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Gorbachev's Economic Program: Problems Emerge

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SUMMARY

Gorbachev's ambitious program to create a modern, more dynamic Soviet economy ran into trouble in 1987. Familiar problems with poor weather and transportation bottlenecks were compounded by the disruptions caused by the introduction of economic reforms, with the result that Soviet GNP grew by less than 1 percent last year — a rate reminiscent of the late Brezhnev period.

The new quality-control program (*gospriyemka*) introduced in 1,500 industrial enterprises proved to be particularly disruptive, especially early in the year. The introduction of wage reform, ministerial, and enterprise staff reductions, and, to a lesser extent, new financial reforms, further complicated the enterprise managers' already difficult and confusing task. Buffeted by these disruptions, industry grew by only about 1.5 percent, and the critical civilian machine-building sector did not expand at all. Harsh weather also hampered agriculture, where output fell 3 percent below the previous year's record level.

The effects of the sharp slowdown in growth were felt unevenly across the economy. In line with Gorbachev's emphasis on the modernization program, investment appears to have been given top priority. Major defense programs also appear to have continued on track, although Gorbachev demanded that the armed forces use resources more efficiently and some cost cutting measures were apparently instituted. The real loser in 1987 appeared to be the consumer, who — now 3 years into Gorbachev's economic program — has seen almost no increase in the standard of living.

While slow growth in Soviet GNP — and the attendant problems in resource allocations — were the most obvious signs of the economy's difficulties, the real problems for Gorbachev lay elsewhere. The leadership had hoped that a strong economic performance last year would provide a firm foundation for the future development of Gorbachev's economic program, but this did not occur. Enterprises still appear to be confused by contradictory guidelines for implementing the self-financing reforms being introduced this year, shortfalls in 1987 machinery output will slow the pace of modernization, and transportation bottlenecks persist. In addition, shortages of consumer goods, reduced job security, and widespread concern over potential increases in consumer prices are undercutting the prospects for improved worker productivity.

In light of these problems, the short-term outlook for Gorbachev's economic program is not good. Although considerable year-to-year fluctuations are possible due to weather and other external factors, we project average annual GNP growth of 2 percent or less during the rest of this Five-Year Plan period (1988-90). Under these circumstances, we believe that if, as seems likely, the leadership continues to pursue its high-investment strategy and provides some increase in consumer goods to motivate workers, it will have to tap resources from one or all three of the following areas:

- *Defense* — Defense currently claims 15-17 percent of GNP — including an especially large share of the output of the critical machine-building sector and large shares of the

highest quality materials — and, thus, is a prime candidate to support Gorbachev's modernization program. The defense industries are already being drawn into helping the consumer-oriented industries, and the military is placing increasing emphasis on more efficient use of resources and on personnel accountability.

- *Other Sectors* — Gorbachev could also try to slow the growth of investment to other sectors of the economy to find additional resources for modernization and the consumer. Energy and agriculture, which take about half of Soviet investment annually, are prime candidates, although any major reductions in these sectors would disrupt output, which could have a ripple effect across the economy.
- *Abroad* — Continued economic difficulties would make increased imports an attractive option, especially in selected areas such as energy and machine tools. Although Gorbachev has repeatedly indicated that the machinery for modernization must come primarily from domestic production, the Soviet credit rating in the West remains good and the USSR has considerable room to expand imports beyond the current levels. Prospects for increasing imports from East European allies — which need machinery for their own domestic modernization programs — are less bright.

While it is still too early to tell how far Gorbachev will go in tapping each of these sources, we should begin to get some good indications as to the choices the Soviets are making over the next year. Decisions on economic reform will probably be made and the fundamental goals of the next Fifteen-Year Plan (1991-2005) could be unveiled at the All-Union Party Conference in June — the first such conclave in nearly 50 years. The emphasis placed on traditional growth targets (as opposed to modernization and reform) in leadership speeches and the Soviet press will provide additional insights into the policies Gorbachev intends to pursue.

Whatever direction Gorbachev follows, we believe that if the economy continues to perform poorly in the next few years, tension within society and the leadership will increase. Bureaucrats will become increasingly frustrated by loss of privileges and status and by demands that they show greater initiative. Military leaders are likely to become more and more uneasy if benefits of the industrial modernization fail to materialize. Soviet citizens will need to see some improvement in living standards if the regime is to achieve necessary gains in worker productivity and avoid widespread discontent. Although Gorbachev appears to be working against no set timetable, failure to head off these tensions would, at a minimum, make it more difficult for him to pursue his economic program vigorously and could, ultimately, call into question his strong political position at home.

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Scope Note

This joint CIA-DIA report is the third in a series evaluating the performance of the Soviet economy under Gorbachev and analyzing trends in resource allocation. Data on Soviet economic performance in 1987 are preliminary and, as in past years, will probably be revised slightly as more complete information on 1987 results becomes available.

Gorbachev's Economic Program: Problems Emerge

Introduction

Last year — Mikhail Gorbachev's third in power — was expected by both Western observers and the Soviets themselves to mark an important stage in the Soviet leader's efforts to revitalize the USSR's economy. After enjoying respectable growth in 1986, the Soviets launched a new program of quality control designed to make such growth a more meaningful and legitimate indicator of progress than in the past. They also proceeded with their efforts to strengthen discipline in the workplace, modernize the industrial base, and reform their system of economic incentives. In so doing, however, they came face to face with problems that highlighted the extraordinary difficulty of their task.

This joint CIA-DIA report assesses Gorbachev's program as the Soviets approach the midway point of the 12th Five-Year Plan (1986-90). It begins by describing his policies, showing how they have fared so far, and discussing the impact they have had on Soviet military programs.

The paper then analyzes Soviet economic prospects through the early 1990s, noting possible adjustments Gorbachev might make to his policies if his program should continue to falter. Finally, the paper discusses possible leading indicators of changes in Soviet economic policy.

Gorbachev's Game Plan

Gorbachev has grouped his efforts to revive the economy under the broad rubric of *perestroika*, a term that includes three major elements — tighter economic discipline, industrial modernization, and economic reform. He has characterized his program as one of "in-depth, truly revolutionary transformations" and justified the need for such professedly radical measures by claiming

that by the time he came to power the Soviet economy had reached a "pre-crisis" stage.

Clearly, Gorbachev has some basis for his harsh description of the late Brezhnev period and the Andropov and Chernenko years. During the decade prior to 1985, the Soviet economy not only experienced a sharp slowdown in growth but also failed to match the West's rapid rate of technological advance. Although the USSR continued to strengthen its strategic and conventional military forces during this period — primarily by devoting a large share of resources to defense — the Soviet leadership had reason to be concerned that prolonged economic and technological stagnation would weaken the USSR's military position and undermine Soviet global gains (see figure 1).

When Gorbachev became General Secretary in March 1985, however, the planning process for the 12th Five-Year Plan (1986-90) was nearly complete. Although he made some adjustments to the plan, he was limited in his ability to institute major new programs. Thus, he initially sought and achieved some short-term gains by extending and intensifying Andropov's discipline campaign, making wholesale personnel changes, and reorganizing the bureaucracy. At the same time, he laid the groundwork for a longer term strategy by calling for a reversal of the slowdown in investment growth that began in the 1970s. In 1987, Gorbachev expanded his efforts by instituting a quality control program (*gospriyemka*) and by embracing an economic reform program that goes much further than that of his predecessors. Although Gorbachev's program is comprehensive, it is in some respects inconsistent, particularly with regard to timing. For example, his goals for an immediate acceleration in the growth of national income and a pronounced improvement in the quality of output are, in our view, fundamentally incompatible, while his efforts to change

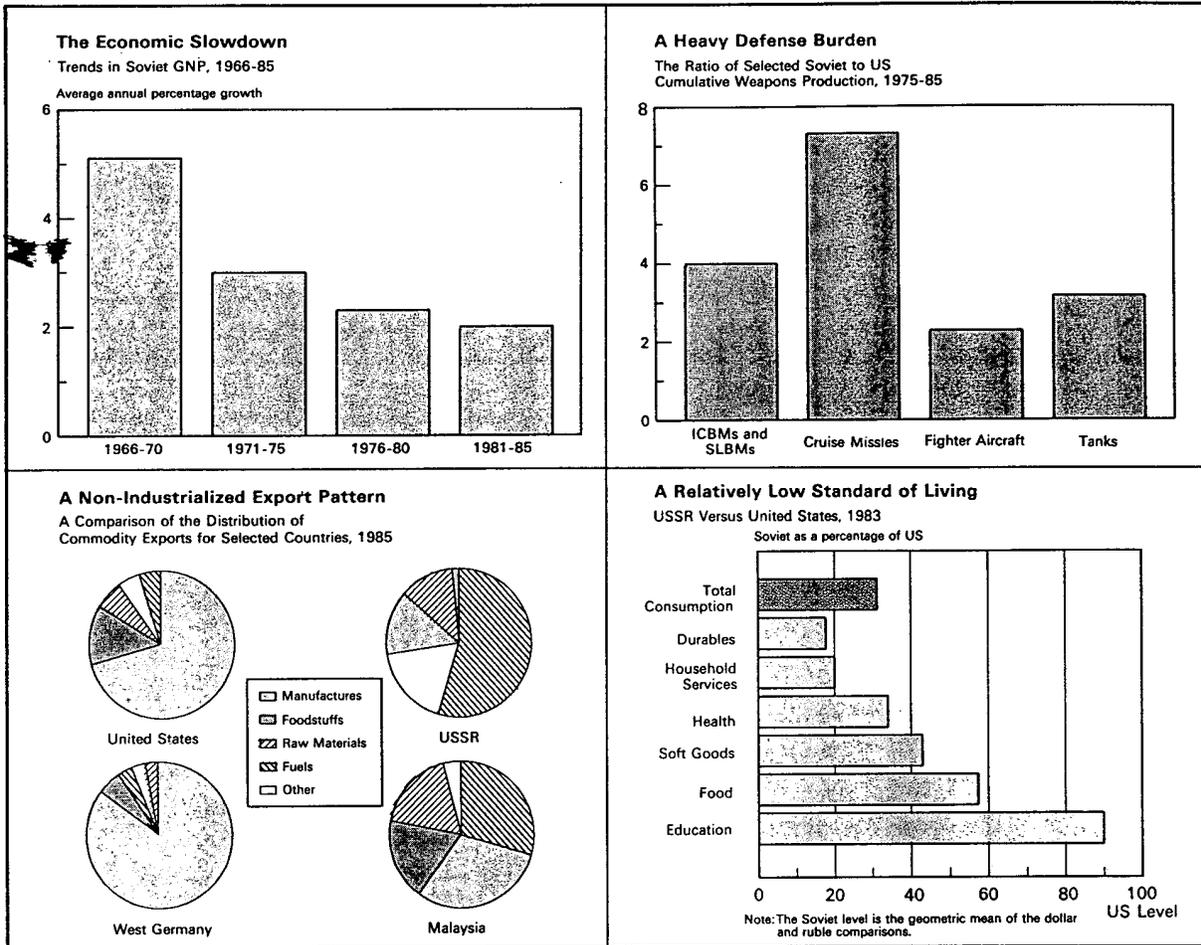


Figure 1. Gorbachev's Domestic Imperative

traditional economic planning and administrative procedures dramatically has been thrust upon a largely unprepared bureaucracy. Nonetheless, at least initially, the economy showed some signs of revival under Gorbachev's prodding. Good weather and the discipline campaign combined to boost economic growth during the last half of 1985 and during 1986. In 1987, however, as Gorbachev's broader program was put in place, its inherent conflicts surfaced and caused major disruptions throughout the economy.

1987: A Difficult Year

The growth targets in the 1987 Soviet economic plan would have been extremely ambitious even if the Soviets had not planned to introduce a host of new economic and administrative re-

forms. Yet, even while calling for high rates of growth across all sectors of the economy, the Soviets introduced *gospriyemka* in 1,500 enterprises (which were producing about 20 percent of industrial output) and implemented new financial and managerial arrangements in selected factories. Although the leadership realized that changes of this magnitude would be disruptive, the Soviets almost certainly did not anticipate the extent of the difficulties that ensued. For example, monthly government reports on plan fulfillment repeatedly criticized economic managers for not anticipating and dealing with the disruptions that occurred. These disruptions, combined with weather-related problems and supply bottlenecks, resulted in Soviet GNP growth of less than 1 percent in 1987 — a rate reminiscent of the late Brezhnev years (see table 1 and figure 2).

Table 1
USSR: GNP by Sector of Origin¹
 (annual percentage growth)

	1981-85	1985	1986	1987 ²
GNP	1.8	0.7	3.9	0.5
Agriculture ³	2.1	-1.6	8.2	-3.1
Other Sectors				
of which:				
Industry	2.0	1.9	2.5	2.0
Industry	1.8	1.8	2.6	1.5

¹ CIA estimate calculated in 1982 rubles at factor cost.

² Preliminary.

³ This measure of agricultural output excludes intra-agricultural use of farm products but does not make an adjustment for purchases by agriculture from other sectors. Value added in agriculture declined by 5.2 percent in 1987, compared with an average annual rate of growth of 2.7 percent in 1981-86.

Almost all sectors of the economy failed to match the gains achieved in 1986. After registering a modest increase in 1986, industrial growth

dipped to 1.5 percent, with performance in 7 out of the 10 industrial branches down compared with 1986. The machine-building sector — key to Gorbachev's modernization plans — registered no increase in output, and the resulting shortfalls in equipment for investment reverberated throughout industry and the rest of the economy (see inset). Producers of basic materials — metals, chemicals, and so forth — also failed to meet plans, posting lower growth than in 1986. Exacerbating industry's problems, the volume of freight transported was nearly flat. On a more positive note, the energy sector did well, as higher investment in 1986 and 1987 yielded dividends. As a result, the economy was relatively free of energy bottlenecks, and Moscow was able to boost its hard currency earnings by stepping up fuel exports to the West. (See appendix A for a more detailed description of Soviet economic performance in 1987. Appendix B presents selected statistics on the Soviet economy.)

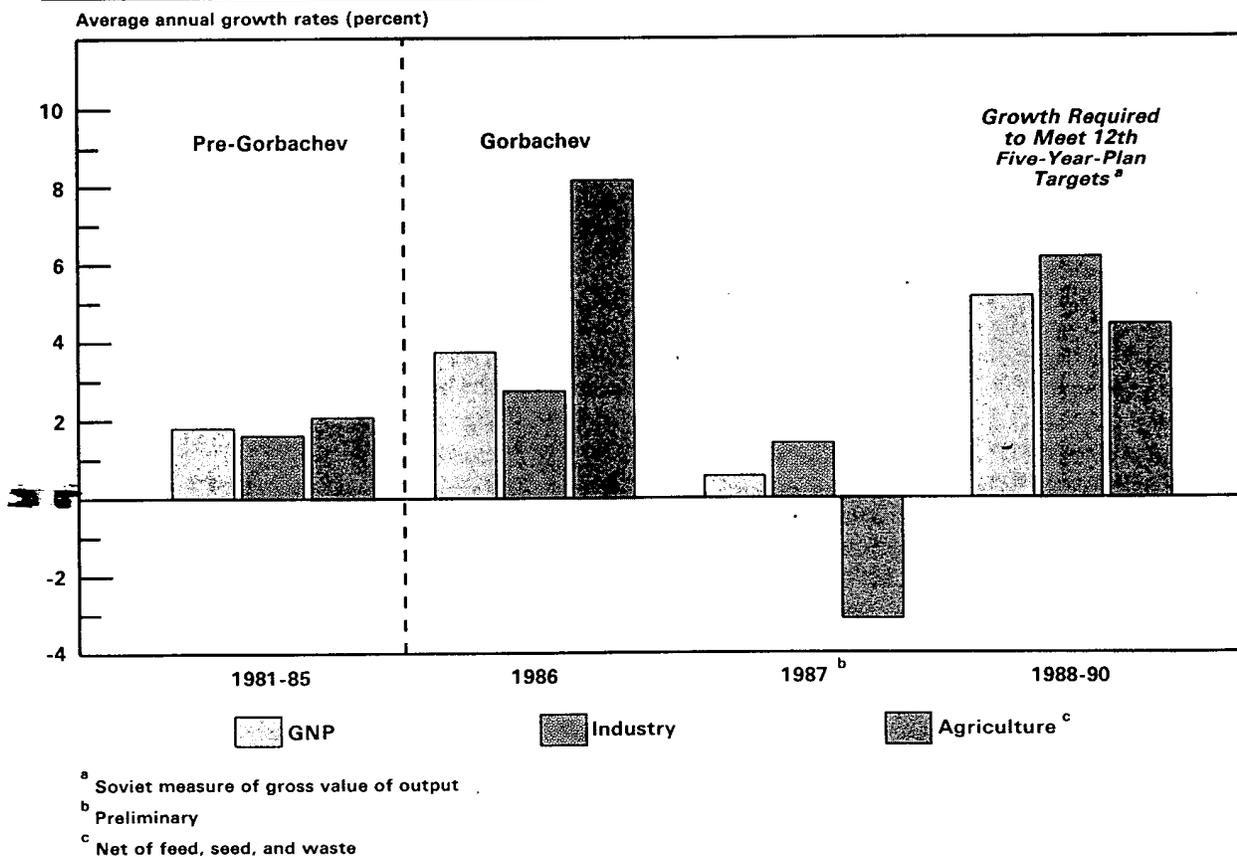


Figure 2. USSR: Economic Growth, 1981-90.

Agricultural output, meanwhile, was down 3 percent following 1986's record level. Nonetheless, Soviet success in maintaining relatively high agricultural output in 1987 in the face of less than favorable weather reflected at least a partial victory for Gorbachev's farm policy. Crop production declined by 5 percent, as a late spring and heavy frosts in May caused a 30-percent drop in fruit output and problems for other crops. A grain harvest of 211 million tons, although the largest since 1978, was only 1 million tons more than the 1986 harvest and thus contributed little to growth. Moreover, the poor quality of the harvest — due to wet weather during the harvest — led to increased imports of milling-quality wheat during the second half of the year. The grain harvest, however, did combine with an excellent forage crop and sizable grain imports to boost meat, milk, and egg production to new records.

While indifferent performance in industry and agriculture was the most obvious sign of the econ-

omy's problems, the real "bad news" lay elsewhere. The leadership had hoped that a strong economic performance last year would provide a foundation for the future development of Gorbachev's economic program. It was counting on more machinery of higher quality to accelerate production in 1988 and beyond; a shift in output to newer products to help the modernization drive's push for product renewal; and advances in *gospriyemka*, self-financing, and wage reform to provide a base for greatly expanding reform in 1988. If such a foundation had been laid, then low overall growth would not be a serious concern. It could even be taken as a sign that Gorbachev's initiatives were being implemented.

This, however, was not the case. Shortfalls in machine building will limit investment growth, especially in 1988. Moreover, to judge from reports in the Soviet press and leadership speeches, there was no major improvement in overall product quality. Finally, problems encountered with

Machine Building — The Focus of Gorbachev's Modernization Plans

Gorbachev has argued that the key to long-lasting improvement of the USSR's economic situation is the continuous introduction of increasingly productive machinery and equipment. The modernization program, therefore, depends heavily on improvements in machine building and metal working — the sector that produces these producer durables, as well as consumer durables and military hardware. The ambitious targets of the 1986-90 plan reflect the sector's importance:

- Output is to increase by 43 percent during 1986-90.
- Targets for high-technology equipment are even higher. Planned growth rates are especially high for numerically controlled machine tools (125 percent), computer equipment (150 percent), flexible manufacturing systems (200 percent), robots (225 percent), and processing centers (330 percent).
- Quality and technological level are to improve dramatically. By 1990, 85-90 percent of the most important types of machinery output will be up to "world technical levels," compared with 13-15 percent for civilian machinery in 1986. New machinery is to be at least 50-100 percent more productive and reliable than previously produced equipment.
- New machinery is to be introduced more quickly than in the past — by 1990, 13 percent of machine-building output is to be in its first year of production, up from 3 percent in 1985.
- By 1990, 60 percent of the sector's own machinery is to be new, i.e., brought on line during the preceding 5 years. To reach this goal, investment in civil machine-building ministries is to rise by 80 percent. Meanwhile, the withdrawal rate for old capital is to double by 1990, while the withdrawal rate for machinery is to quadruple.

the introduction of self-financing and wage reform, combined with the alarms sounded by Soviet economists regarding the lack of preparation for changes this year, suggest that 1987 also failed to lay the proper groundwork for expanding reforms.

In short, the USSR entered 1988 with many of the same problems that it started with in 1987 — low worker productivity, poor quality machinery throughout much of the economy, and a society ill-prepared for economic reform. Unless Gorbachev can achieve better results this year in implementing his program than last year, his efforts to revitalize the economy are likely to falter and tensions within the leadership are certain to mount as the Soviets are forced to make increasingly tough resource allocation decisions.

What Went Wrong?

Harsh winter weather early in the year, traditional supply problems, the introduction of a disruptive quality control campaign, difficulties with self-financing and other new economic reforms, retooling, and a slackening of labor discipline all contributed to the Soviet economy's lackluster performance in 1987.

A record cold snap in January and unseasonably heavy snowfalls in February hit hard at basic materials, accounting in large part for the falloff in their growth. Production stalled because of interruptions of raw material supplies, transport bottlenecks, and increased requirements for fuel and lubricants. Although output of these products bounced back by midyear, the recovery was not as rapid or as complete as in 1982 or 1985 — also years of bad weather. Agriculture's performance was also hurt by poor weather. For example, cold spring temperatures delayed plantings and held down fruit and vegetable output, and heavy fall rains reduced the quality of the grain crop.

The introduction of new quality control strictures further diminished Soviet industrial growth, at times bringing production to a virtual standstill and diverting resources to the repair of rejected goods. Although information in the Soviet press indicates that quality control standards were relaxed somewhat after the first quarter,

gospriyemka dampened production during the entire year, especially in the machine-building sector, which accounted for about two-thirds of the program's 1,500 participants.

Self-financing and other economic reforms granting increased operating autonomy to enterprise managers were also introduced in selected facilities and left their mark as well. Confused by contradictory directives from above, many plant officials floundered, struggling to find reliable suppliers and meet contract obligations. Gorbachev also questioned the hitherto sacrosanct principles of egalitarian wages and job security. A new pay system introduced on 1 January 1987 increased wage differentiation and encouraged enterprises to cut excess workers and managers. Thousands of layoffs have already occurred, and more are scheduled. Although the numbers involved are small relative to the size of the work force, this unemployment marks a radical departure from previous policy. There have already been press reports of labor disturbances over lost bonuses and other changes caused by the reforms.

Meanwhile, despite rising investment over the past 2 years, the Soviets fell far short of their plan to bring new capacity on stream and replace obsolete equipment, mainly because of shortcomings in the construction industry and the inability of machine builders to fulfill their commitments to customers. The tautness in machinery supplies, combined with other factors, left a high percentage of projects uncompleted throughout the economy (see figure 3).

According to the Soviet press, losses in work time — caused by traditional problems of supply interruptions and idle equipment — increased substantially in 1987 compared with 1986. Compounding these problems, Moscow lost ground in its human factors campaign — the spur to improved economic performance in 1985-86. Buffered by wage cuts and increased unpaid overtime because of *gospriyemka*, Soviet workers balked, at times resorting to work stoppages and reverting increasingly to loafing and drinking in the workplace (see inset).

Finally, although the overall Soviet foreign trade balance improved, imports played a smaller role

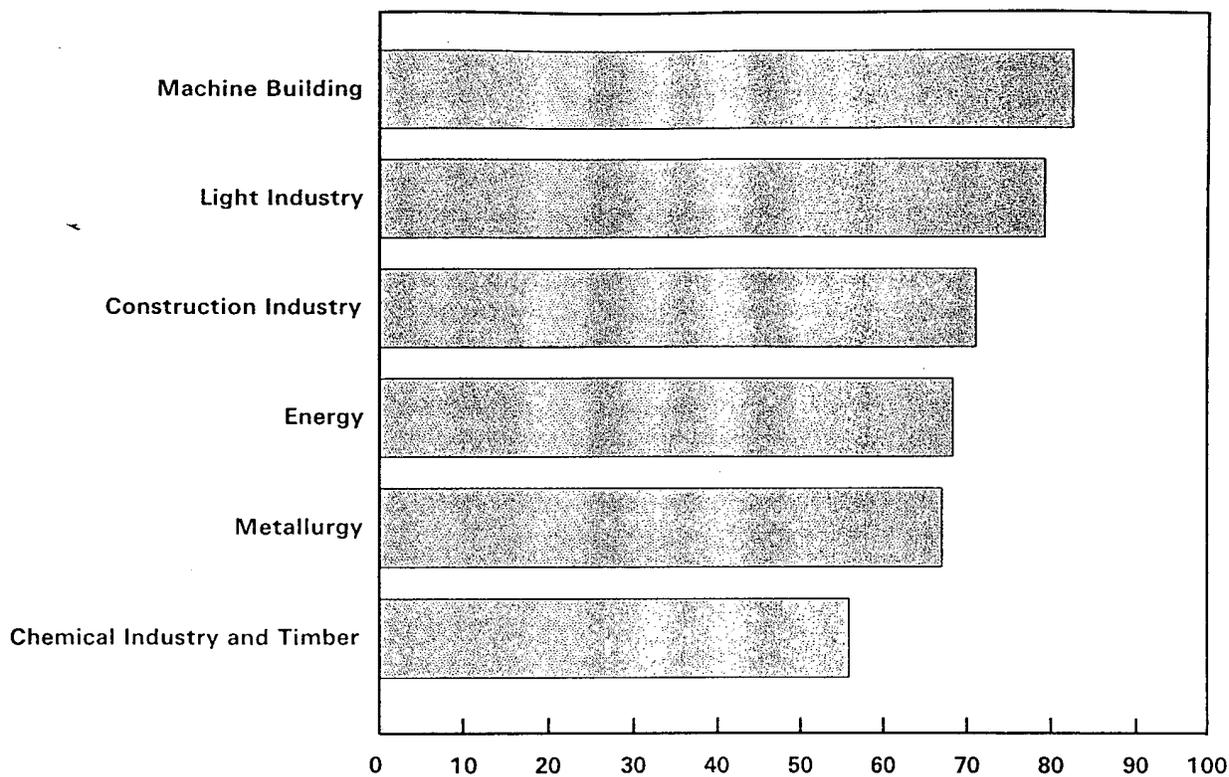


Figure 3. USSR: Percent of Planned Capital Construction Projects Completed in 1987, by Economic Complex.

in boosting Gorbachev's program in 1987 than in 1986 and failed to make up for the shortfalls in domestic production. Despite higher grain imports, preliminary data indicate that hard currency purchases from the West dropped by 10 percent in real terms as imports of machinery and equipment declined. East European exports to the USSR also grew only marginally, at least temporarily. ~~During~~ Soviet plans to increase their contribution to Soviet economic development. Although Gorbachev has stated that he wants to base his economic program on domestically produced machinery, we do not believe that a substantial short-run drop in machinery imports was part of his plan.

Trends in Resource Allocation

The effects of the sharp slowdown in growth were felt unevenly across the economy. In line with Gorbachev's emphasis on the modernization

program, investment appears to have been given top priority. Major defense programs also appear to have continued on track, although Gorbachev has demanded that the armed forces use resources more efficiently and some cost-cutting measures were apparently instituted. The real loser in 1987 appeared to be the consumer who — now 3 years into Gorbachev's economic program — has seen almost no increase in the standard of living.

Investment. Despite the economy's problems, new fixed investment growth appears to have come close to the plan target (see table 2). Nonetheless, problems surfaced with respect to the use and composition of investment. The goal for completing new projects was not achieved. New capacity brought on stream grew by only 5 percent compared with a goal of 12 percent — the second year of substantial shortfalls in delivery of the planned capacities needed to support

Diminishing Returns on the Human Factor

Gorbachev's "human factor" initiatives — discipline, temperance, and improved work incentives — were intended to raise labor productivity for the first 2 or 3 years of the 1986-90 Five-Year Plan while industry retooled. Improved discipline helped boost productivity in 1986, but by June of 1987 Gorbachev was complaining that momentum had been lost. According to the General Secretary, "the incidence of drunkenness has increased again and idlers, parasites, and pilferers — people who live at the expense of others — again feel at liberty."

Backsliding on discipline was one reason for the increase in work-time losses cited in the 1987 plan fulfillment report. Other factors probably played a role as well. The problems that traditionally lead to the greatest losses of work time — supply interruptions, poor organization within enterprises, equipment shortages, and breakdowns — were exacerbated last year by the weather, by resulting failures in the transport system, and by Gorbachev's economic reforms. Expanded use of second and third shifts also added to work time losses in many enterprises. Downtimes are frequent on late shifts because of a lack of support personnel and because workers often leave early. According to press reports, for example, many workers in Asiatic republics quit after being assigned to the evening shift.

Finally, the personnel and organizational problems associated with self-financing and wage reforms contributed to labor unrest in some enterprises. *Leningradskaya Pravda* reported that workers in a local furniture factory held a 2-day strike in February of this year to protest a substantial drop in wages between December and January, when new reforms were put in place. The paper blamed the plant management's poor transition to self-financing for the disturbance. Along the same lines, the Soviet press last November reported a 3-day strike at a major bus factory, also over loss of income.

Table 2
USSR: Selected Indicators
of Capital Formation
(average annual percentage rates of growth)

Preliminary	1976-80	1981-85	1986	1987
New fixed capital investment	3.3	3.5	8.3	4.7
State productive capital investment ¹ retooling and reconstruction of existing enterprises	N/A	7.1	25.4	N/A
Commissionings of new capacity	4.4	3.0	5.9	5.0

¹ State capital investment is total investment less investment by cooperatives, kolkhozes, and individuals (in housing). State productive capital investment further excludes investment by the government for services and housing.

modernization. The Soviets also had little success in their efforts to increase the efficiency of investment by directing more of it into new machinery and equipment and less into new plant and struc-

tures. According to Soviet data, the share of machinery and equipment in total new investment in industry did not rise in 1986, and given the strains in the civilian machinery sector, the share probably grew little, if at all, last year.

Defense. Defense spending also appears to have increased in 1987, although the precise rate is subject to great uncertainty because of difficulties in assessing recent expenditures on research and development and operations and maintenance. Although changes in procurement spending are also difficult to detect immediately, the available evidence suggests that major weapon programs proceeded on track. Our preliminary estimate is that procurement grew by roughly 3 percent in 1987 (measured in constant 1982 prices), consistent with the growth noted in the preceding few years. Growth was driven primarily by procurement of offensive and defensive strategic systems. Among weapons categories, the largest jump in outlays was for ship and submarine

procurement, principally because of continuing expenditures on the Typhoon and Delta IV SSBNs and the Sierra-Class and Akula-Class SSNs. Outlays for the Il-76 CANDID and the strategic SA-10 missile system also helped to push up spending. These systems had already begun to be deployed or were in the final stages of development when Gorbachev became General Secretary.

While apparently leaving major procurement programs alone, Gorbachev was increasingly vocal on the need for military support of the modernization campaign. Early in 1987 he called defense a "great burden" on the economy and indicated that, in the future, military requirements would have to be based on the principle of "reasonable sufficiency," a principle which, while not yet authoritatively defined, has been construed by some Soviet commentators as requiring a "least cost" response (see inset). While accepting the

principle of "reasonable sufficiency," the military services' only response observed so far has been to trim some operations and maintenance costs through an emphasis on discipline and greater efficiency. The Navy, for example, probably in response to both economic and operational requirements, has reduced its out-of-area operations, while recent articles in the military press indicate that some ground force units have been given specific goals for reducing the use of fuel and other resources. In addition, longstanding Soviet efforts to extend the service life of various weapons apparently have been given additional emphasis.

Consumption. Although Gorbachev is apparently counting on increased worker contribution and dedication to help achieve his ambitious modernization targets, the consumer was again short-changed in 1987. Per-capita consumption rose

Reasonable Sufficiency

In seeking to balance the needs of the civilian and military sectors of the economy, Gorbachev has claimed that the Soviet Union will not deploy military forces beyond what is required for a "reasonable, sufficient defense." The Warsaw Pact Political Consultative Committee endorsed this concept in the declaration on military doctrine issued in May 1987.

The Soviets, however, have not provided a detailed explanation of how they define reasonable sufficiency, and its implications for Soviet force posture are probably still under discussion. Senior party secretary Aleksandr Yakovlev, writing in *Kommunist* in May 1987, called on social scientists to work with military specialists to give substance to the concept.

Soviet commentators have clearly differed among themselves as to the meaning of sufficiency. Most civilian and even some military specialists have argued that the USSR need not, and should not, match every weapon program undertaken by a potential adversary, emphasizing the detrimental effect of the arms race on the economy. A few have even advocated unilateral force reductions. Other commentators, many of them military officers, have interpreted "defense sufficiency" in more traditional terms. They contend that weapon reductions should be mutual and that an increase in Western military power must be offset with a proportional increase in Soviet military capability. Defense Minister Yazov, for example, wrote in a July 1987 *Pravda* article that "the limits of sufficiency are set not by us, but by the actions of the United States and NATO."

Yazov and other military writers have also taken the view that defense sufficiency includes an offensive capability. For example, in his book *Guarding Socialism and Peace*, Yazov noted:

"Soviet doctrine considers defense to be the principal form of action for the repulsion of aggression. — But, it is impossible to destroy the aggressor with only a defense. Therefore, after the invasion is repulsed, troops and forces of the fleet must be capable of conducting decisive offensive operations."

only slightly last year, by 0.7 percent; sales of a number of key consumer goods — including vegetables, clothing and textiles, footwear, and alcohol — declined. Meanwhile, because of the unavailability of the desired goods, unsatisfied consumer demand continued to accumulate as wages increased by 2.6 percent. Other evidence of excess demand included press references to higher collective farm market prices and a 10-percent increase in savings bank deposits.

The Soviet population apparently supports *perestroika* in principle, but most workers, according to one Soviet survey, do not believe they have benefited from it. The impact of many of the reforms initiated in 1987 has just begun to be felt by the consumer and could dampen morale even further in 1988:

- *Gospriyemka* has resulted in lost bonuses and unpaid overtime for corrective work and prompted work stoppages in protest.
- *Wage reform* in many cases will lead to lower wages, demotions, and some lost jobs.
- *Ministry staff reductions* are eliminating thousands of jobs and disrupting work, as those still employed worry about their future.
- *Self-financing*, which links wages and output, could reduce wages if output falls, even if the reasons — for example, interruptions in supply — are beyond the workers' control.

Where Gorbachev's Program Stands

Last year was to be a year of transition for Gorbachev's economic program, one in which his policies were to begin to provide the basis for the Soviet economy's transition to a self-sustaining path of higher growth. Gorbachev has prepared a blueprint for the modernization of the Soviet industrial base and reform of the economic system, and the implementation of his program has begun. Three years into Gorbachev's rule, both major elements of his economic program have displayed significant strength and weaknesses. The question — which remains to be answered — is whether

the slow growth and disruptions that occurred in 1987 were transitory phenomena or harbingers of even more widespread problems.

Industrial Modernization: The Record After 3 Years

The progress of the industrial modernization program is best reflected in civilian machine building, the sector that Gorbachev has described as crucial to the success of his plan. Overall, the scope of Gorbachev's program for restructuring the machine-building complex is impressive. All operations within the sector — from research and production work at institutes and plants to high-level planning and administration in Moscow — have been engaged, and the policies implemented over the past 3 years have addressed the most significant issues at each level. But the pace and inconsistency of Gorbachev's policies have thrown machine building and all of industry into a state of turmoil.

The high targets that machine builders have been tasked to achieve in the 1986-90 period are overwhelming in and of themselves. As the 1987 results showed, moreover, major elements of Gorbachev's program for the machine-building sector are intrinsically contradictory because the sector is being forced to do everything at once: retool, increase quality, conserve resources, change the product mix, and accelerate production. Thus, it is not surprising that machine builders could not meet their goals for the first 2 years of the five-year plan and that the modernization program is behind schedule:

- In large part because of disruptions resulting from retooling and quality control, civilian machine builders only managed to match 1986 output levels. Defense machine-building ministries, less affected by these disruptions, probably grew faster than their civilian ministry counterparts.
- Although civilian machine builders met — and at times exceeded — their targets for introducing new products, press reports indicate that the new equipment is not as advanced or productive as originally envisioned, in part because

enterprises do not have the time to upgrade their production technology without risking a fall in production.

- Civilian machine builders were able to increase investment substantially, but pressures to keep production levels up and shortages of equipment have prevented them from meeting plan targets for retooling the industry.

When production dropped sharply at the beginning of 1987 and then recovered only slowly, quality standards were apparently relaxed for 2 to 6 months at many of the plants under *gospriyemka*, and the constraints of self-financing were deferred, according to the Soviet press. As months passed without a rebound, however, Soviet leaders unleashed a barrage of criticism at the machine-building sector.

Nonetheless, the leadership shows no sign of backing down on the modernization program. Gorbachev has stressed that "No retreat is permissible from the program... There will be no turning back." His strategy appears to be one of maintaining forward momentum, while relieving pressure so as not to push machine builders too hard. In line with these considerations, Moscow appears to be changing its tactics for dealing with the sector. Realizing that continued, unrelenting criticism would only make matters worse, Soviet leaders have become more upbeat. For example, in his speech before a group of media chiefs this January, Gorbachev praised machine builders for the rate at which they were renewing products and noted that "qualitative changes" are also being made in science and technology.

Economic Reform: A Long Way To Go

Gorbachev has also pledged not to retreat from the major objectives of his economic reform program — the other key element in his drive to bring about the long-term, self-sustaining improvements that he is ultimately seeking for the Soviet economy. Indeed, 1987 witnessed a major expansion of his reform agenda.

Before the June 1987 Central Committee plenum, it was not even clear that Gorbachev had

a unified blueprint for economic reform. He had started out by extending Andropov's and Chernenko's reforms in the industrial sector to planning and finance, and introducing self-financing, wage reform, and planning reform on a small scale. In addition, he had established a commission in January 1986 to develop a program of reform legislation, and had sanctioned an unprecedentedly wide-ranging debate on economic reform. This discussion reached a crescendo just before the Central Committee plenum in June 1987, which was called to ratify the new program.

The June plenum, however, approved guidelines for a "new economic mechanism," which is to be "almost fully" implemented by the start of the 13th Five-Year Plan in 1991. As of 1 January 1988, reforms were introduced or expanded to affect a large portion of the economy (see inset). These include self-financing, new planning practices, wholesale trade, changes in the banking and credit system, wage reforms, new foreign trade procedures, and reorganization of the production and foreign trade ministries. With their adoption, Gorbachev has replaced his predecessors' piecemeal approach to reform with a much more comprehensive program. If fully implemented, this reform package would greatly change the USSR's economic structure. The role of Gosplan and other national planning organizations would be limited to long-range, national planning, while the day-to-day operation of the economy would be largely handled at the enterprise and local levels.

Nonetheless, while comprehensive, Gorbachev's reform program is not a well-integrated package, and returns from its implementation are likely to be deferred — both because of loopholes in the reform legislation itself and because crucial elements of the reform package have not been worked out. Indeed, Minister of Finance Gostev said that "the transition to the new conditions of economic management is being made on the march..." As a result, many of the reforms are not scheduled for full implementation until the beginning of the next five-year period. In particular, price reform — essential for better decisionmaking at both the national and enterprise levels — will not be completed until 1991, after the five-year planning process is finished. Almost as serious is the fact that the wholesale trade reform

Timetable for Soviet Economic Reforms

Reform	Major Purpose	1988 Goals	Final Objective
Self-financing	Enterprises will bear full economic responsibility for the results of their activity. Investment will be financed less through budget allocations and more through bank credits.	60 percent of all industrial production and 40 percent of all enterprises; and estimated 60 percent of agricultural production; 50 percent of scientific organizations; 100 percent of transportation.	Whole economy by end of 1989.
Wages	Entire wage and salary structure in the production sector will be overhauled to tie monetary rewards more closely to performance. Salary increases, however, will depend upon enterprises' ability to finance them.	60-70 percent of work force.	All industrial sectors by end of 1990.
Planning	Enterprises will produce a portion of their output in compliance with mandatory state orders and will be given greater latitude in determining the remainder. The role of Gosplan and other state planning organizations would be curtailed sharply.	All enterprises and associations. However, in 1988, state orders make up 80 percent of industrial production, including 90 percent in the fuel ministries and 60 percent in the eight civilian machine-building ministries.	State orders will be reduced to 60 percent of total output in 1989, 50 percent in 1990, 30-40 percent in 1991; "eventually" dropping to 20-25 percent.
Supply (wholesale trade)	Only "scarce" producer goods will continue to be rationed by the state. Other supplies will be distributed through a wholesale trade system that will allow free purchase and sale under direct contracts between providers and users.	Less than 4 percent of total industrial production; 15 to 20 percent of sales through state supply networks.	Wholesale trade reform to cover 30 percent of sales through state supply networks by 1989, 60 percent by 1990 and 80 percent (2/3 of total sales) by 1992.
Banking	Decentralizes bank decisionmaking somewhat and elevates the role of economic criteria in extending credit.	All banks. A reorganization is being undertaken, but decentralization of bank lending policies will be limited and gradual.	No date given.
Wholesale prices	Will be revised to better reflect resource scarcity and customer demands.	None; to begin in 1990.	Industry, transportation, communications by 1 January 1990; construction and agriculture, by 1 January 1991.
Retail prices	Will be made more flexible and more responsive to supply and demand, probably resulting in higher prices for foods, rent, and consumer services.	None; to begin only after full public discussion.	No date given.
Foreign trade	Allows selected enterprises to engage directly in foreign trade and keep portion of foreign currency earned.	26 percent of all imports; 14 percent of all exports.	No date given.
Quality control	Establishes independent quality-control inspectors in civilian enterprises.	732 more enterprises; for first time includes food processing and construction sectors. Roughly 80 percent of civil machine-building output and more than 30 percent of all industrial production will be covered.	No further expansion announced.
Organizational changes	Seeks to streamline and rationalize economic bureaucracy.	All central ministries, republic Central Committees, and republic Council of Ministers.	By end of 1988.

will not be fully in place until 1992. Without free trade in supplies, enterprise managers will find it hard to spend the profits that they are allowed to keep under self-financing. As a result, more reform-related disruptions can be expected.

Near-Term Outlook for Gorbachev's Program

How the Soviets perceive the success of Gorbachev's economic program will depend greatly upon which of its competing objectives they consider to be more important — long-term modernization and reform or short-term economic growth. Many of the modernization and reform initiatives impinge directly on short-run growth. Gorbachev has indicated that 2 or 3 years will be required before the positive effects of these initiatives are felt. If growth slows in the near term, however, fewer resources will be available to expand the modernization effort or to satisfy key constituencies such as consumers and the military, who are undoubtedly troubled by the disruptions that the reforms may entail.

The short-term outlook for growth certainly is not good. Meeting the targets established for the 1988 plan, for example, would require Soviet GNP growth of nearly 8 percent. This seems clearly beyond reach (see inset). Given the disruptions that Gorbachev's program are causing and are likely to continue causing for the next few years, we project average annual growth of 2 percent or less for the rest of this five-year plan, although considerable year-to-year fluctuations are possible. Indeed, coming after 1987's poor performance, 1988 growth could rebound substantially, especially if the weather cooperates. Alternatively, growth could even be negative in some years if disruptions worsen or are accompanied by harvest failures or other major problems.

Possible Adjustments

Because Gorbachev's economic program is behind schedule and short-term growth prospects are not bright, we believe that as the Soviets begin to focus on the next five-year plan, they will be looking for possible adjustments during the 1988-90 period that will get the program back on track.

Specifically, the leadership may:

- Look for additional resources from defense, other sectors of the economy, or abroad.
- Decide to adjust its approach to economic reform and modernization.

Finding More Resources

The leadership's ability to deal with these expected shortfalls in production will be essential to the success of Gorbachev's modernization efforts. At a minimum, we believe that if the leadership is to continue to pursue a high investment strategy — critical if the USSR intends to renew its capital stock — then it will have to tap resources from one or all of three areas outside the civilian machinery sector:

- Defense.
- Other sectors of the economy.
- External sources in Eastern Europe or the West.

Tapping Defense. Defense currently claims 15-17 percent of GNP — including an especially large share of the output of the critical machine-building sector and large shares of the highest quality materials. Thus, it is a prime candidate to support Gorbachev's modernization program. Indeed, defense industry already produces investment goods — ranging from computers to tractors and tractors — both for its own use and for shipment to civilian customers. In addition, the sector manufactures a large portion of such domestically produced consumer durables as refrigerators, radios, and TVs.

Until recently, leadership statements for defense industrial support to the civil sector echoed similar calls in the early 1970s and 1980s, and, as in the past, the leadership has complained that the defense industries have largely ignored these appeals. During his opening address at the Central Committee plenum in June, for example, Gorbachev attacked three defense ministries for having a "formal attitude to consumer goods

The 1988 Plan: The Pressure Builds

The Soviet economic plan for 1988 is, for the most part, in line with the 12th Five-Year Plan goals. Output growth targets match those in the five-year plan; the machine building sector is assigned continued priority; and calls for increased labor productivity, resource conservation, and improved management are repeated. The 1988 plan appears to take little, if any, account of either the economy's shortfalls in 1987 or the scheduled implementation of comprehensive economic reforms this year.

The 1988 production targets are totally unrealistic mainly because they are expressed with respect to 1987 plans, which were substantially underfulfilled. For example, industrial output would have to grow by 9 percent this year to meet the plan. Because it is unrealistic, the 1988 plan will probably create imbalances and create still more pressure on Soviet industry and other sectors of the economy to turn out production at all costs, even as enterprises try to cope with the new reforms and an expansion of the quality control system.

In terms of resource allocation, the 1988 plan suggests a higher priority for the consumer. Investment resources allocated to housing and consumer services reportedly have been raised substantially over the distribution originally called for in the 1986-90 plan. The 1988 plan calls for overall investment growth of 5.5 percent, compared with 4.7 percent in 1987 and 8.3 percent in 1986. The 1988 target looks low, however, given the many demands in the economy for investment in modernization, in energy, and now in consumer-related sectors, although it may be in line with the original five year plan.

USSR: Key 1988 Economic Plan Goals Annual Growth (percent)

	1988 Plan Compared with 1987 Plan ¹	1988 Plan Compared with 1987 Performance ²
GNP	4.3	8
Agriculture	3.4	6
Industry	4.5	9
Machinery ³	7.0	20

¹ Official plan goals based on gross value of output.

² Based on CIA estimates of production in 1987.

³ Civilian and defense machinery.

production as something secondary." Additional reporting indicates that defense industries' contribution has fallen far short of the Soviet leadership's expectations:

- Since the beginning of 1986, defense industries have been criticized on at least 30 separate occasions in industrial

performance reports for shortfalls in production of consumer goods and failures to improve quality.

- The Central Committee dismissed the director of a defense industrial enterprise manufacturing television sets and issued "strict warnings" to several defense industry

ministers for their failure to improve the quality of TVs and radios, according to Soviet news reports in June 1986.

Faced with this poor performance, the leadership recently has stepped up its pressure on the defense industry to help retool light industry and food processing. During last October's Central Committee plenum on the food-processing industry, Premier Ryzhkov blasted the state of food processing, reaffirmed the leadership's commitment to retooling the sector, and then presented the defense industrial ministries with a specific plan for their involvement in the program. He stated that the defense industries, along with the other machine-building ministries, would be required to increase dramatically — by "fourfold to ninefold by 1995" — their equipment deliveries to the food processing sector. He added that the Bureau for Machine Building, the State Agro-Industrial Committee (*Gosagroprom*), and an unidentified state commission — which we believe to be the Military-Industrial Commission (VPK) — had been tasked to submit within 90 days a specific program outlining how their ministries would meet these production targets. At a district (*obkom*) plenum on 11 November, Party Agriculture Secretary Nikonov repeated Ryzhkov's statements on retooling food processing, and he too cited the "fourfold to ninefold" increase in the contribution from the defense industries.

Even stronger evidence of a larger role for the defense industries came with a February 1988 press announcement that the civilian ministry responsible for retooling the light and food industries — the Ministry of Machine Building for Light and Food Industry and Household Appliances — would be dissolved and subsequent press reports indicating that responsibility for some of its 260 enterprises was being transferred to defense industrial ministries.

Despite these changes, defense industrial participation in the civil modernization program is unlikely to affect weapons production capabilities greatly, at least for the next few years. As a result of the large-scale modernization in the defense industries in the 1970s, the sector has in place most of the equipment it needs to produce weapon systems scheduled for deployment

through the early 1990s. Therefore, any investment foregone in weapons plants to supply tooling for civilian production could delay the introduction of future weapons programs, but would not be likely to slow current output.

Nonetheless, the Soviet defense industry is not without its own pressing needs. In the near future, if not this year, it must begin serious commitments to support the next generations of Soviet weapons (see inset). Any move to reallocate resources from defense industry, however — even if it affects only future weapons production — would be controversial and could spark opposition from more conservative elements of the leadership. Thus, although Gorbachev probably will look to defense for resources to bolster his industrial modernization efforts, we believe that he will move cautiously. National security is a particularly sensitive area for the leadership, and Gorbachev probably would be reluctant to leave himself open to charges of weakening Soviet defenses by pushing reforms or resource shifts that many in the military leadership oppose.

One way to shift resources from the defense sector and head off criticism would be to reach arms control accords that would slow the pace of US weapons programs, especially SDI. Indeed, this is probably one of the main reasons the USSR is interested in a START agreement. Even more important than the direct savings from an agreement — which could be significant — Gorbachev probably sees the larger process of arms control as his principal means of achieving more stable East-West relations and dampening both external and internal pressure to spend more on defense — at least until he can reap the productivity gains he hopes to obtain from his industrial modernization program (see inset).

Squeezing Other Sectors. Gorbachev will also look to other sectors of the economy to find the investment resources needed for his modernization program. But the chances for any real savings appear slim. Investment demands are rising across the economy, while the leadership has apparently ruled out holding down consumption any longer for fear of its impact on productivity.

As part of restructuring, Gorbachev has said that he would like to reduce investment in

USSR: Selected Future Major Weapons Programs

Strategic offensive systems: New solid- and liquid-propellant SLBMs and a new SSBN likely by the late 1990s; and a replacement for the SS-18 follow-on ICBM and a new long-range cruise missile in the next century.

Strategic defense systems: New air defense ground laser, long-range interceptor, and long-range air-to-air missile probably entering series production by the late 1990s; and a laser ASAT weapons, a variety of surface-to-air missiles, and a new AWACS aircraft in the next century.

General purpose ground systems: Series production of a new antitank missile and a new generation attack helicopter by the late 1990s; and new ground forces vehicles in the next century.

General purpose air systems: New fighters and other aircraft and tactical missiles in series production by the late 1990s; and a new transport and a new airborne laser in the next century.

General purpose naval systems: An improved cruiser and submarine, new helicopter, and new missiles in series production by the late 1990s; and a new fighter and new ASW equipment in the next century.

Space Systems: Space-based weapons by the mid-1990s; a variety of command, control, communications, and intelligence satellites by the late 1990s, and a space plane in the next century.

both the agriculture and energy sectors, which together absorb about half of total Soviet investment. But both sectors will need more investment over the next few years. Although agriculture has enjoyed a high priority since the mid-1960s — the agro-industrial complex takes about one-third of total investment — this investment has not boosted output appreciably since 1970 (see figure 4). Crops are still lost due to inadequate transport and storage, grain and other food imports remain high, and rural housing and associated infrastructure are poor. Although this sector might well take a declining share of total investment, absolute reductions will be difficult to achieve.

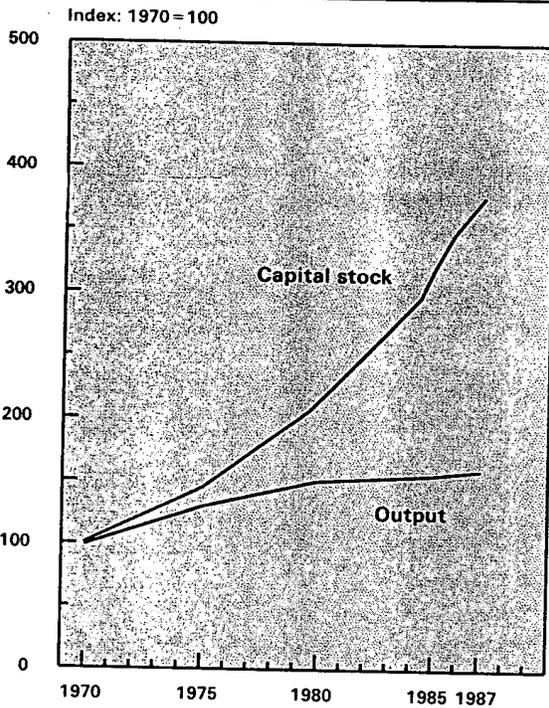
Similarly, in the energy complex — which takes about 20 percent of investment — returns to investment in fuels have been falling over the past decade, and this trend shows no signs of reversing itself.

- It is becoming more and more costly to maintain oil production, as new wells are deeper, are less productive, and are located in more remote and smaller fields than in the past.

- The new oil and gas fields that are being developed offshore in the arctic and onshore near the Caspian Sea will require huge investment outlays.
- Shifting domestic energy consumption away from oil and toward gas and coal will require the construction of new and costly pipelines and other refining, transportation, and storage facilities.

In the past, Soviet leaders, including Gorbachev, traditionally have been willing to sacrifice consumption growth for investment. Early in 1987, Gorbachev made this policy explicit, indicating that the consumer must tighten his belt for a few years. Unlike in the past, however, the work force is being asked to improve its productivity, agree to major changes in the "social contract," and work on second and third shifts. The leadership, moreover, has expressed increasing concern that the failure to increase the output and quality of consumer goods has hurt morale and dampened the enthusiasm for Gorbachev's program. Second Secretary Ligachev said last May, for example, that consumer shortages had become a "brake on the economy." Gor-

**Soviet Fuel Sector: Growth
in Production and Capital Stock**



**Soviet Agriculture: Growth
in Production and Capital Stock**

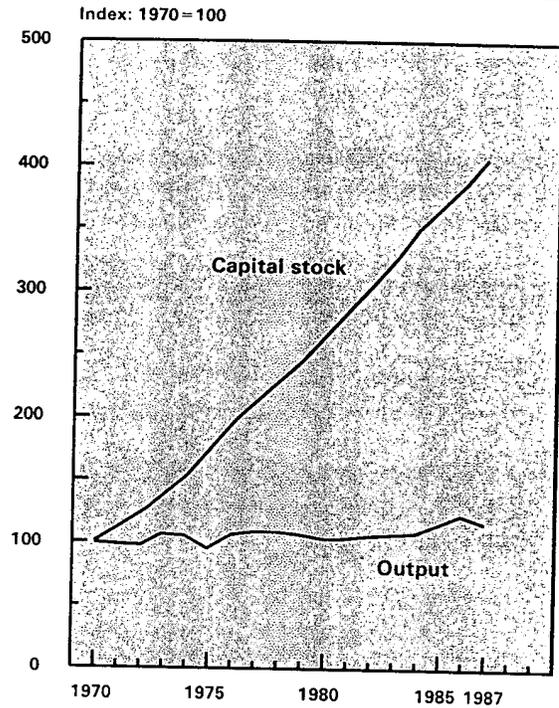


Figure 4.

bachev, speaking at an October conference on the food-processing industry, said that improving "the people's everyday life" is more important even than modernization.

The 1988 plan reflects a new emphasis on the consumer:

- Investment resources allocated to the so-called nonproductive sphere (principally housing, trade, services, health care, and education) have been increased by 18 percent over the level originally called for in the 1986-90 plan.
- Targets for output of consumer-oriented building materials have been increased.
- Goals for the production of food, clothing, textiles, and consumer services have also been raised. The share of consumer-related goods as a share of industrial

production is to rise, reversing the downward trend of recent years.

Looking Abroad. Besides seeking help from defense industry and other sectors of the economy for the modernization drive, the leadership will also look to Eastern Europe and the West for additional support. Although some rise in imports is possible, neither source is likely to be able to compensate for domestic production shortfalls.

Eastern Europe is already a major supplier of machinery. Currently, Eastern Europe provides over two-thirds of Soviet equipment imports and is the largest foreign supplier of machine tools, computers, and electronics. Although additions to capacity over the next few years should allow Eastern Europe to increase its exports of some types of machinery to the USSR — especially machine tools from East Germany — there is a large requirement for advanced machinery for domestic investment in most East European countries, and their leaders would resist sacrificing their

Economic Gains From Arms Control

Our analysis indicates that — although arms control need not result in the transfer of resources from military to civilian programs — the Soviets could reap some economic benefits from arms control, given the provisions of the recently signed INF treaty and the type of reductions envisioned from a START accord. The greatest potential economic benefit to the Soviets from an arms control agreement would be the avoidance of substantial new military expenditures. By avoiding the deployment of follow-ons to, and modernization of, existing MRBMs and IRBMs, the INF agreement could perhaps save the Soviets on the order of 1-2 billion rubles annually during the 1990s, as well as release tens of thousands of troops and the workers in the plants producing INF weapons for other duties. Near-term savings, however, will be reduced by the costs associated with dismantling and destroying INF systems, which the Soviets have claimed could be substantial.

The direct savings from a deep-reductions START agreement are much less certain. The actual amount would depend heavily upon the rate at which the Soviets would modernize their forces, both in the absence of an agreement and under such an accord. Under the Soviet START proposal, for example, total savings might be less than under the INF treaty if the USSR decided to reach the warhead limit by scrapping most existing systems and replacing them with new, more costly ones. Conversely, should the Soviets opt to reach the warhead limit by curtailing future programs, slowing the rate of modernization, and keeping existing systems longer, we estimate that by the year 2000 cumulative savings from a combined START and INF agreement could exceed 50 billion rubles, and make substantial numbers of soldiers and industrial workers available for other employment.

We do not know how the Soviets would choose to reallocate any resources saved from arms control. Part of the savings might be used to strengthen strategic defense, conventional forces, or research and development efforts. Given the priority Gorbachev has placed on his industrial modernization program, however, he probably would choose to allocate at least some of the resources to the civilian economy. If the Soviets were to transfer all the resources saved, we estimate the non-defense component of GNP could be about 1 percent higher than it otherwise would be by the turn of the century. Moreover, because strategic offensive forces claim a large share of the best electronics, high-quality machine tools, and scientific resources — all of which are vitally important to Gorbachev's modernization program — even small reductions in these forces could help alleviate bottlenecks in these areas.

Beyond some long-term economic benefits from arms control, Gorbachev and the leadership probably see arms control as part of a larger process to ease East-West tensions, and they probably calculate that arms control would lead to constraints on Western force modernization. If Gorbachev can reach strategic arms control agreements — while at the same time reaching some sort of accommodation with the US on other contentious political issues — then he will be in a much better position to push his modernization program at home and to make whatever adjustments he feels are needed in the defense budget. Improved US-Soviet political-military relations would also make it easier for the USSR to expand commercial ties with the West.

own development programs. In addition to having their own economic problems, many East European countries are facing a period of political transition — a poor time for the Soviets to push for greater austerity. Moreover, because of improving terms of trade, Eastern Europe finds itself

in a better position than in the past to oppose any demands from Moscow for additional support. The value of Soviet energy deliveries to Eastern Europe — which make up the bulk of exports to the region — fell by 7 percent in 1987 as a result of lower oil prices.

In addition, the Soviets are aware of the limits on what they can expect from Eastern Europe. Gorbachev has made economic modernization the goal not only for the USSR but for the Warsaw Pact as a whole. In so doing, he acknowledges Eastern Europe's tradeoff between producing more low-quality machinery and progressing toward higher quality products: higher output in the short run comes at the expense of higher quality in the long run. To this end, the Soviets have emphasized better quality exports in recent years and continue to do so.

In contrast to the limited prospects for increasing imports from Eastern Europe, Moscow would probably find willing suppliers in the West. Western suppliers have been geared up since the start of the current five-year plan to increase sales to the USSR, only to find their expectations dashed, in part by Soviet cutbacks in purchases from abroad. Oil earnings since 1984 have been lower

than in the early 1980s and Soviet buying in general has been restrained as leadership expectations have centered on domestic production. The possibility that the Soviets would look to boost imports as a result of the slow pace of modernization in 1987, however, coupled with Soviet efforts to revamp the foreign trade apparatus and establish joint ventures over the past year, has rekindled Western interests (see inset). Moscow may even be able to extract some trade and financial concessions from Western governments eager to give their firms the upper hand in tapping Soviet domestic markets. Despite the sizable climb in the dollar value of the hard currency debt in recent years — due as much to the continuing rise of West European currencies and the yen relative to the dollar as to new borrowing — the USSR is still regarded as an excellent credit risk by most Western bankers.

At present, with a low debt-service ratio of

Update on Soviet Joint Ventures With the West

The Soviet leadership has pushed aggressively during the past 12-18 months to establish joint ventures with Western firms. We believe that Moscow sees such arrangements as better vehicles than current trade and economic relationships for acquiring and assimilating Western technology, managerial expertise, and marketing skills. As part of Gorbachev's modernization drive, joint ventures are intended to upgrade Soviet production processes and thus spur exports of manufactured goods, reducing Moscow's reliance on energy and other raw materials as its principal foreign exchange earners. Soviet plans call for 85-90 percent of the "most important" machinery to be up to "world technical levels" by 1990.

Despite the initial interest shown by Western firms, progress has been slow. Only about 30 agreements out of more than 300 proposals have been concluded since the legislation took effect at the beginning of 1987. The largest stumbling block remains the inherent conflict between Soviet and Western commercial objectives. Western businessmen are eager to tap a potentially lucrative Soviet domestic market, but have little interest in helping the USSR become a world-class exporter of manufactured goods to compete with their own foreign sales. Soviet inexperience with many Western business concepts, such as management control and profit repatriation, are further impeding progress. Moscow has shown some flexibility in negotiations and has modified the regulations to try to address some Western concerns.

Only a small number of joint ventures are likely to be in operation within the next year or two, and they will probably have little impact on Soviet hard currency earnings or the quality of domestic production until the 1990s. Most of the deals concluded, or those close to signing, appear to be relatively small endeavors that involve simple production processes, low-level technology, and little foreign capital. A few large projects are under negotiation, but even if agreements are reached sometime in 1988, it will be years before these projects begin full operation.

about 25 percent, Moscow is in a fairly good position to expand economic ties with the West. But sizable import growth over several years would increase Soviet dependency, both on particular products and on Western financing needed to make the purchases. Nonetheless, even though Gorbachev has stressed the need to modernize from within and is likely to have set his own limits on Soviet-Western economic relations, the attractiveness of Western assistance to ease the transition pains of some key sectors may increase markedly if this year's economic performance repeats last year's.

Over the longer term, Moscow would like to finance any increase in imports through increased export earnings and, to this end, is exploring the possibility of expanding ties to a number of international economic institutions. While a major impetus for joining these organizations is political, membership also would confer some limited economic benefits. For example, the Soviets apparently believe that membership in GATT will expand their general knowledge of world trade and also make Soviet exports eligible for reduced tariffs that accompany GATT membership. In contrast, the Soviets have shown far less interest in joining the IMF. Membership would require greater economic information than the Soviets have previously been willing to share, the Soviets would be required to pay a sizable subscription fee upon joining, and they would probably realize few economic benefits from participation.

Slowing Economic Reform

How fast Gorbachev will push the pace of economic reform is uncertain. In the face of continued low economic growth, shortages of critical goods, and discontent on the part of workers and nationalities, the tenuous balance in the leadership could easily shift in favor of more conservative policies. Indeed, in a speech to the media on reform this January, Gorbachev signaled a willingness to retreat "if it turns out we made an error."

If retrenchment occurs, we believe that the more orthodox elements of Gorbachev's program to improve the system would probably survive, but that the drive to make the economy

more market-oriented and decentralized would be deemphasized. The emphasis would be on increased discipline and organizational reform:

- The discipline campaign would include renewed emphasis on the anti-alcohol program. We might also see continued efforts to increase differentiation in wages between workers who perform well and those who do not. Organizational reform would continue to focus on some cutback in the bloated central bureaucracy and a rationalization of the structure in an attempt to join related economic ministries and central organs.
- The reforms most likely to be weakened are those that would decentralize economic decision making. Among the first to be affected would be the proposed reduction in obligatory plan targets, increased authority of the enterprises in allocating of resources, and plans to decentralize wholesale price formation. Reforms intended to increase authority at the farm level would probably suffer the same fate, although the emphasis on the collective contract — a way to improve discipline — would probably continue. Ideological opposition and bureaucratic redtape would probably prevent any significant expansion of the private and cooperative sector.

Measuring Progress: Signs To Look For

In charting the progress of Gorbachev's economic program, the problem for Western observers and for the Soviets themselves will be to understand whether the policy shifts and reforms being carried out will be effective and to identify indicators of progress in areas such as quality and technology, which are only indirectly measured in output statistics. Another key question for Western observers will be how to gauge the commitment of Gorbachev and others on the Politburo to his policies. While it is doubtful that Gorbachev (or any successor) could ever fully turn back the clock and publicly renounce *perestroika*, how fast and how hard Gorbachev's vision will be pushed is still a very open question.

The Upcoming CPSU Party Conference

This year's most important test of Gorbachev's political strength and of the momentum of his reform agenda will probably come at the 19th All-Union Party Conference, to be convened on 28 June. Gorbachev has invested a great deal of political capital in the conference, which will be the first meeting of its kind since 1941. He evidently hopes to circumvent the current Central Committee and use the conference to ratify some of the more controversial elements of his reform program and strengthen his grip on party organizations. Reflecting the controversial nature of the conference, Gorbachev first proposed it at the January 1987 Central Committee plenum, but he did not receive formal Central Committee backing for the idea until last June's plenum.

In addition to focusing on personnel issues, Gorbachev will almost certainly use the conference to conduct an across-the-board assessment of domestic policy and to articulate a vision for the future. Moscow has already indicated that the agenda will include a review of progress in implementing the current five-year plan, a topic that will inevitably involve a discussion of the impact of current reforms on the ability to meet plan targets. Gorbachev might also choose to unveil the general outline of the 1991-2005 Fifteen-Year Plan. If so, it could provide clues concerning the adjustments intended in economic policy in the 1990s.

The conference will also afford Gorbachev an important opportunity to consolidate his power. It apparently will be empowered to make changes in the Central Committee (perhaps replacing 25 percent of its members), where Gorbachev's support has been weaker than in the Politburo and Secretariat. The composition of the Central Committee is particularly important for the future of economic reform, because officials who have considerable input in the design of economic policy and are largely responsible for implementing it — regional party leaders, government ministers, and economic managers — are heavily represented there. If Gorbachev fails to increase the ranks of his supporters significantly, his ability to push beyond the limits of current reforms will probably be severely hampered.

Shifts In Economic Reform Policy

If the leadership that emerges from the conference decides to take the long view — i.e., is willing to wait for economic gains in the 1990s and realizes that short-run disruptions are a necessary part of the economic reform process — we would expect to see some indicators that the momentum of reform is being maintained. Some that would probably be evident in leadership statements and press articles include:

- Less emphasis on growth in general and on the fulfillment of 1986-90 plan targets in particular. Recent Soviet statements have begun to make this point (see inset).
- Strong united commitment by the leadership not only to the general concept of economic restructuring but also to individual elements of the reform program, such as price reform, that are controversial but essential to a comprehensive approach.
- Willingness to carry out particularly painful adjustments, such as bankruptcies and wage reforms, that lead to wide differentials in pay.
- Greater consolidation of economic ministries and cuts in staff.
- Continued publication of controversial articles by reform economists arguing for expansion of reform.

Probably the key indicator of how serious the Soviets are about economic reform, however, is how thoroughly they institute price reform, an issue which still apparently has not been resolved. Some Soviet economists have argued that wholesale price reform, where prices reflect the true scarcity of resources, is essential for the enterprise financial reforms to work. Such reform would mark a move away from an economy based on centralized management — i.e., an economy that does not rely on the state planning or state supply committees for its day-to-day functioning. Retail price reform, which would include removing subsidies from basic necessities such as food and housing, would be extremely controversial

Downplaying The Importance of Growth: A Possible Shift in Soviet Strategy?

Gorbachev, Plenum Speech, June 1987:

Fears are being expressed that a temporary decline in production growth rates in individual sectors, regions, and even the country as a whole may take place, given the abandonment of direct prescription of volume indicators for associations and enterprises in conditions of complete economic accountability. What can be said of this issue, comrades? If it is a question of higher growth figures achieved by cranking up gross volumes, via double counting, and without a real increase in end results, the society not only gains nothing from this, it actually sustains losses.

The radical restructuring of statistics is a very large and acute question. *A drastic turn toward qualitative indicators*, the expansion of information on questions of regional and social development, and the execution of various selective studies are needed here. (Emphasis added.)

Gorbachev in Leningrad, October 1987:

Many years of practice have taught us all to handle figures for growth in production volume and capital investments and other economic indicators with assurance.... But, comrades, we do not need these figures for their own sakes. We must in any event be able to answer with confidence the question: What relation does this kind of figure have to the process of genuine growth of the well-being of the working people...

Nikolay Shmelev, (Economist with the Institute of the USA and Canada), Japanese Press Interview, March 1988:

It is better not to judge current Soviet economic progress by figures. At present the only field that demands a high degree of growth is advanced technology.... In this age of reforms, 1 percent growth is sufficient.

and painful to consumers, but would be an even clearer sign of the leadership's willingness to undertake painful economic change.

If, on the other hand, the leadership decided to retrench, we would expect to see an erosion of the reform process; it is unlikely, however, that the blueprint for reform would be formally erased from the books. Retrenchment would be indicated by:

- The dominance in leadership speeches of themes of discipline and accountability over the importance of economic guides for decisionmaking.
- Increasing concern by the leadership over the effect of short-term disruptions on economic growth and a reduced sense of urgency for reform.

- Evidence that central controls over production and resource allocation are not being lifted — for example, only a small decline in the portion of state orders in total industrial output.
- A more relaxed mood on the part of the ministerial bureaucracy.

Shifts in Resource Allocation

Besides a willingness to push reform, the other key indicator of the leadership's commitment to Gorbachev's economic agenda will be its willingness to hold down defense outlays over the next few years in order to channel more resources into civilian investment and consumption. Absent a policy decision to involve defense industry much more heavily in the modernization program, we are currently projecting that Soviet

defense spending will continue to increase over the next 5 years, at roughly the rate of recent years — perhaps 2 percent per annum. A sharp decline of observed defense activity in the years ahead from what we are now projecting would suggest that a decision to reduce defense outlays had been made. Nevertheless, we could not be certain whether observed deviations from our projections meant that the Soviets had changed their plans or simply that our projections had been wrong.

On a more general level, a leadership decision to focus additional resources on the modernization program could affect how the USSR approaches its international commitments. Moves

to cut back on Third World aid, actually pulling Soviet troops out of Afghanistan, or greatly expanding trade with the West could all signal an intention to deal with international situations in a way that complements domestic economic policy.

The clearest indication, however, of how the leadership will adjust its modernization objectives in the light of developments on the domestic and foreign scene will probably be provided in the Basic Directives for the next fifteen-year plan (1991-2005), which will probably be approved in 1989. How this plan compares with the targets in the 1986-2000 plan should signal whether the pressure for high growth is to be relaxed and what the priorities for resource allocation will be.

Appendix A

1987 Economic Performance: Conflicts Emerge

Bad weather early in the year combined with conflicting goals in Gorbachev's economic program to disrupt production in 1987. A slowdown in industrial growth and a decline in agricultural output yielded GNP growth of less than 1 percent — the lowest rate since the late 1970s.

Industry

Industrial production grew by only 1.5 percent in 1987, about on a par with the poor rates achieved during the 1981-85 period (see table A-1). A sluggish performance was almost inevitable given the disruptions caused by the implementation of *gospriyemka* and new managerial and financial arrangements. These changes, coupled with bad weather, caused the greatest problems in the first 2 months, when industrial output was 1 percent below the same period in 1986. Even when weather improved and quality control standards were relaxed, a taut transportation system limited industry's ability to make up for the poor start.

Table A-1
USSR: Growth of Industrial Production and Transportation¹
(average annual rate of growth, percent)

	1971-75	1976-80	1981-85	1985	1986	1987 ²
Total Industry	5.4	2.6	1.8	1.8	2.6	1.5
Fuels	5.2	3.1	0.9	NEGL	3.5	2.5
Electric power	7.0	4.5	3.6	3.5	3.5	4.1
Ferrous metals	4.0	1.0	0.8	0.7	3.4	2.2
Nonferrous metals	5.7	1.5	2.0	3.0	3.0	1.9
Machine building	6.7	3.7	1.3	2.3	2.8	0
Chemicals	8.3	3.0	3.8	4.1	4.6	3.2
Construction materials	5.1	1.4	1.4	1.4	3.9	3.1
Wood products	2.5	-0.6	2.1	2.1	4.6	2.0
Soft goods	2.6	2.4	1.6	2.4	1.5	1.8
Processed foods ³	4.1	1.4	1.9	-1.7	-4.9	0
Freight transportation ⁴	6.6	4.3	2.9	1.7	5.0	0.7

¹ Official Soviet measures of aggregate growth are believed to contain an upward bias because of increased double counting over time and disguised inflation. Although we accept official Soviet data for physical output of various commodities, the aggregate measures shown for each industrial branch were derived synthetically. The growth rates are formed by combining the value of a sample of products for each branch, with interbranch purchases excluded, using 1982 value-added weights.

² Preliminary.

³ Including alcoholic beverages. Growth of food-processing industry output in 1986 and 1987 *excluding alcohol* was 4.4 percent and 3.1 percent, respectively.

⁴ Growth rates calculated from ton-kilometer data.

Machinery. Last year was a difficult one for civilian machine builders. Faced with high growth targets and demands to improve product quality, they struggled just to meet 1986 production levels, and month-to-month growth rates fluctuated widely. Shortfalls were recorded in the production of both consumer and producer durables. Output of consumer durables was more than 2 percent below 1986 levels, and output of producer durables in 1987 was virtually unchanged from the

Appendix A (Continued)

previous year. Particularly troubling for the modernization program was the fact that over two-thirds of the targets set for producing advanced and highly efficient types of output were not met.

A principal reason for production shortfalls was the introduction of *gospriyemka*, which accounted for 35 percent of the failures to achieve plan targets for machinery output, according to a Soviet economist. During the first several months, inspectors rejected an average of 20 percent — in some cases far more — of all the products checked. Because many enterprises were unable to deal with the tough quality standards, Moscow reportedly relaxed them by midyear, granting some enterprises 2- to 6-month exemptions. Consequently, although machine builders made some selective gains, they did not achieve the overall quality improvements that the leadership initially expected.

The Soviets experienced mixed results with regard to two other key modernization objectives — retooling and producing new machinery and equipment. Leadership statements and press reporting suggest that, while substantial resources were devoted to the retooling effort, the effort fell far short of plan. On the other hand, machine builders reportedly made substantial progress in producing new equipment. For the year, new machinery accounted for 9 percent of machine-building output — well ahead of plan, although the Soviet press has raised questions as to how “new” some of the machines were.

Industrial Materials. The industrial materials sectors (ferrous and nonferrous metals, chemicals, construction materials, and wood products) all grew more slowly in 1987 than in 1986 and contributed to the erratic performance of machine building and other sectors of the economy. For the most part, producers of industrial materials were unable to accelerate growth in 1987 as they did in 1986 because most of the gains in 1986 — adding shifts and tapping the most accessible reserves of labor, material, and equipment — were one-time improvements. In addition, *gospriyemka* brought disappointing results — frequent disruptions with apparently little improvement in quality:

- Ferrous metals production grew by 2.2 percent, down from 1986's pace. Shortfalls in producing a wide assortment of specialty steels and an across-the-board failure to meet delivery schedules were noted throughout the year.
- Nonferrous metals output rose by an estimated 1.9 percent. Moreover, press reports indicated that, despite quantitative gains, some specialized metals were in short supply.

Chemicals output grew by 3.2 percent as continued strong performance in fertilizer production offset a weakening in most other areas.

- Output of construction materials grew by 3.1 percent, as growth in cement and ferroconcrete more than offset small declines in the production of glass and roofing materials. Complaints about waste and poor quality appeared in the press throughout the year.
- Output in the timber industry declined. Shortfalls in this industry hampered production in the sectors it supplies — wood products, pulp and paper, furniture, and housing materials.

Energy. The major energy branches posted good performances in 1987 as the oil, gas, coal, and electric power industries all grew at a healthy clip. Continuing the upswing begun in 1986, *oil production* grew by 180,000 barrels per day (b/d), to 12.48 million b/d. Success was expensive,

Appendix A (Continued)

however. Moscow achieved this growth primarily through another large infusion of resources and equipment. Although investment information is sketchy, the activities that drive investment rose sharply last year. Drilling in this sector, for example, grew by about 12 percent in 1987 following a 19-percent increase in 1986.

Natural gas producers maintained their role as the primary sources of growth in Soviet energy, with production rising by 6.0 percent to 727 billion cubic meters. Development of the substantial reserves of high-sulfur gas in the Pre-Caspian Basin, which proceeded despite difficulties, and progress in augmenting the Soviets' enormous gas pipeline network should provide the basis for future growth.

After achieving record growth in 1986, raw *coal production* increased again — albeit more slowly — in 1987, reaching 760 million tons and exceeding planned output by almost 15 million tons. Recent growth in coal production has been almost wholly offset by the declining average energy content of the coal. Recent Soviet statistics indicate that the average energy content per ton of coal has declined by roughly 10 percent since 1980.

Electric power production increased by 4 percent in 1987, to 1665 billion kilowatt hours. The fossil-fuel, hydro, and nuclear power segments all surpassed their 1986 performance. Nuclear plants overcame the Chernobyl setback, as nuclear generating capacity grew by 19 percent. The successes in the power industry were somewhat clouded, however, by trouble in bringing new coal- and natural-gas-fueled capacity on line.

Consumer goods industries. Light industry output increased by 1.8 percent, slightly faster than in 1986, as textile and knitware production did well, partly making up for the slow growth in the footwear and sewn goods subsectors. Light industry was hurt by disruptions due to problems with transportation and electric power, *gospriyemka*, the poor 1986 cotton harvest, and uneven deliveries of manmade fibers from the chemical industry. The *processed-food industry* enjoyed a relatively good year in 1987 if alcoholic beverage production is excluded, although its performance failed to match the unusually strong showing in 1986. Total production — excluding alcoholic beverages — grew by 3.1 percent. Growth was bolstered by an increase in some supplies from agriculture, particularly meat and sugar. Offsetting this increase, however, was an apparent deterioration of food quality. Numerous press articles criticized the decline in state standards for many products, including such staples as bread and tea.

Agriculture

Overall farm production, although down 3 percent from the 1986 peak, was still the second highest on record. Maintaining agricultural production at this level in the face of less-than-favorable weather reflected at least partial success for Gorbachev's farm policy.

On the positive side, the Soviets achieved substantial increases in the output of sugar beets and sunflower seed, and enjoyed a grain crop of 211 million tons (1 million tons above last year's). An excellent forage crop, the large grain crop, and sizable grain imports helped to push meat, milk, and egg production to new highs. Gorbachev's program to increase animal productivity — meat per animal and milk per cow — by culling marginal animals from the herds also played a role in increasing meat production. On the negative side, however, these gains were not sufficient to counter declines the Soviets experienced in potato, vegetable, and cotton output, and a 30-percent drop in fruit output.

Appendix A (Continued)

Agriculture's mixed performance in 1987 has hampered, at least temporarily, Gorbachev's promises to improve consumer welfare quickly. The availability of farm products on a per capita basis fell by an estimated 3 percent. Per-capita meat availability increased by just over 1 percent, far short of the growth required to satisfy a consumer demand that is driven by steadily increasing incomes and a policy of holding retail prices constant.

Transport

Transport carriers mustered only a 0.7-percent increase in freight traffic in 1987, compared with an unusually strong 5-percent gain in 1986. The poor performance stemmed mainly from a decline in rail shipments (the first since 1982), which reflected the Soviets' lack of sufficient surge capacity to handle the backlog of shipments that built up during the crippling early winter months. Rail problems delayed shipments of timber, perishable foods, metal structures, peat, refractory materials, and slag.

While all freight carriers suffered from winter bottlenecks, there were some positive developments in the Soviet transport sector:

- Shipments by the centrally directed highway carriers grew for the second straight year after declining in 1983-85.
- Railroads and highway carriers managed to transport another successful grain crop with only isolated problems.
- Increases in oil and gas production spurred stepped-up pipeline deliveries, although the increases were lower than in 1986.

Trade

The USSR's hard currency trade balance showed marked improvement in 1987 because of higher export earnings and little change in the value of imports. To judge from preliminary data, the Soviets registered a record hard currency trade surplus of \$6.0 billion for the year — nearly triple the 1986 surplus. The dollar value of hard currency exports jumped about 15 percent, due in large part to a partial recovery of oil prices and an increase in the volume of oil exported to the developed West. In addition, the dollar value of hard currency arms sales to the Third World remained high for the second consecutive year. Most of the arms sales were on credit, however, and the prospects for repayment are poor.

Moscow apparently decided to take advantage of higher export earnings to cut both net foreign borrowing and the volume of gold sales. According to preliminary data, the Soviets also held the line on the dollar value of hard currency imports, with real purchases dropping an estimated 10 percent. Confusion resulting from the ongoing reorganization of the foreign trade sector may also have reduced imports. Imports of machinery and equipment are estimated to have declined, as preliminary data show steep drops in the value of imports from traditional suppliers of machinery and equipment, including Japan, West Germany, and Austria. Imports of grain increased, on the other hand, even though the Soviets recorded another large grain crop. The poor quality of this crop — a result of wet weather during harvesting — spurred purchases of milling-quality wheat during the second half of the year.

Appendix A (Continued)

In contrast to its hard currency trade success, the USSR was less fortunate in trading with its Communist partners last year. In particular, Moscow's total trade surplus with Communist countries was almost cut in half last year as falling energy prices — the result of CEMA's complicated pricing mechanism — cut sharply into Soviet terms of trade. Trade with East Europe was roughly in balance, with only marginal growth registered for East European exports to the USSR. Moscow was also forced to cut back on imports from Yugoslavia — another large importer of Soviet oil — to hold down its growing trade deficit with that country. While oil does not figure in Sino-Soviet trade, Moscow saw trade with China drop last year following rapid growth during 1982-86. Trade declined nearly 20 percent, as both sides failed to provide the goods called for in the annual trade protocol.

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Appendix B

Tables on Soviet Economic Performance

Table 1	USSR: GNP by Sector of Origin at Factor Cost (billion 1982 rubles)
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Table 3	USSR: Average Annual Growth of Per-Capita Consumption (based on 1982 established prices)
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Appendix B (Continued)

Table B-1
USSR: GNP by Sector of Origin at Factor Cost
(billion 1982 rubles)

	1965	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987 ¹
GNP ²	377.1	482.2	560.4	625.2	631.7	648.5	669.6	679.1	684.0	710.7	714.4
Industry	105.7	143.3	186.4	212.3	214.2	216.4	221.8	227.5	231.7	237.8	241.5
Agriculture	116.6	137.7	122.5	123.7	120.6	131.3	139.4	136.7	131.1	143.9	136.4
Construction	25.8	33.5	44.0	49.9	51.2	51.7	53.2	54.3	55.5	57.6	58.7
Transportation	26.2	37.0	50.9	60.7	63.2	64.0	65.8	66.8	68.2	70.2	71.6
Communications	2.2	3.3	4.4	5.6	5.8	6.0	6.2	6.4	6.7	7.1	7.5
Trade	20.5	28.9	36.3	41.6	42.3	42.4	43.6	44.8	45.3	45.4	46.1
Services	69.1	85.2	100.8	115.2	118.0	120.1	122.8	125.7	128.7	131.6	135.4
Other (including military personnel)	11.0	13.4	15.0	16.3	16.4	16.6	16.8	16.9	16.9	17.1	17.2

¹ Preliminary

² Components may not add exactly to total GNP because of rounding.

Table B-2
USSR: Value Added in Industry at Factor Cost
(billion 1982 rubles)

	1965	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987 ¹
Industry ²	105.7	143.3	186.4	212.3	214.2	216.4	221.8	227.5	231.7	237.8	241.5
Ferrous metals	8.5	11.0	13.4	14.1	14.1	14.1	14.5	14.6	14.7	15.2	15.6
Nonferrous metals	3.9	5.7	7.5	8.1	8.1	8.2	8.4	8.7	9.0	9.2	9.4
Fuel	11.1	14.4	18.6	21.7	22.0	22.4	22.6	22.8	22.7	23.5	24.1
Electric power	6.0	8.8	12.4	15.4	15.8	16.3	16.9	17.8	18.4	19.0	19.8
Machine building and metalworking	31.4	44.2	60.7	72.8	72.3	72.8	73.9	75.9	77.7	79.9	79.9
Chemicals	6.2	9.2	13.7	15.9	16.5	16.8	17.8	18.4	19.1	20.0	20.7
Wood, pulp, and paper	10.1	11.5	13.0	12.7	12.9	13.0	13.4	13.7	14.0	14.7	15.0
Construction	6.9	9.3	11.9	12.7	12.9	12.8	13.3	13.5	13.7	14.2	14.6
Light industry	8.4	11.5	13.0	14.7	15.0	14.9	15.1	15.5	15.9	16.1	16.4
Food industry	9.3	12.3	15.1	16.1	16.6	17.1	17.6	18.0	17.7	16.9	16.9
Other industry	4.0	5.4	7.0	8.0	8.1	8.2	8.4	8.6	8.7	9.0	9.1

¹ Preliminary

² Components may not add exactly to industry total because of rounding.

Appendix B (Continued)

Table B-3
USSR: Average Annual Growth of Per-Capita Consumption
 (based on 1982 established prices)

	1956-60	1961-65	1966-70	1971-75	1976-80	1981	1982	1983	1984	1985	1986	1987 ¹
Total consumption	3.9	2.5	5.0	3.0	2.0	1.3	-0.9	1.3	2.1	0.1	-1.6	0.7
Food	3.1	1.8	4.2	2.1	1.1	-0.1	-1.4	1.4	1.5	-3.2	-8.0	-0.9
Soft goods	5.6	2.2	7.2	2.7	2.8	2.1	-1.5	0.6	2.4	3.2	2.3	0.6
Durables	10.4	3.9	9.5	9.7	5.4	6.3	-2.6	1.7	4.6	5.2	10.6	2.8
Services	3.2	4.6	4.1	3.0	2.0	1.5	1.9	1.4	1.9	1.8	1.6	2.7
Housing	3.0	2.4	2.0	1.6	1.2	1.4	1.9	1.9	1.6	1.6	1.7	1.9
Utilities	4.7	7.8	5.4	5.3	3.8	2.7	3.1	3.2	4.1	3.3	3.0	3.1
Transportation	9.3	9.0	8.2	6.4	2.2	3.2	1.1	1.4	1.6	1.4	2.2	1.1
Communications	5.4	5.7	7.6	5.4	3.8	3.5	1.3	2.5	3.7	3.7	4.6	4.9
Repair and Personal Care	3.7	5.0	6.4	4.4	4.1	3.4	2.1	3.5	3.1	3.5	3.1	8.2
Recreation	5.3	3.6	2.6	4.1	1.2	1.8	0.6	0.5	1.0	1.1	0.2	2.0
Health	3.4	2.2	3.2	1.6	0.9	0.1	1.3	1.0	1.3	0.8	-0.5	0.2
Education	1.4	5.2	3.0	1.5	1.4	0.1	2.4	-0.1	1.0	1.2	1.1	1.5

¹ Preliminary

Table B-4
USSR: Growth of GNP and Factor Productivity
 (average annual percentage change)

	1966-70 ¹	1971-75 ¹	1976-80 ¹	1981	1982	1983	1984	1985	1986	1987 ²
Gross national product ³	5.0	3.1	2.2	1.0	2.7	3.3	1.4	0.7	3.9	0.5
Combined inputs ⁴	4.2	4.3	3.6	3.2	3.2	3.0	2.9	2.6	2.5	2.5
Workhours	2.0	1.7	1.2	0.9	1.0	0.7	0.5	-0.4	0.4	0.4
Capital	7.4	8.0	6.9	6.4	6.3	6.3	6.3	5.8	5.4	5.3
Land	0.0	0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.7	-0.1	0.0
Total factor productivity	0.8	-1.2	-1.3	-2.1	-0.5	0.2	-1.4	-1.9	1.4	-1.9
Work-hour productivity	3.0	1.3	1.0	0.2	1.7	2.5	0.9	0.4	3.5	0.1
Capital productivity	-2.2	4.6	-4.4	-5.0	-3.4	-2.9	-4.6	-4.8	-1.4	-4.6
Land productivity	5.0	3.0	2.4	1.2	2.8	3.2	1.6	1.4	4.0	0.5

¹ For computing average annual rates of growth, the base year is the year prior to the stated period.

² Preliminary

³ Based on indexes of GNP (1982 rubles) by sector of origin at factor cost.

⁴ Inputs of work-hours, capital, and land are combined using weights of 56.5 percent, 40.5 percent, and 3.0 percent, respectively, in a Cobb-Douglas (linear homogeneous) production function. These weights represent the distribution of labor costs (wages, social insurance deductions, and other income), capital costs (depreciation and a calculated capital charge), and land rent in 1982, the base year for all indexes underlying the growth rate calculations.

Appendix B (Continued)

Table B-5
USSR: Growth of Industrial Output and Factor Productivity
(average annual percentage change)

	1966-70 ¹	1971-75 ¹	1976-80 ¹	1981-85	1985	1986	1987 ²
Industrial production	6.3	5.4	2.6	1.8	1.8	2.6	1.5
Combined inputs ³	6.2	5.5	4.9	4.1	3.9	3.4	2.9
Workhours	3.1	1.5	1.4	0.6	0.4	0.3	-0.2
Capital	8.8	8.7	7.7	7.0	6.6	6.0	5.5
Total factor productivity	0.1	-0.1	-2.1	-2.3	-1.9	-0.8	-1.4
Workhour productivity	3.1	3.9	1.3	1.2	1.4	2.3	1.7
Capital productivity	-2.3	-3.1	-4.7	-4.9	-4.5	-3.1	-3.7

¹ For computing average annual rates of growth, the base year is the year prior to the stated period.

² Preliminary

³ Inputs of work-hours and capital are combined using weights of 47.4 percent and 52.6 percent, respectively, in a Cobb-Douglas (linear homogeneous) production function. These weights represent the distribution of labor costs (wages, social insurance deductions, and other income) and capital costs depreciation and a capital charge) in 1982, the base year for all indexes underlying the growth rate calculations.

Table B-6
USSR: Gross Fixed Capital Investment
(billion rubles, 1984 prices¹)

	1965	1970	1975	1980	1981	1982	1983	1984	1985	1986
Total Investment	64.2	92.2	128.5	150.9	156.4	161.9	171.0	174.3	179.5	194.4
By source:										
State	55.3	79.4	111.8	133.1	138.5	143.2	150.7	153.7	157.9	172.0
Collective farms	5.5	8.6	12.2	13.3	13.4	13.9	14.8	14.7	15.4	15.5
Cooperative enterprises and organizations	1.7	2.6	2.7	2.9	2.9	3.1	3.5	3.6	3.7	4.1
Private housing and apartments	1.7	1.6	1.8	1.6	1.7	1.7	2.0	2.3	2.5	2.8
By sector:										
Industry	23.6	32.5	44.9	53.3	55.3	56.8	60.5	62.7	65.5	71.0
Agriculture	10.6	16.0	26.1	29.8	30.5	30.9	32.0	31.0	31.5	33.5
Transportation and communication	6.4	9.0	14.4	18.1	18.8	19.8	21.6	22.3	21.9	22.8
Construction	1.6	3.3	4.8	6.0	5.9	6.4	6.6	5.8	6.1	6.8
Housing	11.2	15.8	19.2	21.1	22.5	24.0	25.8	27.3	28.1	30.9
Trade and services	10.8	15.6	19.1	22.6	23.4	24.0	25.0	25.2	26.4	29.4

¹ Source: *Narodnoye Khozyaystvo v SSSR, 1985, 1986.*

Appendix B (Continued)

Table B-7
USSR: Estimated Hard Currency Balance of Payments
(million current US dollars)

	1975	1980	1981	1982	1983	1984	1985	1986	1987 ¹
Current account balance	-4,565	1,485	-395	4,348	4,772	4,664	137	1,373	4,864
Merchandise trade balance	-4,804	1,814	365	4,468	4,712	4,727	519	2,013	5,999
Exports, f.o.b.	9,453	27,874	28,254	31,975	32,429	32,173	26,400	25,111	28,908
Imports, f.o.b.	14,257	26,060	27,889	27,507	27,717	27,446	25,881	23,098	22,909
Net interest	-521	-1,219	-1,760	-1,220	-1,040	-1,163	-1,482	-1,740	-2,235
Other invisibles and transfers	760	890	1,000	1,100	1,100	1,100	1,100	1,100	1,100
Capital account balance	6,981	4	5,098	-2,965	-1,541	-124	1,868	2,118	200
Change in gross debt ²	6,786	-1,072	1,977	-640	116	224	6,804	7,175	5,000
Official debt	1,492	-280	-1,370	967	340	-375	463	1,089	1,900
Commercial debt	5,294	-792	3,347	-1,607	-224	599	6,340	6,086	3,100
Net change in assets held in Western banks ³	-163	-35	-166	2,122	277	-664	1,787	1,635	0
Estimated Exchange Rate									
Effect	-22	-411	-1,457	-817	-1,070	-688	3,248	3,322	3,500
Net credits to the LDCs	715	950	870	2,120	3,200	2,700	1,700	4,100	4,800
Gold sales	725	1,580	2,700	1,100	750	1,000	1,800	4,000	3,500
Net errors and omissions ⁴	-2,416	-1,489	-4,703	-1,383	-3,231	-4,540	-2,005	-3,491	-5,064

¹ Preliminary.

² Including additions to short-term debt.

³ A minus sign signifies a decline in the value of assets.

⁴ Includes hard currency assistance to and trade with Communist countries, credits to developed Western countries to finance sales of oil, other nonspecified hard currency expenditures, as well as errors and omissions in other line items of the accounts.

Appendix B (Continued)

Table B-8
USSR: Total Trade, 1981-87¹
(billion current US dollars)

	Annual Average 1980-87	1981	1982	1983	1984	1985	1986	1987
USSR: Exports by region								
Total	87.3	79.4	87.2	91.7	91.5	87.2	97.0	107.7
Communist	49.3	43.4	47.2	51.0	51.9	53.5	65.0	70.0
Developed countries	25.2	24.4	26.2	26.7	26.4	22.5	18.8	22.7
Less developed countries	12.7	11.6	13.8	13.9	13.2	11.2	13.2	14.9
USSR: Imports by region								
Total	78.3	73.2	77.8	80.5	80.3	83.3	88.9	96.0
Communist	44.3	37.2	42.5	45.5	47.0	51.0	59.4	66.6
Developed countries	24.6	25.4	26.2	25.4	24.2	23.3	22.7	22.1
Less developed countries	9.4	10.6	9.1	9.6	9.1	9.0	6.8	7.3

¹ Includes both hard currency trade and trade conducted with soft currency partners on a clearing account basis.

Table B-9
USSR: Estimated Hard Currency Debt to the West¹
(billion current US dollars)

	1975	1980	1981	1982	1983	1984	1985	1986²	1987²
Gross debt	12.5	20.5	22.5	21.9	22.0	22.2	29.0	36.2	41.2
Commercial debt ³	8.2	11.0	14.4	12.8	12.6	13.1	19.5	25.6	28.7
Government and government-backed debt ³	4.3	9.5	8.2	9.0	9.4	9.1	9.5	10.6	12.5
Assets in Western banks	3.8	10.0	9.8	11.9	12.2	11.5	13.3	15.0	15.0
<u>Net debt</u>	8.7	10.5	12.7	10.0	9.8	10.7	15.7	21.2	26.2

¹ This series is based on a recently completed revision of the methodology for computing Soviet debt. The data therefore may not correspond to previously published series.

² Preliminary estimates.

³ Estimates of government-backed and commercial debt are measured in current dollars and reflect fluctuations in exchange rates. Commercial debt also includes estimates for promissory notes held outside banks.

Appendix B (Continued)

Table B-10
USSR: Selected Indicators of Agricultural Output

	1955	1960	1965	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987
Value of output ¹ (billion rubles)	63.8	78.8	94.0	112.5	109.4	113.7	112.5	120.8	128.6	128.1	126.2	136.6	132.4
Commodity production (million metric tons)													
Grain ²	103.7	125.5	121.1	186.8	140.1	189.1	158.2	186.8	192.2	172.6	191.7	210.1	211.3
Potatoes	71.8	84.4	88.7	96.8	88.7	67.0	72.1	78.2	82.9	85.5	73.0	87.2	75.9
Sugar beets	31.0	57.7	72.3	78.9	66.3	81.0	60.8	71.4	81.8	85.3	82.4	79.3	90.4
Sunflower seed	3.80	3.97	5.45	6.14	4.99	4.62	4.68	5.34	5.06	4.52	5.26	5.26	6.08
Cotton ³	3.88	4.29	5.66	6.89	7.86	9.10	8.43	8.03	8.24	8.10	8.76	8.23	8.10
Vegetables	14.1	16.6	17.6	21.2	23.4	27.3	27.1	30.0	29.5	31.5	28.1	29.7	29.1
Meat	6.3	8.7	10.0	12.3	15.0	15.1	15.2	15.4	16.4	17.0	17.1	18.1	18.6
Milk	43.0	61.7	72.6	83.0	90.8	90.9	88.9	91.0	96.5	97.9	98.6	102.2	103.4
Wool	.256	.357	.357	.419	.450	.443	.460	.452	.462	.465	.447	.469	.455
Eggs (billion)	18.5	27.5	29.1	40.7	57.4	67.9	70.9	72.4	75.1	76.5	77.3	80.7	82.1

¹ Net of feed, seed, and waste, in constant 1982 prices.

² Bunker weight. To be comparable to Western measures, an average reduction of 11 percent is required.

³ 1981-84 estimated.