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FREIGHT TRANSPORTATION IN THE USSR

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## IX. Freight Transportation

1. The Soviet transportation system continued to grow in 1968-69, although showing signs of strain at times. Total freight traffic in 1968 increased 7 percent compared with the 1967 level, and grew 4 percent more in 1969 to 3,574 billion ton-kilometers, according to official preliminary data.

2. Two-thirds of this traffic was handled by the railroads. The role of the various modes of transportation in tons and ton-kilometers is shown in the tabulation below. The relative standing of the various modes differs greatly when measured by tons carried rather than ton-kilometers because of differences in the average length of haul, which is particularly short for motor transport.

3. Railroads still lead in ton-kilometers but in recent years other modes of transportation -- especially pipeline and maritime -- have been growing more rapidly (Table 1). Because of differences in the nature of the traffic, the average revenue per ton-kilometer of freight varies considerably among different modes of transportation. In the period since 1960, however, a value-weighted index of growth (Table 2) showed about the same rate as an index based on ton-kilometers.

USSR: Freight Traffic by Mode  
1968-1969 1/

	Tons Carried (million)		Average Length of Haul (kilometers)		Ton- kilometers (billion)		Percent			
	1968	1969	1968	1969	1968	1969	Tons Carried		Ton- kilometers	
							1968	1969	1968	1969
Railroads	2,705.6	2,760	841	856	2,274.8	2,362	16	16	67	66
Maritime	146.6	150	4,003	4,067	586.8	610	1	1	17	17
Oil Pipelines	301.3	324	717	756	215.9	245	2	2	6	7
Motor Transport	12,800.4	13,200	15	15	187.1	195	79	79	5	5
Inland Water	322.5	332	482	482	155.4	160	2	2	5	5
Air	1.637	1.7	1,101	1,118	1.803	1.9	Negl.	Negl.	Negl.	Negl.
Total	16,278.0	16,768	--	--	3,421.8	3,574	100	100	100	100

1. Data for 1968 are official Soviet statistics as published in Narodnoye khozyaystvo SSSR v 1968 godu, Moscow. 1969. Data for 1969 for oil pipelines and inland water transport are preliminary official Soviet figures reported in Pravda, January 25, 1970. Data in Pravda for railroads are presumed to refer to broad-gauge railroads only, based on past reporting; in the above table the rail figures include an allowance for traffic on narrow-gauge railroads for comparability with 1968 rail data. Motor transport was estimated by applying reported percentage increases for common carrier motor transport traffic to all motor transport. The estimate for maritime traffic assumes some underfulfillment of 1969 plans for more than 150 billion tons and 638 billion ton-kilometers (Vodnyy transport, 4 February 1969, p. 1), and is consistent with official reporting that the plan for overseas shipping was not fulfilled (Pravda, January 25, 1970). The maritime ton-kilometer estimate is a residual after subtracting the figures for all other modes from the total of 3,574 billion ton-kilometers reported in Pravda. Average length of haul for all modes is calculated from resulting tons and ton-kilometer estimates.

4. The railroads worked under considerable strain during 1968 and did not fully satisfy the demand for freight transportation, according to the public statements of Soviet officials, and the situation apparently worsened in 1969. Although annual plans for total rail freight traffic in both tons and ton-kilometers were overfulfilled in 1968 and more than 99 percent fulfilled in 1969, unduly large quantities of freight accumulated at producing enterprises, primarily the result of a continued tight supply of freight cars.\* Unusually bad weather contributed to difficulties in 1969.

5. During 1968-69 the USSR continued its long-range program of replacing steam locomotives with electric and diesel locomotives, a program undertaken to increase line capacity and to reduce operating costs. The USSR has found it worthwhile to electrify rail lines primarily because of the high freight density. Average net freight traffic density on Soviet electrified railroads in 1968 was 34 million ton-kilometers per kilometer of route, twice the national average of 17 million ton-kilometers per kilometer. Average net rail freight traffic density in the United States is only about 3 million ton-kilometers per kilometer, on a rail network almost 3 times as long as the Soviet and which carries only half of the ton-kilometers. In 1968 electric locomotives were responsible for 46 percent of all Soviet rail freight traffic, diesel locomotives 48 percent,

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\* The USSR does not publish statistics on freight car inventory, but one high-ranking Soviet official says that freight cars are used four times as intensively in the USSR as in the United States. Ekonomicheskaya gazeta, No. 34, August 1969.

and steam, 6 percent. In 1969 the steam share decreased to 4 percent. During 1968 and 1969 the length of route served by electric locomotives increased by about 3,100 kilometers, bringing the total to 32,200 kilometers, or 24 percent of the route length of the railroad network (now about 134,400 kilometers). Diesel locomotives operated on about 73,000 kilometers, or on 54 percent of the route.

6. The pace of railroad electrification in the USSR has been slowing and is significantly slower than once envisioned in long-range plans. The pace of construction of new rail lines and second track is even slower relative to long-range plans. It now appears that of the 7,000 kilometers of new rail lines that were originally scheduled to be commissioned during 1966-70 only 3,700 will be put in service, and only half of the planned 4,000 kilometers of second track will be commissioned. About 331 kilometers of new railroad lines were commissioned in 1968 and another 778 kilometers in 1969, compared with an average of about 1,000 kilometers annually during 1961-67. Construction has continued on such important new railroad lines as those to the new oil producing areas and to other areas of new development.

7. Motor freight transportation in the USSR is still largely a short-haul operation, although long-haul trucking is increasing. The average haul of motor freight traffic is only about 15 kilometers as compared with 856 kilometers on the railroad. The Soviet truck inventory is estimated at about one-fourth the US inventory. Soviet trucks generally

are in poor condition compared with US trucks for various reasons, including defects at time of manufacture, insufficient repair facilities, and a severe shortage of spare parts.

8. Greater attention is now being given to the long neglected road system. The 480,000-kilometer Soviet surfaced road network -- excluding dirt roads but including gravel and other inferior type surfaces -- is only one-tenth that of the US, and the Soviet network of asphalt and concrete roads is only one-fourteenth of the US figure. In August 1968 Soviet officials announced a stepped up highway construction program to provide for a yearly increase of about 20 percent in the construction of surfaced roads during 1971-80. As a result, 40,000 kilometers of new surfaced roads are to be commissioned in 1975 and more than 100,000 kilometers in 1980, compared with about 13,000 kilometers in 1968 and 15,000 kilometers planned for 1969.\* Soviet road building, however, will continue to be restricted by shortages of asphalt and construction machinery.

9. The Soviet oil pipeline network increased by 1,700 kilometers in 1968 and by another 2,700 kilometers in 1969, bringing the total to about 36,800 kilometers. Construction of oil pipelines has lagged behind needs for a long time. In recent years the pace of construction has suffered from

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\* These figures on new construction do not include all additions to the network of surfaced roads because Soviet data on the surfaced road network for recent years show increases about twice the size of new construction figures. The difference may represent surfacing that is classed as repair work rather than new construction.

the priority given to construction of gas pipelines, which compete for available pipe, labor, and funds. In 1968-69 the network of mainline gas pipelines was increased by 10,800 kilometers to a total of about 63,400 kilometers. Insufficient pipeline capacity of mainline oil and gas pipelines in some regions has been retarding the growth of oil and gas production and Soviet officials say pipeline construction needs to be accelerated. A substantial portion of the oil that now moves on the railroad could be transported much more cheaply by pipeline.

10. The Soviet merchant fleet continued to expand during 1968-69 and at the end of 1969 consisted of more than 1,300 ships with a total capacity exceeding 11 million deadweight tons. The fleet remained the seventh largest in the world and during 1968-69 carried more than half of Soviet seaborne foreign trade.

11. Soviet air freight transportation is small in terms of ton-kilometers, but it is of importance for the movement of mail and for freight with a high value-to-weight ratio, especially in remote regions not easily accessible by other modes of transportation. The tremendous growth of Aeroflot in the 1960's has been in passenger traffic rather than in freight.

# NOTE TO TABLES ON FREIGHT TRANSPORTATION

The data on freight traffic in the following tables are taken from Soviet statistical publications except for 1969 as noted above. Traffic reported for motor transport includes traffic carried by both common carrier transport organizations and other organizations and enterprises.

In constructing the index of the value of total freight traffic in Table 2, the individual ton-kilometer indexes were weighted by the estimated average revenue per ton-kilometer in the various modes of transport. Although it can be argued that an alternative set of weights based on unit costs would be more appropriate, an index of the value of total freight traffic based on such unit cost weights does not differ appreciably from the index presented in Table 2.



Table 1

USSR: Growth of Freight Traffic by Type of Carrier  
1960-69

	<u>All</u> <u>Carriers</u>	<u>Railroads</u>	<u>Motor</u> <u>Transport</u>	<u>Oil</u> <u>Pipelines</u>	<u>Inland</u> <u>Water</u>	<u>Maritime</u>	<u>Air</u>
	<u>Billion Ton-kilometers</u>						
1960	1,885.7	1,504.3	98.5	51.2	99.6	131.5	0.563
1961	1,998.2	1,556.6	105.7	60.0	106.0	159.1	.802
1962	2,116.9	1,646.3	111.9	74.5	109.9	173.4	.890
1963	2,301.7	1,749.4	119.7	90.9	114.5	226.3	.913
1964	2,521.5	1,854.1	132.1	112.1	124.5	297.6	1.141
1965	2,764.0	1,950.2	143.1	146.7	133.9	388.8	1.338
1966	2,918.3	2,016.0	155.3	165.0	137.7	442.8	1.445
1967	3,186.8	2,160.5	170.2	183.4	143.9	527.1	1.662
1968	3,421.8	2,274.8	187.1	215.9	155.4	586.8	1.803
1969	3,574	2,362	195	245	160	610	1.9
	<u>Index (1960 = 100)</u>						
1960	100	100	100	100	100	100	100
1961	106	104	107	117	106	121	142
1962	112	109	114	146	110	132	158
1963	122	116	122	178	115	172	162
1964	134	123	134	219	125	226	203
1965	147	130	145	287	134	296	238
1966	155	134	158	322	138	337	257
1967	169	144	173	358	144	401	295
1968	181	151	190	422	156	446	320
1969	190	157	198	479	161	464	337

Table 2

USSR: Value and Volume Indexes of the Growth  
of Total Freight Traffic  
1960-69

	Value <sup>1</sup>		Volume	
	Million Rubles	Index (1960 = 100)	Billion Ton- kilometers	Index (1960 = 100)
1960	16,379	100	1,885.7	100
1961	17,417	106	1,998.2	106
1962	18,468	113	2,116.9	112
1963	19,827	121	2,301.7	122
1964	21,723	133	2,521.5	134
1965	23,535	144	2,764.0	147
1966	25,134	153	2,918.3	155
1967	27,444	168	3,186.8	169
1968	29,754	182	3,421.8	181
1969	31,003	189	3,574	190

1. Expressed in terms of new rubles at 1955 prices. Sum of the value of production for each carrier. This was obtained by multiplying ton-kilometers by estimated average revenue for 1955 (new kopeks per ton-kilometer) as follows:

Railroads, 0.448 (1).

Motor transport, 8.78. Calculated from the rate per ton for class 2 freight (presumed typical) at the average haul distance in 1955, according to rates established July 1, 1955 (2).

Pipelines, 0.20. Estimated same as cost per ton-kilometer, which was calculated from ton-kilometers and total costs (3).

Inland water, 0.387. Cost plus profit (4).

Maritime, 0.297. Estimated same as cost per ton (5).

Air, 20.

SOURCE:

(1) Minsker, S. S., Compiler. Razvitiye zheleznodorozhnogo transporta v semiletii, sbornik statey, Moscow, 1960, p. 320.

(2) USSR Ministry of Automobile Transport and Highways. Spravochnik yedinykh tarifov na perevozku грузов avtomobil'nykh transportom, Moscow, 1955, p. 5.

(3) Akademiya Nauk SSSR, Institut Kompleksnykh Transportnykh Problem. Transportnyye izderzhki v narodnom khozyaystve SSSR, Moscow, 1959, p. 34.

(4) USSR Central Statistical Administration, Transport i svyaz' SSSR, Moscow, 1957, p. 24, Rechnoy transport, no. 2, 1957, p. 7.

(5) USSR Central Statistical Administration. Transport i svyaz' SSSR, Moscow, 1957, p. 24.