOGY

1. Weighting of Ruble-Dollar Ratios.

The US- and Soviet-weighted ruble-dollar ratios for the various components and subcomponents of GNP have been computed by weighting each individual end-product ratio with the corresponding value of output of the end product. When US-value weights are utilized the following calculation is performed:

(a)
$$\frac{\sum_{i=1}^{n} \frac{P_i^1}{P_i^0} P_i^0 Q_i^0}{\sum_{i=1}^{n} P_i^0 Q_i^0}$$

where P^0, Q^0 represent US prices and quantities and P^1, Q^1 are Soviet prices and quantities.

Alternatively, when Soviet-value weights are utilized the calculation is as follows:

(b)
$$\frac{\sum_{i=1}^{n} P_i^1 \cdot Q_i^1}{\sum_{i=1}^{n} \frac{P_i^0}{P_i^1} P_i^1 Q_i^1}$$

Formulas (a) and (b) are algebraically equivalent to the Laspeyres and Paasche index numbers, the Laspeyres index number being of the form

$$\frac{\sum_{i=1}^{n} P_i^1 Q_i^0}{\sum_{i=1}^{n} P_i^0 Q_i^0}$$

and the Paasche index number of the form

$$\frac{\sum_{i=1}^{n} P_i^1 Q_i^1}{\sum_{i=1}^{n} P_i^0 Q_i^1}$$

The value weights employed in the calculation of the GNP ratios for the USSR and the US are presented in Tables 9,* 10,** and 11.***

The same weighting procedures were employed in computing average ratios for branches of industry and 4-digit industrial categories. Gross value of production or value of shipments data were used as weights in these calculations. The average ratios for the branches of industry, however, were computed only for the purpose of summarizing collections of individual ratios. These weighted ratios should not be utilized for any other purpose than to gain summary impressions of the extent of the variation of ratios from industry to industry. Particular applications of industrial ratios demand particular types of weighting systems. 25X1A5a1

25X1A5a1 2. Revision of [redacted] Price Ratios for Manufactured Consumer Goods.

Price ratios for three major items [redacted] of ruble-dollar ratios for manufactured consumer goods were revised as follows: 25X1A5a1

Item	Soviet Price (Rubles)	US Price (Dollars)	Ruble-Dollar Ratio
Man's wool suit			
CIA	1,900	42.00	45.2
25X1A5a1 [redacted]	1,900	31.06	61.2
Woman's wool dress			
CIA	559	14.95	37.4
Woman's rayon dress			
25X1A5a1 [redacted]	513	8.14	63.0
Civilian radio receiver			
CIA			12.9
25X1A5a1 [redacted]	333.33	10.15	32.8

* Table 9 follows on p. 25.
** Table 10 follows on p. 26.
*** Table 11 follows on p. 27.

Table 9

Ruble-Dollar Ratios for Gross National Product End-Use Categories and US and Soviet Gross National Products for 1950 and 1955

End-Use Category	Soviet 1950 Gross National Product a/ (Billion 1950 Rubles)	US 1950 Gross National Product b/ (Billion 1950 Dollars)	1950 Ruble-1950 Dollar Ratios c/ (Rubles per Dollar)		Soviet 1955 Gross National Product d/ (Billion 1953 Rubles)	US 1955 Gross National Product e/ (Billion 1955 Dollars)
			Soviet Weights	US Weights		
Consumption	681.3	204.8	10.4	19.6	803.6	266.7
Food	639.5	196.0	18.1	25.3		
Manufactured goods			14.5	26.4		
Services (other than medical and education)			4.3	5.9		
			13.5 f/	20.4 f/		
Medical services (public and private)	11.8 g/	3.4 h/	1.5	1.5		
Education (public and private)	30.0 i/	5.4 j/	3.0	3.0		
Investment	179.3	56.0	8.9	9.8	264.7	71.5
Producer durables	43.6 k/	21.1	6.0	6.8		
Construction	107.8 l/	29.7	11.0	12.0		
Change in inventories	27.9 m/	5.2	8.8	8.8		
Defense	117.6	18.5	4.9	5.4	155.0	40.8
Administration	29.4	5.7	2.4	2.4	27.4	8.4
Gross National Product	1,007.6	285.0	8.3	16.4	1,250.7	387.4

a. Estimates for the four principal end-use categories derived from Table 10, p. 26, below.
b. Estimates for the four principal end-use categories derived from Table 11, p. 27, below.
c. The ruble-dollar ratios for the four principal end-use categories were calculated by weighting the ratios within the end-use categories by the corresponding US and Soviet GNP expenditures for 1950.
d. See Table 10.
e. See Table 11.
f. See 2, above and 3, below.
g. Wage bill for medical personnel (see 5, below).
h. Wage bill for medical personnel (see 3, below).
i. Wage bill for education personnel (see 5, below).
j. Wage bill for education personnel (see 3, below).
k. 18/
l. 19/
m. Residual estimate.

Table 10

Soviet Gross National Product for 1950, 1953, and 1955
in 1950 and 1953 Ruble Prices, by End-Use Category

End-Use Category	1953 Gross National Product (Billion 1953 Rubles) a/	Gross National Product Growth Index, 1950-53 (1950=100) b/	Gross National Product Price Index, 1950-53 (1953=100) c/	1950 Gross National Product (Billion 1953 Rubles) d/	1950 Gross National Product (Billion 1950 Rubles) e/	Gross National Product Growth Index, 1953-55 (1953=100) f/	1955 Gross National Product (Billion 1953 Rubles) g/	1955 Gross National Product (Billion 1950 Rubles) h/
Consumption	713.7	123.5	117.9	577.9	681.3	112.6	803.6	947.4
Investment	216.8	130.7	108.1	165.9	179.3	122.1	264.7	286.1
Defense	129.9	120.3	108.9	108.0	117.6	119.3	155.0	168.8
Administration	28.8	94.5	96.5	30.5	29.4	95.0	27.4	26.4
Gross national product	1,089.2			882.3	1,007.6		1,250.7	1,428.7

a. 20/
b. For methodology, see source 21/.
c. For methodology, see source 22/.
d. Obtained by dividing 1953 GNP in 1953 rubles by the GNP growth indexes for 1950-53.
e. Obtained by multiplying 1950 GNP in 1953 rubles by the GNP price indexes for 1950-53.
f. For methodology, see source 23/.
g. Obtained by multiplying 1953 GNP in 1953 rubles by the GNP growth indexes for 1953-55.
h. Obtained by multiplying 1955 GNP in 1953 rubles by the GNP price indexes for 1950-53.

Table 11

Adjustments of US Gross National Product
for Comparability with Soviet Gross National Product
1950 and 1955

Billion Current Dollars

End-Use Category a/	1950	1955
Consumption		
Personal	194.0	252.4
Public health b/	2.5	4.0
Public education b/	8.3	10.3
Total	204.8	266.7
Administration		
Total government	42.0	75.9
Less		
National security	-18.5	-40.8
Public construction c/	- 7.0	-12.4
Public health	- 2.5	- 4.0
Public education	- 8.3	-10.3
Total	5.7	8.4
Defense		
Total national security expenditure	18.5	40.8
Investment		
Private investment	51.2	59.4
Public construction	7.0	12.4
Foreign balance	-2.2	-0.3
Total	56.0	71.5
Gross national product	285.0	387.4

a. For estimates of personal consumption, government, national security, private investment, foreign balance, and gross national product, see source 24/.
b. For data and methodology, see Appendix A.
c. 25/.

25X1A5a1

The US price for the man's wool suit [redacted] was the midpoint of the high and low prices of $25.95 and $36.95. It is believed that this range was not sufficiently great to compare with the Soviet price range of 800 to 3,000 rubles. The Soviet high and low prices appear to be those for high- and low-quality suits. A more comparable range for US prices is judged to be from $25.95 to $58. The price of $58 is a median of quotations obtained from retail stores in 18 large cities in March 1950 for a grade-4 wool suit (13 - 13-1/2 ounces per yard). 26/

A ruble-dollar ratio for a woman's wool dress was substituted for the ratio computed for a woman's satin rayon crepe dress. It is believed that a ratio for a wool dress would be more representative of clothing purchases in the USSR than the ratio for a satin crepe dress. The Soviet price is apparently for an all-wool dress of average quality. 27/ A comparable US price is judged to be that for an all-wool street dress of fair workmanship. 28/

The CIA ruble-dollar ratio for civilian radio receivers is a simple average of ratios for four different types of receivers.* Soviet 1950 prices were available for each of the four receivers. US prices were estimated on the basis of what it would cost US manufacturers to manufacture the Soviet radios in the US.

Having computed revised ratios for the suit, dress, and radio, the Soviet- and US-weighted ruble-dollar ratios for manufactured consumer goods were recomputed [redacted]. Revised ratios of 25X1A5a1
14.5 rubles per dollar (Soviet weights) and 26.4 rubles (US weights) were obtained, compared with [redacted] ratios of 14.6 rubles per dollar 25X1A5a1
(Soviet weights) and 28.2 rubles per dollar (US weights).

3. Derivation of US Average Wage for Medical and Education Personnel in 1950.

a. Medical Personnel.

A weighted average wage for US medical personnel in 1950 was computed on the basis of the employment and average income data presented in the following tabulation (all income data are gross of income taxes):

* For the individual ratios and prices, see Appendix B.

Type of Personnel	Number of Employees 29/	Average Income (US $)	Total Income (Thousand US $)
Physicians and surgeons	178,950	11,538 30/	2,064.7
Dentists	68,670	7,293 31/	500.8
Nurses (professional)	403,470	2,127 32/	858.2
Total or average	651,090	5,258	3,423.7

The average income for physicians, surgeons, and dentists is an average for both salaried and nonsalaried individuals.

b. Education Personnel.

A weighted average wage for both publicly and privately employed education personnel in 1950 was computed on the basis of the employment and average wage data presented in the following tabulation (all wage data are gross of income taxes):

Type of Employment	Number of Employees 33/	Average Wage 34/ (US $)	Total Wages (Thousand US $)
Public education	1,536,000	2,794	4,291.6
Private education			
Commercial and trade schools	39,000	3,410	133.0
Education, n. e. c.*	441,000	2,290	1,009.9
Total or average	2,016,000	2,696	5,434.5

* Not elsewhere counted.

4. Derivation of US Expenditures for Medical Services and Education in 1950 and 1955.

a. Medical Services.

Expenditures for medical services in the US are composed of both public and private outlays. The public outlays are the total outlays (less construction expenditures) for health and medical services under civilian public programs, whereas the private outlays are restricted to professional services only and do not include expenditures for pharmaceuticals, medical apparatus, and the like.

The data on public outlays are on a fiscal year basis, the data on private outlays on a calendar year basis. An estimate of public expenditures on a calendar year basis is made by averaging expenditures for the fiscal years 1950 and 1951. Expenditures for the calendar year 1955 are assumed to be approximately the same as fiscal 1955. Data for public and private expenditures for medical services in the US in 1950 and 1955 are shown in the following tabulation:

	Billion US $	
	1950	1955
Public expenditures	2.5 35/	4.0 36/
Private expenditures	6.4 37/	9.0 38/
Total	8.9	13.0

b. Education Expenditures.

Current expenditures for education in the US in 1950 and 1955 on a public and private basis are shown in the following tabulation:

	Million US $	
	1950	1955
Public expenditures		
Federal	2,300*	802 39/
State and local	7,177 40/	11,907 41/
Total	9,477	12,709
Less construction	-1,133 42/	-2,442 43/
Current public expenditures	8,344	10,267
Private education and research	1,959 44/	2,905 45/
Total public and private expenditures on current account	10,303	13,172

5. Derivation of Soviet Current Expenditures on Health and Education for 1950.

Planned 1950 expenditures on health and education as given in the 1950 Soviet budget were 22 billion rubles and 59.5 billion rubles, respectively. Because these expenditures are inclusive of both current and capital outlays, it is necessary to deduct capital expenditures if estimates of current expenditures are to be obtained which can be entered into the consumption component of GNP.

Data on Soviet capital expenditures for health and education in 1950 are unavailable. Scattered data are available, however, for 1953, 1955, and 1956 which provide a basis for 1950 estimates. On the basis of these data, it is estimated that about 2 billion rubles was allocated for capital expenditures in 1950, an amount divided equally between health and education. The estimate of 2 billion rubles is based on the following data:

* Average of expenditures for veterans education (Public Law 346) for the fiscal years 1950 and 1951. 46/

a. The 1955 plan for school construction by the Ministry of Urban-Rural Construction called for expenditures of 363 million rubles. 47/ Expenditures by other ministries probably raised these expenditures to a total of about 500 million rubles for 1955.

b. Capital expenditures by the union-republic ministries of health in 1953 were 448 million rubles. 48/

c. Total capital repair expenditures for 1956 for schools, hospitals, and social-cultural institutions were planned at approximately 2.3 billion rubles. 49/

The wage bill for medical personnel in 1950 was obtained by multiplying the total number of workers employed in public health in 1950 -- 2,051,000 50/ -- by an estimated average wage of 5,770 rubles.

The wage bill for education personnel in 1950 was obtained by multiplying the total number of workers employed in education -- 3,752,000 51/ -- by an estimated average wage of 8,000 rubles.

6. Derivation of the Average Wage for US Government Employees in 1950.

Employment Category	Number of Employees 52/	Average Wage 53/ (US $)	Total Wages (Million US $)
Federal, civil	1,436,000	3,504	5,031.7
Federal, government enterprises	516,000	3,512	1,812.2
State and local, non-school	1,948,000	2,725	5,308.3
State and local, government enterprises	238,000	3,227	768.0
Total or average	4,138,000	3,122	12,920.2

APPENDIX B

RUBLE-DOLLAR RATIOS, BY BRANCH OF INDUSTRY

1. Introduction.

This appendix contains the specifications, prices, and price ratios for the commodities and services compared in the text of this research aid.

In general, the data appearing in this appendix represent either extensions or revisions of the ratios in the two major studies previously conducted [redacted] In order that the maximum usefulness of these data may be achieved, they should be used in conjunction with [redacted]

25X1A5a1

25X1A5a1

25X1A5a1

[redacted]

25X1A5a1

Revisions [redacted] are reflected primarily in the substitution of items believed to be more comparable or representative of both economies. Some differences in ratios are attributable to the fact that CIA ratios were established, in general, on the basis of 1 July 1950 prices rather than 1 January 1950 prices. It is generally the case, however, that most 1 January 1950 prices prevailed on 1 July 1950 also.

Table 12* gives the standard industrial classification of selected commodities and services, by SIC** numbers, and indicates the sources [redacted] of the ratios used in the computation of the weighted ratios summarized in Table 13.*** Table 13 summarizes the number of ratios, the range of ratios, and the weighted ratios made available by [redacted] research.****

25X1A5a1

25X1A5a1

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* Table 12 follows on p. 34.
** Standard industrial classification.
*** Table 13 follows on p. 40.
**** Text continued on p. 44.

25X1A5a1

Table 12

Key to [redacted] Research in the Ruble-Dollar Ratio of Selected Commodities and Services, by SIC a/ Number

SIC No.	Industrial Classification
	Solid Fuels
1111, 1211, 1212	CIA. b/ Comparability was established on the basis of heating values.
	Textile Mill Products
2241, 2291, 2298	[redacted] 25X1A5a1
	Lumber and Wood Products
2411, 2421, 2431, 2432, 2491	[redacted] 25X1A5a1
	Paper and Allied Products
2612, 2641	[redacted] 25X1A5a1
	Chemicals
2812	CIA. With one exception, ratios did not differ significantly from [redacted] 25X1A5a1
2819	CIA. In a number of cases prices were substituted which are believed to be more comparable than [redacted] 25X1A5a1
2821	CIA. Ratios are virtually identical with those shown in [redacted] -- one ratio added. 25X1A5a1
2826	CIA. Ratios are virtually identical with those shown in [redacted] 25X1A5a1

a. Standard industrial classification.
b. All items attributed to CIA are found in Tables 13 through 40 of this research aid.

25X1A5a1

Table 12

Key to [redacted] Research in the Ruble-Dollar Ratio of Selected Commodities and Services, by SIC Number (Continued)

SIC No.	Industrial Classification
2829	CIA. Ratios do not differ significantly from those shown in [redacted] -- six new ratios added. 25X1A5a1
2851, 2852, 2861, 2862, 2881, 2882, 2884, 2894, 2896	[redacted] 25X1A5a1
	Petroleum Refining
2911	CIA. Prices for 1 July 1950 were used and Soviet transportation charges were removed from the price before computing the ruble-dollar ratio. Additional items are included.
	Construction Materials
1441, 1477	[redacted] 25X1A5a1
2952	CIA. The data were added by CIA.
3211, 3241, 3251	CIA. 1 July 1950 prices.
3253, 3254, 3272, 3274	[redacted] 25X1A5a1
3292	CIA. The data were added by CIA.
	Abrasive Products
3291	CIA. The data were added by CIA.

Table 12

25X1A5a1

Key to [redacted] Research in the Ruble-Dollar Ratio of Selected Commodities and Services, by SIC Number (Continued)

SIC No.	Industrial Classification
	Iron and Steel 25X1A5a1
3311, 3312, 3313, 3321, 3323, 3391	[redacted] Ratios appearing in this appendix represent primarily a selected number of ratios from [redacted] which were believed to be representative of the iron and steel industry. This sample was selected in order to facilitate the computation of a set of weighted ratios for a four-digit industrial classification based on Soviet value weights. 25X1A5a1
3322	CIA. The data were added by CIA.
	Nonferrous Metals 25X1A5a1
3331, 3332, 3333, 3334, 3335, 3339, 3351, 3352, 3359, 3392	[redacted] With the exception of the Soviet price for cobalt, and the addition of magnesium, data appearing in this appendix was taken from [redacted] Selected items are duplicated in this appendix to facilitate weighting and for the convenience of the reader. 25X1A5a1
	Fabricated Structural Metal Products
3443	[redacted] 25X1A5a1
	Other Fabricated Metal Products
3481, 3489, 3494	[redacted] 25X1A5a1
	Transportation, Construction, and Mining Machinery
3521, 3711	CIA. 1950 prices.
3531	[redacted] 25X1A5a1

25X1A5a1

Table 12

Key to [redacted] Research in the Ruble-Dollar Ratio of Selected Commodities and Services, by SIC Number (Continued)

SIC No.	Industrial Classification
	Metalworking Machinery
3541, 3542	CIA. 1 July 1950 prices.
3543	[redacted] 25X1A5a1
	Other Machinery (Except Electrical)
3552	CIA. The data were added by CIA.
3519, 3553, 3554, 3559, 3561, 3563, 3564, 3567, 3585, 3591, 3593	[redacted] 25X1A5a1
	Electrical Machinery and Equipment
3511	CIA. The data were added by CIA.
3613, 3614, 3615, 3616, 3641	[redacted] 25X1A5a1
3631	CIA. The data were expanded by CIA.
3651, 3661	CIA. The data were added by CIA.
3662	CIA. Data appearing in this appendix represent 1949 price data from [redacted] were 25X1A5a1 adjusted to 1950 prices by using the price index shown in [redacted] and include only those prices for tubes which were being produced in 1950. 25X1A5a1

Table 12

25X1A5a1

Key to [redacted] Research in the Ruble-Dollar Ratio of Selected Commodities and Services, by SIC Number (Continued)

SIC No.	Industrial Classification
	Other Transportation Equipment
3741, 3742, 3751	[redacted] 25X1A5a1
	Professional and Scientific Equipment
3811, 3821	[redacted] 25X1A5a1
	Communications Services
4811, 4821, 4899	CIA. The data were added by CIA.
	Electric Light and Power
4911	CIA. Ratios were computed on the basis of average rates by type of consumer.
	Rail Freight Transport
	25X1A5a1 [redacted] computed ratios based on rates for mileage blocks and CIA computed ratios based on rates for average lengths of haul.
	Construction
	CIA. Highway and Housing.
1611, 1621, 1711, 1721, 1741, 1751, 1752, 1761, 1771, 1791, 1794	[redacted] 25X1A5a1

Table 12

25X1A5a1

Key to [redacted] Research in the Ruble-Dollar Ratio of Selected Commodities and Services, by SIC Number (Continued)

SIC No.	Industrial Classification
	Rubber Products, Plumbing and Heating Supplies, and Scrap and Miscellaneous Industries
[redacted]	25X1A5a1

Table 13

A Summary of 1950 Ruble-Dollar Ratios
by Industrial Classification

SIC No.		No. of Ratios	Highest Ratio (Rubles per Dollar)	Lowest Ratio (Rubles per Dollar)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)	Source of Ratio	Effective Date of Price 1950: Ruble	Effective Date of Price 1950: Dollar
1111	Anthracite coal	1	12.2	12.2	12.2	12.2	CIA	1 January	Average
1211	Bituminous coal	1	21.6	21.6	21.6	21.6	CIA	1 January	Average
1212	Lignite	1	23.5	23.5	23.5	23.5	CIA	1 January	Average
1441	Sand and gravel	3			22.8		[redacted]	1 January	First quarter
2241	Narrow fabric mills	13	6.7	3.1	4.1 a/*	3.9 a/	[redacted]	1 January	First quarter
2291	Felt goods, n.e.c. b/	5	17.0	6.7	11.2		[redacted]	1 January	First quarter
2298	Cordage and twine	58	34.6	14.8	19.1		[redacted]	1 January	First quarter
2411	Logging	13	23.0	9.4	12.8 a/	11.9 a/	[redacted]	1 January	First quarter
2421	Sawmills and planing mills	69	15.4	3.4	7.6		[redacted]	1 January	First quarter
2431	Millwork plants	5	6.5	4.3	5.2	25X1A5a1	[redacted]	1 January	First quarter
2432	Plywood plants	2	5.2	2.4	3.8		[redacted]	1 January	First quarter
2612	Paper and board mills	5	15.4	8.8	12.5		[redacted]	1 January	First quarter
2641	Paper coating and glazing	1	15.9	15.9	15.9		[redacted]	1 January	First quarter
2812	Alkalies and chlorine	6	29.1	6.4	18.6	18.1	CIA	1 January	1 January
2819	Industrial inorganic chemicals, n.e.c. b/	40	123.6	5.0	18.7		CIA	1 January	1 January
2821	Cyclic (coal tar) crudes	5	27.6	11.9	20.2	19.0	CIA	1 January	1 January
2826	Explosives	2	21.3	7.1	18.4		CIA	1 January	1 January
2829	Industrial organic chemicals, n.e.c. b/	11	114.5	2.4	43.7		CIA	1 January	1 January
2851	Paints and varnishes	11	17.1	3.4	8.6		[redacted]	1 January	First quarter
2852	Inorganic color pigments	18	48.2	7.1	21.1	25X1A5a1	[redacted]	1 January	First quarter
2862	Softwood distillation	7	37.5	30.7	34.9		[redacted]	1 January	First quarter
2894	Glue and gelatin	6	14.8	13.0	14.1		[redacted]	1 January	First quarter
2896	Compressed and liquefied gases	4	15.2	1.2	7.7		[redacted]	1 January	First quarter
2911	Petroleum refining	33	26.3	9.2	18.0	17.9	CIA	1 July	1 July
2952	Roofing felts and coatings	2	5.5	5.5	5.5	5.5	CIA	1 July	1 July
3211	Flat glass	1	8.4	8.4	8.4	8.4	CIA	1 July	1 July
3241	Cement, hydraulic	1	10.6	10.6	10.6	10.6	CIA	1 July	1 July
3251	Brick and hollow tile	1	6.2	6.2	6.2	6.2	CIA	1 July	1 July

* Footnotes for Table 13 follow on p. 43.

Table 13

A Summary of 1950 Ruble-Dollar Ratios
by Industrial Classification
(Continued)

SIC No.		No. of Ratios	Highest Ratio (Rubles per Dollar)	Lowest Ratio (Rubles per Dollar)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)	Source of Ratio	Effective Date of Price 1950: Ruble	Effective Date of Price 1950: Dollar
3253	Floor and wall tile	2	3.2	2.7	3.0 a/	2.9 a/	[redacted]	1 January	First quarter
3254	Sewer pipe	6	17.3	13.7	15.7 a/	15.6 a/		1 January	First quarter
3272	Gypsum products	4	19.1	10.4	15.2		25X1A5a1	1 January	First quarter
3274	Lime	27	7.3	3.3	4.5 a/	4.3 a/		1 January	First quarter
3291	Abrasives products	85	6.4	1.3	2.5 a/	2.4 a/	CIA	1 January	Average
3292	Asbestos products	1	4.1	4.1	4.1	4.1	CIA	1 January	1 July
3311	Blast furnaces	7	12.9	7.7	9.0	8.9	[redacted]	1 January	First quarter
3312	Steel works and rolling mills	30	43.0	6.1	13.1 25X1A5a1	8.8		1 January	First quarter
3313	Electrometallurgical products	14	24.1	6.7	8.3			1 January	First quarter
		3	9.0	6.0		7.3		1 January	First quarter
3321	Gray-iron foundries	1	11.6	11.6	11.6	11.6	CIA	1 January	First quarter
3322	Malleable-iron foundries				13.0	13.0	CIA	1 January	First quarter
3323	Steel foundries	1	10.6	10.6	10.6	10.6	CIA	1 January	First quarter
3331	Primary smelting and refining of copper	1	16.2	16.2	16.2	16.2		1 January	First quarter
3332	Primary smelting and refining of lead	1	14.0	14.0	14.0 25X1A5a1	14.0	[redacted]	1 January	First quarter
3333	Primary smelting and refining of zinc	2	13.4	11.8	12.6 a/	12.6 a/		1 January	First quarter
3334	Primary refining of aluminum	1	17.7	17.7	17.7	17.7		1 January	First quarter
3335	Primary refining of magnesium	1	34.0	34.0	34.0	34.0	CIA	1 January	First quarter
3339	Primary refining and smelting of nonferrous metals, n.e.c. b/	6	103.4	32.6	60.0	52.1	[redacted]	1 January	First quarter
3351	Rolling, drawing, and alloying of copper	68	20.1	9.3	13.8			1 January	First quarter
3352	Rolling, drawing, and alloying of aluminum	8	21.8	14.5	16.3			1 January	First quarter
3359	Rolling, drawing, and alloying of nonferrous metals, n.e.c. b/	2	15.5	14.4	15.0 a/	14.9 a/		1 January	First quarter
3391	Iron and steel forgings	2	16.2	12.7		13.6		1 January	First quarter
3392	Wire drawing	4	14.9	12.8	14.2 a/	14.1 a/		1 January	First quarter
3443	Boiler shop products	5	12.4	6.8	9.8			1 January	First quarter
3481	Nails and spikes	13	10.2	6.9	8.5 a/	8.3 a/		1 January	First quarter
3489	Wirework, n.e.c. b/	17	21.4	2.5	6.8			1 January	First quarter

25X1A5a1

Table 13

A Summary of 1950 Ruble-Dollar Ratios
by Industrial Classification
(Continued)

SIC NO.		No. of Ratios	Highest Ratio (Rubles per Dollar)	Lowest Ratio (Rubles per Dollar)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)	Source of Ratio	Effective Data of Price 1950: Ruble	Effective Data of Price 1950: Dollar
3494	Bolts, nuts, washers, and rivets	30	9.7	4.3	6.1 a/	5.8 a/	[redacted]	1 January	First quarter
3511	Turbines	10	5.0	0.9		3.0	CIA	1 January	Average
3521	Tractors	3	9.7	5.8		6.0	CIA	1 January	1 January
3531	Construction, mining and similar machinery (except oilfield machinery and tools)	27	11.0	1.4	5.0	25X1A5a1	[redacted]	1 January	First quarter
3541	Machine tools	22	9.3	1.5	4.5		CIA	1 July	1 July
3542	Metalworking machinery (except machine tools)	8	16.9	3.4	6.8		CIA	1 July	1 July
3543	Cutting tools, jigs, and fixtures	24	10.7	0.7	3.5	25X1A5a1	[redacted]	1 January	First quarter
3552	Textile machinery	16	17.9	2.2	7.9		CIA	1 January	1 January
3553	Woodworking machinery	7	7.9	1.9	5.5		[redacted]	1 January	First quarter
3554	Paper-industries machinery	9	35.8	4.2	8.9			1 January	First quarter
3559	Special-industry machinery, n.e.c. b/	23	20.5	2.2	8.0	25X1A5a1		1 January	First quarter
3561	Pumps, air and gas compressors, and pumping equipment	5	9.8	3.5	6.5			1 January	First quarter
3563	Conveyors	3	4.1	2.4	3.1 a/			1 January	First quarter
3564	Blowers and fans	1	8.8	8.8	8.8	8.8		1 January	First quarter
3567	Industrial furnaces and ovens	1	8.1	8.1	8.1	8.1		1 January	First quarter
3585	Refrigeration equipment	2	12.4	10.4	11.4 a/	11.3 a/		1 January	First quarter
3591	Valves and fittings (except plumbers)	19	11.0	3.0	6.5			1 January	First quarter
3593	Ball and roller bearings	26	6.4	2.5	3.7			1 January	First quarter
3613	Electrical measuring instruments	18	27.8	2.2	12.4			1 January	First quarter
3614	Motors and generators	79	10.9	2.4	5.0			1 January	First quarter
3615	Power and distribution transformers	8	7.6	3.7	5.1			1 January	First quarter
3616	Switchgear, switchboard, apparatus, and industrial controls	9	11.0	1.7	5.9 a/	4.1 a/		1 January	First quarter
3631	Insulated wire	38	14.1	3.0	6.2 a/	5.0 a/	CIA	1 January	Average
3641	Electrical equipment for motor vehicles, aircraft, and railroad locomotives and cars	19	74.7	12.4	26.9 a/	19.9 a/	[redacted]	1 January	First quarter
3651	Electric lamps	10	10.9	2.4	7.5 a/	5.4 a/	CIA	1 January	First quarter

25X1A5a1

25X1A5a1

Table 13

A Summary of 1950 Ruble-Dollar Ratios,
by Industrial Classification
(Continued)

SIC No.		No. of Ratios	Highest Ratio (Rubles per Dollar)	Lowest Ratio (Rubles per Dollar)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)	Source of Ratio	Effective Date of Price 1950: Ruble	Effective Date of Price 1950: Dollar
3661	Radios, radio and television equipment (except radio tubes), radar and related detection apparatus	5	17.4	10.0	13.2 a/	12.6 a/	CIA	1 January	Average
3662	Radio tubes	22	19.1	7.5	14.1 a/	13.2 a/	[redacted]	1 January	First quarter
3711	Motor vehicles (trucks only)	2	8.6	6.0		7.0	CIA	1 July	1 July
3741	Locomotives and parts	4	4.9	3.6	4.0 a/	4.0 a/	[redacted]	1 January	First quarter
3811	Scientific instruments	5	8.7	3.9	6.7 a/	6.2 a/	[redacted]	1 January	First quarter
3821	Mechanical measuring instruments	4	15.2	3.6	9.0		[redacted]	1 January	First quarter
4811	Telephone communication (wire and radio)	3	6.2	4.5	5.2	4.8	CIA	1 January	Average
4821	Telegraph communication (wire and radio)	1	5.1	5.1	5.1	5.1	CIA	1 January	Average
4899	Communications services, n.e.c. b/	2	25.0	13.3	14.0	14.2	CIA	1 January	Average
4911	Electric light and power	2	15.4	14.4	14.8	15.1	CIA	1 January	Average
--	Rail freight transportation	29	6.2	2.3	4.2		CIA	1 January	c/
	Other Ratios d/								
12	Rubber products	60	25.8	4.1			[redacted]	N.A.	N.A.
17	Plumbing and heating supplies	6	8.8	3.7				N.A.	N.A.

a. Simple average.
b. Not elsewhere counted.
c. 1951 average prices used for the US.

[redacted]

2. Solid Fuels.

Soviet coal prices are list wholesale prices f.o.b. mine for 1950, with corresponding ash norms. Available information indicates that actual average ash content is almost identical with average ash norms. US coal prices are average value per ton f.o.b. mine for 1950.

An average price per energy unit (kilocalories) for both the US and the USSR has been used in computing the ruble-dollar ratios for coals. For the USSR the price per energy unit for anthracite coal, bituminous coal, and lignite has been derived by weighting prices 54/ and heating values 55/ by physical production 56/ for all coal-producing areas to arrive at a weighted average price and weighted average heating value. The weighted average price was then divided by the weighted average heating value (kilocalories per kilogram) to get an average price per energy unit (kilocalories). For the US, average prices and average heating values 57/ for anthracite coal, bituminous coal, and lignite developed by the Bureau of Mines were utilized.*

It is probable that the price per energy unit is a more reasonable basis for comparing coal prices in the US and the USSR than the comparative prices of similar coals, mines, or producing areas in the two countries, because comparisons on the latter basis fail to take into account significant differences in heat content between coals of the two countries.

The lack of production data on washed coal in the USSR made it impossible to adjust average prices for cleaning. Although about one-fifth of total coal in the USSR was washed in 1950, it is believed that the over-all effect of this would be rather small.

Ruble-dollar ratios have not been computed for peat and coke. The average 1950 price for peat in the USSR was 49.7 rubles per metric ton, and production is estimated at 36 million 60/ metric tons. There is no corresponding price for US peat as a fuel. The price of US coke at ovens in 1950 was $14.80 per metric ton, and production was 65,969,371 metric tons. 61/ There are no available price data on Soviet coke.

* US prices for bituminous coal and lignite are from source 58/ and for anthracite coal from source 59/.

An aggregate ruble-dollar ratio for solid fuels was computed by weighting individual ratios for anthracite coal, bituminous coal, and lignite by their corresponding gross value. Gross values were computed on an energy unit basis by converting physical production for the US 62/ and the USSR to energy units and multiplying by the average price per energy unit.

Table 14* gives specifications, prices, and price ratios of solid fuels in the USSR and the US. Table 15** gives weighted price ratios of fuels in the USSR and the US.

3. Chemicals.

The comparability of the chemical products considered in this section is based primarily upon standards published in the USSR which state the analysis, percent purity, and the amounts and types of impurity permitted for a given grade of a specific product. Where detailed specifications are not available, comparability is based on methods of manufacture and comparable industrial use.

Ruble and dollar prices were those in effect on 1 January 1950. There is no available information that indicates price reductions for chemicals in the USSR on 1 July 1950.

On account of the scarcity of data relating to the chemical industry in the USSR, it has not been possible to compute value weights for all four-digit categories. Soviet value weights have been estimated for categories 2812 (Alkalies and chlorine) and 2821 (Cyclic crudes) and for certain of the more important commodities of 2819 (Industrial inorganic chemicals, n.e.c.).

Table 16*** gives specifications, prices, and price ratios of chemicals in the USSR and the US.

Two sets of weighted ruble-dollar ratios have been computed with US weights -- one based on value weights for all commodities listed in Table 17;**** the other, based on value weights for commodities only where corresponding Soviet value weights were available. Value of shipments data for 1947 have been used for US weights unless otherwise noted. 63/ /

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* Table 14 follows on p. 46.
** Table 15 follows on p. 46.
*** Table 16 follows on p. 47.
**** Table 17 follows on p. 50.
/ Text continued on p. 53.

Table 14

Specifications, Prices, and Price Ratios of Solid Fuels in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Million Kilocalories	Price: Dollars per Million Kilocalories	Ratio (Ruble-Dollar)
1111	Anthracite coal	Comparability established on the basis of heating values	Comparability established on the basis of heating values	17.541	1.443	12.2
1211	Bituminous coal	Comparability established on the basis of heating values	Comparability established on the basis of heating values	15.888	0.735	21.6
1212	Lignite	Comparability established on the basis of heating values	Comparability established on the basis of heating values	15.986	0.681	23.5

Table 15

Weighted Price Ratios of Solid Fuels in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Price Ratio: US Mix (Rubles per Dollar)	Weighted Price Ratio: Soviet Mix (Rubles per Dollar)
	Solid Fuels		2,906.1	22,663.3	20.3	18.8
1111	Anthracite coal	12.2	408.7	4,805.0		
1211	Bituminous coal	21.6	2,489.3	13,716.8		
1212	Lignite	23.5	8.1	4,141.5		

Table 16

Specifications, Prices, and Price Ratios of Chemicals in the USSR and the US

SIC No.	Item	Specifications a/* USSR	Specifications a/* US	Price: Rubles per Metric Ton b/	Price: Dollars per Metric Ton c/	Ratio (Ruble-Dollar)
2812	Alkalies and chlorine					
	Chlorine	99.5% CL_2		338	52.92	6.4
	Potassium hydroxide	92% KOH	Solid, 88% to 92%	1,725	166.48	10.4
	Sodium bicarbonate	98% $NaHCO_3$	USP, powdered	565	43.00	13.1
	Soda ash		Dense	380	24.26	15.7
	Caustic soda	Liquid	Liquid	1,480	52.92	28.0
	Caustic soda	Cake 95% NaOH	Cake 98%, NaOH	1,955	67.25	29.1
2819	Industrial inorganic chemicals, n.e.c. d/					
	Boric acid	Grade I, 99.5% H_3BO_3	Crystals, technical	6,075	127.01	47.8
	Nitric acid, weak	Grade B, 60% HNO_3	58.5% to 68% HNO_3	240	48.23 e/	5.0
	Nitric acid, concentrated	Grade II, 96% HNO_3	94.5% to 95% HNO_3	650	95.09 e/	6.8
	Ammonium sulfate	Synthetic, fertilizer, Grade I		450	52.35	8.6
	Ammonium nitrate	Grade C, 99.2% NH_4NO_3	Fertilizer grade	554	63.92	8.7
	Sodium bichromate	Grade I		2,350	226.01	10.4
	Sodium sulfate (salt cake)	Grade I		254 f/	24.24	10.5
	Calcium carbide	Grade I	Standard generator size	1,464 g/	133.34	11.0
	Hydrochloric acid	Synthetic, technical, 31%	32%	250	22.04	11.3
	Sulfuric acid	75%	78%	188	15.15	12.4
	Sulfuric acid	92.5%	93%	268	18.73	14.3
	Sulfuric acid	Fuming, 20%	Fuming, 20%	344	20.94	16.4
	Magnesium oxide	Grade I, 89% MgO	Synthetic rubber grade	8,250	661.50	12.5
	Sodium silicofluoride	Grade I, 95% Na_2SiF6		1,125	88.20	12.8
	Aluminum chloride	95% $AlCl_3$		3,210	248.06	12.9
	Zinc sulfate		Crystals, 22% Zn	1,400	100.33	14.0
	Synthetic ammonia, anhydrous	Grade B, 99% NH_3	Fertilizer grade	1,160	82.10	14.1

* Footnotes for Table 16 follow on p. 49.

Table 16

Specifications, Prices, and Price Ratios of Chemicals
in the USSR and the US
(Continued)

SIC No.	Item	Specifications a/		Price		
		USSR	US	Rubles per Metric Ton b/	Dollars per Metric Ton c/	Ratio Ruble-Dollar
2819 (cont'd)						
	Yellow phosphorus	99.5% free phosphorus		8,250	573.30	14.4
	Red phosphorus	98.7% red phosphorus	Amorphous	16,350	760.73	21.5
	Copper sulfate	98.2% $CuSO_4 \cdot 5H_2O$	Crystals, 99%	2,380	157.11	15.1
	Aqueous ammonia	Synthetic, technical, 25%	25%	350	22.18 h/	15.8
	Sodium sulfide	Fused, technical, Grade I	Fused	1,425	88.20	16.2
	Trisodium phosphate	95% $Na_3PO_4 \cdot 12H_2O$	Crystals	1,490	82.69	18.0
	Ammonium chloride	Grade A	White, granulated	1,950	101.43	19.2
	Aluminum sulfate	Grade A, 13.5% Al_2O_3	Commercial	675	33.08	20.4
	Potassium chlorate		Crystals	4,000	187.43	21.3
	Barium chloride	Grade A, 95% $BaCl_2.2H_2O$	Technical	2,210	99.18	22.3
	Hydrogen peroxide	27.5% to 31% H_2O_2	35%	10,850	435.49	24.9
	Sodium hydrosulfite	Grade I		12,225	463.05	26.4
	Iodine	Technical, 97%	Crude	101,850	3,572.10	28.5
	Sulfur dioxide			2,850	99.23	28.7
	Bromine	51% Br_2	Purified	7,125	235.94	30.2
	Hydrofluoric acid	40% HF		7,000	220.50	31.7 i/
	Sodium phosphate dibasic	96% $Na_2HPO_4 \cdot 12 H_2O$	Crystals	3,000	76.62	39.2
	Phosphoric acid	65% H_3PO_4, food grade	75%, food grade	3,900	99.23	39.3
	Calcium chloride	34% liquid	40%	450	9.92	45.4
	Calcium chloride	67% fused	73% to 75% solid	1,200	22.04	54.4
	Calcium chloride	88% dehydrated	77% to 80% flake	2,625	24.24	108.3
	Borax	50.2% $Na_2B_4O_7$	Granular, decahydrate	4,800	38.85	123.6
	Calcium arsenate			4,875	209.48	23.3
2821	Cyclic (coal tar) crudes					
	Naphthalene	Crude, Grade 4	Crude	1,440	115.76	12.4
	Benzene	Refined		1,440	66.72	21.6
	Xylene			1,890	78.53	24.1
	Toluene			1,980	71.86	27.6
	Phenol	Crude		2,880	242.55	11.9

Table 16

Specifications, Prices, and Price Ratios of Chemicals in the USSR and the US
(Continued)

SIC No.	Item	Specifications a/ USSR	Specifications a/ US	Price: Rubles per Metric Ton b/	Price: Dollars per Metric Ton c/	Ratio (Ruble-Dollar)
2826	Explosives					
	Ammonite powder 8 and AP-1	Permissible types j/	Permissible types	2,300 k/	325.24 l/	7.1
	Dynamite	62%	60%	6,800 k/	319.73 l/	21.3
2829	Industrial organic chemicals, n.e.c. d/					
	Ethylene dichloride	97% $C_2H_4Cl_2$		425	176.40	2.4
	Carbon tetrachloride	96% CCl_4		3,265	176.40	18.5
	Acetic acid	Technical, purified, 80%	Commercial, 80%	3,910	207.27	18.9
	Methanol	Synthetic, Grade I	Synthetic	2,175	87.00	25.0
	Formaldehyde	Technical, 40%		2,200	81.59	27.0
	Acetone	Synthetic, Grade I		6,000 m/	165.38	36.3
	Butyl acetate			14,200 n/	264.60	53.7
	Ethyl acetate			12,900 o/	203.96	63.2
	Butyl alcohol			18,100 p/	264.60	68.4
	Acetic anhydride			24,000	253.58	94.6
	Ethyl alcohol			88.20/decaliter q/	.77/decaliter	114.5

a. When detailed specifications are omitted, comparability is based on methods of manufacture, comparable specifications, and comparable industrial use.
b. Unless otherwise noted, Soviet prices are taken from source 64/.
c. Unless otherwise noted, US prices are taken from source 65/.
d. Not elsewhere counted.
e. Estimated on the basis of the price for 40° acid as of February 1950 and the price relationship of that type to those types listed as of 10 October 1955.
f. Adjusted to 100% basis.
g. Adjusted on the basis of acetylene yield.
h. Price quoted at $80 to $81, anhydrous basis.
i. Estimated on the basis of prices for 30%, 70%, and anhydrous grades.
j. According to a Soviet periodical, that type is used for blasting in gaseous and dusty coal mines.
k. 66/
l. 67/
m. Price quoted by Ministry of the Food Industry for acetone was 23,900 rubles.
n. 68/
o. 69/
p. Price probably reflects turnover tax. Available evidence indicates that raw materials used for alcohol production (grain, molasses, potatoes) are subject to a turnover tax. The magnitude of the tax is not known. Price taken from source 70/.
q. Probably reflects turnover tax. See footnote p/.

Table 17

Weighted Price Ratios of Chemicals in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
2812	Alkalies and chlorine		167.0	984.2	18.6 a/* 18.6 b/	
	Chlorine	6.4	31.2	63.2		18.1
	Potassium hydroxide	10.4	6.8	39.6		
	Sodium bicarbonate	13.1	5.4	31.0		
	Soda ash	15.7	57.6	290.3		
	Caustic soda, liquid	28.0	55.8	560.1		
	Caustic soda, cake	29.1	10.2			
2819	Industrial inorganic chemicals, n.e.c. c/		355.2	3,250.1	18.7 a/ 12.4 b/	10.4
	Boric acid	47.8	3.3			
	Nitric acid	5.9 d/	4.7	414.0		
	Ammonium sulfate (synthetic)	8.6	9.1	56.6		
	Ammonium nitrate (fertilizer grade)	8.7	45.2	912.6		
	Sodium bichromate	10.4	11.3			
	Sodium sulfate (salt cake)	10.5	10.7			
	Calcium carbide	11.0	29.7 e/	268.0		
	Hydrochloric acid	11.3	9.4			
	Sulfuric acid, chamber	12.4 f/	21.4			
	Sulfuric acid, contact	14.3	60.3	510.0		
	Sulfuric acid, fuming	16.4	7.5			
	Magnesium oxide	12.5	7.0 g/			
	Sodium silicofluoride	12.8	1.9	13.7		
	Aluminum chloride	12.9	2.2			
	Zinc sulfate	14.0	1.3			
	Synthetic ammonia, anhydrous	14.1	23.6	624.0		
	Synthetic ammonia, aqueous	15.8	1.5			
	Phosphorus	18.0 h/	13.6	292.9		
	Copper sulfate	15.1	9.6			
	Sodium sulfide	16.2	3.4			

* Footnotes for Table 17 follow on p. 52.

Table 17

Weighted Price Ratios of Chemicals in the USSR and the US
(Continued)

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights		Weighted Ratio	
			US (Million US $)	USSR (Million Rubles)	US Mix (Rubles per Dollar)	Soviet Mix (Rubles per Dollar)
2819 (Cont'd)	Ammonium chloride	19.2	3.7			
	Trisodium phosphate	18.0	11.9			
	Aluminum sulfate	20.4	13.8			
	Potassium chlorate	21.3	2.2			
	Barium chloride	22.3	1.3	93.6		
	Calcium arsenate	23.3	1.9	34.1		
	Hydrogen peroxide	24.9	6.9			
	Sodium hydrosulfite	26.4	7.4			
	Iodine	28.5	1.1	30.6		
	Sulfur dioxide	28.7	2.3			
	Bromine	30.2	0.2			
	Hydrofluoric acid	31.7	4.2			
	Sodium phosphate, dibasic	39.2	3.0			
	Phosphoric acid	39.3	5.8			
	Calcium chloride, liquid	45.4	0.4			
	Calcium chloride, solid	54.4	0.2			
	Calcium chloride, flake	108.3	4.9			
	Borax (sodium borate)	123.6	7.3			
2821	Cyclic (coal tar) crudes i/		45.6	667.4 j/	20.2 a/	19.0
	Naphthalene	12.4	9.7	102.2		
	Benzene	21.6	24.8	319.1		
	Xylene	24.1	2.0	34.8		
	Tuolene	27.6	6.9	150.5		
	Phenol	11.9	2.2 k/	60.8		
2826	Explosives l/		83.3		18.4 a/	
	Permissible explosives	7.1	17.0			
	High explosives other than permissible	21.3	66.3			

Table 17

Weighted Price Ratios of Chemicals in the USSR and the US
(Continued)

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
2829	Industrial organic chemicals, n.e.c. c/ m/		123.3			
	Ethylene dichloride	2.4	4.2 n/		43.7 a/	
	Carbon tetrachloride	18.5	8.3			
	Acetic acid	18.9	13.8			
	Methanol	25.0	12.7			
	Formaldehyde	27.0	13.9			
	Acetone	36.3	21.0			
	Butyl acetate	53.7	20.0			
	Ethyl acetate	63.2	10.9			
	Acetic anhydride	94.6	18.5 n/			

a. Based on values for all commodities.
b. Based on values for commodities where a corresponding Soviet value appears.
c. Not elsewhere counted.
d. Average of ratios for weak and concentrated acid.
e. Value of shipments for "other calcium compounds," the major part of which is calcium carbide.
f. Ratio for tower acid.
g. Value of shipments for "magnesium compounds."
h. Average of ratios for yellow and red phosphorus.
i. 1947 US values for entire 2821 category from source 71/.
j. Includes small amount from petroleum sources.
k. Includes natural phenol from petroleum.
l. 1947 US values for entire 2826 category from source 72/.
m. 1947 US values for entire 2829 category from source 73/.
n. 1948 data.

4. Petroleum Products.

Detailed specifications for petroleum products are lacking. It is, therefore, difficult to make exact comparisons of US and Soviet petroleum products. Often it has been necessary to make rough approximations in selecting the US product most comparable to a given Soviet product. For example, prices are given for "automotive gasoline," whereas there are a number of grades of automotive gasolines in both countries. In the case of "motor oil M and T," comparability with a US product can be only approximate, as viscosity data are not given. A US grade believed to be most representative of Soviet output was therefore selected for comparison.

With the exception of the "petroleum asphalt and semiasphalt" category, prices for US petroleum products are average June 1950 prices. 74/ Available Soviet prices are wholesale release prices effective on 1 July 1950. 75/ These prices are known to include transportation charges and turnover tax. On the basis of an analysis of available information, Soviet transportation charges have been removed from the prices before computing ruble-dollar ratios in the manner described below.

An examination of Soviet prices shows that for a number of miscellaneous petroleum products such as transmission grease, condenser oil, and petrolatum, the Russians have one fixed price. For more important products, however, the country is divided into price zones. Comparison of zonal prices with the areal composition of the zones as given in the price handbook indicates that for each of different groups of products, Baku (the largest petroleum-refining center in the USSR) is located in the zone having the lowest price. The price zones generally appear as broad bands radiating from the Baku price zone, with prices increasing as the zone distances from Baku increase.

The areal composition of the zones and the size of the respective price increments suggest that those increments derive either entirely or in part from increasing transportation charges. In computing f.o.b. refinery prices for all products, it has been assumed that the differences in zonal price increments are due entirely to transportation charges. Since transportation charges are included in all prices, it is clear that for each product some price below the lowest zonal

price must be derived in order to more closely approximate an f.o.b. refinery price. For each petroleum product, there has been deducted a sum equal to the ruble increment from the lowest zone to the next higher zonal price. The resulting price is assumed to be the f.o.b. refinery price, inclusive of turnover tax.

On account of the absence of official Soviet gross value data for petroleum products, production and consumption estimates have been used in estimating value weights.

US value weights have been computed by multiplying physical production 76/ by the price used in computing the ruble-dollar ratio. When production data were available only for broad categories or groups of products, the corresponding prices have been averaged for the computation of value weights.

Table 18* gives specifications, prices, and price ratios of petroleum products in the USSR and the US. Table 19** gives weighted price ratios of petroleum products in the USSR and the US.

5. Construction Materials.

Ruble-dollar ratios were computed for five construction materials, basic to both the US and Soviet construction industries. These materials are asbestos cement shingles (for siding), brick, cement, flat glass, and roofing felt. Comparability of most of the products in this category, particularly glass and cement, is believed to be very good. Bricks are comparable, with the exception that Soviet standard sizes are larger than US standard sizes.

Ruble and dollar prices used in computing the ruble-dollar ratios were those in effect as of 1 July 1950 with the exception of some 1 January 1950 prices which have been adjusted to a 1 July 1950 basis. Prices of some of the materials in this section are quoted on the basis of specific sales zones within the USSR. (This system probably reflects different costs in production and transportation within the USSR). As no Soviet data were available on which to choose prices for comparative conditions in the US, the prices in each country were arranged in their order of magnitude. The highest Soviet price was compared with the highest US price, and so on through the series to***

* Table 18 follows on p. 55.
** Table 19 follows on p. 58.
*** Text continued on p. 60.

Table 18

Specifications, Prices, and Price Ratios of Petroleum Products in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Metric Ton	Price: Dollars per Metric Ton	Ratio (Ruble-Dollar)
2911	Petroleum refining					
	Aviation gasoline	B-100 and above	100/130 Gulf Coast cargoes	1,149	60.31	19.1
		B-78	91/96 Gulf Coast cargoes	1,000	55.63	18.0
		B-74	Average of 91/96 and 80 octane, Houston	936	55.33	16.9
		B-70	Average of 91/96 and 80 octane, Houston	904	55.33	16.3
	Motor gasoline	Auto gasoline (etkylated)	Regular 80 octane, Oklahoma, Group 3	720	36.49	19.7
		Special gasoline for ZIS-110	Regular 82 octane, Oklahoma, Group 3	960	36.54	26.3
		White spirit	Mineral spirits, f.o.b. Group 3	548	37.04	14.8
	Kerosine	Kerosine	41-43 gravity water white, Gulf Coast cargoes	480	27.71	17.3
	Gas oil (diesel fuel)	Diesel fuel	Average 43-47 and 48-52 diesel index gas oil, Gulf Coast cargoes	361	24.06	15.0
		Solar oil	Light diesel. Ships bunkers (45 cetane 45 diesel index) (ex lighterage), Houston	228	24.77	9.2
		Motor fuel	Heavy diesel. Ships bunkers (ex lighterage), Houston	238	22.86	10.4
	Lubricants		Pale Neutral Oils Conventional Vis @ 100°F, 0-10 Pour Point			
		Machine oil S	180 Vis. No. 3 color, f.o.b. Tulsa	428	36.38	11.8
		Machine oil L	150 Vis. No. 3 color, f.o.b. Tulsa	448	34.88	12.8
		Machine oil SU	200 Vis. No. 3 color, f.o.b. Tulsa	688	36.75	18.7
		Motor oil M and T	200 Vis. No. 3 color, f.o.b. Tulsa 250 Vis. No. 3 color, f.o.b. Tulsa	456	38.22	11.9
		Diesel oil	300 Vis. No. 3 color, f.o.b. Tulsa	844	20.42	20.9
		Turbine oil L and UT	150 Vis. No. 3 color, f.o.b. Tulsa	608	34.88	17.4
		Compressor oil M	280 Vis. No. 3 color, f.o.b. Tulsa	680	39.69	17.1
		Compressor oil T	300 Vis. No. 3 color, f.o.b. Tulsa	848	40.42	21.0

Table 18

Specifications, Prices, and Price Ratios of Petroleum Products in the USSR and the US (Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Metric Ton	Price: Dollars per Metric Ton	Ratio (Ruble-Dollar)
2911 (cont'd)			Pale Neutral Oils Conventional Vis. @ 100°F			
		Spindle oil AU	200 Vis. No. 2-3 color, South Texas f.o.b. refineries	560	33.01	17.0
		Spindle oil 2	100 Vis. No. 1 1/2-2 1/2 color, South Texas f.o.b. refineries	416	30.07	13.8
		Spindle oil 3, refined	100 Vis. No. 1 1/2-2 1/2 color, South Texas f.o.b. refineries	392	30.07	13.0
		Special avtol for ZIS-110	2,000 Vis. No. 4 color, South Texas f.o.b. refineries	860	44.77	19.2
		Avtol 4-8	500 Vis. No. 2 1/2-3 1/2 color, South Texas f.o.b. refineries	688	37.42	18.4
		Avtol 10-18	1,200 Vis. No. 3-4 color, South Texas f.o.b. refineries 2,000 Vis. No. 4 color, South Texas f.o.b. refineries	688	43.30	15.9
			Pale Neutral Oils Conventional Vis. @ 100°F, 0-10 Pour Point			
		Cylinder oil 2	86-110 Vis. No. 2 color, f.o.b. Tulsa	440	32.31	13.6
		Cylinder oil 6	60-85 Vis. No. 2 color, f.o.b. Tulsa	542	31.52	17.2
			Bright Stocks (Conventional).			
		Bright stock, plain	Average of 150-160 Vis. @ 210°F, 10-25 pour point; and 120°F, 0-10 pour point f.o.b. Tulsa.	1,008	52.42	19.2
	Residual and others	Furnace mazut	Bunker C fuel, Gulf Coast cargoes	220	11.49	19.1
		Fleet mazut	Bunker C fuel, Gulf Coast cargoes	230	11.49	20.0
		Oily mazut	No. 5 fuel (0-10 pour point), Gulf Coast cargoes	285	15.32	18.6

Table 18

Specifications, Prices, and Price Ratios of Petroleum Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Metric Ton	Price: Dollars per Metric Ton	Ratio (Ruble-Dollar)
2911 (cont'd)		Petroleum asphalt and semiasphalt	Slow-curing free from water SC-1 Vis. 75-150 (122° S.F.); 150+ flash point 0°F SC-2 Vis. 100-200 (140° S.F.); 175+ flash point 0°F SC-3 Vis. 250-500 (140° S.F.); 200+ flash point 0°F SC-4 Vis. 125-250 (180° S.F.); 225+ flash point 0°F	212	20.53 a/	10.3
		White paraffin	124-126 Amp. Wax, white crude scale, W. Pennsylvania, tank cars in bulk	1,212	77.21	15.7

a. Average price of the four items shown in the specifications. Prices are first-quarter 1950 manufacturers' prices.

Table 19

Weighted Price Ratios of Petroleum Products in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
2911	Petroleum refining		7,508.0	13,388.2	18.0	17.9
	Aviation gasoline		356.9	928.8	18.7	18.4
	B-100 and above	19.1	278.4	643.9		
	B-78	18.0 a/* b/				
	B-74	16.9 a/ b/	78.5	284.9		
	B-70	16.3 a/ b/				
	Motor gasoline		4,086.9	3,330.0	20.3 b/	20.2
	Auto gasoline (ethylated)	19.7 a/		2,932.7		
	Special gas for ZIS-110	26.3 a/		347.7		
	White spirit	14.8 a/		49.6		
	Kerosine	17.3	426.5	4,267.9	17.3	17.3
	Diesel fuel		1,271.2	763.4	11.5 c/	13.3
	Diesel fuel	15.0 a/		576.2		
	Solar oil	9.2 a/		60.6		
	Motor fuel	10.4 a/		126.6		

* Footnotes for Table 19 follow on p. 59.

Table 19

Weighted Price Ratios of Petroleum Products in the USSR and the US
(Continued)

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
2911 (cont'd)	Lubricants		276.7	1,179.4	16.4 c/	16.8
	Machine oil S	11.8 a/ b/				
	Machine oil L	12.8 a/ b/		140.2		
	Machine oil SU	18.7 a/ b/				
	Motor oil M and T	11.9 a/		75.5		
	Diesel oil	20.9 a/		192.2		
	Turbine oil L and UT	17.4 a/ b/				
	Compressor oil M	17.1 a/ b/		29.5		
	Compressor oil T	21.0 a/ b/				
	Spindle oil AU	17.0 a/ b/				
	Spindle oil 2	13.8 a/ b/		94.4		
	Spindle oil 3, refined	13.0 a/ b/				
	Special Avtol for ZIS-110	19.2 a/ b/				
	Avtol 4-8	18.4 a/ b/		462.6		
	Avtol 10-18	15.9 a/ b/				
	Cylinder oil 2	13.6 a/ b/		101.6		
	Cylinder oil 6	17.2 a/ b/				
	Bright stock, plain	19.2 a/		83.4		
	Residual and others		1,089.8	2,918.7	17.4	18.5
	Furnace mazut	19.1 a/		1,881.9		
	Fleet mazut	20.0 a/ b/	849.0			
	Oily mazut	18.6 a/ b/		845.5		
	Petroleum asphalt and semi-asphalt	10.3	197.2	111.6		
	White paraffin	15.7	43.6	79.7		

a. Ruble-dollar ratios used in the computation of weighted ratios for a US mix.
b. Ruble-dollar ratios used in the computation of weighted ratios for a Soviet mix.
c. Simple average.

the lowest price in each country. The arithmetic average of these prices was used in computing the ruble-dollar ratio. This method was used for several Soviet price zones for brick and cement.

In the case of glass, Zone I prices were compared with New York average prices for single- and double-strength glass. Assuming equal production of the two, the arithmetic average of the price was used in computing the ruble-dollar ratio.

For the US the values of shipments for 1950 have been used as weights for roofing felt, flat glass, and asbestos cement shingles. 77/ Value weights for cement and brick have been computed by multiplying production data from sources 78/ and 79/, respectively, by unit prices.

All Soviet value weights are based on estimated production data multiplied by unit prices.

Table 20* gives specifications, prices, and price ratios of construction materials in the USSR and the US. Table 21** gives weighted price ratios of construction materials in the USSR and the US.

6. Abrasives Products.

Grinding wheels were selected to represent the abrasives products category, not only because of the availability of prices for both the US and the USSR but also because in 1947, grinding wheels alone accounted for more than 40 percent of the total value of nonmetallic abrasives and for 32 percent of the total value of all abrasives produced in the US. Also, grinding wheels were entirely comparable in respect to shape, grit, bond, grain, and size. Comparability could not be established with respect to quality.

Ruble prices for abrasives products were effective 1 January 1950 80/ and remained in effect throughout the year. They are factory prices and do not include packing. In the USSR, there is a price reduction of 10 percent for abrasives products of second quality, but it is not known whether there is any discount for quantity orders.

US prices were taken from the price list of a representative US manufacturer and were effective 20 July 1953. Prices were f.o.b. point

* Table 20 follows on p. 61.
** Table 21 follows on p. 62.

Table 20

Specifications, Prices, and Price Ratios of Construction Materials in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Unit a/	Price: Dollars per Unit b/	Ratio (Ruble-Dollar)
2952	Roofing felts and coatings					
	Roofing felt	Soft roofing-Ruberoid ROM-500 (20 meters/roll)	Asphalt felt (100 pounds)	1.6/square meter	0.29/square meter	5.5
		Soft roofing-Roofing tar paper T-350 (15 meters/roll)	Tar felt (100 pounds)	1.6/square meter c/	0.29/square meter	5.5
3211	Flat glass	Single strength GOST 111-41, thickness from 0.063 to 0.075 inches, area of 10 to 13 square feet, Class I, Zone I	Single strength, A quality, New York	11.98/square meter d/	1.42/square meter d/	8.4
		Double strength, GOST 11-41, thickness from 0.11 to 0.13 inches, area of 10 to 13 square feet, Class I, Zone I	Double strength, A quality, New York			
3241	Cement, hydraulic	Mark 400	Portland cement	187/metric ton e/	17.59/metric ton e/	10.6
3251	Brick	Clay building brick, GOST 530-41 standard clay brick, 9.8 inches by 4.7 inches by 2.6 inches, grade 1, Mark 100	Clay building brick, straight hard, 8 inches by 3 3/4 inches by 2 1/2 inches	324/1,000 e/	32.93/1,000 e/	6.2 f/
3292	Asbestos products					
	Asbestos cement shingles	Corrugated asbestos cement shingles, 120 centimeters by 68 centimeters by 0.55 centimeters	Asbestos cement shingles, 3/16 inch, including felt	4.1/square meters g/	1.00/square meters h/	4.1

a. Unless otherwise noted, Soviet prices are from source 81/ and adjusted to 1 July 1950.
b. Unless otherwise noted, US prices are from source 82/.
c. 83/
d. Average price of single and double strength, assuming equal production of the two.
e. Prices for several areas in both countries have been averaged.
f. This ruble-dollar ratio has been computed by adjusting the Soviet price by a factor of roughly 60 percent to insure comparability with US price. The Soviet standard brick is roughly 60 percent larger by volume than the US brick.
g. 84/
h. 85/

Table 21

Weighted Price Ratios of Construction Materials in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Price Ratio: US Mix (Rubles per Dollar)	Weighted Price Ratio: Soviet Mix (Rubles per Dollar)
	Construction materials		1,511.9	7,971.0	8.2	6.2
2952	Roofing felt	5.5	331.6	333.0		
3211	Flat glass	8.4	235.1	803.0		
3241	Cement	10.6	670.2	1,760.0		
3251	Brick	6.2	208.6	3,272.0		
3292	Asbestos cement shingles	4.1	66.4	1,803.0		

of shipment. As all prices were subject to quantity discounts ranging from 36-1/2 percent to 65 percent of list, the middle discount rate of 43 percent was taken as an average to arrive at representative prices for the wheels. Using Bureau of Labor price indexes 86/, the July 1953 prices were adjusted to annual 1950 prices for grinding wheels.

To establish an average ratio for the abrasives products class, 85 Soviet grinding wheels were matched with 85 comparable US grinding wheels, all weighted according to the pattern of production of a major US producer in 1952. Such a comparison results in an average ratio of 2.5 rubles per US dollar. In view of the structure of the abrasives products industry, this pattern was considered representative of the industry as a whole in the US. No information on the Soviet pattern of production was available.*

Table 22** gives specifications, prices, and price ratios of abrasives products in the USSR and the US.

7. Iron and Steel.

a. General.

Prices and specifications for most of the products of the iron and steel industries of the USSR and the US have been taken from [redacted] 25X1A5a1 Ruble prices are those in effect on 1 January 1950,*** and dollar prices are those in effect during the first quarter of 1950. Additional sources of price data will be noted when appropriate.****

25X1A5a1

* For detailed methodology, see source 87/.

** Table 22 follows on p. 64.

*** On 1 July 1950, wholesale prices were reduced by 5 percent for (a) steel of ordinary quality (structural and shaped steel, cable wire, beams and girders, sheet and wide strip steel, excluding tinplate and tin-plated and lead-plated sheet steel), and rails and other products for railroad transportation (rail fastenings, bands, seamless rolled wheels and centers, the preparation of forgings, axles, beam rollers, and iron castings) and (b) steel and cast iron tubing and cylinders (all steel piping without exception -- welded, electric welded, seamless, boiler and steam, for the oil industry and drilling, for machine construction, rust resisting, basic types of cast iron water pipes, shaped joints for cast iron water pipes, and steel cylinders of general and basic types). 88/

**** Text continued on p. 69.

Table 22

Specifications, Prices, and Price Ratios of Abrasives Products in the USSR and the US

SIC No.	Item	Specifications: USSR		US		Price: Rubles per Unit	Price: Dollars per Unit	Ratio (Ruble-Dollar)
3291	Abrasives products							
	Grinding wheels (straight wheel, coarse grit)	4 Inches Diameter and Smaller						
		Diameter (Millimeters)	Thickness (Millimeters)	Diameter (Inches)	Thickness (Inches)			
	Vitrified bond							
	Aluminum oxide	50	25	2	1	0.52	0.28	1.9
		100	25	4	1	2.00	0.94	2.1
	White aluminum oxide	50	25	2	1	0.66	0.33	2.0
		100	25	4	1	2.40	1.10	2.2
	Silicon carbide	100	25	4	1	2.75	1.09	2.5
	Green silicon carbide	100	25	4	1	3.65	1.14	3.2
	Resinoid bond							
	Aluminum oxide	100	25	4	1	1.80	1.28	1.4
	Silicon carbide	100	25	4	1	2.45	1.37	1.8
	Rubber bond							
	Aluminum oxide	100	25	4	1	3.15	1.50	2.1
		Over 4 Inches Diameter and up to 10 Inches						
	Vitrified bond							
	Aluminum oxide	125	25	5	1	2.70	1.37	2.0
		150	25	6	1	3.35	1.67	2.0
		175	25	7	1	4.45	2.04	2.2
		200	25	8	1	5.55	2.50	2.2
		250	25	10	1	7.85	3.85	2.0
		250	50	10	2	13.40	6.75	2.0

Table 22

Specifications, Prices, and Price Ratios of Abrasives Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications				Price		Ratio (Ruble-Dollar)
		USSR		US		Rubles per Unit	Dollars per Unit	
		Over 4 Inches Diameter and up to 10 Inches						
		Diameter (Millimeters)	Thickness (Millimeters)	Diameter (Inches)	Thickness (Inches)			
3291 (cont'd)								
	Vitrified bond (cont'd)							
	White aluminum oxide	125	25	5	1	3.65	1.61	2.3
		125	50	5	2	5.95	2.60	2.3
		150	25	6	1	4.68	1.95	2.4
		175	25	7	1	6.10	2.38	2.6
		200	25	8	1	7.80	2.91	2.7
		250	25	10	1	11.40	4.49	2.5
	Silicon carbide	175	25	7	1	6.90	2.36	2.9
		200	25	8	1	8.80	2.88	3.1
		250	25	10	1	12.80	4.45	2.9
	Green silicon carbide	175	25	7	1	9.95	2.47	4.0
		200	25	8	1	12.80	3.02	4.2
		250	25	10	1	19.20	4.65	4.1
	Resinoid bond							
	Aluminum oxide	150	25	6	1	3.05	2.43	1.3
		200	25	8	1	5.20	3.55	1.5
		250	25	10	1	9.70	5.21	1.9
	Silicon carbide	150	25	6	1	5.10	2.59	2.0
		200	25	8	1	7.75	3.79	2.0
		250	25	10	1	11.80	5.55	2.1
	Rubber bond							
	Aluminum oxide	125	25	5	1	4.40	2.02	2.2

Table 22

Specifications, Prices, and Price Ratios of Abrasives Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications						Price		Ratio (Ruble-Dollar)
		USSR			US			Rubles per Unit	Dollars per Unit	
		10 Inches Diameter and up to 18 Inches								
		Diameter (Millimeters)	Thickness (Millimeters)	Hole (Millimeters)	Diameter (Inches)	Thickness (Inches)	Hole (Inches)			
3291 (cont'd)										
	Vitrified bond									
	Aluminum oxide	300	25	127	12	1		11.10	5.25	2.1
		350	25	127	14	1		15.70	7.03	2.2
		400	50	203	16	2	8	31.30	15.09	2.1
		450	25	203	18	1	8	26.70	11.00	2.4
		450	50	203	18	2	8	45.60	19.18	2.4
	White aluminum oxide	300	25	127	12	1		15.30	6.13	2.5
		350	25	127	14	1		22.00	8.20	2.7
		400	50	203	16	2	8	44.30	17.60	2.5
		450	25	127	18	1		41.80	13.43	3.1
		450	50	203	18	2	8	63.70	22.38	2.8
	Silicon carbide	300	25	127	12	1		17.30	6.06	2.9
		450	50	203	18	2	8	70.60	22.15	3.2
	Green silicon carbide	300	25	127	12	1		24.90	6.35	3.9
		450	50	203	18	2	8	148.00	23.18	6.4
	Resinoid bond									
	Aluminum oxide	300	25	127	12	1		12.60	6.84	1.8
		400	50	203	16	2	8	30.10	19.00	1.6
		450	50	203	18	2	8	44.80	25.20	1.8
	Silicon carbide	300	25	127	12	1		15.20	7.28	2.1
		400	50	127	16	2		55.30	22.67	2.4
	Rubber bond									
	Aluminum oxide	300	25		12	1		16.10	8.51	1.9
		400	25	203	16	1	8	25.60	12.08	2.1

Table 22

Specifications, Prices, and Price Ratios of Abrasives Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications						Price		Ratio (Ruble-Dollar)
		USSR			US			Rubles per Unit	Dollars per Unit	
		Over 18 Inches Diameter and up to 28 Inches								
		Diameter (Millimeters)	Thickness (Millimeters)	Hole (Millimeters)	Diameter (Inches)	Thickness (Inches)	Hole (Inches)			
3291 (cont'd)										
	Vitrified bond									
	Aluminum oxide	500	25	203	20	1	8	33.40	13.63	2.4
		500	25	305	20	1	12	29.20	12.52	2.3
		500	50	203	20	2	8	59.10	23.74	2.5
		500	50	305	20	2	12	47.10	21.82	2.2
		600	25	305	24	1	12	45.00	22.55	2.0
		600	50	305	24	2	12	77.70	32.89	2.4
	White aluminum oxide	500	50	203	20	2	8	82.40	27.69	3.0
		500	50	305	20	2	12	65.10	25.45	2.6
		600	50	305	24	2	12	109.00	38.36	2.8
	Silicon carbide	500	50	203	20	2	8	92.90	27.40	3.4
		500	50	305	20	2	12	73.60	25.19	2.9
		500	75	305	20	3	12	101.00	35.92	2.8
	Green silicon carbide	500	50	203	20	2	8	135.00	28.68	4.7
		500	50	305	20	2	12	106.00	26.36	4.0
		500	75	305	20	3	12	150.00	37.58	4.0
	Resinoid bond									
	Aluminum oxide	500	50	203	20	2	8	57.90	31.29	1.8
		500	50	305	20	2	12	46.50	27.03	1.7
		600	50	305	24	2	12	77.60	41.26	1.9
	Silicon carbide	500	50	203	20	2	8	86.00	33.36	2.6
		500	50	305	20	2	12	57.10	28.80	2.3
		600	50	305	24	2	12	110.00	43.97	2.5
	Rubber bond									
	Aluminum oxide	500	50	305	20	2	12	100.00	29.42	3.4

Table 22

Specifications, Prices, and Price Ratios of Abrasives Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR: Over 28 Inches Diameter: Diameter (Millimeters)	Specifications: USSR: Over 28 Inches Diameter: Thickness (Millimeters)	Specifications: USSR: Over 28 Inches Diameter: Hole (Millimeters)	Specifications: US: Diameter (Inches)	Specifications: US: Thickness (Inches)	Specifications: US: Hole (Inches)	Price: Rubles per Unit	Price: Dollars per Unit	Ratio (Ruble-Dollar)
3291 (cont'd)										
	Vitrified bond									
	Aluminum oxide	750	50	305	30	2	12	141.00	56.21	2.5
		750	75	305	30	3	12	198.00	77.86	2.5
		900	52	305	36	2	12	245.00	85.99	2.8
		900	78	305	36	3	12	351.00	117.07	3.0
	White aluminum oxide	750	50	305	30	2	12	197.00	65.57	3.0
		750	75	305	30	3	12	277.00	90.85	3.0
	Resinoid bond									
	Aluminum oxide	750	75	305	30	3	12	197.00	97.90	2.0
		750	100	305	30	4	12	255.00	128.65	2.0

25X1A5a1

A representative sample of 45 ratios of the total number of 523 ratios computed [redacted] was selected for the iron and steel industry. This sample of ratios was selected in order to facilitate the computation of a set of weighted ratios for a four-digit industry classification based on Soviet value weights. Soviet weights are available for only a limited number of items.

b. Derivation of Value Weights.

In most instances, gross value weights for both the US and the USSR have been estimated by multiplying physical production data by the prices used in computing the ruble-dollar ratios. US production figures have been obtained primarily from data published by the American Iron and Steel Institute. 89/

The estimating procedures employed in deriving gross value and physical production estimates for the US and the USSR for the principal categories of finished steel products are set forth below.

(1) Pipe and Tube.

Although the pipe and tube category is the only finished steel product for which official Soviet production data are available, the great diversity of types within the category makes an accurate estimate of the gross value difficult. It is estimated that 70 percent of the category is seamless tube, the remainder largely welded pipe. It has been assumed that 35,000 metric tons of the seamless category is stainless steel (purposely established on the high side to reflect other pipe and tube items of a special nature), the remainder being regular high-quality seamless.

(2) Heavy Sections

25X1A5a1

The three principal types of heavy sections are channels, I-beams, and angles, prices for which are given in [redacted] Gross value output estimates for the US and the USSR were obtained by multiplying physical production estimates for heavy sections by the average price for channels, I-beams, and angles. In computing a Soviet average price for heavy sections, the prices for beams, channels, and angles were weighted in the ratio of 2 to 1 to 1.

(3) Light Sections.

In the USSR, production of light sections is divided into two groups -- ordinary and quality grades. In 1950, of the total production in the light section category, 4.01 million metric tons was of ordinary quality consisting of roughly equal parts of light channels, angles, small beams, and hot rolled bars, and the remaining 1.34 million metric tons was of quality grade. One-half of the quality grade consists of hot rolled alloy bars, and the remaining production is estimated to be divided evenly between cold finished bars, high speed tool steel bars, and hot and cold rolled stainless bars.

The "ordinary" and "quality" groups do not accurately correspond to the division of production of light sections in the US. Therefore, for purposes of comparability, the light section category has been divided into two main groups -- "structural" and "bars." The structural category consists of light channels, junior I-beams, and angles. The bar category is made up of all bars.

US gross value of output for the structural category has been derived by multiplying total physical production by the average of prices for light channels, junior I-beams, and angles.

In computing the gross value of bars in the US, it was necessary to average the prices for hot rolled, cold finished, and hot rolled alloy bars, since the production figure used included these items. 90/

(4) Wire Rod.

In the USSR, wire rod is produced in the ordinary and quality grades. For purposes of computing US gross values, it has been assumed that Soviet ordinary wire rod and US carbon steel wire rod are comparable and that Soviet quality wire rod is comparable to US alloy steel wire rod. Production data used in the computation of US values were found in source 91/.

(5) Plate.

For purposes of computing US gross values, it has been assumed that Soviet ordinary plate and US carbon steel plate are comparable and Soviet quality plate is comparable to US alloy steel plate.

Table 23* gives specifications, prices, and price ratios of iron and steel products in the USSR and the US. Table 24** gives weighted price ratios of iron and steel products in the USSR and the US.

8. Nonferrous Metals.

25X1A5a1

US and Soviet prices for nonferrous metals have been taken from [redacted] except where otherwise noted. Ruble prices are those in effect on 1 January 1950, and dollar prices are those in effect during the first quarter of 1950. Prices for various sizes and specifications of the rolled and drawn products considered have been averaged as the resulting ratios closely approximate the ratios computed for the corresponding primary metal.

US gross value of output data, or data used in the computation of gross values, have been taken from the Minerals Yearbook. 92/ Values for copper and magnesium have been computed by multiplying physical production by the average yearly price. Values of production for lead, zinc, and aluminum were reported. The weights for the components of SIC Number 3339, Primary Nonferrous Metals, n.e.c., except cadmium, have been derived from consumption data multiplied by average yearly prices. Since relatively small quantities of these items are produced in the US, it is believed that value weights based on consumption data are more meaningful for purposes of combining ratios. The value of shipments has been used for cadmium.

Gross value weights for the USSR have been derived by multiplying physical production by average prices. 93/

No attempt has been made to value rolled and drawn products.

Table 25*** gives specifications, prices, and price ratios of nonferrous metals in the USSR and the US. Table 26**** gives weighted price ratios of nonferrous metals in the USSR and the US./

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* Table 23 follows on p. 72.
** Table 24 follows on p. 75.
*** Table 25 follows on p. 78.
**** Table 26 follows on p. 80.
/ Text continued on p. 81.

Table 23

Specifications, Prices, and Price Ratios of Iron and Steel Products in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price a/*: Rubles per Metric Ton	Price a/*: Dollars per Metric Ton	Ratio (Ruble-Dollar)
3311	Blast furnaces					
	Basic pig iron			476	52.80 b/	9.0
	Bessemer pig iron			400	51.70	7.7
	Foundry pig iron (gray castings)			427 c/	48.69 c/	8.8
	Foundry pig iron (malleable castings)			660	51.20	12.9
	Ferromanganese			1,487	190.00	7.8
	Spiegeleisen			600	70.40	8.5
	Ferrosilicon	Grade FS 1 (Si 16% to 17%)		720 d/	80.00 e/	9.0
3312	Steel works and rolling mills					
	Rails			621	81.59	7.6
	Railroad accessories			590	92.61	6.4
	Pipes and tubes					
	Welded			1,420	135.91	10.4
	Seamless					
	High quality			1,350	138.21	9.8
	Stainless			6,830	445.67	15.3
	Heavy sections					
	Channels			564	82.67	6.8
	I-beams			800	81.57	9.8
	Angles			660	80.48	8.2
	Light sections					
	Structural					
	Light channels			587	92.59	6.3
	Junior I-beams			815	92.59	8.8
	Angles			650	74.97	8.7

25X1A5a1

25X1A5a1

* Footnotes for Table 23 follow on p. 74.

Table 23

Specifications, Prices, and Price Ratios of Iron and Steel Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications		Price		
		USSR	US	Rubles per Metric Ton	Dollars per Metric Ton	Ratio (Ruble-Dollar)
3312 (cont'd)						
	Bars					
	Hot rolled stainless			10,320	699.96	14.7
	Tool steel			25,760	4,211.55	6.1
	Hot rolled			786 f/	83.24 g/	9.4
	Cold finished			1,172	117.97	9.9
	Hot rolled alloy			1,218	136.71	8.9
	Wire rod h/					
	Ordinary			777 i/	96.65 i/	8.0
	Quality			1,300 j/	118.00 k/	11.0
	Sheet					
	Hot rolled			828	84.89	9.8
	Cold rolled			960	99.23	9.7
	Galvanized			2,640	147.07	18.0
	Tinplate			6,670	155.28	43.0
	Electrical			2,350	277.83	8.5
	Stainless			13,360	893.03	15.0
	Strip					
	Hot rolled			891	111.35	8.0
	Cold rolled			1,670	143.33	11.7
	Stainless			17,500	826.88	21.2
	Plate					
	Ordinary			829	91.51	9.1
	Quality			1,200 k/	120.00 k/	10.0
	Stainless			12,780	927.20	13.8

25X1A5a1

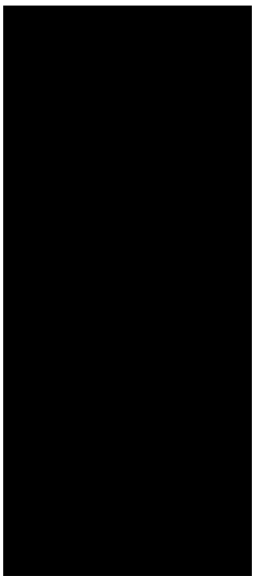

Table 23

Specifications, Prices, and Price Ratios of Iron and Steel Products in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Metric Ton	Price: Dollars per Metric Ton	Ratio (Ruble-Dollar)
3313	Electrometallurgical products					
	Ferromanganese	Mn 1 and Mn 2 Manganese 80%	Medium carbon manganese (Mn 80-85%, 1.5% C max.)	2,355 l/	392.50 m/	6.0
	Ferrosilicon	[redacted]	[redacted]	1,650	223.00	7.4
	Ferrochrome	Grade Khr 000 (Cr 60%, 0.07% C)	65% Cr, 0.06% C	3,700 n/	411.11 n/	9.0
3321	Gray-iron foundries					
	Gray-iron castings			1,800 o/	155.00 p/	11.6
3322	Malleable-iron foundries					
	Malleable-iron castings					13.0 q/
3323	Steel foundries					
	Steel castings			3,855 r/	362.00 s/	10.6
3391	Iron and steel forgings					
	Ordinary Quality	[redacted]		2,830	222.00	12.7
				3,610	223.00	16.2

a. Unless otherwise noted, all prices are taken from source 92/.
b. Allows for high Mn.
c. Average price of Northern pig iron (high phosphorus) and Southern pig iron.
d. 93/.
e. Average of prices for ferrosilicon from source 94/.
f. Average price for size 0.98 and 3.54 inches.
g. Average price for size 1 and 3 1/2 inches.
h. It has been assumed that Soviet ordinary wire rod and US carbon steel wire rod are comparable and Soviet quality wire rod is comparable to US alloy steel wire rod.
i. Average of wire rod category.
j. Estimated from price data in source 95/.
k. Estimated.
l. 96/
m. 97/
n. 98/
o. Average of the four principal marks of gray castings of medium complexity. 99/
p. 100/
q. Ratio estimated. Reasoning is predicated on a ratio of 12.9 for the grade of pig iron used in malleable castings.
r. The ruble price was determined by averaging the carbon and low alloy grades of castings of medium complexity which in the US account for 80 percent of all steel castings and adding the average of alloy and high alloy grades of castings of medium complexity which account for the remainder. 101/
s. 1947 price adjusted to 1950 price. Between 1947 and 1950, AISI composite iron and steel index increased 7 ½ percent, which was applied to the 1947 price.

Table 24

Weighted Price Ratios of Iron and Steel Products
in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
3311	Blast furnaces		3,516.5	9,041.2	9.0	8.9
	Basic pig iron	9.0	2,629.4	6,537.9		
	Bessemer pig iron	7.7	418.8	436.0		
	Foundry pig iron (gray castings)	8.8	136.3	1,469.7		
	Foundry pig iron (malleable castings)	12.9	163.8	194.7		
	Ferromanganese	7.8	104.2 a/*	200.7		
	Spiegeleisen	8.5		159.0		
	Ferrosilicon	9.0	64.0 a/	43.2		
3312	Steel works and rolling mills		8,700.5	25,177.4	13.1	8.8
	Rails	7.6	146.9	908.0		
	Railroad accessories	6.4	64.8	328.0		
	Pipes and tubes		1,274.7	2,934.0	10.2	10.3
	Welded	10.4	815.5	852.0		
	Seamless				9.9	10.2
	High quality	9.8	454.7	1,843.0		
	Stainless	15.3	4.5	239.0		
	Heavy sections				8.3 b/	8.5 c/
	Channels	6.8				
	I-beams	9.8	358.9	1,755.0		
	angles	8.2				
	Light sections		1,608.3	12,005.4	8.9	7.7
	Structural				7.9 b/	7.9
	Light channels	6.3		588.2		
	Junior I-beams	8.8	95.4	651.3		
	Angles	8.7		816.6		

* Footnotes for Table 24 follow on p. 77.

Table 24

Weighted Price Ratios of Iron and Steel Products
in the USSR and the US
(Continued)

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
3312 (cont'd)						
	Bars				9.0	7.6
	Hot rolled stainless	14.7	24.0	2,311.7		
	Tool steel	6.1	237.5	5,770.2		
	Hot rolled	9.4		787.6		
	Cold finished	9.9	1,251.4	262.5		
	Hot rolled alloy	8.9		817.3		
	Wire rod		505.3	902.0	8.0	8.7
	Ordinary	8.0	498.3	634.0		
	Quality	11.0	7.0	268.0		
	Sheet		3,282.2 d/	3,707.0	18.6	13.5
	Hot rolled	9.8	848.4	1,375.0		
	Cold rolled	9.7	837.4	450.0		
	Galvanized	18.0	300.0	264.0		
	Tinplate	43.0	779.6	1,068.0		
	Electrical	8.5	338.2	216.0		
	Stainless	15.0	178.6	334.0		
	Strip		786.8 d/	549.0	12.8	11.2
	Hot rolled	8.0	229.5	220.0		
	Cold rolled	11.7	281.9	154.0		
	Stainless	21.2	205.4	175.0		
	Plate		672.6	2,089.0	9.8	9.5
	Ordinary	9.1	640.3	1,650.0		
	Quality	10.0		247.0		
	Stainless	13.8	32.3	192.0		

Table 24

Weighted Price Ratios of Iron and Steel Products
in the USSR and the US
(Continued)

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights		Weighted Ratio	
			US (Million US $)	USSR (Million Rubles)	US Mix (Rubles per Dollar)	Soviet Mix (Rubles per Dollar)
3313	Electrometallurgical products			596.0		7.3
	Ferromanganese	6.0		236.0		
	Ferrosilicon	7.4		116.0		
	Ferrochrome	9.0	8.2	244.0		
3321	Gray-iron foundries					
	Gray-iron castings	11.6	1,999.5	11,570.0		
3322	Malleable-iron foundries					
	Malleable-iron castings	13.0	274.5	2,220.0		
3323	Steel foundries					
	Steel castings	10.6	362.0	3,080.0		
3391	Iron and steel forgings			1,058.0		13.6
	Ordinary	12.7		740.0		
	Quality	16.2		318.0		

a. Includes ferromanganese and ferrosilicon produced in electric furnaces.
b. Simple average.
c. Average ratio of channels, beams, and angles; however, beams were given twice the weight of the other two.
d. US production data used in the computation of values from source 102/.

Table 25

Specifications, Prices, and Price Ratios of Nonferrous Metals in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price a/*: Rubles per Metric Ton	Price a/*: Dollars per Metric Ton	Ratio (Ruble-Dollar)
3331	Primary smelting and refining of copper	25X1A5a1				
	Primary copper	[redacted]		6,612	407.50	16.2
3332	Primary smelting and refining of lead					
	Primary lead			3,650	260.19	14.0
3333	Primary smelting and refining of zinc					
	Primary zinc					12.6 b/
3334	Primary refining of aluminum					
	Primary aluminum			6,650	375.00	17.7
3335	Primary refining of magnesium					
	Primary magnesium		Magnesium ingots (99.8%)	16,500 c/	485.00 d/	34.0
3339	Primary refining and smelting of nonferrous metals, n.e.c. e/	25X1A5a1				
	Cadmium	[redacted]		248,000	4,410.00	56.2
	Cobalt			456,000 f/	4,410.00	103.4
	Nickel			36,000	970.00	37.1
	Tin			111,600	1,643.00	67.9
	Mercury			100,000	2,120.00	47.2
	Antimony			20,300	623.00	32.6
3351	Rolling, drawing, and alloying of copper					
	Copper rod					17.5 b/
	Copper sheet					16.0 b/
	Copper tubing					12.4 b/
3352	Rolling, drawing, and alloying of aluminum					
	Aluminum sheet					15.4 b/
	Aluminum rods					19.1 b/

* Footnotes for Table 25 follow on p. 79.

Table 25

Specifications, Prices, and Price Ratios of Nonferrous Metals
in the USSR and the US
(Continued)

SIC No.	Item	Specifications		Price a/		
		USSR	US	Rubles per Metric Ton	Dollars per Metric Ton	Ratio (Ruble-Dollar)
3359	Rolling, drawing, and alloying of nonferrous metals, n.e.c. e/	25X1A5a1 [redacted]				
	Sheet lead			5,800	375.00	15.5
	Sheet zinc			4,925	342.00	14.4
3392	Wire drawing					
	Alloyed copper wire					14.2 b/

a. Unless otherwise noted all prices taken from source 105/.
b. [redacted] 25X1A5a1
c. 106/
d. Average 1950 price from source 107/.
e. Not elsewhere counted.
f. 108/

Table 26

Weighted Price Ratios of Nonferrous Metals
in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
3331	Primary copper	16.2	515.8	1,978.1		
3332	Primary lead	14.0	137.2	386.4		
3333	Primary zinc	12.6	240.1	377.6		
3334	Primary aluminum	17.7	236.0	1,482.6		
3335	Primary magnesium	34.0	6.9	181.5		
3339	Primary nonferrous metals, n.e.c. a/		378.2	2,703.8	60.0	52.1
	Cadmium	56.2	18.6	72.0		
	Cobalt	103.4	11.0	652.1		
	Nickel	37.1	89.0	1,152.0		
	Tin	67.9	246.5	714.0		
	Mercury	47.2	4.0	57.9		
	Antimony	32.6	9.1	55.8		
3351	Rolling, drawing, and alloying of copper				13.8	
3352	Rolling, drawing, and alloying of aluminum				16.3	
3359	Rolling, drawing, and alloying of nonferrous metals, n.e.c. a/				15.0 b/	14.9 b/
3392	Wire drawing				14.2 b/	14.1 b/

25X1A5a1 [redacted]

a. Not elsewhere counted.
b. Simple average.

9. Tractors and Trucks.

Prices for Soviet tractors are those believed to be in effect on 1 January 1950. Prices of 1 January 1949 were adjusted to 1 January 1950 on the basis of known price changes. US prices for tractors were in effect on 1 January 1950. Prices for US and Soviet trucks were those in effect on 1 July 1950. With the reservation that little is known about the operational life of Soviet machinery, comparability is good for tractors and trucks.

Value weights have been computed for the USSR only. Estimated production data have been multiplied by the price to derive value weights.

Table 27* gives specifications, prices, and price ratios of tractors and trucks in the USSR and the US. Table 28** gives weighted price ratios of tractors and trucks in the USSR.

10. Metalworking Machinery.

a. General.

The classes of commodities considered in this category include machine tools and metalworking machinery (except machine tools). The selection of these classes has been dictated largely by availability of comparable US and Soviet data.

Comparability of wholesale prices for the US and the USSR is affected by a number of factors. In the US, depending upon the industry and manufacturer concerned, prices quoted may or may not include such items as shipment, installation, discounts, electrical equipment, and accessories. The Soviet wholesale price lists used in this research aid specified that prices are f.o.b. station of shipment, and they included the cost of packing. Little is known concerning possible discount practices and the inclusion of accessories and the like in the USSR. For these reasons, it is not possible to say that US and Soviet wholesale prices always include the same items, nor is it usually possible to adjust for differences.

* Table 27 follows on p. 82.
** Table 28 follows on p. 83.

Table 27

Specifications, Prices, and Price Ratios of Tractors and Trucks in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Unit	Price: Dollars per Unit a/	Ratio (Ruble-Dollar)
3521	Tractors	S-80	Caterpillar D-7	55,500 b/	9,615	5.8
		DT-54; track-laying; diesel; 54 hp @ 1,300 rpm; bore, 125 mm; stroke, 152 mm; tractor weight, 5,400 kg; over-all length, 3,660 mm; over-all width, 1,865 mm	Caterpillar, D-4; track-laying; diesel; 50 hp @ 1,300 rpm; 53-1/2 hp @ 1,400 rpm; bore, 4-1/2 inches (114 mm); stroke, 5-1/2 inches (140 mm); tractor weight, 4,730 kg; over-all length, 3,050 mm; over-all width, 1,575 mm	27,000	4,540	5.9
		KD-35; track-laying; diesel; 37 hp @ 1,400 rpm, bore, 100 mm; stroke, 130 mm; tractor weight, 3,700 kg; over-all length, 3,040 mm; over-all width, 1,430 mm	Caterpillar D-2; track-laying; diesel; 38 hp @ 1,400 rpm; 41 hp @ 1,525 rpm; bore, 4 inches (103 mm); stroke, 5 inches (127 mm); tractor weight, 3,050 kg; over-all length, 2,730 mm; over-all width, 1,415 mm	33,000	3,415	9.7
3711	Motor vehicles					
	Trucks	GAZ-51, net weight with body, 5,975 lbs; payload 2-1/2 tons, gross weight, 11,500 lbs; tire size, 5.70 x 20; wheelbase, 130 inches, dual rear tires	Ford, F-6 series; Model 9HTH; conventional; heavy duty; payload, 2 tons; net weight with body, 5,494 lbs; gross weight, 15,500 lbs; tire size, 7.50 x 20; wheel base, 134 inches, dual rear tires; 6-cylinder engine	15,675 c/	1,825	8.6
		ZIS-150; 2-axle; cargo; net weight, 3,900 kg (8,600 lbs); gross weight, 8,050 kg (17,750 lbs); wheel base, 4,000 mm (157 inches); tire size, 900 x 20; dual rear tires	GMC, FC 453; gross weight, 19,000 lbs; weight, chassis only, 5,440 lbs; cab, 500 lbs; platform express body, 1,100 lbs	18,525	3,085	6.0

a. Unless otherwise noted, all US prices from source 109/.
b. Prices for tractors were constructed from 1949 prices in source 110/ and adjusted to 1950 prices on the basis of known price changes.
c. Prices for Soviet trucks from source 111/.

Table 28

Weighted Price Ratios of Tractors and Trucks in the USSR

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
3521	Tractors			2,315.7		6.0
	S-80	5.8		1,054.5		
	DT-54	5.9		1,096.2		
	KD-35	9.7		165.0		
3711	Trucks			3,096.7		7.0
	GAZ-51	8.6		1,420.2		
	ZIS-150	6.0		1,676.5		

b. Derivation of Price Ratios.

(1) Machine Tools.

Ruble prices as of 1 July 1950 have been used to establish the 1950 ratios for machine tools, as they presumably reflected an attempt by the Soviet government to bring prices of machine tools in line with the new prices for other capital goods. These prices are f.o.b. station of shipment and include the cost of packing. 112/

US 1950 prices for machine tools have been estimated from 1951 prices in the absence of readily available data for 1950. Mid-December 1951 prices have been used as the base prices. 113/ A 21-percent increase was noted between 1 July 1950 and mid-December 1951 in the wholesale price indexes for special groupings of machinery and steel products, including the machine tools class. 114/ Using BLS base value weights for 1947-49, it was established that the weight of the machine tools class was 43 percent of the total weight of all classes included in this special grouping. In addition, the "machine tools designed primarily for home workshops" class, which comprised 3 percent of the total weight of the special grouping, was included. Thus the two machine tools classes accounted for 46 percent of the base value weight. On the basis of data published by BLS, it was possible to establish a weight and a price index for each of the 26 commodities included in the 3 remaining classes of the special grouping. 115/ It was found that these classes, accounting for 54 percent of the weight, showed a price increase of 15.7 percent and that the machine tools class, accounting for 46 percent of the weight, showed a price increase of 27.2 percent between 1 July 1950 and 1 January 1952. Base prices as of mid-December 1951 were then adjusted to 1 July 1950 on the basis of a 27.2-percent price increase.

(2) Metalworking Machinery (Except Machine Tools).*

Ruble prices as of 1 July 1950 have been used to establish the ruble-dollar ratios of metalworking machinery (except machine tools). The 1 July 1950 prices represent a flat 7-percent reduction over 1 January 1950 prices, which in turn represent reductions of as much as 25 percent over 1949 prices.

* All of the machines used to represent this class are classified as metalforming machinery.

Prices of US metalworking machines (except machine tools) have been constructed by using mid-December 1951 prices. 116/ A price index for metalworking machinery (except machine tools) was established between 1 July 1950 and 1 January 1952, and the price increase for each commodity was weighted according to BLS base value weights. 117/ The resulting average price increase of 19 percent was used to adjust the mid-December 1951 price of each metalworking machine to 1 July 1950 prices.

Weighted ratios have been computed for machine tools and metalworking machinery (except machine tools) only for the US. Value of shipments data for 1947 have been used as weights for the broad categories. For purposes of weighting, ruble-dollar ratios have been averaged in cases where ratios had been computed for more than one component of a broad category.

Table 29* gives specifications, prices, and price ratios of metalworking machinery in the USSR and the US. Table 30** gives weighted price ratios of metalworking machinery in the US.

11. Textile Machinery.

It is estimated that, in 1950, cotton accounted for approximately 88 percent of all textiles produced in the USSR and 77 percent of all textiles produced in the US. 118/ In view of the overwhelming importance of cotton in the textile industries of the two countries, the machines selected for this research aid are all machines found in the cotton textile industry.

Prices for the Soviet models were effective on 1 January 1950, 119/ were f.o.b. point of shipment, and included the cost of packing. The Soviet price list contained specifications of the textile machines as well as prices. These specifications were submitted to manufacturers of textile machines in the US, who in turn furnished prices for US models which most nearly approximated the Soviet models. One weakness here, however, was the failure of some manufacturers to indicate specifications of the US machine they were using for comparison.

As US prices were for February 1953, they were adjusted to January 1950 prices. On the basis of data furnished by BLS, it was possible***

* Table 29 follows on p. 86.
** Table 30 follows on p. 88.
*** Text continued on p. 89.

Table 29

Specifications, Prices, and Price Ratios of Metalworking Machinery in the USSR and the US

SIC NO.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Unit	Price: Dollars per Unit	Ratio (Ruble-Dollar)
3541	Machine tools	Model	Model			
	Boring machines, horizontal	262G, 85 mm	Cincinnati Gilbert, 3½ inches	119,380	19,911 a/	6.0
		262D, 110 mm	Lucas, 42B30, 4 inches	112,800	26,638	4.2
		265V, 150 mm	Giddings and Lewis, 560P, 6 inches	756,700	112,318	6.7
	Drilling machine radial	255	Cincinnati Gilbert, 36 inches by 11 inches	31,866	7,500	4.2
	Gear cutting and finishing machines					
	Gear hobbing machine	5326	Gould and Eberhardt, 36H, 36 inches by 15 inches	65,800	16,228	4.1
	Gear hobbing machine, universal	532	Gould and Eberhardt, 24H, 24 inches by 15 inches	18,800	12,840	1.5
	Gear shaper	514	Fellows, 615A	27,354	10,447	2.6
	Grinding machines					
	Grinder, centerless	3180	Cincinnati Gilbert, OM, 2	28,200	7,472	3.8
	Grinder, plain cylindrical	3151, 150 mm by 750 mm	Landis, 6 inches by 30 inches	23,124	9,992	2.3
	Grinder, horizontal spindle	3724, 2,000 mm by 400 mm	Thompson, 23-C, 16 inches by 96 inches	142,974	15,299	9.3
	Grinder, vertical spindle	3756, 750 mm	Blanchard, 30 inches	51,418	7,449	6.9
	Lathes					
	Lathe, engine	1A62	Reed-Prentice, AA, 16 inches by 30 inches	13,160	5,165	2.5
	Lathe, 6-spindle chucking	1261P, 130 mm	New Britain 65, 5-5/8 inches	108,852	19,393	5.6
	Lathe, 6-spindle vertical	1A283, 300 mm	Bullard, 12 inches	126,712	33,450	3.8
	Lathe, 6-spindle vertical	1284, 400 mm	Bullard 16 inches	140,248	38,945	3.6
	Lathe, turret	1K36, 65 mm	Bardons and Oliver, 21A, 2½ inches	28,200	10,375	2.7

a. Average of prices for Cincinnati Gilbert and Lucas.

Table 29

Specifications, Prices, and Price Ratios of Metalworking Machinery in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Unit	Price: Dollars per Unit	Ratio (Ruble-Dollar)
3541 (Cont'd)	Machine tools	Model	Model			
	Milling machines					
	Horizontal (plain)	6N82G, 1,250 mm by 30 mm	Cincinnati Gilbert, 2, high-speed dial	28,200	10,126	2.6
	Horizontal (universal)	6N82, 1,250 mm by 300 mm	Cincinnati Gilbert, 2, high-speed dial	30,080	11,562	2.6
	Other machine tools					
	Broaching machine, hydraulic, horizontal	7530, 30 tons	La Pointe, 50 hp, 25 tons	45,684	8,945	5.1
	Planer	7231A, 900 mm by 3,000 mm	Gray, 36 inches by 120 inches	192,700	30,708	6.3
	Shaper, hydraulic	7A36, 700 mm	Rockford, 28 inches	31,678	6,665	4.8
	Threader bolt	5A07	Landmaco, 1½ inches	13,536	2,457	5.5
3542	Metalworking machinery (except machine tools)					
	Mechanical presses	K231, 10 tons	Zeh and Hahnemann, 9 tons	3,860	718	5.4
		K232, 15 tons	Zeh and Hahnemann, 16 tons	6,045	962	6.3
		K30, 30 tons	E.W. Bliss, 32 tons	11,467	1,927	6.0
	Pipe and structural bending machines					
	Iron worker	N633	Buffalo, No. 2½	81,747	7,471	10.9
	Power shearing machines					
	Shears, plate	N461, 1,640 kg	Peck, Stow, and Wilcox, 3,900 pounds	15,345	2,103	7.3
	Forging hammers					
	Forging hammer, pneumatic	M412, 150 kg	Chambersburg, 300 pounds	17,484	5,218	3.4
		M415, 400 kg	Chambersburg, 750 pounds	39,860	11,483	3.5
	Other forging machines					
	Rotary swager	V202, tube diameter, 7.3 mm	Etna, tube diameter, 3/8 inches	14,229	840	16.9

Table 30

Weighted Price Ratios of Metalworking Machinery in the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	US Value Weights (Million US $)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
3541	Machine tools		369.8	4.5	
	Boring machines	5.6	25.8		
	Drilling machines	4.2	33.5		
	Gear cutting and finishing machines	2.7	17.7		
	Grinding and polishing machines	5.6	56.4		
	Lathes	3.6	92.9		
	Milling machines	2.7	35.3		
	Other machine tools	5.4	108.2		
3542	Metalworking machinery (except machine tools)		103.6	6.8	
	Mechanical presses	5.9	77.9		
	Pipe and structural bending machines	10.9	1.8		
	Power shearing machines	7.3	12.6		
	Forging hammers	3.4	4.3		
	Other forging machines	16.9	7.0		

to set up a wholesale price index for textile machines between January 1950 and February 1953. The 1953 prices were adjusted to January 1950 on the basis of a 22-percent increase during the period.

A weighted ratio for textile machinery has been computed only for the US. Value of shipments in 1947 for broad categories has been used as value weights. Ruble-dollar ratios have been averaged in cases where ratios had been computed for more than one component of a broad category for purposes of weighting.

Table 31* gives specifications, prices, and price ratios of textile machinery in the USSR and the US. Table 32** gives weighted price ratios of textile machinery in the US.

12. Electrical Equipment and Electronics.

Soviet wholesale prices for electrical equipment and electronics (with the exception of electron tubes) were those in effect on 1 January 1950. Soviet prices for electron tubes for 1950 were obtained by adjusting 1 January 1949 prices by means of an average price index for mining, manufacturing, electric power, and rail transport. 120/

US prices, in most cases, were annual average prices. US 1950 prices for electron tubes were estimated by adjusting prices in effect on 1 January 1949 by means of an electron tube price index. 121/

On account of the lack of gross value of production data for the US and the USSR, it was not possible to compute weighted average ratios for most four-digit categories. In this case, simple averages of ratios were computed for the four-digit categories. A simple average of ratios for most of the four-digit categories would differ only slightly from a weighted average because of the small dispersion of the ratios.

Table 33*** gives specifications, prices, and price ratios of electrical equipment and electronics in the USSR and the US. Table 34**** gives weighted price ratios of electrical equipment and electronics in the US./

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* Table 31 follows on p. 90.
** Table 32 follows on p. 91.
*** Table 33 follows on p. 92.
**** Table 34 follows on p. 97.
/ Text continued on p. 98.

Table 31

Specifications, Prices, and Price Ratios of Textile Machinery in the USSR and the US

SIC No.	Item	Specifications		Price		Ratio (Ruble-Dollar)
		USSR	US	Rubles per Unit	Dollars per Unit	
3552	Textile machinery					
	Cleaning and opening machinery					
	One-process picker	TO-16	Whitin, 18 inches	80,000	10,716	7.5
	Vertical opener	VRR-1		16,000	1,982	8.1
	Blending feeder	PS-1	Whitin, N2, 36 inches	10,300	1,455	7.1
	Carding machines					
	Card	Ch-305	Whitin, L, 40 inches	20,000	3,532	5.7
	Drawing and roving frames					
	Drawing frame	L-305 or L-254	Whitin, KSF	15,200	7,068	2.2
	Roving frame	RTP-192	Whitin (10 by 5 by 7-1/2 inches)	48,000	8,322	5.8
	Silver lap winder	LS-235		20,000	2,805	7.1
	Spinning frames					
	Spinning frame for cotton yarn	P-66 or PU-66		46,000	9,140	5.0
	Twisting frames					
	Dry twist twister	K-83	Whitin, B, 3-1/4 inch gauge	45,500	6,613	6.9
	Winding machines					
	Winding frame	M-150		42,500	6,396	6.6
	Other yarn preparing machines					
	High-speed warping machines	SV-140		100,000	6,330	15.8
	Slashing cylindrical machine	ShB-140		110,000	13,120	8.4
	Power looms					
	Automatic weaving loom	ATK-100		6,750	768	8.8
	Hosiery knitting machines					
	Automatic machine for production of hosiery	KAS-22		16,630	2,710	6.1
	Bleaching, dyeing, and finishing machinery					
	Dyeing machine for cotton	KhK-110		293,500	16,400	17.9
	Two-roll finishing machine	PD-110		18,000	1,228	14.7

Table 32

Weighted Price Ratios of Textile Machinery in the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	US Value Weights (Million US $)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
3552	Textile machinery		173.9	7.9	
	Cleaning and opening machinery				
	Picker	7.5	2.2		
	Other cleaning and opening machinery	7.6	6.4		
	Carding machines	5.7	16.8		
	Drawing and roving frames	5.0	10.5		
	Spinning frames	5.0	17.2		
	Twisting frames	6.9	10.2		
	Winding machines	6.6	16.2		
	Other yarn preparing machines	12.1	4.2		
	Power looms	8.8	34.4		
	Knitting machines, hosiery	6.1	35.8		
	Bleaching, dyeing, and finishing machinery	16.3	20.0		

Table 33

Specifications, Prices, and Price Ratios of Electrical Equipment and Electronics in the USSR and the US

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Kilowatt	Price: Dollars per Kilowatt	Ratio (Ruble-Dollar)
3511	Turbines					
	Steam	12.5 mw a/*	12.5 mw	150 b/	30 c/	5.0
		25 mw	25 mw	108	25	4.3
		50 mw	50 mw	80	21	3.8
		100 mw	100 mw	60	17	3.5
		150 mw	150 mw	50	15	3.3
	Hydro					
	Francis	38.5 mw	Francis 38.5 mw	47	50	0.9
		75 mw	75 mw	68	50	1.4
	Kaplan	12.5 mw	Kaplan 12.5 mw	202	75	2.7
		46.0 mw	46.0 mw	201	75	2.7
		65.0 mw	65.0 mw	185	75	2.5
				Rubles per 100 Pounds	Dollars per 100 Pounds	
3631	Insulated wire and cable					
	Bare wire	Copper, hard drawn, round, solid, GOST 2112-46	Copper, hard drawn, round, solid			
		0.6 mm in diameter	42 AWG d/	1,114 e/	218.12	5.1
		0.30 mm in diameter	28 AWG	384	34.66	11.1
		2.5 mm in diameter	10 AWG	346	29.82	11.6
		6.0 mm in diameter	2 AWG	346	29.57	11.7
		Copper, annealed, round, solid, GOST 2112-46	Copper, annealed, round, solid			
		0.30 mm in diameter	28 AWG	386	34.76	11.1
		2.5 mm in diameter	10 AWG	348	29.92	11.6
		6.0 mm in diameter	2 AWG	348	29.67	11.7

* Footnotes for Table 33 follow on p. 96.

S-E-C-R-E-T

Table 33

Specifications, Prices, and Price Ratios of Electrical Equipment and Electronics in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per 1,000 Feet	Price: Dollars per 1,000 Feet	Ratio (Ruble-Dollar)
3631 (Cont'd)	Power cable	Paper-insulated, single-conductor electric power cable with copper conductor, insulated with impregnated cable paper, lead-sheathed, GOST 340-41	Paper-insulated, single-conductor, lead-sheathed cable, noncompact strand			
		Volt: 3,000; Cross Section (mm^2) f/: 16	Volt: 2,500; Description: AWG 6	945	314	3.0
		3,000; 35	2,500; AWG 1	1,500	449	3.3
		3,000; 95	2,500; AWG 4/0	3,261	700	4.7
		3,000; 240	2,500; 500 MCM g/	7,528	1,237	6.1
		6,000; 16	7,500; AWG 6	1,219	377	3.2
		6,000; 35	7,500; AWG 1	1,810	493	3.7
		6,000; 95	7,500; AWG 4/0	3,718	749	5.0
		6,000; 240	7,500; 500 MCM	7,955	1,308	6.1
		10,000; 16	15,000; AWG 6	1,588	469	3.4
		10,000; 35	15,000; AWG 1	2,249	634	3.5
		10,000; 95	15,000; AWG 4/0	4,237	920	4.6
		10,000; 240	15,000; 500 MCM	8,504	1,541	5.5
		Rubber-insulated, single-conductor electric power cable with rubber insulation, lead-sheathed, GOST 433-41, 500 volt	Rubber-insulated, single-conductor, lead-sheathed bare, 600 volt, 60°C, type RL			
		Cross Section (mm^2): 1	Description: AWG 16 (=1 mm^2), solid	259	40.20	6.4
		6	AWG 10 (=6 mm^2), solid	457	100	4.6
		6	AWG 10 (=6 mm^2), stranded	457	112	4.1
		35	AWG 1 (=35 mm^2), stranded	1,798	439	4.1
		95	AWG 4/0 (=95 mm^2), stranded	3,749	929	4.0
		150	300 MCM (=150 mm^2), stranded	5,456	1,395	3.9
		240	500 MCM (=240 mm^2), stranded	8,321	2,015	4.1

S-E-C-R-E-T

Table 33

Specifications, Prices, and Price Ratios of Electrical Equipment and Electronics in the USSR and the US
(Continued)

SIC No.	Item	Specifications				Price		Ratio
		USSR		US		Rubles per 1,000 Feet	Dollars per 1,000 Feet	(Ruble-Dollar)
3631 (Cont'd)	Control cable	Electric control cable with rubber insulation GOST 1508-49, lead-sheathed, armored with steel tape, with external jute covering, unspecified voltage		Rubber-insulated, copper conductors, lead-sheathed, armored with steel tape, with external jute covering, 600 volt				
		Cross Section (mm^2)	Conductor	AWG	Conductor			
		2.5	5	14	5 (=2.5 mm^2)	1,676	508	3.3
		2.5	14	14	12	3,109	841	3.7
		2.5	19	14	19	3,718	1,120	3.3
		2.5	37	14	37	6,431	1,816	3.5
		6	6	10	5 (=6 mm^2)	2,621	612	4.3
		6	10	10	12	3,810	1,128	3.4
	Magnet wire	Copper, round, enamel, normal quality		Copper, round, enamel		Rubles per 100 Pounds	Dollars per 100 Pounds	
		Diameter (mm)		AWG				
		2.02		6		373	43.55	8.6
		0.80		20		445	47.10	9.4
		0.25		30		614	60.65	10.1
		0.08		40		2,227	157.70	14.1
	Field wire							10.0 h/
	Coaxial cable							5.0 h/

Table 33

Specifications, Prices, and Price Ratios of Electrical Equipment and Electronics in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Unit	Price: Dollars per Unit	Ratio (Ruble-Dollar)
3651	Electric lamps					
		Spherical shape	Pear shape, inside frosted, for 115-, 120-, and 125-volt circuits			
		15 watts 135 volts TU-1-3-101	15 watts	0.80 i/	0.09	8.9
		25 watts 110 volts GOST-1608-47	25 watts	0.87	0.09	9.7
		40 watts 110 volts GOST-1608-47	40 watts	0.97	0.09	10.8
		60 watts 110 volts GOST-1608-47	60 watts	0.97	0.09	10.8
		100 watts 135 volts TU-1-3-101	100 watts	1.20	0.11	10.9
		150 watts 135 volts TU-1-3-101	150 watts	1.20	0.15	8.0
		300 watts 220 volts GOST-2239-43	300 watts	2.50	0.34	7.4
		500 watts 220 volts GOST-2239-43	500 watts	2.80	0.75	3.7
		750 watts 220 volts GOST-2239-43	750 watts	5.50	2.29	2.4
		1,000 watts 220 volts GOST-2239-43	1,000 watts	6.00	2.48	2.4
3661	Radios, radio and television equipment (except radio tubes), and radar and related detection apparatus					
	Consumer radios	Moskvich, 3-tube receiver	US cost estimated for Soviet specimen	500 j/	34.95 k/	14.3
		VEF Super M-557, 6-tube receiver	US cost estimated for Soviet specimen	1,000 l/	57.50	17.4
		Belarus, 13-tube receiver	US cost estimated for Soviet specimen	2,000 m/	199.50	10.0
		Iskra, 4-tube receiver	US cost estimated for Soviet specimen	400 n/	39.95	10.0
	Television sets	Leningrad T-1, Type 18 LK 1B, tube 7 inches in diameter, 22 tubes, table model	9 x 10-3/8 inch screen, 18 tubes, multichannel, table model	2,000 o/	140.23 p/	14.3

Table 33

Specifications, Prices, and Price Ratios of Electrical Equipment and Electronics in the USSR and the US
(Continued)

SIC No.	Item	Specifications: USSR	Specifications: US	Price: Rubles per Unit	Price: Dollars per Unit	Ratio (Ruble-Dollar)
3662	Radio tubes g/					
	Receiving tubes	6V6S, P.O. pentode	6V6GT	11.85	1.57	7.5
		6Kh5S, 2X power rectifier	6X5GT	11.25	1.29	8.7
		6S5S	6C5GT	7.50	0.80	9.4
		6F5M, detector-triode	6F5GT	7.50	0.80	9.4
		12N11 (12AH7GT)	12AH7GT	15.00	1.29	11.6
		5V4S, 2X power rectifier	5V4G	9.30	0.74	12.6
		6N9M (6SL7GT)	6SL7GT	15.00	1.18	12.7
		12SK7, RF pentode	12SK7	12.45	0.92	13.5
		12SR7, double diode-triode	12SR7	13.50	0.98	13.8
		6N8M (6SN7GT), 2X triode	6SN7GT	15.00	1.08	13.9
		6Zh5M (6J5GT), detector-triode	6J5GT	10.50	0.74	14.2
		6N10 (6SC7GT)	6SC7GT	15.00	0.98	15.3
		6SR7	6SR7	13.50	0.88	15.3
		6SJ7, RF pentode	6SJ7	12.52	0.81	15.5
		6AC7, RF pentode	6AC7	22.50	1.42	15.8
		6L6S (6G6GT), P.O. pentode	6H6GT	14.02	0.88	15.9
		12J5GT, detector-triode	12J5GT	12.00	0.74	16.2
		12SJ7, RF pentode	12SJ7	13.50	0.82	16.5
		6SH7, RF pentode	6SH7	19.05	1.08	17.6
		6SQ7, double diode-triode	6SQ7	13.50	0.74	18.2
		12SQ7, double diode-triode	12SQ7	13.50	0.74	18.2
		12SG7, RF pentode	12SG7	18.75	0.98	19.1

a. Megawatts.
b. Soviet prices for entire category 3511 from source 122/.
c. Unless otherwise noted, US prices are from source 123/.
d. AWG = American wire gauge.
e. All Soviet prices for category 3631 are from source 124/.
f. MM^2 = square millimeters in diameter.
g. MCM = million circular mills.
h. Ratio estimated on the basis of the technology of its production.
i. Soviet prices for 3651 are from source 125/.
j. Retail price is from source 126/.
k. All US prices for consumer radios are retail prices from source 127/.
l. Retail price. 128/
m. Retail price is from source 129/.
n. Retail price. 130/
o. Retail price.131/
p. Retail price. 132/
q. US and Soviet prices are 1949 prices adjusted to 1950 prices by using price index shown [redacted] Only those prices for tubes being produced in 1950 were considered.

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Table 34

Weighted Price Ratios of Electrical Equipment and Electronics in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights		Weighted Ratio	
			US (Million US $)	USSR (Million Rubles)	US Mix (Rubles per Dollar)	Soviet Mix (Rubles per Dollar)
3511	Turbines			454.0	3.0 a/	3.0
	Steam	4.0 a/		343.0		
	Hydro	2.0 a/		111.0		
3631	Insulated wire and cable				6.2 a/	5.0 a/
3651	Electric lamps				7.5 a/	5.4 a/
3661	Radios, radio and television equipment (except radio tubes), and radar and related detection apparatus				13.2 a/	12.6 a/
3662	Radio tubes				14.1 a/	13.2 a/

a. Simple average.

13. Communications Services.

a. General.

The sectors of the communications industry considered in this report include the telephone, telegraph, and postal systems. Not included in the analysis are special, functionalized communications systems, such as those maintained by the military, police, and civil air fleet.

Telephone, telegraph, and mail service are believed to be representative of the sectors of the communications industry being considered and are reasonably comparable in both countries.

It should be pointed out that in dealing with a service, as opposed to a commodity, it is difficult, if not impossible, to measure value accurately. No attempt has been made here to weight the services selected in regard to efficiency or quality. Instead, the main reliance has been placed on selecting services with the same general characteristics in both the US and the USSR.

b. Derivation of Price Ratios.

In developing ruble-dollar price ratios for the selected services it was necessary to determine typical charges for comparable services.

In both the US and the USSR, charges for long-distance telephone calls are based on distance spanned and time consumed in conversation. Although it is possible to arrive at an average charge for a typical call in the US, corresponding data for the USSR are not available for such a computation. Therefore, instead of utilizing an average charge for the US long-distance telephone call, the schedules of rates for the two countries were compared. 133/ Ratios were calculated for each distance unit in the schedules and an arithmetic average of these ratios was taken as a representative ratio.

US home telephone subscription rates vary by locality, numbers of telephones in the exchange, and type of service offered. The charge ranges from about $3 to $7.50 per month. 134/ A typical charge appears to be $4 per month, or $48 per year. The yearly Soviet subscription fee for a home telephone is 300 rubles. 135/

Business telephone subscription charges in the US vary in the same manner as home telephone charges and range between $5 and $15 per month. 136/ It is believed that $8.50 per month, or $102 per year, represents a typical charge. The Soviet charge for a business or enterprise telephone is 500 rubles per year. 137/

In the US, there are three types of telegrams -- full rate, day letters, and night letters. The charges for these three services vary according to the number of words sent, the distances spanned, and the time in delivery. In the USSR, there are also three types of telegrams -- common, urgent, and lightning. The charges for these three services vary with number of words and speed of delivery, but the charge does not appear to vary in proportion to distance spanned. From the fragmentary data available on the Soviet telegraph service, it is impossible to correlate Soviet telegram classifications with those of the US. Since common telegrams are the most typical sent in the USSR and full-rate telegrams the most typical in the US, these two services were selected as representative of the telegraph service in the two countries. The average full-rate telegram in the US costs $0.89. This rate was determined by dividing the total yearly revenue for full-rate messages by the number of telegrams sent. 138/ The average number of words per telegram is not known, but it would exceed the base rate of 10 words. The Soviet charge for a 10-word common telegram is 4 rubles. 139/ The Soviet average telegram will also exceed the minimum wordage, and it is therefore assumed that an additional 12-1/2 percent of the base charge would be a reasonable addition for the excess wordage, yielding an average charge of 4.5 rubles.

To check the validity of these assumptions, it was found that the average US telegram price of $0.89 would buy a full-rate, 10-word telegram sent for a distance of about 1,100 miles. To call this distance on the telephone in the US would cost $1.82 for a ratio of telephone charge to telegram charge of about 2 to 1. To call 1,100 miles in the USSR costs about 8.20 rubles. When this charge is compared with the above-determined average telegram charge of 4.5 rubles it yields a ratio of about 1.8 to 1. Thus the ratios of telephone charges to telegram charges in the two countries appear consistent, and as they are close substitutes for rapid communications this ratio tends to validate the comparability of the services in the two countries.

Letters and post cards mailed are believed to be representative of the mail service category. The price for mailing a letter

in the US in 1950 was $0.03, and in the USSR 0.40 rubles. 140/ The price for mailing a post card in the US in 1950 was $0.01, and in the USSR 0.25 rubles. 141/

c. Derivation of Value Weights.

Revenues received from the various communications services have been used as value weights for both the US and the USSR. In instances where revenue data were not already published, volume figures have been combined with price data to determine revenue values. Various considerations were made in arriving at volume data for the different services, and for this reason each service will be discussed separately.

(1) Long-Distance Telephone Calls.

Total revenue from long-distance telephone calls in the US in 1950 was published. 142/ The corresponding Soviet revenue figure was developed by taking the average rate for US long-distance calls -- $0.52 -- and multiplying it by the ruble-dollar ratio previously computed -- 4.5 to 1 -- to get a Soviet average rate per call of 2.34 rubles. This rate was multiplied by the number of calls 143/ to get the total revenue figure.

(2) Home or Private Telephone Subscriptions.

The number of home telephones existing in the US in 1950 was 30 million. 144/ This figure included extension telephones, extra telephones, telephones used only part time, and dead telephones not connected. It was assumed that only a net of 25 million of these 30 million telephones would represent full-year, full-rate subscribers.

The number of home telephones in the USSR in 1950 on a full-year, full-rate basis was estimated to be 300,000 out of a total number of 1.4 million. 145/ The ratio of home telephones to business telephones in the USSR is not known, but home telephones are known to be in the minority, and this division appeared reasonable.

The net number of US home telephones -- 25 million -- was multiplied by the average subscription rate of $48 to get total revenue. The Soviet subscription charge of 300 rubles was multiplied by the number of home subscribers -- 300,000 -- to arrive at total revenue.

(3) Business or Enterprise Telephone Subscriptions.

The total number of business telephones in the US in 1950 was 13 million. 146/ It has been assumed that only 10 million of these would represent full-rate, full-year subscribers.*

The number of business or enterprise telephones in the USSR -- 1.1 million -- again was arbitrarily selected as reasonable from the total number of telephones in the USSR.

The total revenue for both the US and USSR has been computed by multiplying the number of subscribers by the appropriate charge.

(4) Telegrams.

Total revenue in the US from telegrams in 1950 was $151.4 million. 147/ Soviet telegram revenue of 1,090,071,000 rubles was obtained by multiplying the US average price of $0.83 per telegram (average for all telegrams sent in the US) by the ruble-dollar ratio of 5.1 to 1 for telegrams to get an average Soviet price per telegram of 4.23 rubles. This price was then multiplied by the number of telegrams sent in the USSR in 1950 -- 257.7 million. 148/

(5) Mail Service.

The volume of letters and post cards mailed -- 22 billion and 3.9 billion, respectively 149/ -- has been multiplied by the postage fees to arrive at total US revenue data.

Volume figures for letters and post cards mailed in the USSR -- 2,278 million and 570 million, respectively -- were derived by taking the 1929 and 1937 figures reported by the UN 150/ and making a straight extrapolation through time to 1950. The ratio between letters and post cards was estimated to be 4 to 1, which appears reasonable in light of the US ratio for these categories. The volume figures thus derived were multiplied by the postage rates, giving revenue estimates.

* To verify the figures of 25 million home and 10 million business subscribers, these figures were multiplied by their respective yearly subscription rates, and the resulting total revenue of $2,220 million compares favorably with the total revenue of these services of $2,287 million published by the FCC.

Table 35* gives specifications, prices, and price ratios of communications services in the USSR and the US. Table 36** gives weighted price ratios of communications services in the USSR and the US.

14. Electric Power.

Rate structures for electric power sold to consumers, in both the USSR and the US, are very complex and differ considerably in their makeup.

Industrial power rates in both countries are based on two charges -- a use charge, based on the kilowatt-hours of electricity consumed during a billing period, and a demand charge, based either on the maximum power demanded during a billing period or on the maximum capacity of installed electrical equipment. Industrial power rates differ for the two countries in that in the US the rate charged industrial consumers decreases as the quantity consumed increases, whereas in the USSR the rate usually remains stable regardless of the amount of power consumed. Also, rates in the USSR are often inflated to discourage industries from locating in certain areas and are often deflated to subsidize certain industries.

Power rates for most residential and commercial consumers (stores, offices, and the like) in the USSR are on a "flat rate" basis regardless of the local production and distribution costs. For example, residential consumers in both Moscow and Siberia pay the same rate for electric power. Often the residential consumer is merely charged a flat monthly rate depending upon the number and size of light bulbs in his dwelling. In addition, nonessential, or "luxury," users, such as churches, restaurants, and gasoline filling stations, are charged exorbitant rates. On the other hand, power rates for residential and commercial consumers in the US vary considerably from area to area and usually reflect actual production and distribution costs, and flat rates are virtually unknown.

The rate for industrial consumers in the US has been derived by taking the average 1950 rate per kilowatt-hour for the category "Large Light and Power" as defined by Edison Electric Institute. 151/

* Table 35 follows on p. 103.
** Table 36 follows on p. 104.

S-E-C-R-E-T

Table 35

Specifications, Prices, and Price Ratios of Communications Services in the USSR and the US

SIC No.	Item	Specifications		Price		Ratio (Ruble-Dollar)
		USSR	US	Rubles per Unit	Dollars per Unit	
4811	Telephone communications (wire and radio)					
	Telephone service	Long-distance telephone calls	Long-distance telephone calls			4.5
		Home or private telephone subscription	Home or private telephone subscription	300	48.00	6.2
		Business of enterprise telephone subscription	Business or enterprise telephone subscription	500	102.00	4.9
4821	Telegraph communications (wire and radio)					
	Telegraph service	Telegrams, common	Telegrams, full rate	4.5	0.89	5.1
4899	Communications services, n.e.c. a/					
	Mail service	Letters	Letters	0.40	0.03	13.3
		Post cards	Post cards	0.25	0.01	25.0

a. Not elsewhere counted.

Table 36

Weighted Price Ratios of Communications Services
in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $)	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
	Communications services		4,250.8	3,063.9	6.6	6.4
4811	Telephone service		3,400.4	920.1	5.2	4.8
	Long-distance telephone calls	4.5	1,180.4	280.1		
	Home or private telephone subscriptions	6.2	1,200.0	90.0		
	Business or enterprise subscriptions	4.9	1,020.0	550.0		
4821	Telegraph service					
	Telegrams	5.1	151.4	1,090.1	5.1	5.1
4899	Mail service		699.0	1,053.7	14.0	14.2
	Letters	13.3	660.0	911.2		
	Post cards	25.0	39.0	142.5		

For the USSR an average rate for electric power consumed by industry has been computed by using an average rate for each of 53 power supplying organizations. 152/ The average rate for each area was weighted against power consumption 153/ for the corresponding area, thus yielding a weighted average rate for the USSR for industrial consumers. Rates used in this computation were in effect in 1949. A rate reduction of 10 percent was made in January 1950. It is not clear whether the reduction applied to the annual charge based on transformer capacity as well as the rate per kilowatt-hour consumed. For purposes of this research aid, it has been assumed that the reduction applied to both.

Some industrial plants and municipalities in both countries generate their own power. This power has been arbitrarily priced at the amount these enterprises would have paid had the power been purchased from public supply sources.

The rate for residential consumers in the US has been derived by taking the average of the category 154/ for 1950. The average rate for commercial consumers in the US was assumed to be approximately equal to the rate for the category "Small Light and Power" as defined by Edison Electric Institute. 155/ The average rate for residential and commercial consumers was derived by weighting the two rates by the proportion of power consumption accounted for by each category.

According to a 1949 Soviet source, 156/ residential and commercial consumers in the USSR are divided into nine rate groups. The first and second groups are basically residential consumers and are charged 35 and 40 kopecks per kilowatt-hour, respectively. The remaining groups fall into a category referred to as "commercial" in the US. The rates for these groups vary from 30 kopecks per kilowatt-hour for transportation terminals, military barracks, and the like to 250 kopecks per kilowatt-hour for churches, restaurants, and gasoline filling stations.

There are no available data on power consumption for each of the nine rate groups. An analysis of the type of consumers included in each group indicates that the second group, with a rate of 40 kopecks per kilowatt-hour, would account for the largest proportion of power consumption in the residential and commercial category. The next two largest groups would probably be those with rates of 35 and 60 kopecks per kilowatt-hour. An average rate of 40 kopecks per kilowatt-hour is assumed to be realistic. This rate should be considered as a minimum,

however, as the average rate may be as high as 50 kopecks per kilowatt-hour. No adjustment has been made for the 1950 price reduction as it is believed that this reduction did not affect rates for residential and commercial consumers. There is evidence that the 1949 prices for these consumers were still effective in 1955. 157/

Gross value weights for industrial, residential, and commercial consumers for both countries have been computed by multiplying the amount of electric power consumed by the average selling price per kilowatt-hour.

Table 37* gives specifications, prices, and price ratios of electric power in the USSR and the US. Table 38** gives weighted price ratios of electric power in the USSR and the US.

15. Rail Freight Transportation.

Ruble-dollar ratios based on railroad freight rates, as shown in Table 39,*** range from 2.3 to 1 for manufactured iron and steel to 6.2 to 1 for iron ore with a weighted average ratio based on US revenue data of 4.2 to 1 for all commodities. The ratios for individual commodities are based on US revenue per ton for the US average length of haul, compared with the Soviet freight rate for the US average length of haul. The results from such a comparison are believed to have a relatively low margin of error, with a few exceptions, because of the excellent data available on US traffic and revenue and Soviet freight tariff.

Ruble-dollar ratios for individual commodities based on Soviet freight rate per ton for Soviet average length of haul, compared with the US revenue per ton for the Soviet average length of haul, were not determined, because data on Soviet average length of haul are available only for major commodity groups and because freight rates vary for some of the individual commodites within a major commodity group. In addition, available US revenue data are for relatively large mileage blocks, so that the US revenue figure based on Soviet average length of haul might have a significant margin of error.

* Table 37 follows on p. 107.
** Table 38 follows on p. 108.
*** Table 39 follows on p. 109.

Table 37

Specifications, Prices, and Price Ratios of Electric Power in the USSR and the US

SIC No.	Item	Specifications		Price		
		USSR	US	Kopecks per Kilowatt-Hour	Cents per Kilowatt-Hour	Ratio (Ruble-Dollar)
4911	Electric light and power					
	Industrial			15.6	1.01	15.4
	Residential and commercial			40.0	2.78	14.4

Table 38

Weighted Price Ratios of Electric Power in the USSR and the US

SIC No.	Item	Price Ratio (Rubles per Dollar)	Value Weights: US (Million US $) a/	Value Weights: USSR (Million Rubles)	Weighted Ratio: US Mix (Rubles per Dollar)	Weighted Ratio: Soviet Mix (Rubles per Dollar)
4911	Electric light and power		5,182.0	14,160.0	14.8	15.1
	Industrial	15.4	1,929.0	9,360.0 b/		
	Residential and Commercial	14.4	3,253.0	4,800.0 c/		

a. Consumption data used in computing values are from source 158/.
b. Assumed that industry consumed about two-thirds of the electric power produced in the USSR during 1950-55. 159/
c. Consumption data used in computing value are from source 160/.

Table 39

Calculation of Ruble-Dollar Ratios for Rail Freight Transportation

Commodity	Short Tons Originated, US, 1951 a/*	Metric Tons Originated, US, 1951 b/ (Thousand Metric Tons)	Freight Revenue Received by US Railroads, 1951 c/ (US $)	US Average Short-Line Haul per Short Ton d/ (Miles)	US Average Short-Line Haul per Short Ton e/ (Kilometers)	US Revenue per Metric Ton f/ (US $)	Soviet 1949 Rate per Metric Ton for US Average Haul g/ (Rubles)	Ratio of 1950 to 1949 Soviet Rate h/	Soviet 1950 Rate per Metric Ton, for US Average Haul i/ (Rubles)	Ratio j/ (Ruble-Dollar)
Foodstuffs										
Wheat	365,472	332	2,186,134	392	630	6.60	28.32	0.85	24.0	3.6
Corn	189,238	171	1,013,653	368	590	5.94	27.12	0.85	23.0	3.9
Irish potatoes	37,881	34	653,791	1,093	1,759	19.23	97.75	0.80	78.2	4.1
Fresh meat	25,592	23	763,738	943	1,517	33.20	187.54	0.80	150.0	4.5
Wheat flour	93,934	85	605,273	658	1,059	7.11	47.30	0.85	40.2	5.6
Food products, n.e.c. k/	104,241	94	1,650,029	925	1,488	17.55	88.50	0.80	70.8	4.0
Coal and coke										
Anthracite coal	281,638	255	899,087	187	300	3.54	13.44	0.90	12.0	3.4
Bituminous coal	3,592,931	3,259	10,998,411	300	482	3.37	19.83	0.90	17.8	5.3
Coke	245,881	222	728,234	197	316	3.28	14.29	0.90	12.9	3.9
Petroleum products										
Gasoline	117,508	107	593,649	242	389	5.55	36.63	0.90	33.0	6.0
Fuel and road oils	118,780	107	649,625	343	550	6.08	31.63	0.90	28.5	4.7
Refined petroleum, n.e.c.	83,283	75	893,454	587	944	11.91	57.69	0.90	51.9	4.4
Ores										
Iron ore	1,520,103	1,379	2,092,905	158	254	1.52	10.40	0.90	9.4	6.2
Iron and steel										
Manufactured iron and steel	327,490	296	3,239,333	437	702	10.94	27.71	0.90	24.9	2.3
Iron and steel pipe	84,394	76	1,385,341	792	1,274	18.22	58.63	0.90	52.8	2.9
Scrap iron	244,590	222	1,164,507	215	346	5.25	16.93	0.90	15.2	2.9

* Footnotes for Table 39 follow on p. 111.

Table 39

Calculation of Ruble-Dollar Ratios for Rail Freight Transportation
(Continued)

Commodity	Short Tons Originated, US, 1951 a/*	Metric Tons Originated, US, 1951 b/ (Thousand Metric Tons)	Freight Revenue Received by US Railroads, 1951 c/ (US $)	US Average Short-Line Haul per Short Ton d/ (Miles)	US Average Short-Line Haul per Short Ton e/ (Kilometers)	US Revenue per Metric Ton f/ (US $)	Soviet 1949 Rate per Metric Ton for US Average Haul g/ (Rubles)	Ratio of 1950 to 1949 Soviet Rate h/	Soviet 1950 Rate per Metric Ton, for US Average Haul i/ (Rubles)	Ratio j/ (Ruble-Dollar)
Mineral building materials										
Gravel and sand	584,591	530	665,093	85	137	1.26	8.50	0.75	6.4	5.1
Crushed stone	486,087	441	700,480	117	188	1.59	10.36	0.75	7.8	4.9
Phosphate rock	205,188	186	613,699	295	474	3.30	15.13	0.90	13.6	4.1
Lumber, shingles	280,123	254	3,566,262	1,090	1,754	14.03	72.05	0.85	61.2	4.4
Portland cement	286,107	260	1,244,865	170	273	4.80	19.00	0.90	17.1	3.6
Chemicals										
Sodium products	87,283	79	659,477	411	660	8.33	35.97	0.70	25.2	3.0
Fertilizers, n.e.c.	123,599	112	564,266	291	567	5.04	26.36	0.70	18.4	3.7
Chemicals, n.e.c.	83,712	76	1,225,770	808	1,300	16.13	65.04	0.70	45.5	2.8
Machinery and equipment										
Machinery, machines	32,704	30	865,018	803	1,292	28.83	123.00	0.80	98.4	3.4
Passenger automobiles	14,557	13	705,822	787	1,266	54.29	269.00	0.57	153.3	2.8
Vehicle parts, n.e.c.	74,380	67	1,664,942	751	1,208	24.85	118.50	0.80	94.8	3.8
Miscellaneous										
Paperboard, fiberboard	56,971	52	727,881	710	1,142	14.00	67.60	0.70	47.3	3.4
Feed	177,579	161	806,318	363	583	5.03	27.12	0.85	23.0	4.6
Total or average, all commodities	14,175,284	12,857	77,356,097	344	553	6.02				4.2

Table 39

Calculation of Ruble-Dollar Ratios for Rail Freight Transportation
(Continued)

a. One percent sample. 161/
b. One percent sample. Data in column 1 multiplied by 0.907 to convert to metric tons.
c. 162/
d. 163/.
e. Data in column 4 multiplied by 1.609 to convert to kilometers.
f. Column 3 divided by column 2.
g. All of the commodities listed were obtained from source 164/ with the following exceptions: for phosphate rock the rate for ores and ore concentrates was used; for refined petroleum, n.e.c., the rate for kerosine was used.
h. Rate reductions for 1950 over 1949 from source 165/.
i. Column 7 multiplied by column 8.
j. Column 9 divided by column 6, with the exception of the ratio for all commodities. This ratio was obtained by weighting the individual ruble-dollar ratios by the freight revenues for each commodity given in column 3.
k. Not elsewhere counted.

Table 40

Specifications, Prices, and Price Ratios of Highway Construction and Multistory Housing in the USSR and the US

Type of Construction	Specifications		Price		Ratio (Ruble-Dollar)
	USSR	US	Rubles per Unit	Dollars per Unit	
Highway	Black top highway, 6 meters (19.68 feet) wide, Leningrad	Bituminous concrete highway, 20 feet wide, N.Y. State	517,882 per kilometer a/	45,970.00 per kilometer b/	11.3
Housing	Multistory at Kishinev, Moldavian SSR, 1950-51	Multistory (low-cost housing), Buffalo, N.Y., 1950-52	1,407 per square meter c/	99.10 per square meter d/	15.4

a. 166/
b. 167/
c. 168/
d. 169/

APPENDIX C

GAPS IN INTELLIGENCE

The lack of information on Soviet prices in 1950 for various segments of the economy represents a major gap in intelligence.

Price data are not available for ordnance items, leather and leather products, and miscellaneous manufactures. Price data are inadequate or unavailable for the following machinery and equipment items -- agricultural machinery (other than tractors), locomotives and railroad equipment, aircraft, ships and boats, commercial machines, food products machinery, printing machinery, petroleum refining equipment, and most chemical equipment.

Currently, available ruble-dollar ratios for construction are inadequate. Research is being continued, however, in order to exploit available data and increase the coverage for this sector.

APPENDIX D

SOURCE REFERENCES

Evaluations, following the classification entry and designated "Eval.," have the following significance:

Source of Information	Information
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary."

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

25X1A5a1

1. [redacted]

2.

25X1A5a1

[redacted]

3. Organization for European Economic Cooperation. An International Comparison of National Products and the Purchasing Power of Currencies, by Milton Gilbert and Irving Kravis, nd. U. Eval. RR 2.
4. Bureau of the Budget. Standard Industrial Classification Manual, vol 2, May 49. U. Eval. RR 2.
5. CIA. CIA/RR 78, The Soviet Economy in 1955 and Plans for 1956-61, 21 Sep 56, p. 90-91. S.
6. President of the US. Economic Report of the President Transmitted to Congress, 24 January 1956, p. 168. U.
7. [redacted] 25X1A5a1
8.
9.
10. Kaser, M.C. "Soviet Statistics of Wages and Prices," Soviet Studies, Jul 55, p. 42. U. Eval. RR 3.
11. [redacted] 25X1A5a1
12. President of the US (6, above), p. 165. U.
13. Labor, Bureau of Labor Statistics. Industry Classification Manual for the 1947 Interindustry Relations Study, 20 Mar 53. U. Eval. RR 2.
14. Labor, Bureau of Labor Statistics. Table I - Interindustry Flow of Goods and Services, by Industry of Origin and Destination, Oct 52. U. Eval. RR 2.
15. [redacted] 25X1A5a1
16. Protopopov, S.N. Analiz khozyaystvennoy deyatel'nosti stroyek i stroitel'nykh organizatsiy (Analysis of the Economic Activity of Building and Construction Organizations), Moscow, 1952, p. 76, 251, 307. U. Eval. RR 2.
17. Kaser, op. cit. (10, above).
18. CIA. ORR Project 14.1541, Soviet Investment Policy and Selective Analysis of Investment Statistics (to be published). S.
19. Ibid.
20. CIA. ORR Project 14.441, Soviet National Accounts in Current Rubles for 1953 (to be published). S.
21. CIA. CIA/RR 78 (5, above), p. 93-94. S.
22. Ibid., p. 90-91. S.
23. Ibid., p. 93-94. S.

24. President of the US (6, above), p. 165. U.
25. Ibid., p. 199. U.
26. Labor, Bureau of Labor Statistics. Median Prices for Selected Items of Clothing, Shoes, and Textile Housefurnishings, Mar 50, unpublished. U. Eval. RR 2.

25X1A2g

27. [redacted]
28. Labor, Bureau of Labor Statistics. Median Prices for Selected Items of Clothing, Shoes, and Textile Housefurnishings, Mar 50, unpublished. U. Eval. RR 2.
29. Commerce, Bureau of the Census. Special rpt P-E no 1B, Occupational Characteristics, 1956. U. Eval. RR 2.
30. Commerce. "Incomes of Physicians, Dentists, and Lawyers, 1949-51," Survey of Current Business, Jul 52, p. 5-7. U. Eval. RR 2.
31. Ibid.
32. Commerce, Bureau of the Census. Special rpt P-E no 1B, Occupational Characteristics, 1956. U. Eval. RR 2.
33. Commerce. National Income, a Supplement to Survey of Current Business, 1954, p. 197. U. Eval. RR 2.
34. Ibid., p. 201. U. Eval. RR 2.
35. Commerce, Bureau of the Census. Statistical Abstract of the US, 1952, 73d, 1952, p. 219. U. Eval. RR 2.
36. Commerce. National Income, a Supplement to Survey of Current Business, 1954, p. 207. U. Eval. RR 2.
37. Health, Education, and Welfare. "Social Welfare Expenditures, Fiscal 1955," Social Security Bulletin, Oct 56. U. Eval. RR 2.
38. Commerce. Survey of Current Business, Jul 56, p. 21. U. Eval. RR 2.
39. Commerce, Bureau of the Census. Statistical Abstract of the US, 1956, 1956, p. 404. U. Eval. RR 2.
40. Commerce. National Income, a Supplement to Survey of Current Business, 1954, p. 209. U. Eval. RR 2.
41. Ibid., p. 208. U. Eval. RR 2.
42. Commerce, Bureau of the Census. Summary of Governmental Finances in 1955, 20 Aug 56, p. 26. U. Eval. RR 2.
43. Ibid.
44. Commerce. Survey of Current Business, Jul 56, p. 22. U. Eval. RR 2.
45. Ibid., p. 21. U. Eval. RR 2.
46. Commerce, Bureau of the Census. Statistical Abstract of the US, 1956, 1956, p. 243. U. Eval. RR 2.
47. CIA. FDD Summary no 794, 18 Jan 56, p. 120. OFF USE. Eval. RR 1.
48. USSR, Verkhovnyy Sovet SSSR. Zasedaniya verkhovnogo soveta SSSR, pervaya sessiya, stenograficheskoy otchet (Proceedings of the Supreme Soviet of the USSR, 1st Session: Stenographic Report), Moscow, 1954, p. 227. U. Eval. Doc. (hereafter referred to as USSR, Verkhovnyy Sovet SSSR. Zasedaniya)

49. Finansy SSSR, no 4, Apr 56, p. 19. U. Eval. RR 1.
50. CIA. FDD Translation no 566, 29 Jun 56, p. 247. OFF USE. Eval. Doc.
51. Ibid., p. 195. OFF USE. Eval. Doc.
52. Commerce. National Income, a Supplement to Survey of Current Business, 1954, p. 198. U. Eval. RR 2.
53. Ibid., p. 201. U. Eval. RR 2.
54. USSR, Ministry of Finance. Tsennik dlya sostavleniya smet v tsenakh deystvuyushchikh na 1 Yanvarya 1950 (Price List for Making Estimates in Prices Effective 1 January 1950), pt 1, Moscow, 1950, p. 415-417. U. Eval. Doc. (hereafter referred to as USSR, Ministry of Finance. Tsennik dlya sostavleniya)
55. USSR. Spravochnik metallurga po tsvetnym metallam (Metallurgist Handbook of Nonferrous Metals) vol 1, Moscow, 1953, p. 799-828. U. Eval. Doc.
56. NIS 26, sec 62-B, p. 62-9, 62-10. C.
57. Interior, US Bureau of Mines. Minerals Yearbook 1951, 1954, p. 316. U. Eval. RR 2.
58. Interior, US Bureau of Mines. Minerals Yearbook 1950, 1953, p. 363-364. U. Eval. RR 2.
59. Interior, US Bureau of Mines. Circular no 7538, Average Heating Values of American Coals By Rank and By states, Dec 49, p. 2. U. Eval. RR 2.
60. CIA. FDD Translation no 566, 29 Jun 56. OFF USE. Eval. Doc.
61. Interior, US Bureau of Mines. Minerals Yearbook 1951, 1954, p. 462. U. Eval. RR 2.
62. Ibid., p. 316. U. Eval. RR 2.
Interior, US Bureau of Mines. Minerals Yearbook 1950, 1953, p. 363-364. U. Eval. RR 2.
63. Commerce, Bureau of the Census. Census of Manufactures 1947, vol 2, 1949, p. 386-399. U. Eval. RR 2.
64. USSR. Spravochnik-tsennik na osnovnyye stroitel'nyye, tekhnicheskiye i vspomogatel'nyye materialy proizvodstvenno-tekhnicheskogo naznacheniya, ihstrumenty i avtozapchasti v tsenakh 1950 goda, uchetom snizheniya tsen 1 Yula 1950 (Price Handbook on Basic Construction, Technical, and Supplementary Materials for Technical Production Purposes, Instruments, and Automotive Spare Parts, 1950 Prices, Taking into Account the 1 July 1950 Price Reductions), vol 2, pt 1, Baku, 1950. U. Eval. Doc. (hereafter referred to as USSR. Spravochnik-tsennik, vol 2, pt 1)
65. Oil, Paint and Drug Reporter, 13 Feb 50. U. Eval. RR 2.
66. USSR, Ministry of Finance. Tsennik dlya sostavleniya (54, above), p. 390. U. Eval. Doc.

25X1A5a1

67. [redacted]
68. USSR, Ministry of Finance. Tsennik dlya sostavleniya (54, above), p. 338. U. Eval. Doc.
69. Ibid.
70. Ibid., p. 391. U. Eval. Doc.
71. Perry, John H., ed. Chemical Business Handbook, New York, 1954. U. Eval. Doc.
72. Labor, Bureau of Labor Statistics. Unpublished Industry Report. U.
73. Perry, op. cit. (71, above).
74. Platt's Oil Price Handbook and Oilmanac for 1950, Cleveland, 1951. U. Eval. RR 2.
75. USSR. Spravochnik-tsennik, vol 2, pt 1 (64, above).
76. Interior, US Bureau of Mines. Minerals Yearbook 1951, 1954, p. 992-1011. U. Eval. RR 2.
77. Commerce, Bureau of the Census. Annual Survey of Manufactures, 1951, p. 86-87. U. Eval. RR 2.
78. Interior, US Bureau of Mines. Minerals Yearbook 1951, 1954, p. 246. U. Eval. RR 2.
79. Commerce, Bureau of the Census. Annual Survey of Manufactures, 1951, p. 209. U. Eval. RR 2.
80. USSR, Ministry of Machine Tool Building. Preyskurant optovykh tsen na abrazivnyye izdeliya (Price List of Wholesale Prices for Abrasive Products), Moscow, 1949. U. Eval. Doc.

25X1A5a1

81. [redacted]
82. Engineering News Record, 6 Jul 50, p. 93, 97, 98. U. Eval. RR 2.
83. Stroitel'naya promyshlennost', no 8, Aug 55, p. 39. U. Eval. RR 2.
84. Ibid., p. 38-42. Eval. RR 2.
85. Means, Robert S. Building Construction Cost Data, 1951, Duxbury, Mass., 1951. U. Eval. RR 2.
86. Labor, Bureau of Labor Statistics. Prices and Price Relatives for Individual Commodities in the Revised Index 1947-50, group 11, Feb 52. U. Eval. RR 2.
Labor, Bureau of Labor Statistics. Prices and Price Relatives for Individual Commodities 1951-53, group 11, Oct 54. U. Eval. RR 2.
Labor, Bureau of Labor Statistics. Base Value Weights for Groups, Subgroups, Product Classes and Individual Commodities, Apr 52, p. 5. U. Eval. RR 2.
87. CIA. CIA/RR RA-9, Ruble-Dollar Ratios for Prices of Machine Tools, Metalforming Machinery, Textile Machinery, and Abrasive Products, 10 Oct 56, p. 35. C. Eval. RR 2.
88. USSR. Spravochnik-tsennik, vol 2, pt 1 (64, above), p. 199. U. Eval. Doc.

89. American Iron and Steel Institute Yearbook, 1950, New York, 1954. U. Eval. RR 2.
90. Commerce, Bureau of the Census. Annual Survey of Manufactures, 1951, p. 211-213. U. Eval. RR 2.
91. Ibid., p. 211. U. Eval. RR 2.
92. Interior, US Bureau of Mines. Minerals Yearbook, 1951, 1954. U. Eval. RR 2.
93. USSR, Ministry of the Coal Industry. Nomenklaturnyy spravochnik i tseny na materialy i oborudovaniye primenyayemyye v ugol'noy promyshlennosti: gruppa II: tsvetnyye metally (Nomenclature Handbook and Prices for Materials and Equipment Used in the Coal Industry: Group II: Nonferrous Metals), Moscow, 1950. U. Eval. Doc. (hereafter referred to as USSR, Ministry of the Coal Industry. Nomenklaturnyy spravochnik)
94. [redacted] 25X1A5a1
25X1A2g 95. [redacted]
96. Steel: the Magazine of Metalworking, Cleveland, 7 Jan 52, p. 558. U. Eval. RR 2.
97. USSR, Ministry of the Metallurgical Industry. Preyskurant optovykh tsen na kachestvennuyu stal' (List of Wholesale Prices for Standard Steel), Moscow, 1949. U. Eval. Doc.
98. [redacted] 25X1A2g
99. Steel: the Magazine of Metalworking, Cleveland, 7 Jan 52, p. 558. U. Eval. RR 2.
100. [redacted] 25X1A5a1
101. USSR, Ministry of Heavy Machine Building. Preyskurant optovykh tsen na lit'ye iz serogo chuguna, lit'ye stal'noye, pokovki molotovnyye i pressovyye shtampovki (Price List of Wholesale Prices for Gray Iron Castings, Cast Steel, Forged, Pressed, and Stamped Products), Moscow, 1949. U. Eval. Doc. (hereafter referred to as USSR, Ministry of Heavy Machine Building. Preyskurant tsen na lit'ye)
102. American Iron and Steel Institute Yearbook, 1950, New York, 1954. U. Eval. RR 2.
103. USSR, Ministry of Heavy Machine Building. Preyskurant tsen na lit'ye (101, above).
104. Commerce, Bureau of the Census. Annual Survey of Manufactures, 1951, p. 211-213. U. Eval. RR 2.
105. [redacted] 25X1A5a1
106. USSR, Ministry of the Coal Industry. Nomenklaturnyy spravochnik (93, above), p. 261-262. U. Eval. Doc.

107. Interior, US Bureau of Mines. Minerals Yearbook, 1951, p. 791. U. Eval. RR 2.

25X1A2g 108. [redacted]
109.

110. USSR, Ministry of Finance. Tsennik dlya sostavleniya smet v tsenakh 1949 g. (Price Handbook for Making Estimates in Prices of 1949), pt 3, Moscow, 1949. U. Eval. Doc.

111. Avtomobil'nyy transport, no 11, 1955. p. 7. U. Eval. RR 2.

112. USSR, Ministry of Machine Tool Building. Preyskurant optovykh tsen na metallorezhushchiye stanki i kuznechno-pressovoye oborudovaniye (Price List of Wholesale Prices for Metalcutting Machine Tools and Forging and Pressing Equipment), Moscow, 1950. U. Eval. Doc.

113. Office of Price Stabilization. Base Prices of Machine Tools, 2 Feb 53. U. Eval. RR 2.

114. Labor, Bureau of Labor Statistics. Wholesale Price Indexes for Special Groupings of Machinery and Steel Products, Washington, 1952. U. Eval RR 2.

115. Labor, Bureau of Labor Statistics. Prices and Price Relatives for Individual Commodities in the Revised Index 1947-50, group 11, Feb 52. U. Eval. RR 2.
Labor, Bureau of Labor Statistics. Prices and Price Relatives for Individual Commodities 1951-53, group 11, Oct 54. U. Eval. RR 2.
Labor, Bureau of Labor Statistics. Base Value Weights for Groups, Subgroups, Product Classes and Individual Commodities, Apr 52, p. 5. U. Eval. RR 2.

116. Office of Price Stabilization. Base Prices of Machine Tools, 2 Feb 53. U. Eval. RR 2.

117. Labor, Bureau of Labor Statistics. Prices and Price Relatives for Individual Commodities in the Revised Index 1947-50, group 11, Feb 52. U. Eval. RR 2.
Labor, Bureau of Labor Statistics. Prices and Price Relatives for Individual Commodities 1951-53, group 11, Oct 54. U. Eval. RR 2.
Labor, Bureau of Labor Statistics. Base Value Weights for Groups, Subgroups, Product Classes and Individual Commodities, Apr 52, p. 5. U. Eval. RR 2.

118. CIA. CIA/RR PR-98, Development and Potential of the Textiles Industry in the Soviet Bloc, 5 Feb 55, p. 34-35. S.

119. USSR, Ministry of Machine Building and Instrument Building. Preyskurant optovykh tsen na oborudovaniye dlya legkoy promyshlennosti i massovyye zapasnyye detali dlya tekstil'nykh, obuvnykh i trikotazhnykh mashin (Price List of Wholesale Prices of Equipment for Light Industry and Mass Spare Parts for Textile, Footwear, and Knitted Wear Machines), Moscow, 1949. U. Eval. Doc.

25X1A5a1

120. [redacted]
121. Ibid., p. 66, 69. U. Eval. RR 1.
122. USSR. Preyskurant optovykh tsen na turbiny parovyye, gidroturbiny, turbokompressornyye mashiny i turbonasosy (Price List of Wholesale Prices for Steam Turbines, Hydroturbines, Turbocompressor Machines and Turbine Pumps), Moscow, 1949. U. Eval. Doc.
123. [redacted] 25X1A2g
124. USSR, Ministry of Finance. Tsennik dlya sostavleniya (54, above).
125. USSR, Ministry of Communications Equipment Industry. Preyskurant optovykh tsen na svetotekhnicheskiye izdeliya (Price List of Wholesale Prices for Lighting Fixtures), Moscow, 1949. p. 5-7. U. Eval. Doc.
126. CIA. CIA/SI 82-52, Study of USSR Broadcast Receivers, 1 Dec 52. S/NOFORN.
127. [redacted] 25X1A2g
128. CIA. CIA/SI 82-52 (126, above).
129. CIA. CIA/RR 11, Soviet Bloc Production of Civilian Radio and Television Receivers, 26 Sep 52. S/NOFORN.
130. Ibid.
131. CIA. CIA/RR 11-S-1, Production of Civilian Radio and Television Receivers in the Soviet Bloc, 13 Dec 54. S/NOFORN.
132. [redacted] 25X1A5a1
133. FCC. Interstate Message Toll Telephone Rates, Effective 1 Feb 1946, Tariff FCC no 132, Mar 50. U. Eval. RR 2.

25X1A2g [redacted]

134. National Association of Railroad and Public Utilities Commission. Compilation of Local Service Telephone Rates in the US in Effect June 1953, Washington, May 53. U. Eval. RR 2.
135. [redacted] 25X1A2g
136. National Association of Railroad and Public Utilities Commission (134, above).
137. [redacted] 25X1A2g
138. Western Union. Annual Report to the FCC, form 0, 1950. U. Eval. RR 2.
139. [redacted]
140. [redacted] 25X1A2g

141. Ibid.
142. FCC. Statistics on the Communications Industry in the US for the Year Ended 31 December 1950, 1951. U. Eval. RR 2.
143. CIA. ORR Project 26-52 (WP), Soviet War Potential, 1952-57, 12 Jan 53. S.
144. FCC. Statistics on the Communications Industry in the US for the Year Ended 31 December 1950, 1951. Eval RR 2.
145. CIA. CIA/RR RA 12, Economic Intelligence Statistical Handbook, 26 Feb 57, p. 145. S.
146. FCC. Statistics on the Communications Industry in the US for the Year Ended 31 December 1950, 1951. U. Eval. RR 2.
147. Ibid.
148. CIA. ORR Project 26-52 (WP) (143, above).
149. Commerce, Bureau of the Census. Statistical Abstract of the US, 1952, 73d ed, 1952, p. 219. U. Eval. RR 2.
150. UN. Statistical Yearbook 1954, New York, 1954. U. Eval. RR 2.
151. Edison Electric Institute. Statistical Bulletin for the Year 1953, New York, May 54, p. 27, 45. U. Eval. RR 2.
152. USSR. Sbornik rukovodyashchikh materialov i konsul'tatsiy po stroitel'stvu (Handbook of Basic Materials and Consultations Relating to Construction), no 7, Moscow, 1949, p. 30. U. Eval. Doc.
153. Federal Power Commission. Electric Power Requirements in the USSR, 1950, 1952. S.
154. Edison Electric Institute. Statistical Bulletin for the Year 1953, New York, May 54, p. 27, 45. U. Eval. RR 2.
155. Ibid.
156. USSR. Sbornik rukovodyaschikh materialov i konsul'tatsiy po stroitel'stvu (Handbook of Basic Materials and Consultations Relating to Construction), no 7, Moscow, 1949, p. 30. U. Eval. Doc.
157. CIA. FDD R-293, 23 Jun 55. C. Eval. RR 2.
158. Edison Electric Institute. Pocketbook of Electric Industry Statistics, New York, 1955, p. 17, 36. U. Eval. RR 2.
159. Trud, 29 Mar 55. U. Eval. RR 2.
160. Kutsenov, V.A. Voprosy tekhnika-ekonomicheskogo proyektirovaniya krupnykh gidrostantsii v energosistemakh (The Problems of Technical-Economical Projecting of Large Hydroelectric Power Stations and Energy Systems), Moscow, 1953, p. 160. U. Eval. RR 2.
161. Interstate Commerce Commission, Bureau of Transport Economics and Statistics. Carload Waybill Analyses, 1951, Distribution of Freight Traffic and Revenue Averages by Commodity Classes, Terminations in 1951, statement no 5220, Washington, Jun 52. U. Eval. RR 2.

162. Ibid.
163. Ibid.
164. USSR. Spravochnik po tarifam zheleznodorozhnogo transporta (Handbook of Tariffs for Railroad Transport), Moscow, 1949. U. Eval. RR 1.
165. Chernomordik, D.I. Zheleznodorozhnyye gruzovyye tarify SSSR (Railroad Cargo Tariffs in USSR), Moscow, 1953. U. Eval. RR 2.
166. Lukjanow, W. Unpublished information from a ruble-dollar construction ratio study, appendix 16, Aug 55. U. Eval. RR 2.
167. Engineering News Record, no 3, 13 Jul 50, p. 101. U. Eval. RR 2.
168. [redacted] 25X1A2g
169. Engineering News Record, no 10, 4 Sep 52, p. 149. U. Eval. RR 2.