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The Soviet Economy in 1978-79 and Prospects for 1980

A Research Paper

*ER 80-10328
June 1980*

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on 1 June 1980.*

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Table 1

Average Annual Percent Change

USSR: Growth of Gross National Product ¹, by Sector of Origin, Selected Periods

	1966-70	1971-75	1976-77	1978-79
GNP	5.3	3.8	4.1	2.1
Agriculture ²	3.9	-0.5	6.6	-1.2
Nonagricultural sectors	5.7	5.1	3.5	2.9
Industry	6.4	6.0	4.1	3.0
Construction	5.9	5.6	3.0	1.7
Transportation	7.5	6.6	3.3	3.6
Communications	8.9	7.3	6.0	5.6
Trade	6.8	4.6	3.5	2.3
Services	4.2	3.5	3.1	3.2
Other	3.8	1.8	0.9	1.3

¹ Calculated at factor cost.² Excludes intra-agricultural use of farm products but does not make an adjustment for purchases by agriculture from other sectors. Value added in agriculture grew by an average of 3.5 percent in 1966-70, -2.0 percent in 1971-75, 7.3 percent in 1976-77, and -2.3 percent in 1978-79.**Table 2**

Average Annual Percent Change

USSR: Growth of Gross National Product, Factor Inputs, and Factor Productivity

	1961-70	1971-75	1976-77	1978-79	1976-80 Plan
GNP	5.2	3.8	4.1	2.1	5.0
Factor inputs	4.3	4.2	3.6	3.6	3.5
Man-hours	1.8	1.7	1.3	1.4	1.5
Capital	8.1	7.9	7.2	6.9	6.5
Land	0.1	0.8	-0.1	0	0.5
Factor productivity	0.9	-0.4	0.5	-1.4	1.4

The Soviet Economy in 1978-79 and Prospects for 1980

Overview

The Soviet economy slowed to a crawl in 1978-79. The average annual GNP growth rate of 2.1 percent was the lowest for any two-year period since World War II.* Farm output declined during the period, primarily as a result of last year's major grain crop failure, while growth in almost every other major sector of the economy fell considerably below that of recent years (see table 1).

The economy's poor performance was attributable, in part, to unusually harsh weather during the period. Record-breaking cold during the 1978-79 winter crippled transport, hampered factory operations, and raised the demand for energy—causing substantial losses in industrial production. A prolonged drought over most of the European USSR last spring and summer was the main reason for agriculture's downturn.

The severity and the wide-ranging nature of the slowdown, however, reflect more fundamental problems. After 25 years of sustained high rates of growth—fueled by ever larger amounts of capital and labor—the Soviet economy has entered a period of increasing strain. During the past two years, the USSR has experienced (a) a virtual leveling-off of oil output and a decline in coal production, (b) a major rise in raw material costs, and (c) a falloff in investment growth. These problems cannot be overcome easily and will restrict growth through much of the 1980s. On top of these problems, and partly because of them, overall resource productivity (output per unit of combined inputs of labor, capital and land) is declining and prospects for a turnaround are bleak (see table 2). How to raise productivity is now the key economic question facing Soviet leaders as they enter the 1980s.

Because of the economy's lackluster showing during the past two years, the lot of the average Soviet citizen improved little. Growth in per capita consumption was less than 2 percent annually in 1978-79. Per capita meat production—a key indicator of improved living standards—dipped slightly in 1979 compared with 1978, while housing, automobiles, refrigerators, and other high priority consumer items remained in short supply.

** Underlying the 2.1-percent rate for 1978-79 was a 3.5-percent increase in GNP in 1978 and a 0.7-percent increase in 1979. See the appendix for an annual breakdown of GNP growth by sector of origin since 1970 and an index of GNP growth by sector of origin since 1965.*

On a brighter note, record grain imports of 31 million tons in calendar year 1979 and additional large purchases this year have enabled Moscow to avoid the massive distress slaughtering that otherwise would have resulted from last year's disastrous grain harvest. In addition, Moscow was able to take advantage of the runups in the world price of oil and gold to increase hard currency imports and still earn a hefty current account surplus.

Contents

	<i>Page</i>
Overview	iii
Agriculture: A Major Disappointment	1
Industry: No Longer a Growth Leader	2
Energy: Struggle To Boost Output	3
Oil	4
Coal	6
Natural Gas	6
Electricity and Nuclear Power	6
Conservation	7
Ferrous Metals	7
Machinery	8
Chemicals	8
Transport	8
Resource Availability and Use	10
Labor Force	10
Slowdown in Capital Formation: Future Impediment to Growth	10
Skyrocketing Raw Material Costs	12
Efficiency of Resource Use	13
Consumers Receive Little	14
Defense	16
Hard Currency Trade: Some Windfall Gains	16
Imports	16
Exports	17
Balancing the Books	17
Leadership Perceptions	18
Outlook for 1980	19
Energy Outlook Grim	19
Prospects for Other Industrial Sectors	21
Agricultural Rebound Likely	22
Consumption Gains Doubtful	22
Trade Outlook Uncertain	23
Statistical Appendix	25

Tables

1.	Growth of Gross National Product, by Sector of Origin	ii
2.	Growth of Gross National Product, Factor Inputs, and Factor Productivity	ii
3.	Production of Major Crops and Livestock Products	1
4.	Livestock Inventories	2
5.	Growth in Industrial Production	4
6.	Growth in Ferrous Metals Output	9
7.	Growth in Chemicals and Petrochemicals Output	9
8.	Total Freight Traffic Statistics	10
9.	Indicators of Capital Formation	12
10.	Hard Currency Balance of Payments	17
11.	Machinery Orders Placed With Hard Currency Countries	17
12.	The 1980 Plan in Perspective	19
A1.	Growth of Gross National Product, by Sector of Origin	25
A2.	Index of Gross National Product Growth, by Sector of Origin	25

Figures

1.	Value of Livestock in Privately Owned Herds	3
2.	Energy Production	5
3.	Oil Production Trends and Projections	11
4.	Growth in Average Distance of Transport for Selected Fuels	13
5.	Increments to the Working-Age Population	14
6.	Combined Factor Productivity for Industry	15
7.	Gap Between the Average Levels of State Retail Prices and Collective Farm Market Prices for Food	20
8.	Productivity of Key Industrial Commodities	21

The Soviet Economy in 1978-79 and Prospects for 1980

Agriculture: A Major Disappointment

Last year's poor grain harvest of 179 million tons—58 million tons below the record level of 1978—together with declines in production of most other crops caused farm output to drop by almost 6 percent, more than offsetting the previous year's growth of 3.4 percent. Only cotton and eggs, which showed record production levels, did much better than planned in 1979 (see table 3).

As usual, weather was the main factor affecting agriculture's performance. A prolonged drought in most of the European USSR during the spring and summer of 1979 cut grain yields sharply and reduced

pasture and forage crop availabilities dramatically. Record grain imports of 31 million tons¹ in calendar year 1979 precluded massive slaughter of livestock (see table 4), but were not sufficient to sustain increases in output of meat and milk. Indeed, per capita production of meat declined by 1 percent in 1979.

Increased supplies of livestock products—hoped for as a result of encouraging production in the private sector—did not materialize.² The initial 6-percent

¹ Including purchases of roughly 3 million tons for client states.
² The private sector supplies more than 25 percent of the USSR's total farm output, including more than 30 percent of its livestock products.

Table 3

USSR: Production of Major Crops and Livestock Products

	1971-75	1976	1977	1978	1979
	Average Annual Percent Change				
Major crops ¹	-1.4	20.1	-5.3	9.6	-8.8
Livestock products ²	3.6	-5.6	6.9	3.4	-0.2
	Million Metric Tons				
Grain ³	181.6	223.8	195.7	237.4	179.0
Potatoes	89.8	85.1	83.7	86.1	90.3
Sugarbeets	76.0	99.9	93.1	93.5	76.0
Sunflower seed	6.0	5.3	5.9	5.3	5.4
Cotton	7.7	8.3	8.8	8.5	9.2
Vegetables	23.0	25.0	24.1	27.9	25.8
Meat (slaughter weight)	14.0	13.6	14.7	15.5	15.5
Milk	87.4	89.7	94.9	94.7	93.3
Wool	0.44	0.44	0.46	0.47	0.47
	Billion Units				
Eggs	51.4	56.2	61.2	64.5	65.6

¹ Net of seed and estimated waste.

² Excluding changes in inventories of herds.

³ Measured in "bunker weight," that is, gross output from the combine, which includes excess moisture, unripe and damaged kernels, weed seeds, and other trash. In order to compare Soviet

grain output with that of other countries, a downward adjustment of an average 11 percent is in order. The actual discount for any year depends on average moisture at the time of harvest and the size of the total crop.

Table 4**USSR: Livestock Inventories**

	1971	1975	1976	1977	1978	1979	1980
	Index: ¹ 1971=100						
Livestock	100.0	109.0	106.1	106.9	111.0	112.8	113.6
Socialized	100.0	113.6	111.5	113.4	117.2	119.8	120.9
Private	100.0	95.2	89.9	87.2	92.3	91.7	91.4
	Million Head ²						
Cattle	99.2	109.1	111.0	110.3	112.7	114.1	115.0
Socialized	74.3	84.6	87.6	87.5	89.4	91.0	92.0
Private	24.9	24.5	23.4	22.8	23.3	23.1	23.0
Hogs	67.5	72.3	57.9	63.1	70.5	73.5	73.7
Socialized	50.9	58.6	45.7	51.3	55.7	58.7	59.0
Private	16.6	13.7	12.2	11.8	14.8	14.8	14.7
Sheep and goats	143.4	151.2	147.1	145.3	146.6	148.1	149.2
Socialized	110.2	119.2	117.7	116.5	117.2	118.9	119.7
Private	33.2	32.0	29.4	28.8	29.4	29.2	29.5

¹ Weighted by average prices paid all producers in 1970.

² As of 1 January of the stated year.

sput in the value of private livestock holdings that occurred in 1977 has not continued (see figure 1). Private holdings declined by nearly 1 percent in 1978 and were off fractionally again in 1979. Although the leadership continues to stress the need to provide official support to the private sector, the press is replete with comments describing the difficulties private livestock owners have experienced obtaining feed and the problems in marketing surplus products.

Other problems which bode ill for future farm output also affected agriculture's performance last year. Farm receipts of tractors and fertilizers, including feed additives were down from the 1978 level (see the tabulation below):

	Tractors (Thousands)	Fertilizer (Million Metric Tons) ¹
1976	386.4	77.7
1977	364.6	79.8
1978	370.6	81.2
1979	354.0	78.6

¹ Expressed in Soviet standard units. In 1978 the 81.2 million tons of fertilizer were equivalent to 18.8 million tons of nutrients.

Overall, investment in agriculture grew by just 2 percent in 1979—one-half the 1978 rate and only one-fifth the 10-percent yearly average in 1971-75.

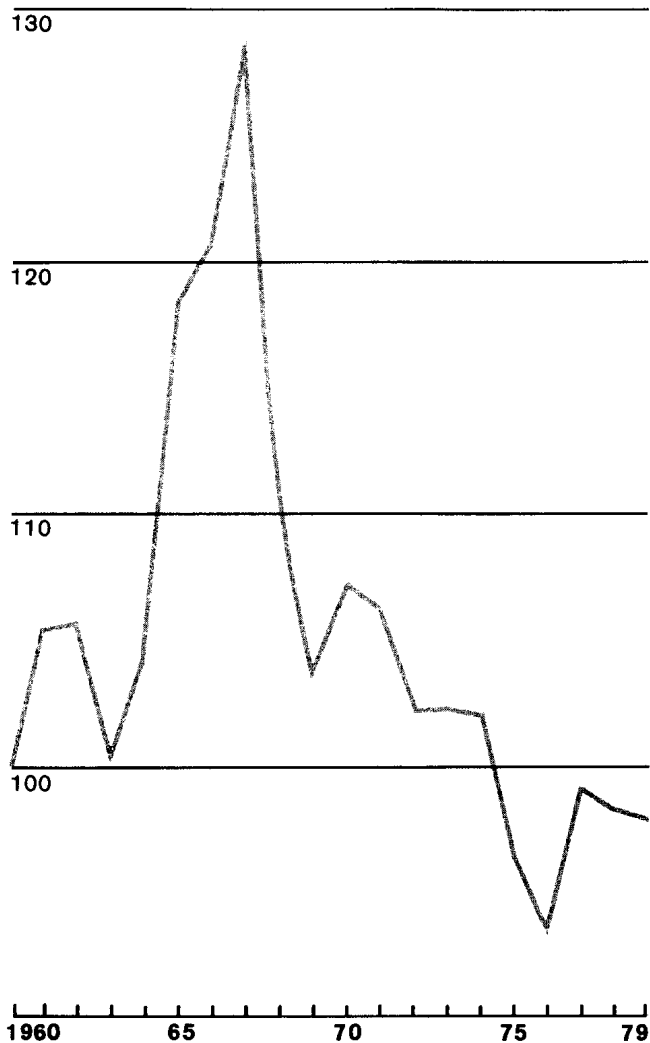
Industry: No Longer a Growth Leader

Faltering under the strains of transportation snarls and inadequate supplies of raw materials, Soviet industrial growth continued its downward slide in 1978-79, posting an increase of 3.8 percent in 1978 and a record low 2.2 percent last year (see table 5). Shortfalls in the production of key industrial commodities—especially steel, oil, coal, construction materials, and chemicals—contributed to an abrupt slowdown in the production of investment goods and brought growth in construction activity to a standstill.³ Although production shortfalls are common in the Soviet economy, the stringencies encountered during the past two years were unusually

³ As a result, new fixed investment growth slowed from 6.1 percent in 1978 to 0.9 percent in 1979.

USSR: Value of Livestock in Privately Owned Herds Figure 1

Index: 1960=100¹



¹End-of-year.

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severe and reflect problems that have become mutually reinforcing. In particular:

- Reduced energy growth and stringent allocations, especially during the severe 1978-79 winter, disrupted operations in a broad range of industries and transportation facilities.

- Failure to bring new capacity on stream has delayed the introduction of materials and labor-saving technology which, in turn, hampered efforts to conserve resources.
- Shortages in domestic steel output have slowed growth in machinery production and contributed to shortages in drilling equipment and pipe, preventing planned increases in exploration.
- Bottlenecks in rail transportation, caused in part by declining output of railroad equipment, and the failure to repair existing stock disrupted deliveries of raw materials and industrial products.

Energy: Struggle to Boost Output

The past two years marked a turning point in Soviet energy production. After increasing at a 5.0-percent annual rate for more than a decade, growth in primary energy fell to 4.2 percent in 1978 and 3.4 percent last year (see figure 2). Growth in oil production dropped precipitously, while coal output declined. Natural gas, which continued to expand at a near record-breaking pace, was the one bright spot in the Soviet energy picture.

Soviet leaders have responded to their energy problems by boosting investment in oil and gas on a crash basis (at the expense of other sectors) and by stepping up the drive for energy conservation. In December 1977, President Brezhnev established the fuel-energy sector as a "leading link," meaning that the sector had priority for investment that would achieve "maximum and rapid results." In effect, the investment program originally planned for the 10th Five-Year Plan (1976-80) in primary energy was scrapped in favor of a more ambitious undertaking. In 1978, for example, the increment in investment in oil, gas, and coal increased by more than 50 percent and accounted for almost one-half the increase in total industrial investment.⁴ Despite these actions, we believe the downward spiral in the growth of Soviet energy production will continue.

⁴ In comparison, the increment in investment in oil, gas, and coal in 1975 accounted for only 15 percent of the increase in total industrial investment that year.

Table 5

Average Annual Percent Change

USSR: Growth in Industrial Production

	1971-75	1976	1977	1978	1979
Industrial production	6.0	4.1	4.1	3.8	2.2
Industrial materials	5.5	3.6	2.9	2.4	0.4
Ferrous metals	4.0	2.7	0.9	2.9	-0.9
Crude steel	4.1	2.5	1.3	3.3	-1.6
Rolled steel	4.1	2.8	0.7	3.2	-1.9
Steel pipe	5.1	5.3	1.3	3.1	3.7
Primary energy	5.0	5.1	4.9	4.2	3.4
Coal	2.4	1.5	1.5	0.2	-0.7
Oil	6.8	5.9	5.0	4.7	2.4
Natural gas	7.9	11.0	7.8	7.6	9.4
Electricity	7.0	6.9	3.6	4.5	3.1
Construction materials	5.4	3.5	1.8	0.6	-2.5
Cement	5.1	1.8	2.3	-0.8	-3.2
Slate	4.8	3.5	-10.0	NA	NA
Soft roofing	5.7	7.1	-2.5	1.6	NA
Machinery	8.2	6.0	6.1	6.4	5.0
Consumer nondurables	3.3	1.4	3.2	1.9	0.5
Food	3.9	-1.0	3.8	2.1	0.5
Soft goods	2.7	4.2	2.5	1.8	0.4

NA—not available.

Oil. Soviet oil production has been on a virtual plateau since October 1978. During 1979, output averaged 11.7 million barrels per day (b/d)—the same as during the fourth quarter of 1978. Because production in the early months of 1979 was above the corresponding period in 1978, however, last year's total output was 2.4 percent higher.

Nearly all the increase in oil production in 1978-79 came from West Siberia. The supergiant Samotlor field, which by itself accounted for roughly 25 percent of total production, may have reached peak output in 1979. Large increases in output had been expected from newer, smaller, more remote fields in West Siberia, but because of severe winter weather, shortages of oilfield equipment, and rail transport bottlenecks, they failed to reach production goals.

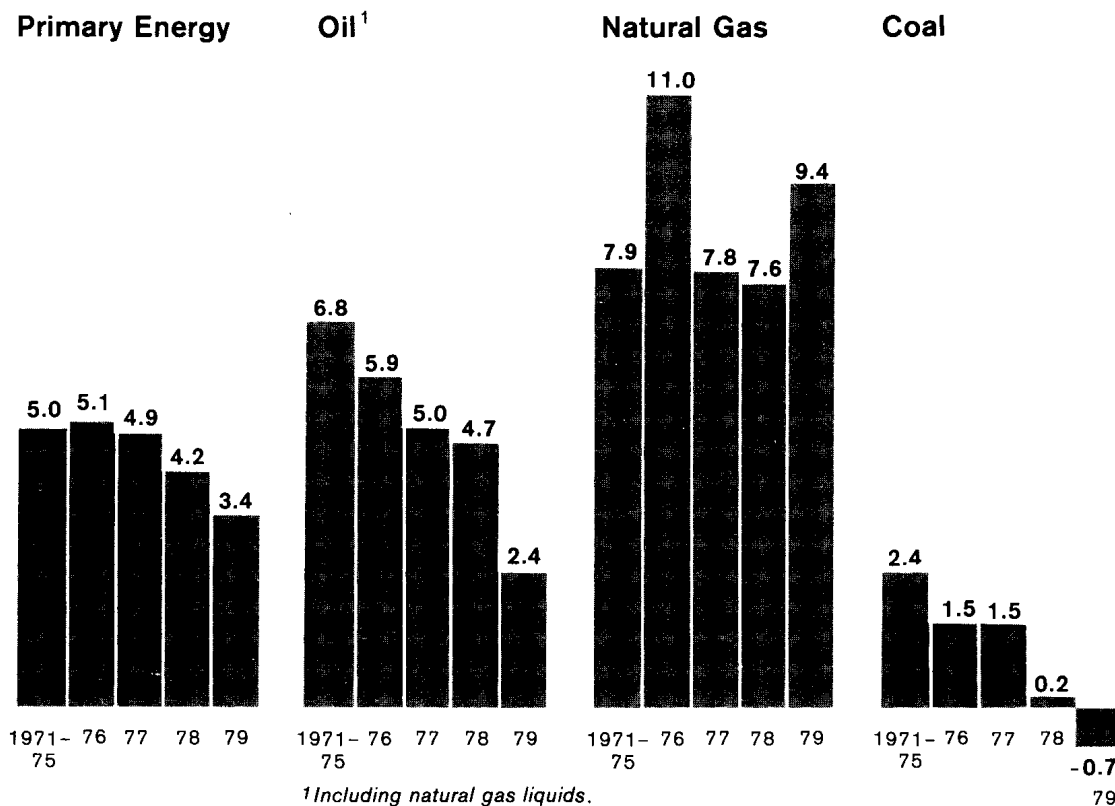
Production in basins outside West Siberia also proved a disappointment to Moscow. Despite efforts to boost output in the Urals-Volga region through enhanced methods of recovery, production dropped from about 4.2 million b/d in 1978 to about 4 million b/d last year. Output in other regions declined for the most part during the period and is now running at some 2 million b/d.

Most indicators of Soviet oil production point to continued trouble. With production dropping both in the older areas and, in the not too distant future, at Samotlor, the Soviets will have to develop new fields at a far greater rate than they have been able to do so far to keep national production from falling as well. Although Moscow has been pouring large investments into West Siberia, it is unlikely that declining output can be forestalled after 1980.

USSR: Energy Production

Figure 2

Average Annual Percent Change



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The USSR's perceptions of its energy situation have become more pessimistic in recent months and Soviet leaders and bureaucrats alike have become more candid in discussing their energy problems:

- Vladimir Dolgikh, the Communist Party's secretary for heavy industry, acknowledged in a recent article that oil production plans for the key West Siberian region are unrealistic without major improvements in technology and productivity. He admitted that with existing technology and at current tempos production plans could only be achieved by increasing the number of drillers by hundreds of thousands.⁵

⁵ While Dolgikh specifically cites labor shortages as the main bottleneck in West Siberia, we believe the lack of drilling rigs for both production and exploration is the major constraint on raising output. See *Partinnaya zhizn*, January 1980.

- Alexander Krylov, a member of the Soviet Academy of Sciences and a leading petroleum expert, noted in another recent article that if present Soviet exploitation methods continue, production of oil will soon peak and then start to fall. Krylov places the blame squarely on the Soviet planning system which rewards oil producers on the basis of the number of meters drilled.⁶

⁶ Crews in the USSR are paid bonuses on the basis of meters drilled, rather than on the amount of oil recovered. This often prompts Soviet drilling crews to continue drilling in areas which should be abandoned. See the article "O tempakh razrabotki neftyanykh mestorozhdeniy" in the January 1980 issue of *Ekonomika i organizatsiya promyshlennogo proizvodstva*.

Large unexplored areas of the USSR may contain substantial oil and gas, but they are remote and their potential is unknown. Soviet exploratory drilling has not increased for years because of continuous pressure to raise oil output through further development of known fields. In any event, it would take a decade or more to attain commercial production in any large offshore or remote onshore fields that may be found.

Coal. Substantial increases in coal production—on which Soviet planners were counting heavily—did not materialize during the past two years. In fact, Soviet coal production in 1979 totaled 719 million tons, 3 million tons less than in 1977 and 33 million tons below plan. Coal output declined even more in terms of average heat output, when measured in standard coal equivalents (7,000 kilocalories per kilogram), because of the larger share of low-grade Siberian coal in total production.⁷

Although the decline in coal production has affected most coal regions, problems appear to be most severe in the Donets Basin—the country's largest producer of high-quality steam and metallurgical coal—where output has stagnated in recent years. The Soviets advance a number of reasons for the industrywide shortfalls, including:

- Increasingly difficult mining conditions, especially in traditional coal areas in the European USSR.
- A reduction in the average workweek at some mines in the Donets Basin from 36 to 30 hours.⁸
- Labor shortages in several basins.
- Shortages of rail cars.

Aside from these problems, production has been held back by a slowdown in the commissioning of new capacity and an increase in mine depletion, especially in coal basins in European USSR. Gross annual commissionings of new capacity fell to an average of 20 million tons during 1976-79, the lowest level in almost

⁷ For a full discussion of the problems in the Soviet coal industry, see *USSR: Coal Industry Problems and Prospects*, March 1980, ER 80-10154.

⁸ Since 1976 the Soviets have reduced the underground miners' workweek from 36 to 30 hours in those mines with particularly arduous working conditions. The transfer of miners to a shortened workweek is reportedly well advanced in the Donets Basin where the program was launched. Plans call for a 30-hour workweek to be phased in at all mines with steeply sloping or narrow seams, heavy dust, or risk of methane gas.

a decade. At the same time annual depletion increased to more than 15 million tons, up from about 7.2 million tons 10 years ago. More than three-fourths of gross annual commissionings now simply offset mine depletion.⁹

Natural Gas. Soviet gas output continued to expand at a near record-breaking pace in 1978-79. Production in 1979 totaled 14.4 trillion cubic feet (tcf), 1.2 tcf above the 1978 level. More significantly, the jump in gas output last year accounted for more than two-thirds of the growth in total energy supplies.

West Siberia was responsible for practically all the growth in Soviet gas output, with production reaching 3.3 tcf in 1978 and more than 4.3 tcf in 1979. This outstanding production record was achieved despite the fact that only three (Medvezhye, Urengoy, and Vyngapur) of more than a dozen important fields have been exploited.

The cost of developing these remote gas resources has been enormous. During 1979 about one-third of the total investment allocated for the three major fuels (gas, oil, and coal) was slated for the gas industry, whereas its share in 1970 was only 20 percent. In West Siberia alone the value of fixed assets in the gas industry has skyrocketed at least tenfold since 1972. Investment costs for new pipeline systems are a major component as greater volumes of gas are sent over longer distances. During the past 10 years, the average distance of gas transport roughly doubled, reaching nearly 1,800 kilometers in 1979.

Electricity and Nuclear Power. Annual growth in electricity production averaged an alltime low of less than 4 percent in 1978-79, well below the near 7-percent annual increases achieved in the early 1970s. Despite the slowing of demand, due to slower growth in overall economic activity, there is evidence of significant problems in electricity supply. In particular, an imbalance between additions to power plant capacity

⁹ Commissionings are defined as the amount of capacity brought on stream at new or existing mines, based on official Soviet announcements. In most cases it takes several years before these areas reach peak production levels. Depletions are defined as the amount of operating capacity lost because of mine exhaustion and the lower productivity of older mines that are still operating.

and increases in output has left the Soviet power system with little reserve capacity. During 1971-78, electricity output rose by 62 percent while power plant capacity increased by only 48 percent. As a result, brownouts and power fluctuations in the networks have been increasingly reported.

Besides lagging growth in new capacity, adequate supplies of fuel for thermal power plants are becoming more difficult to obtain in the energy-short European USSR. Since most potential fuel supply sources are limited because of vast distances between potential resources and the centers of industrial concentrations, Soviet planners regard nuclear power as the most promising source of growth in electricity production in this region. However, the nuclear program is lagging badly. Output of nuclear-generated electricity in 1979 was about 50 billion kilowatt-hours and accounted for less than 1 percent of primary energy output last year. Projections, which have been scaled down by the Soviets in recent years, now call for 35,000 to 40,000 megawatts (MW) in nuclear capacity by 1985 (less than 4 percent of all energy) and 100,000 MW by 1990. Almost all this capacity is to be developed in the European USSR.

Conservation. Despite well-orchestrated public campaigns and the imposition of stiff new tariffs on excessive energy use in industry, Soviet conservation efforts paid few dividends in 1978-79. President Brezhnev admitted to the Central Committee Plenum in November 1978 that even with the expenditure of 50 billion rubles on conservation measures "in practical terms there is no lessening of waste and losses of fuels." (See cartoon page 9.)

Some oil savings, however, have been achieved by the substitution of other fuels, principally natural gas. A significant proportion of Soviet heat and power plants now switch from oil to gas on a seasonal basis, and increased gas supplies to this sector would reduce oil consumption even further. However, 54 percent of Soviet oil is now consumed in internal combustion engines, and large-scale conversion can come only very slowly.

Moscow's limited ability to conserve oil stems in large part from the current pattern of oil consumption. Oil consumption in the Soviet Union is weighted in favor of residual and heavy fuel oil, which together account for about 40 percent of total oil usage, while gasoline accounts for less than 25 percent. By contrast, gasoline accounts for 40 percent of the total in the United States. The USSR has only one passenger car for every 40 inhabitants, compared with more than one for every two inhabitants in the United States.¹⁰

Practically all the potential energy saving in oil is concentrated in six sectors, representing almost 80 percent of Soviet oil consumption.¹¹ The savings that conservation efforts have been able to wring out of these areas have been limited because (a) the efficiency of three of these sectors—heat production, electricity generation, and rail transport—using existing capital stock is already high by world standards and (b) because the Soviets have been slow to convert to more energy-efficient equipment.

Conservation in the heat and power sector already has been given considerable emphasis with fuel requirements per unit of electricity output declining by 11 percent between 1970 and 1979. Improved efficiency was achieved largely by upgrading generating equipment. As for the transport sector, energy consumption per ton-kilometer and passenger-kilometer is much lower in the USSR than in Western Europe or the United States. The USSR uses only one-fourth as much energy per passenger-kilometer as the United States and only about two-thirds as much per ton-kilometer of freight.

Ferrous Metals

The Soviet steel industry, plagued with problems since the mid-1970s, continued to experience difficulties in 1978-79 (see table 6). Although crude steel production rebounded somewhat in 1978 over the depressed level of the previous two years, output dropped in 1979 by 1.6 percent—the first such decline in production since World War II.

¹⁰ Consequently, only 15 percent of Soviet gasoline was used in passenger cars, while the comparable US figure was 73 percent.

¹¹ Electricity and heat generation, iron and steel production, the residential-communal sector, construction, transport, and agriculture.

Although raw material shortages and harsh weather have hampered operations, inadequate investment in all sectors of the industry—from iron ore mining to rolling and finishing steel products—has been the main reason for the industry's deteriorating performance in recent years. Because the cost of constructing new capacity has climbed greatly, the gradual increases in capital spending that have occurred have resulted in smaller increments to capacity. In addition, as in the developed West, outlays for environmental purposes have increased substantially. For example, expenditures for pollution controls, although not as large as in the United States, reportedly have been running at 10-15 percent of total investment, and even higher according to one official.¹²

Construction of new steelmaking capacity has lagged badly, and most of the potential for squeezing additional output from existing facilities already has been tapped. Roughly 90 million tons of steel (nearly 60 percent of total output) are still produced in open-hearth furnaces. Much of the current capacity for rolled sheet is very old and technically obsolete. Major deficiencies exist in equipment for the production of cold-rolled steel, high-quality transformer sheet, tinplate, and other coated steels. The continuing failure to produce the desired assortment of products, especially large-diameter pipe, and casing and drill pipe has contributed to lags in pipeline construction and exploratory drilling for oil and gas. As a result, the USSR has had to rely increasingly on imports from the West to meet its domestic needs at a substantial cost in hard currency (see the section "Hard Currency Trade: Some Windfall Gains" beginning on page 16.)

Machinery

Machinery production—the major source of investment goods, defense hardware, and consumer durables—kept its ranking as the fastest growing branch of industry, although growth in 1979 dipped below 6 percent for the first time this decade. Trends within the branch were decidedly mixed. Military production accelerated during the period, reflecting the high cost

¹² In an interview published in *Iron and Steel Engineer*, September 1979, Dr. Yevgeny Kalinnikov, Head of the Steelmaking Technology Department, Institute of Management Sciences in Moscow, stated that the current cost of air pollution control installations is "25-30 percent of the capital cost of the steelmaking equipment."

of several major weapons programs. In contrast, growth in the output of investment goods and consumer durables fell off. Here the lower output of railroad equipment augurs poorly for any immediate relief to the overencumbered transportation sector, while the near stagnation in production of labor-saving machinery will curtail plans for reducing manual labor. More importantly, unless machine builders can reduce metal consumption rates, the decline in steel output will slow down machinery growth still further.

Chemicals

The usually fast-growing chemicals branch also contributed to the industrial slump in 1978-79. Production increases, which averaged nearly 9 percent per year in 1971-75 and almost 6 percent in 1976-77, plummeted to an average of less than 1 percent during the past two years. In 1979, output of several major chemical products (fertilizers, plastics, manmade fibers) fell below the level of 1978 (see table 7).

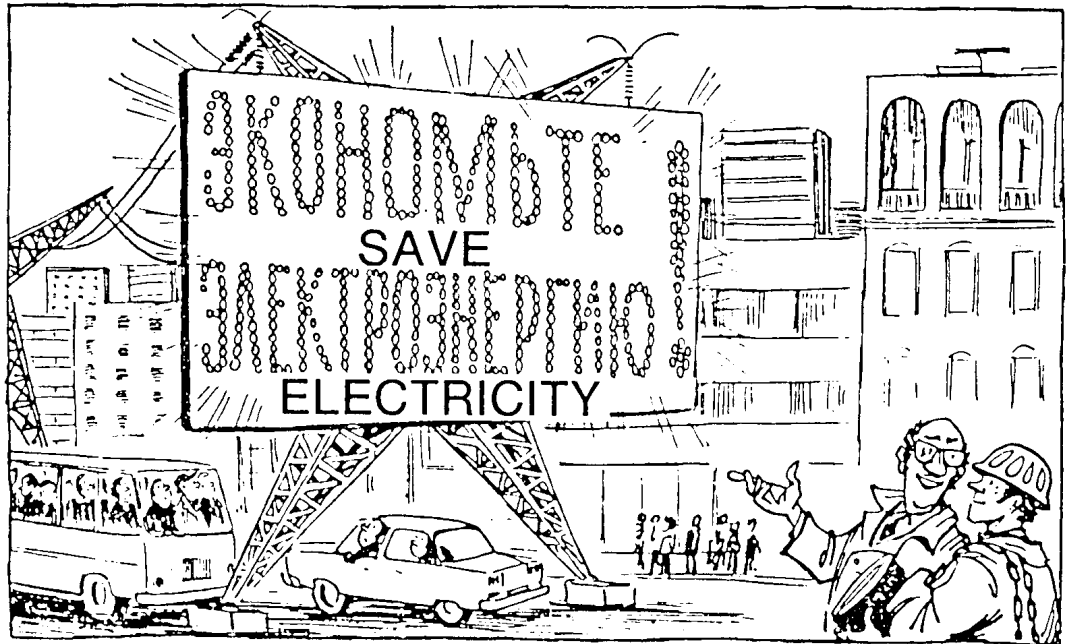
The Soviet fertilizer industry turned in the most dispirited showing. The 94.5 million tons produced in 1979 represented a decline of 3.5 million from the previous year—the first time since World War II that the output of fertilizers has fallen on a yearly basis. As a result, fertilizer supply to agriculture in 1979 was almost 10 million tons below plan. Shortfalls in phosphate fertilizers have been particularly damaging because phosphates accelerate the ripening of grain, a critical factor in areas with short growing seasons.

The weak performance of chemicals can be ascribed mainly to shortages of raw materials and labor, together with construction and transportation bottlenecks. In addition, the shutdown of the gas pipeline from Iran in 1978, and sharply reduced deliveries after it was reactivated in May 1979, adversely affected operations at some ammonia plants.

Transport

The Soviet transport sector—a victim of inadequate investment and woeful management in recent years—also performed poorly, especially during 1979. Total freight hauled last year totaled 6 trillion ton-kilometers, an increase of less than 1 percent over 1978

"Now no one will reproach us that we are devoting little attention to saving electric power."



D. Agayev
Pravda
2 March 1978

Table 6

Average Annual Percent Change

USSR: Growth in Ferrous Metals Output

	1971-75	1976	1977	1978	1979
Ferrous metals	4.0	2.7	0.9	2.9	-0.9
Iron ore	3.6	2.7	0.3	1.9	-1.3
Pig iron	3.7	2.3	1.9	3.1	-1.5
Crude steel	4.1	2.5	1.3	3.3	-1.6
Rolled steel	4.1	2.8	0.7	3.2	-1.9
Steel pipe	5.1	5.3	1.3	3.1	3.7

Table 7

Average Annual Percent Change

USSR: Growth in Chemicals and Petrochemical Output

	1971-75	1976	1977	1978	1979 ¹
Chemicals and petrochemicals	8.6	5.3	6.0	3.1	-1.4
Mineral fertilizer	10.2	2.3	4.9	1.3	-3.6
Plastics and resins	11.2	7.6	8.2	6.3	-1.0
Manmade fibers and yarns	8.9	6.8	6.7	4.0	-2.7
Automotive tires	8.3	5.8	5.3	2.8	1.7

¹ Preliminary.

(see table 8), reflecting both the poor performance of the railroad and the falloff in industrial growth. The rail system, in particular, which accounted for almost 60 percent of the freight turnover, fell far short of expectations, with only two of 17 categories (grain and ferrous metals) meeting their 1979 plan. Reflecting the rail sector's poor performance, freight car turnaround time continued to increase while the average train speed continued to fall.¹³

Record cold temperatures during the 1978-79 winter hampered Soviet rail operations, crippling operations over widespread areas and causing raw materials and fuel shortages throughout much of the economy. Further disruptions occurred last summer and fall when thousands of railcars had to be diverted from their normal operations to move record grain imports.

Resource Availability and Use

Labor Force

The low rate of population growth reported from the January 1979 census confirms the existing projections that the Soviet labor market is becoming exceedingly tight. Data from the census showed 262.4 million people in the USSR, an increase of only 20.7 million, or less than 1 percent annually since the last census in 1970.

While the full impact of the labor crunch will not come until the mid-1980s, employment growth has already begun to slow (see figure 3). During 1976-79, employment grew only 1.3 percent annually, compared with an annual average of 1.6 percent during 1971-75. Agriculture has been particularly hard hit. Despite official efforts to slow out-migration from farms, the continuation of such migration has apparently helped temper the impact of the labor force slowdown on industry. Even though the current Five-Year Plan calls for industrial employment to grow at only 0.7 percent per year, it grew at 1.8 percent annually during 1976-78. More significantly, increments to industrial employment rose from about one-fifth of the country's

¹³ In 1978, the average freight car turnaround time increased by 1.8 percent, while the average train speed fell by 0.6 percent. No yearend figures have been reported for 1979, but scattered data for the first nine months suggest the situation was even worse.

Table 8

USSR: Total Freight Traffic Statistics

	Trillion Metric Ton-Kilometers	Average Annual Percent Change
1960	1.89	
1965	2.76	7.9 ¹
1970	3.83	6.8 ²
1975	5.20	6.3 ³
1976	5.43	4.4
1977	5.63	3.7
1978	5.95	5.7
1979	6.00	1.0

¹ Average annual growth during 1961-65.

² Average annual growth during 1966-70.

³ Average annual growth during 1971-75.

total employment growth during 1971-75 to more than two-fifths in 1976-78. With smaller annual increases in the labor force over the next decade, a continuation of this trend would create labor shortages in other sectors of the economy.

Government efforts to maintain output despite low rates of productivity growth during this period probably explain above-plan employment growth in industry.¹⁴ Nonetheless, Moscow may have difficulty continuing the policy, given the impending labor shortages. Industrial employment grew by only 1.2 percent last year, the lowest rate in 25 years. Within industry, however, employment in coal, gas, and oil, grew at a much faster rate, 2-3 percent annually, indicating that these priority sectors have first call on available labor resources.

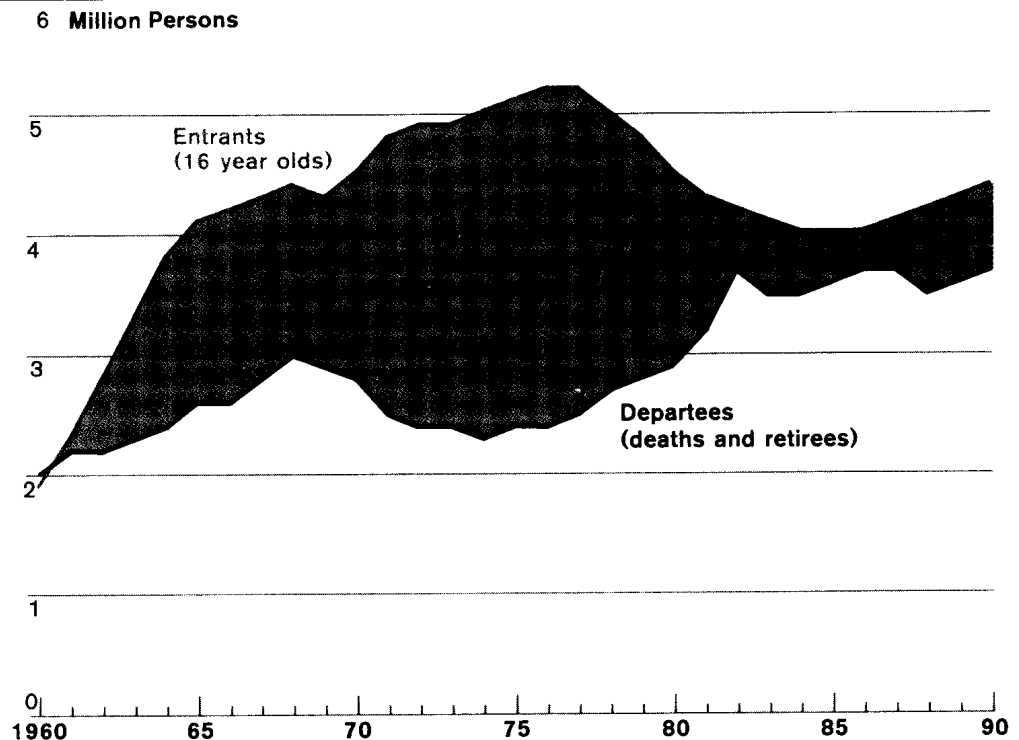
Slowdown in Capital Formation:

Future Impediment to Growth

The sharply falling growth in the capital goods producing sectors noted previously has retarded the growth of investment and greatly complicates the tasks of Soviet planners who must allocate already taut investment resources to a growing number of "critical"

¹⁴ This is not unusual. Soviet managers have historically tried to compensate for inadequate productivity by overfulfilling industrial employment plans. During the Eighth Five-Year Plan (1966-70), industrial employment was scheduled to grow at an average annual rate of 2.4 percent, but actually increased at a rate of 2.9 percent.

Figure 3
**USSR: Increments to
 the Working Age
 Population
 (Males 16-59,
 Females 16-54)**



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requirements, particularly in the energy field. In an era of general resource constraints, such allocations lead to lean investment diets for less favored claimants.

This point was emphasized recently by a leading Soviet academician¹⁵ who warned that restrictions on the growth of investment will become even more severe because of the need to redistribute capital investments to the fuels and power branches; to metallurgy, to overcome its problems; and to transportation, which has become an impediment to growth throughout the economy. Furthermore, the Soviet scholar noted that for many types of raw materials, the potential for increasing extraction is limited, mainly because extraction is becoming more capital intensive and can be expanded only in remote, geologically difficult regions where capital costs are extremely high.

¹⁵ Academician A. G. Aganbegyan, editor in chief of *Ekonomika i organizatsiya promyshlennogo proizvodstva*, in an article entitled "Novyy etap v evolyutsii sistemy khyozaystvovaniya," issue no. 10, October 1979, pp. 3-19.

Further adding to Moscow's problems has been the rapid growth in uncompleted construction projects, despite numerous verbal campaigns to concentrate work on projects nearing completion. Project completions continue to be frustrated by bottlenecks in the supply of components—particularly machinery—and a lack of appropriate incentives in construction organizations, where bonuses are still based largely on the value of the work completed.¹⁶ As a result, the increase in gross additions to new fixed capital—a measure of new capacity brought on stream—fell from a robust 8.9 percent in 1978 to an alltime low of 0.2 percent in 1979. Meanwhile, the growth of unfinished construction accelerated in many branches of industry during the period, climbing by nearly 8 percent last year (see table 9).

¹⁶ Basic construction work has a high ruble value, but finishing work does not.

Table 9

Average Annual Percent Change

USSR: Indicators of Capital Formation

	1971-75	1976	1977	1978	1979 ¹
Total new fixed investment ²	7.0	4.5	3.6	6.1	0.9
Gross additions of new fixed capital ³	6.7	1.4	3.2	8.9	0.2
Backlog of unfinished construction	7.9	9.6	10.0	7.0	7.6 ⁴
Capital stock	7.9	7.1	6.9	7.2	6.4
Retirement rate	1.5	1.4	1.4	1.2	1.3 ⁴

¹ Preliminary.² Excluding net additions to livestock, capital repair, and changes in inventory.³ This term differs from gross fixed investment in that it counts only those investment projects that have been completed.⁴ Estimated.

Because basic construction work has a high ruble value, but finishing work does not, projects are often passed along before they are ready for production "startup."



"Hold it up a little longer—the commission is signing the certificate."

A. Garmazy
Minsk Sek'skaya Gazeta
27 December 1979

The slowdown in capital formation could not be occurring at a worse time. Greater investment is needed to counter the declining increments to labor, to modernize obsolete plant and equipment, and to stave off the impending energy crunch. The required investment programs are becoming much more costly, however, and their payoff further away as more investment resources must be devoted to Siberia.

Skyrocketing Raw Material Costs

Capital costs have been rising rapidly, particularly in the extractive industries, as a result of the declining quality and quantity of easily accessible raw materials and, in turn, from the increased reliance on more sophisticated and expensive recovery techniques.¹⁷ The need to transport these commodities over much greater distances—often from areas such as Tyumen Oblast where little or no transport facilities yet exist—also has pushed up capital expenditures (see figure 4). According to the Chief of the Administration for Financing Heavy Industry, the expenditures needed to produce 1 ton of petroleum have increased since 1965 by 150 percent; 1 ton of coal, 120 percent; and 1 cubic meter of lumber, 170 percent.¹⁸

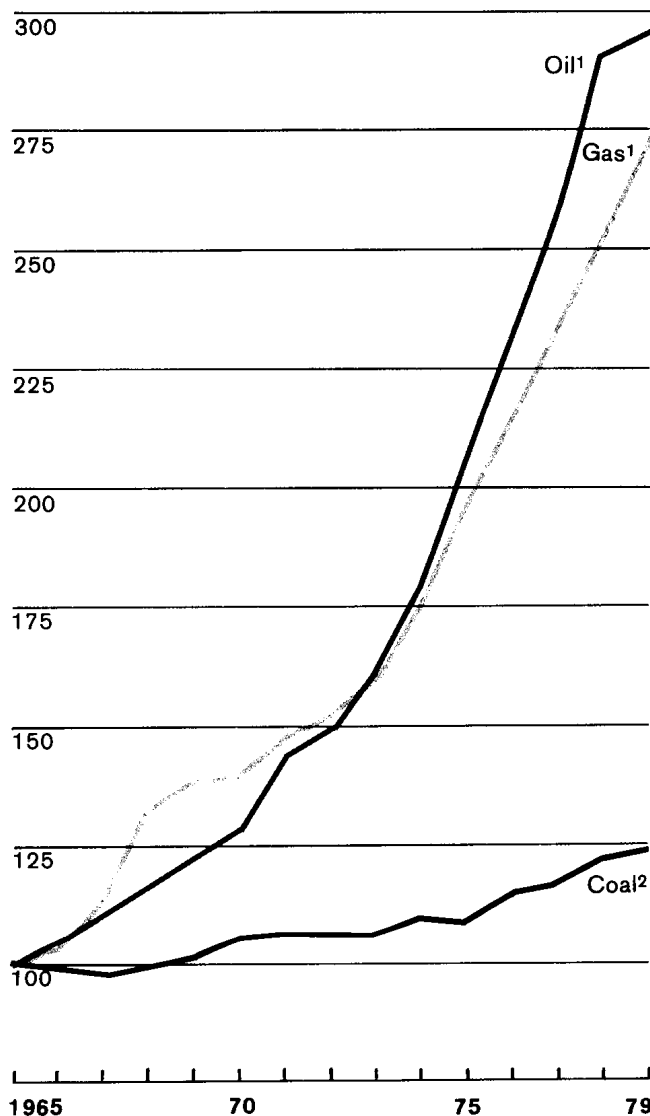
¹⁷ Based on official Soviet statistics, for example, the heat value per ton of mined coal has declined 10 percent in the 1970s.

¹⁸ Moreover, these percentages reflect only an amortization charge for fixed capital. If interest charges on capital were included, the increases in these costs would be even higher.

USSR: Growth in Average Distance of Transport for Selected Fuels

Figure 4

Index: 1965=100

¹By pipelines.²By rail.

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Efficiency of Resource Use

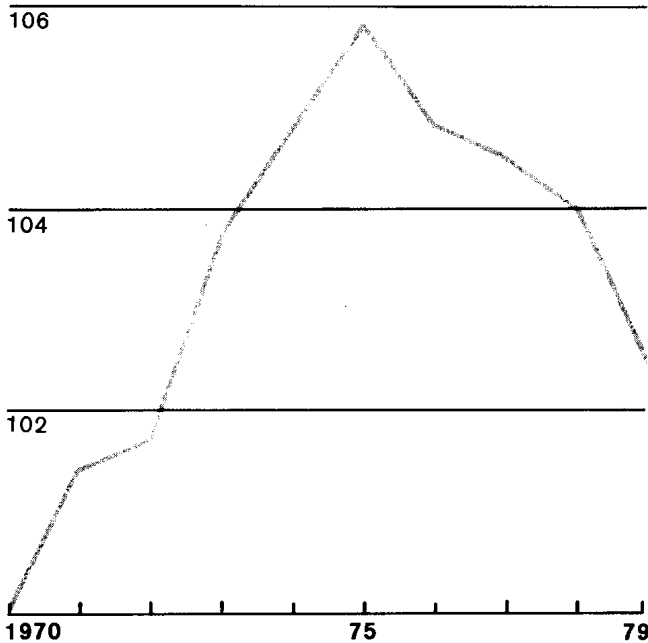
To some extent the recent decline in economic growth reflects increasing tightness between the demands of a burgeoning economy and readily available supplies of labor, capital, and natural resources. But more important, it reflects the Soviet failure to use resources more efficiently. While productivity has never been the primary engine of growth in the USSR, declining productivity in recent years has constrained growth (see figure 5).

This is especially true in industry, where—following a decade-long trend—the growth of investment and capital stock in Soviet industry again outstripped growth in both labor and output in 1978 and 1979. The result has been rapidly diminishing returns to new capital stock and hence to investment. The continued existence of diminishing returns means that whatever new technology has been embodied in capital equipment coming on stream, its impact has been insufficient to offset the rising costs of processing raw materials.

The inability to bring new capacity on stream more rapidly also has delayed the introduction of labor- and materials-saving technology, further hampering the USSR's efforts to conserve resources and raise production. This is becoming particularly important in the case of energy. Because the energy consumption structure in the USSR is dominated by heavy industry, major gains in energy efficiency have to be obtained largely by upgrading industrial technology—a very time-consuming, capital-intensive process—or by major shifts away from more energy-intensive heavy industry and toward relatively less energy-intensive light industry and services, a shift contrary to the view of dominant Soviet interest groups. Even sharp reductions in the present backlog of incompleting construction and uninstalled equipment will do little to provide a more energy-efficient capital stock in the near future since only now are Soviet planners beginning to call for the design and production of more energy-saving equipment.

USSR: Combined Factor Productivity for Industry Figure 5

Index: 1970=100



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Consumers Receive Little

The Soviet consumer made little progress in improving his living standard during 1978-79. Growth in per capita consumption averaged less than 2 percent annually during the period, as the food situation was especially bad last year. Per capita meat production—a key indicator of consumer welfare—declined by 1 percent last year, while milk production decreased for the second consecutive year. Shortages of high-quality fruits and vegetables also were reported throughout the USSR. Average food prices in collective farm markets were roughly double prices in state stores, with meat prices sometimes three times as high (see figure 6). In addition, less housing was built in 1979 than 1978, despite the country's severe housing shortage and the priority treatment accorded this sector in recent years.

Soviet leaders have been unusually forthright in recent months in acknowledging consumer complaints. In his speech to a party plenum last November, Brezhnev asked why such basic items as soap, diapers, bread, and milk were in short supply. He stated that unless the flow of desired consumer goods was increased substantially, it would be necessary "to find specific people to blame for every scarcity . . . and punish them." Speaking of the next Five-Year Plan, he said its principal goal was clear—"to raise the welfare of the people."

Regional party bosses echoed Brezhnev's remarks in local election speeches in early 1980 throughout the country. The leaders, in a frank disclosure of their problems, detailed shortages of meat, milk, bread products, and other consumer goods. Belorussian First Secretary Masherov, for example, indicated that the Belorussian Central Committee had been receiving letters "expressing anxiety over shortcomings in supplies of livestock products for the city population," sometimes in a very "emotional form" and with "rash evaluations and conclusions."¹⁹

Similarly, Uzbek First Secretary Rashidov stated in an election speech in January that Uzbekistan "continues to have difficulties in supplying its population with meat and milk products" and that there are complaints about the poor quality and supply of butter, vegetables, and fruit.²⁰

The US embargo on grain shipments to the USSR has made the leadership even more worried about the food situation. In an interview in *Pravda* this January, Brezhnev was unusually defensive in reassuring the population that "plans for providing bread will not be affected by US actions." Soviet consumers, however, apparently greeted Brezhnev's remarks with skepticism. Long lines for flour were observed at food stores in the center of Moscow and outlying areas, and consumers reportedly have been hoarding supplies.

¹⁹ See *Sovetskaya Belorussiya*, 8 February 1980.

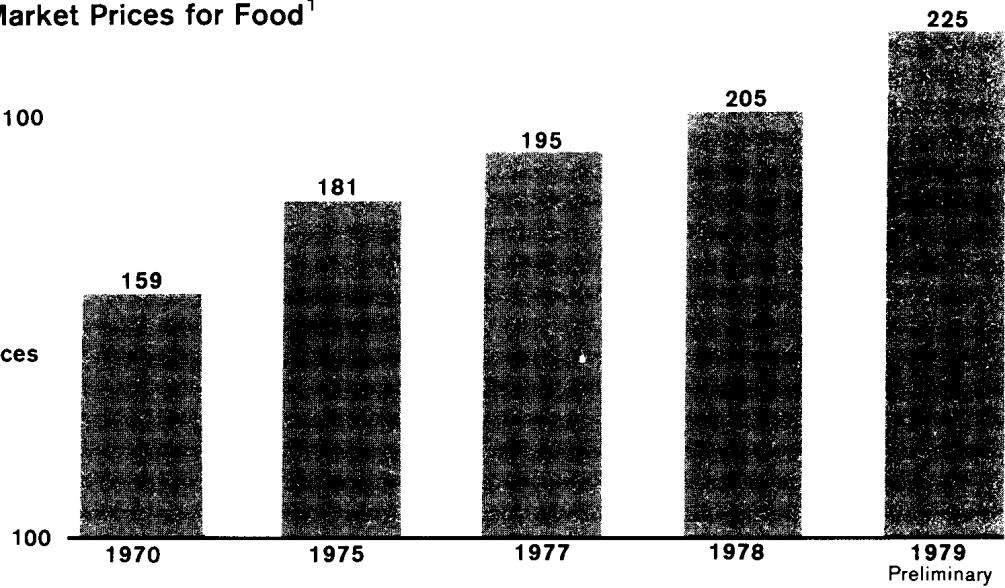
²⁰ See *Pravda Vostoka*, 31 January 1980.

USSR: Gap Between the Average Level of State Retail Prices and Collective Farm Market Prices for Food¹

Figure 6

Index: State Retail Prices=100

Collective Farm Market Prices



¹Sample of commodities in both state and collective farm markets limited to major products sold in the farm market—for example, meat, milk, potatoes, vegetables, and fruit.

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Food store in Moscow: Long lines to purchase consumer goods are endemic in the USSR, especially for meat and other highly sought after goods.

Defense

Unlike the average consumer, the defense sector was not affected by the slowdown in the rate of economic growth. During the past few years, estimated Soviet defense spending grew more rapidly than GNP.²¹ As a result, in 1979 the defense effort consumed 12-14 percent of Soviet GNP.²² This is in contrast to the 1965-78 period, when defense absorbed a relatively constant 11-13 percent of GNP.

The relatively high growth reflects the fact that defense programs have great momentum as well as powerful political and bureaucratic support. Even against the backdrop of a disappointing economic performance, major military programs were well funded, and new production and development programs were initiated. In addition, the defense sector continued to siphon off a large share of the economy's best scientific, technical, and managerial talent and large amounts of high-quality materials components and equipment.

During the 1978-79 period, about one-half of total Soviet defense spending went for procurement of new equipment and major spare parts and for construction of new facilities.

Operating expenditures—which include spending for military personnel and for the operation and maintenance of military equipment and facilities—received a little more than one-fourth of total defense spending. About one-fourth of total defense spending went for military research, development, testing, and evaluation.

No major shifts were evident in the shares of defense spending allocated among the military services. The Air Forces and Ground Forces continued to claim the largest shares, while the Strategic Rocket Forces claimed the smallest. During the 1978-79 period, Soviet uniformed military manpower, including militarized security forces and construction and transporta-

tion troops, totaled approximately 5 million men—more than 3 percent of the total labor force. The largest share of military personnel—about 35 percent—represented Ground Forces.

Despite the poor performance of the economy, evidence on Soviet military production and development indicates that Soviet defense spending will continue to increase at least through 1985 at or near the long-term rate of 4-5 percent. If so, the defense share of Soviet GNP could rise to about as much as 15 percent by 1985.

Hard Currency Trade: Some Windfall Gains

Imports

Soviet hard currency imports climbed steadily in 1978-79, but heavy gold sales in 1978 and higher oil prices last year allowed Moscow to keep its current account in surplus and limit the growth of its hard currency debt (see table 10). Imports jumped 16 percent in 1978, to \$17 billion, and increased another 27 percent, to \$21.6 billion, last year. Disappointing grain harvests in 1977 and in 1979, together with the leadership's determination to steadily increase meat supplies, led to a rapid rise in grain and soybean imports. Hard currency outlays for these products amounted to \$2.6 billion in 1978 and an estimated \$4 billion last year; the United States supplied about two-thirds of Soviet needs.

Problems in the steel industry—particularly its inability to produce enough large-diameter pipe to support Moscow's ambitious pipeline construction program—led to a sharp boost in steel imports from the West. Deliveries totaled \$2.5 billion in 1978 and an estimated \$4 billion in 1979 and were fairly evenly divided between finished steels and large-diameter pipe.

In contrast, machinery and equipment imports fell slightly last year after totaling \$6.0 billion in 1978. The decline was presaged by a falloff in equipment orders from the West beginning in 1977—in all likelihood the result of the growing backlog of unfinished construction and uninstalled equipment (see table 11).

²¹ For a more detailed treatment of Soviet defense spending, see *Soviet and US Defense Activities, 1970-79: A Dollar Cost Comparison*, SR 80-10005, January 1980.

²² The share of GNP allocated to defense is 12-14 percent under the broad definition the Soviets may use. As defined in the United States, the defense share of GNP would be about one percentage point less.

Table 10

Million US \$

USSR: Hard Currency Balance of Payments

	1977	1978	1979
Current account balance	751	1,266	4,111
Trade balance	- 3,300	- 3,794	- 2,069
Exports, f.o.b.	11,345	13,157	19,524
Imports, f.o.b.	- 14,645	16,951	21,593
Gold sales	1,597	2,673	2,200
Invisible and other hard currency trade, net ¹	2,454	2,387	3,980
Capital account balance	1,917	173	- 1,127
Foreign borrowing	1,777	1,785	- 27
East European loans for Orenburg project	900	286	
Foreign lending	140	- 1,612	- 1,100
Net change in assets in Western banks	240	- 1,512	- 1,000
Supplier credits extended	- 100	- 100	- 100
Net errors and omissions	- 2,668	- 1,439	- 2,668

¹ Including net earnings from tourism, transportation, investment income, official transfers, military sales, and known hard currency trade under bilateral clearing agreements.

Exports

Soviet exports, \$13.2 billion in 1978 and an estimated \$19.5 billion in 1979, were dominated by oil sales. Moscow earned \$5.7 billion on a volume of 1.2 million b/d in 1978. In 1979 exports fell to less than 1 million b/d, but Moscow reaped the benefits of OPEC-led price increases to earn at least \$9 billion. Earnings from natural gas sales reached \$2 billion in 1979, compared with \$1.1 billion in 1978. The volume of gas sold to Western Europe increased by about 10 percent, and gas prices were hiked substantially in line with other fuel costs.

Export performance of other commodities has been mixed. Timber sales in 1978 fell slightly but apparently rebounded last year on the strength of price increases. Nonferrous metal exports have increased, while ferrous ores and metals have continued a decline that began in the early 1970s. One positive note has been exports of machinery and equipment, which totaled \$1.2 billion in 1978 and probably increased somewhat last year as well. About three-fourths of the

Table 11

Million US \$

USSR: Machinery Orders Placed With Hard Currency Countries

	1976	1977	1978	1979 ¹
Total	5,991	3,816	2,803	2,612
Of which:				
Chemical and petrochemical	1,818	1,628	902	607
Oil and natural gas	1,688	308	832	190
Metalworking and metallurgy	1,028	641	348	752
Timber and wood	146	65	86	56
Automotive	355	183	115	184
Ships and port equipment	283	67	127	61
Food processing	63	155	17	24
Mining and construction	120	147	118	149
Manufacturing of consumer goods	121	78	44	12
Electronics	55	193	179	335
Electricity	63	138	6	30

¹ Estimated.

1978 total were exported to less developed countries; sales of 85,000 passenger cars accounted for one-half of the USSR's hard currency earnings from equipment sales to the West.

Balancing the Books

The USSR had little trouble covering its hard currency trade deficits the past two years. In 1978 Moscow earned a current account surplus of \$1.3 billion, largely through heavy gold and arms sales. As a result, gross Soviet hard currency debt grew by only \$1.5 billion, to \$17.2 billion. The regime took advantage of the increased liquidity from heavy gold sales to either prepay or refinance on better terms roughly \$1 billion in loans syndicated in 1975-76. The reduction in the trade deficit last year led to an even larger current account surplus—more than \$4 billion. Although gold sales were reduced from 400 tons in 1978 to 220 tons in 1979, the runup in prices allowed the USSR to earn \$2.2 billion; earnings from arms sales were also substantial.

Leadership Perceptions

Soviet leaders are deeply troubled over the economy's poor performance. Although Moscow anticipated some slowdown in overall growth—as reflected in their plans for 1978-79—the leadership clearly was not prepared for the sharp declines that occurred in almost all sectors. In fact, the Kremlin was apparently so embarrassed by the economy's poor performance last year that yearend data recently released publicly by the Central Statistical Administration did not contain the usual comparisons with the previous year's output.

Nevertheless, Moscow still probably believes that the economy's problems are correctable without a major shakeup of the existing economic structure or basic operating principles. Regarding energy, many Soviet officials probably realize that oil output is at or close to its peak and could begin to decline shortly. Nevertheless, Soviet leaders appear to remain confident about long-term energy prospects. They point to the enormous reserves of coal and gas, in addition to the greater use of nuclear power, as more than sufficient for future needs.

Soviet leaders have displayed a similar attitude regarding their labor problems. Although clearly aware that increased productivity is the key to future growth prospects (since a sharp slowdown in employment growth is inevitable), they apparently remain convinced that this can be accomplished without any radical change in the current system of central planning and management. In fact, recent actions by the leadership point in just the opposite direction—namely, that during the remainder of Brezhnev's era, Moscow will attempt to boost productivity through even greater centralization of planning and stronger labor discipline. A July 1979 Central Committee-Council of Ministers decree on planning and management, in particular, signals a victory for the more conservative elements of the party and state bureaucracy who oppose fundamental reform.

The resolution, which represents the first comprehensive "reform" package to be adopted in over a decade, calls for:

- Strengthening long-term planning by upgrading the operational role of the five-year plan.

- Tightening plan discipline by tying enterprise bonuses to fulfillment of contracts.
- Replacing gross output with net output (value added) as the chief indicator for enterprise performance.
- Developing stricter accounting and planning controls on capital investment aimed at eliminating cost overruns, reducing the backlog of unfinished construction, and bringing the investment program into line with available resources.
- Linking enterprise incentive more directly to increases in the quality of output.
- Establishing additional success criteria designed to induce enterprises to economize on raw materials and labor.

Although ballyhooed in the press as a major departure from the past, most of these ideas are not really new. Rather, they represent an amalgamation of practices that have existed in the past or have been experimented with recently.²³ For example, as part of the overall tightening of centralized control, the resolution calls for ceilings on the number of workers at industrial enterprises—a throwback to the pre-Brezhnev era. Similarly, emphasis on tying wages more directly to productivity reiterates a perennial theme. The failure to produce enough goods and services, however, has reduced the effectiveness of monetary incentives as an inducement to work harder.

In short, because the resolution avoids fundamental reform while strengthening many of the features of the Soviet system—directive planning, central allocation of resources, administrative price setting, and managerial incentives based on production volumes—that for years have discouraged innovation and encouraged resource waste, we believe it will do little to perk up the Soviet economy.

²³ For a discussion of Soviet reforms over the past dozen years and their impact on productivity, see Gertrude Schroder's "The Soviet Economy on a Treadmill of Reform" in the 10 October 1979 compendium of papers submitted to the Joint Economic Committee, entitled *Soviet Economy in a Time of Change*.

Table 12 Average Annual Percent Change**USSR: The 1980 Plan in Perspective**

	Plan 1976-80	Actual 1976-79 ¹	Required 1980 ²	Plan 1980
GNP	5.0	3.1	12.9	4.6
Industry	6.3	3.6	17.9	4.5
Coal	3.0	0.6	13.1	2.7
Oil	5.5	4.5	9.6	3.6
Gas	8.5	8.9	6.9	7.0
Electricity	5.8	4.5	11.1	4.0
Crude steel	3.6	1.2	13.8	6.1
Rolled steel	3.6	1.1	14.2	5.9
Steel pipe	4.4	3.3	8.8	2.6
Construction materials	5.4	0.6	26.8	NA
Cement	3.4	0.2	17.3	3.4
Chemicals	10.3	3.0	45.1	9.0
Machinery	8.9	6.0	21.3	6.5
Consumer nondurables	4.6	1.8	16.7	3.8
Light industry	4.9	2.2	16.7	4.3
Food industry	4.4	1.4	17.2	3.3
Agriculture ³	4.9	2.3	15.8	8.5

NA—not available.

¹ Including preliminary 1979 figures.² Annual rate required to reach the 1980 goal in the original 10th Five-Year Plan.³ Gross value of output.**Outlook for 1980**

The 1980 Plan reflects Moscow's awareness that the Soviet economy will have difficulty rebounding from last year's dispirited performance. The economic failures of 1979 are reflected in the goals for 1980, which scale down the targets originally envisioned for 1980 in the 10th Five-Year Plan, 1976-80 (see table 12).

Two themes dominated the speeches outlining the new plan at the party plenum last November: (a) Soviet living standards must be raised and (b) greater conservation of resources is essential—particularly of energy and steel. Moscow recognizes that more and better consumer goods are essential to spur productivity growth and seems determined to satisfy—or at least

mollify—the growing material demands of the populace. The emphasis on conservation reflects the leadership's dashed hopes for large gains in energy and raw material production in the short term.

Despite the restrained nature of the plan, prospects for achieving the implied GNP growth rate of 4.6 percent are poor. The goals set for oil, steel, and other industrial commodities all appear too high (see figure 7). To restore rapid growth rates in the face of reduced increments of capital and labor, Moscow has been banking on sharp increases in productivity—which the system was unable to deliver in the 1970s.

First-quarter 1980 results for industrial production indicate that the Soviets will continue to face rough sledding in this sector. Total industrial output was up by 5.3 percent, compared with last year's extremely depressed first quarter. The failure of processed foods to recover—up only 1.7 percent—suggests that consumers will experience little, if any, growth in living standards.

We believe that the first-quarter rebound is temporary at best. Below-plan output of several products essential to overall economic performance—such as rolled ferrous metals, forge presses, sulfuric acid, resins and plastics, and cement—will preclude a sustained acceleration of growth. As the year progresses and 1980 comparisons are made with more typical quarters, the growth rate will decline. Overall, we expect industrial output in 1980 will improve slightly over the record low of 2.2 percent posted last year, but an annual growth in excess of 3 percent will be hard to achieve.

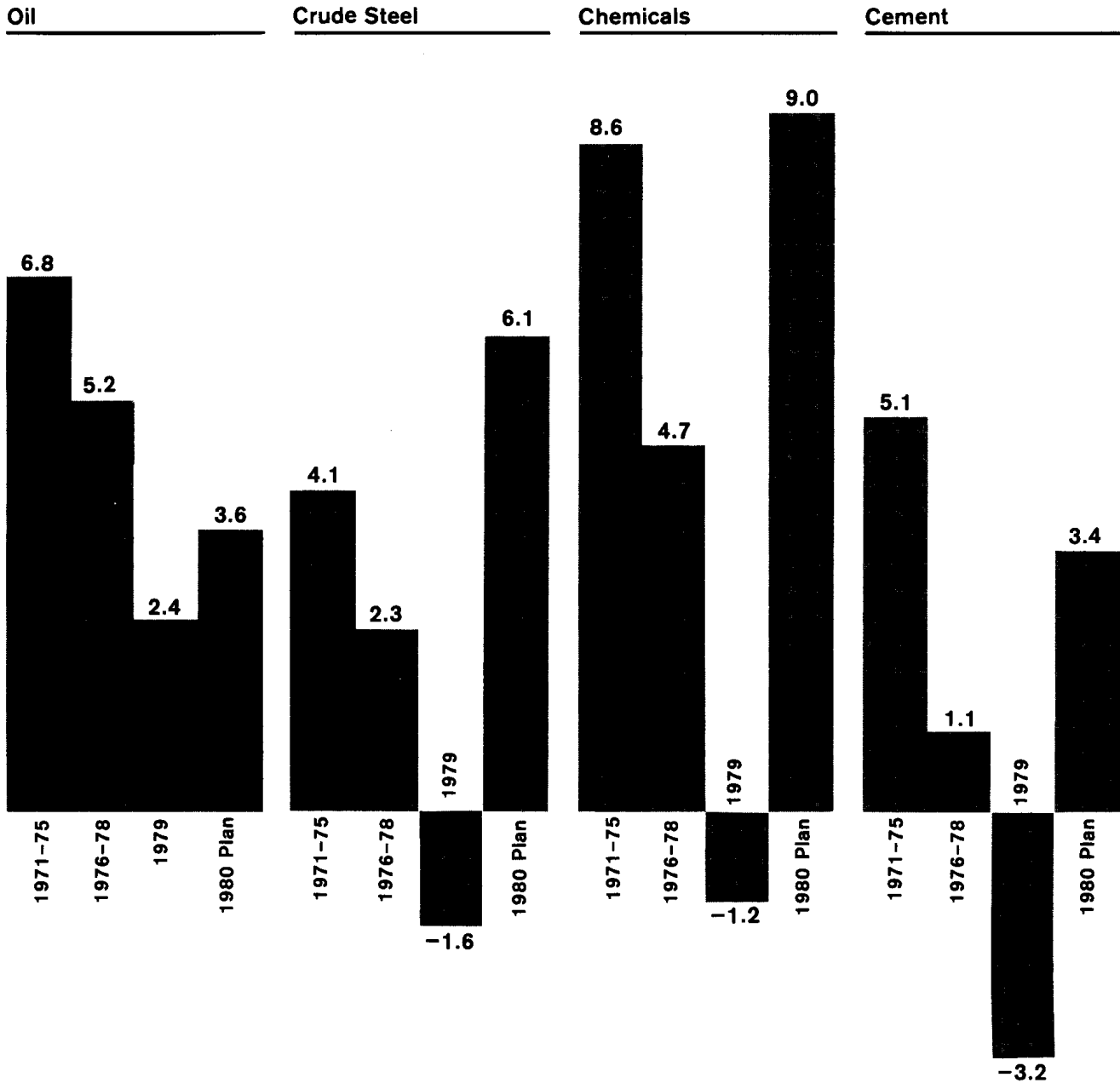
Energy Outlook Grim

Growth of primary energy will continue to slow this year. The oil production goal of 12.1 million b/d for 1980 represents a comedown from the original plan of 12.4-12.8 million b/d. Even this level is optimistic in view of production problems in the oil industry. The revised target calls for all of the production increase to occur in West Siberia where access is difficult and where shortfalls in output occurred last year. New fields in West Siberia were to account for a growing share of the rise in oil production in 1979, but they failed to reach production goals. As a result, some of the giant older fields—Samotlor, Federov, and Agaw—were pushed harder than originally planned,

USSR: Production of Key Industrial Commodities

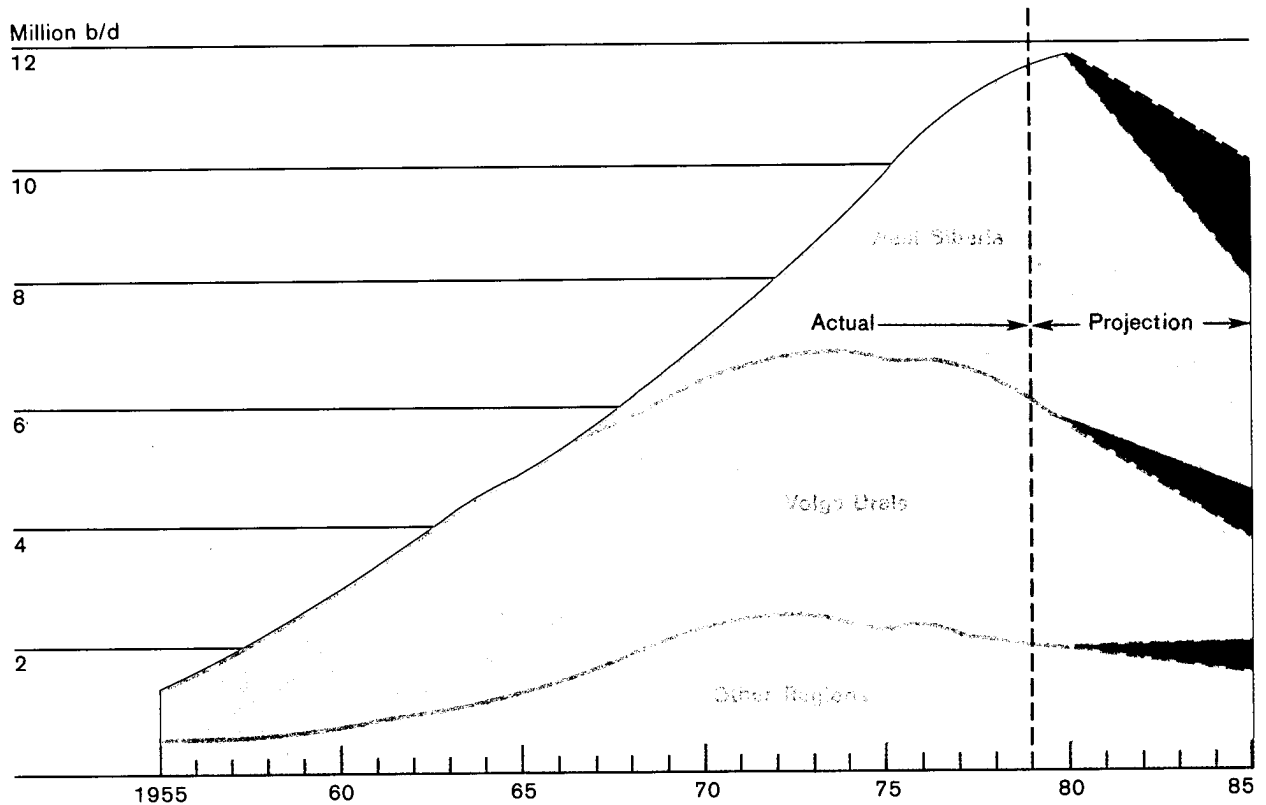
Figure 7

Average Annual Percent Growth



USSR: Oil Production Trends and Projections

Figure 8



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and declines in output are likely to be more rapid than expected beginning in 1981. We estimate that oil production will peak this year at less than 12 million b/d and then begin to decline (see figure 8).

Wide-ranging problems also will continue to plague the coal industry in 1980. After last year's poor performance, the 1980 target has been set at 745 million tons, some 60 million tons below the original 1980 goal. As with the oil production plan, the reduced target for coal appears considerably beyond reach; production will once again be impeded by (a) a slowdown in commissioning new capacity, (b) a rise in the number of depleted mines in western coal basins, (c) continued deficiencies in transport, and (d) difficulties in attracting and retaining an adequate labor force. As a result, coal output in 1980 is not likely to exceed 725 million tons.

Natural gas remains the one significant high-growth area in the Soviet energy sector. Production in 1980 should reach or exceed the plan target of 15.4 tcf—7 percent more than production in 1979 and above the upper end of the range set in the 1976-80 plan. Almost all of the growth will come from the large fields in the permafrost zones of northern Tyumen Oblast (West Siberia). Beyond 1980, however, some constraints on growth are possible as investment requirements mount. The need for pipeline is rising at a time of shortages of large-diameter pipe, valves, compressors, and skilled labor.

Prospects for Other Industrial Sectors

The announced iron and steel production targets for 1980—though less than the lower range goals in the original five-year plan—are also unlikely to be met.

The target of 157 million tons for crude steel is only a million tons higher than the original 1979 target, but would require an increase of 7-8 million tons—about 40-60 percent higher than the best annual increments previously achieved. Although production of industrial materials including steel began to pick up after mid-1979 as the negative effects of the harsh winter wore off, we believe that labor and raw material shortages will be even more severe in 1980. A repeat of last year's dismal performance would have a damaging impact on Soviet machinery production and investment plans.

Slowing investment growth and declining productivity of capital will also limit industrial growth. Following the pattern of slower investment growth established at the start of the 10th Five-Year Plan, investment is scheduled to increase by only 3.3 percent in 1980. Moreover, the drop in growth rates in capital goods output and the inability of the construction sector to bring new facilities on stream more expeditiously foreshadow a downward trend in the growth of capital stock for the next several years.

The planners are calling once more for investment resources to be concentrated on finishing projects already started; the continuing rise in unfinished construction—now totaling more than 100 billion rubles—remains a major sore spot with the regime. In this regard, Finance Minister Vasily Garbuzov told the November 1979 party plenum that Ministries have been instructed to limit as much as possible the number of newly launched construction projects except for those intended for the production of consumer goods.

The transportation system, especially the rail system, also will be hard pressed to meet the demands levied on it. The average distance of hauling freight should again rise as Soviet dependence on new energy sources that lie far from established industrial bases increases. Military demands on the system are also heavy and the military activities in conjunction with Afghanistan and the Middle East will add to the load. Nonetheless, the system should operate somewhat more effectively in 1980, assuming a return to more normal weather and a reduced volume of grain imports.

Over the longer term, transport problems in the USSR are likely to worsen unless investment in this sector is increased considerably during the next five-year plan. Transportation presents a dilemma to Soviet planners. On the one hand, domestic transportation is critical to the development of new supplies of energy and raw materials. At the same time, investment in transportation is a claimant on scarce resources at a time when the competition for resources is becoming more intense. The greater amounts of equipment, construction materials, and labor that will have to be allocated to the transportation sector if future bottlenecks are to be avoided mean less investment resources available for other sectors.

Agricultural Rebound Likely

Following last year's poor performance, Moscow is planning to increase farm output by nearly 9 percent in 1980. No goals for specific crops or livestock products have been announced. In his speech to the November 1979 party plenum, Gosplan Chairman Nikolay Baybakov stated, however, that plans for procuring livestock, poultry, milk, wool, and grapes will be lower than originally targeted in the Five-Year Plan.

Because annual Soviet harvests depend heavily on weather conditions throughout the year, we cannot now predict whether the agricultural production goal will be achieved. Although the late arrival of spring in the USSR is likely to reduce the yield for winter wheat somewhat, the outlook for the grain crop is still generally good.

Consumption Gains Doubtful

The outlook for the consumer in 1980 is particularly gloomy, especially the food situation. The decision to limit US grain exports to the Soviet Union will result in withholding about 19 million tons of US grain in calendar year 1980. Even with a good harvest, the Soviets can only partially offset the loss of US grain by additional grain purchases elsewhere, or by a combination of other actions—increased drawdowns of grain stocks that are probably at low levels already, increased imports of other feedstuffs such as soybean meal, or increased imports of meat.

The public mood in the Soviet Union is already one of pessimism and cynicism as food shortages become more widespread, especially in cities where supplies have been relatively good until recently. Media and party officials have offered inadequate explanations for the shortages. Soviet consumers, for example, have been told that lesser developed socialist countries have received increased foreign aid. The population appears to discount such propaganda and holds government mismanagement responsible.

While consumer frustrations do not pose a threat to the stability of the regime, there are substantial economic and social costs at stake. Reduced productivity, excessive labor turnover, alcoholism, and absenteeism, as well as increased corruption and private (often illegal) economic activity are all manifestations of unfulfilled consumer demand, which will continue to rise unchecked through at least 1980.

Trade Outlook Uncertain

Despite higher prices for gold and oil, along with greater earnings from arms sales, Moscow's hard currency imports in 1980 will expand little, if at all. Because of the US grain embargo, grain imports will be substantially less than previously expected, but still should be close to last year's total of 31 million tons. Judging from the value of orders placed for Western equipment during the past three years, deliveries of equipment should also fall substantially in 1980. On the debit side of the ledger, steel imports should set a new record as the USSR continues to look to Western Europe and Japan for large-diameter pipe and other finished steel products.

Production problems at home will limit export growth. Oil exports, the mainstay of Soviet hard currency earnings, will fall in volume for the second straight year; the precise amount will depend on Soviet success in meeting oil production targets. Higher oil prices, however, will keep revenues up. The USSR also will be able to count on higher revenues from natural gas exports because of both higher prices and larger export volumes.

The bearish prospects for imports, combined with higher prices for exports, suggest a further reduction in the hard currency trade deficit in 1980. Moscow's financial position will be further strengthened by high gold prices; the USSR could earn \$5 billion just by selling out of current production at \$500 per ounce. This financial strength should allow Moscow considerable flexibility in handling its trade and payments account.

Statistical Appendix

Table A1

Average Annual Percent Change

USSR: Growth of Gross National Product,¹
by Sector of Origin

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
GNP	7.3	4.1	2.1	7.0	4.0	1.9	4.6	3.6	3.5	0.7
Agriculture	12.4	-0.5	-5.5	14.6	-0.8	-8.8	8.4	4.9	3.4	-5.6
Industry	6.4	6.7	4.9	6.3	6.3	5.9	4.1	4.1	3.8	2.2
Construction	7.7	6.8	5.2	6.0	5.3	5.0	3.4	2.5	2.9	0.5
Transportation	7.1	7.1	5.6	7.2	7.0	6.2	4.4	2.1	4.7	2.4
Communications	7.6	7.3	7.4	7.2	7.2	7.2	6.4	5.7	5.5	5.6
Trade	6.7	4.9	3.2	5.5	4.7	4.6	3.4	3.5	2.9	1.6
Services	3.9	2.7	3.6	2.6	4.1	3.2	3.1	3.0	3.3	3.0
Other	3.4	3.3	1.8	1.3	1.5	1.2	1.4	0.3	0.9	1.7

¹ Calculated at factor costs.² Excluding intra-agricultural use of farm products but ~~excluding~~ an adjustment for purchases by agriculture from other sectors. *does not include.*

Table A2

Index 1970=100

USSR: Index of Gross National Product Growth,¹
by Sector of Origin

	1965	1966	1967	1968	1969	1970	1971	1972
GNP	77.4	81.5	85.4	90.6	93.2	100.0	104.1	106.4
Agriculture	82.8	86.5	86.5	91.7	88.9	100.0	99.5	94.0
Industry	73.5	77.7	83.5	89.2	94.0	100.0	106.7	112.0
Construction	75.1	78.7	84.8	89.4	92.9	100.0	106.8	112.4
Transportation	69.8	74.9	81.8	88.4	93.4	100.0	107.1	113.2
Communications	65.4	72.3	79.8	85.8	93.0	100.0	107.3	115.2
Trade	72.1	78.0	83.5	89.2	93.7	100.0	104.9	108.3
Services	81.6	85.2	88.8	92.7	96.3	100.0	103.7	107.3
Other	83.3	85.9	89.1	93.8	98.2	100.0	103.3	105.2
	1973	1974	1975	1976	1977	1978	1979	
GNP	113.8	118.3	120.5	126.1	130.6	135.2	136.2	
Agriculture	107.8	107.8	97.5	105.8	110.9	114.7	108.3	
Industry	119.0	126.6	134.0	139.6	145.4	151.0	154.2	
Construction	119.0	125.3	131.5	136.1	139.5	143.5	144.2	
Transportation	121.4	129.9	137.9	144.0	147.1	154.0	157.7	
Communications	123.5	132.4	142.0	151.1	159.6	168.4	177.8	
Trade	114.3	119.6	125.1	129.4	133.9	137.8	140.1	
Services	110.1	114.6	118.3	122.1	125.7	129.8	133.8	
Other	106.5	108.1	109.4	111.0	111.3	112.3	114.2	

¹ Calculated at factor costs.