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MEMORANDUM FOR: Mr. Walt W. Rostow
Chairman, Policy Planning Council
Department of State
Washington, D. C.

SUBJECT: Industrial Production in the USSR
by Branch of Industry, 1927/28-1961

In response to your recent request, I am enclosing two copies of a study entitled "Industrial Production in the USSR by Branch of Industry, 1927/28-1961." Explanatory notes setting out the limitation of the data by the sector breakdown are fairly detailed and should be illuminating.

Special Assistant to the DD/I

Enclosures: (2)
"Industrial Production in the USSR
by Branch of Industry, 1927/28-1961"

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Industrial Production in the USSR by Branch
of Industry, 1927/28-1961

1. The attached tables present indexes of civilian industrial production in the USSR for the period 1927/28-1950, and overall (including military) industrial production for 1950-61. There is no comprehensive index available for the years before 1950 that embraces both civilian and military output in the USSR. An overall index that includes military machinery is constructed by the Office of Research and Reports, CIA, but is available only for the years 1950-61 (Line V of Table 1).

A civilian industrial production index for selected years in the period 1928-61 is shown in the attached tables. This is derived by linking two series: a civilian industrial production index constructed by Norman Kaplan and Richard Moorsteen for 1927/28-1950 (Indexes of Soviet Industrial Output, RAND Corporation, 1960, p. 235) and the CIA civilian industrial production index for 1950-61. The main differences between the two indexes are the following:

(a) The Kaplan-Moorsteen indexes are value-added weighted with 1950 weights, and the CIA indexes employ 1955 value-added weights. The CIA series have been regrouped to match the Kaplan-Moorsteen categories.

(b) Although both indexes embrace essentially the same subaggregates in the materials and consumer goods sector, the civilian machinery indexes differ significantly in coverage. The CIA index includes civilian aircraft, civilian shipbuilding, and civilian electronics (excluding radios and television sets) in addition to the coverage of the Kaplan-Moorsteen indexes.

(c) Other differences in coverage between the indexes are noted in the footnotes to Table 1.

2. In order to show a broader distribution by branch of industry, the branch structure of the Kaplan-Moorsteen indexes was supplemented by use of indexes constructed by G. Warren Nutter (The Growth of Industrial Production in the Soviet Union, Princeton, 1962). This was done for the following categories shown in Table 1: nonferrous metals; textile and allied products, and consumer durables including radios. The latter two groups are covered in the Kaplan-Moorsteen nonfoods indexes but they have not disaggregated these items.

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3. Although an index of military output (i.e., machinery production that is uniquely military) before 1950 does not exist, a crude indicator of change can be approximated between the two benchmark years 1940 and 1950. A surrogate is the Bergson munitions index (Abram Bergson, The Real National Income of Soviet Russia Since 1928, Cambridge, 1961, p. 566). Bergson derives munitions procurement as a residual by subtracting personnel pay and subsistence and other procurement from the announced defense budget. This index for 1940 on a 1950 base is 105.9. When the Kaplan-Morstein index for 1940 and 1950 is weighted to include this estimate, an aggregate industrial production index of 76.8 as contrasted to 71.2 is calculated for 1940 when 1950=100 (see Table 1).

4. Average annual rates of growth are shown in Table 2.

5. There are available (to date) only a limited number of output indicators for 1962. These have been used to make preliminary estimates for 1962 of annual rate of change for the five primary indexes shown in Table 1. (See Table 3)

Table 1

USSR: Indexes of Industrial Production, by Branch of Industry
Selected Years, 1927/28-1961 ^{a/}
(1950=100)

	1927/28	1932	1937	1940	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
I. <u>Industrial Materials</u>	21.4	41.1	66.5	71.5	43.1	51.5	60.4	75.1	89.1	100.0	113.7	122.8	131.6	146.1
<u>Ferrous metals b/</u>	15.7	24.5	66.1	68.0	43.3	48.8	55.3	69.7	85.9	100.0	115.1	128.4	140.8	152.1
<u>Nonferrous metals c/</u>	7.5	15.3	43.9	65.7	48.1	52.9	61.3	70.5	86.4	100.0	117.0	137.9	153.2	170.1
<u>Electric power</u>	5.5	14.8	39.7	53.0	47.5	53.3	62.0	72.7	85.9	100.0	113.9	130.4	147.0	164.1
<u>Fuels d/</u>	21.5	39.8	61.6	73.1	54.5	60.7	70.0	79.1	89.7	100.0	108.9	117.0	125.2	136.1
<u>Chemicals e/</u>	6.9	17.8	52.6	56.5	25.4	31.9	42.9	60.6	81.3	100.0	117.1	131.0	146.4	162.1
<u>Construction materials</u>	18.8	37.6	72.3	62.9	26.0	41.3	51.0	68.4	85.1	100.0	119.0	137.7	157.8	184.1
<u>Lumber, wood products, and paper</u>	28.7	56.8	72.9	78.7	42.5	52.4	61.6	79.5	93.0	100.0	113.3	114.0	115.2	129.1
II. <u>Aggregate Machinery f/</u>	--	--	--	--	--	--	--	--	--	100.0	110.1	115.1	123.8	137.1
<u>Civilian machinery (excluding consumer durables) g/</u>	6.8	19.5	40.9	34.3	13.6	23.3	35.0	55.0	78.4	100.0	98.4	100.4	113.5	127.1
<u>Military machinery h/</u>	--	--	--	--	--	--	--	--	--	100.0	120.0	127.4	132.4	145.1
III. <u>Consumer Goods</u>	54.3	59.4	89.1	98.3	40.2	49.1	61.4	76.8	89.7	100.0	118.1	126.4	139.8	157.1
<u>Food and allied products</u>	66.7	70.0	104.6	109.2	49.4	58.6	66.1	81.6	91.9	100.0	114.3	125.2	138.1	147.1
<u>Nonfoods</u>	46.4	52.7	79.4	91.4	34.4	43.1	58.5	73.8	88.3	100.0	120.3	127.3	140.8	162.1
<u>Textile and allied products i/</u>	63.1	58.7	84.4	97.8	38.5	46.9	62.0	76.0	88.8	100.0	119.6	125.6	137.1	152.1
<u>Consumer durables (including radios and TV's) j/</u>	2.7	12.2	63.3	39.9	4.7	10.9	25.0	55.8	78.2	100.0	127.5	144.9	180.8	269.1
IV. <u>Total Civilian Industrial Output k/</u>	27.1	41.6	67.4	71.2	36.6	45.4	55.7	71.7	87.2	100.0	111.7	119.1	130.8	146.1
V. <u>Total Industrial Output (including military)</u>	--	--	--	--	--	--	--	--	--	100.0	113.6	121.2	131.2	146.1

Notes to Table 1

- a. The production year for 1927/28 is 1 October 1927 to 30 September 1928. Production measures in all other years are for calendar years. Unless indicated below, the source for all indexes for the selected years of the period 1927/28-1950 are from: Norman Kaplan and Richard Moorsteen, Indexes of Soviet Industrial Output, RAND Corporation Memorandum No. 2495, 1960. For three commodity groups -- nonferrous metals, textile and allied products, and consumer durables including radios -- in this period the following source is used: G. Warren Nutter, The Growth of Industrial Production in the Soviet Union, Princeton, 1962. For the years 1951-61 indexes of industrial output constructed by the Office of Research and Reports, CIA, were used.
- b. Rolled steel products only in the CIA index. Kaplan-Moorsteen include iron ore, pig iron, coke, steel ingots and castings, and rolled products.
- c. A separate index for nonferrous metals is not included in the Kaplan-Moorsteen indexes. Since they give the ferrous metals branch the weight for both ferrous and nonferrous metals, it amounts to assuming identical rates of increase for the two commodity groups (RM 2495, p. 30-31). The index given above is the Nutter index for 1928-50. It includes copper, lead, and zinc. The CIA nonferrous metals index includes copper, lead, zinc, aluminum, mercury, tin, antimony, and magnesium.
- d. The Kaplan-Moorsteen fuels index includes coal, crude petroleum, natural and manufactured gas, peat, and shale. The CIA index includes coal and petroleum and gas products.
- e. The Kaplan-Moorsteen chemicals index includes fertilizer, caustic soda, soda ash, sulfuric acid, and motor vehicles tires. The CIA chemicals index in addition to these items includes synthetic ammonia, nitric acid, chlorine, benzol, tolulol, phenol, ethyl alcohol, synthetic rubber, plastics, paints and varnishes, artificial and synthetic fibers, synthetic dyes, and wood chemicals.
- f. The CIA aggregate machinery index includes both civilian and military machinery series. In accordance with the Kaplan-Moorsteen treatment of consumer durables (including radios and television sets), these items have been shifted from the civilian machinery sector to the consumer goods sector.
- g. The CIA civilian machinery index includes civilian electronics (excluding radios and television sets), civilian aircraft, and civilian shipbuilding in addition to the coverage of the Kaplan-Moorsteen index. The latter index includes transportation equipment, agricultural machinery, metallurgical, chemical, and petroleum refining equipment, equipment for light industry, metal working equipment, construction and road building equipment, electric power equipment, and hoist-transport equipment.

Table 3

USSR: Annual Rate of Growth in 1962 of Industrial
Production -- Preliminary Estimates of
Selected Categories from Table 1

	<u>Percent</u>
	<u>1962</u>
I. Industrial Materials	6.5
II. Aggregate Machinery	11.0
III. Consumer Goods	5.7
IV. Total Civilian Industrial Output	6.5-7.0
V. Total Industrial Output (including military)	7.5-8.0

- h. The Kaplan-Moorsteen index excludes military machinery. See text for a rough calculation of the effect of military machinery on overall industrial growth between 1940 and 1950.
- i. Kaplan-Moorsteen do not disaggregate the nonfoods category in the manner shown above. The Nutter index for textile and allied products for 1928-50 is used.
- j. The Nutter index for 1928-50 for consumer durables, including the output of radios but excluding television sets.
- k. The Kaplan-Moorsteen civilian industrial production index for the indicated years from 1927/28-1950 has been linked to the CIA civilian industrial index for 1950-61. The coverage of the CIA civilian industrial index is slightly different than the coverage included in the several branches of industry shown in the table.

Table 2

USSR: Average Annual Rates of Growth in Industrial Production, by Branch of Selected Years, 1929-61

	<u>1929-32</u>	<u>1933-37</u>	<u>1938-40</u>	<u>1946-50</u>	<u>1951-5</u>
I. <u>Industrial Materials</u>	16.5	10.1	2.5	18.4	10.3
Ferrous metals	11.0	22.0	1.0	18.2	11.1
Nonferrous metals	19.4	23.5	14.2	15.8	14.1
Electric power	26.3	21.8	10.1	16.1	13.1
Fuels	15.6	9.1	5.8	12.9	9.3
Chemicals	24.9	23.7	2.4	31.5	13.2
Construction materials	17.7	14.0	-4.5	30.9	17.2
Lumber, wood products and paper	17.5	5.1	2.6	18.7	5.9
II. <u>Machinery</u>	--	--	--	--	8.9
Civilian machinery (excluding consumer durables)	28.2	16.0	-5.7	49.0	8.1
Military machinery	--	--	--	--	9.5
III. <u>Consumer Goods</u>	2.1	8.5	3.3	20.0	11.3
Food and allied products	1.2	8.2	1.5	15.1	9.7
Nonfoods	3.0	8.6	4.8	23.8	12.1
Textile and allied products	-1.8	7.6	5.1	21.0	10.1
Consumer durables (including radios and TV's)	45.3	39.0	-14.3	85.5	28.1
IV. <u>Total Civilian Industrial Production</u>	10.6	10.1	1.9	22.3	10.1
V. <u>Total Industrial Production (including military)</u>	--	--	--	--	10.1

a. The base year for the computations is the preceding year.