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Raising the Efficiency of Soviet Farm Labor: Problems and Prospects

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A Research Paper

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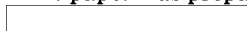

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Raising the Efficiency of Soviet Farm Labor: Problems and Prospects



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A Research Paper

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Raising the Efficiency of Soviet Farm Labor: Problems and Prospects

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Summary

*Information available
as of 1 November 1987
was used in this report.*

Agricultural employment in the USSR has declined slowly compared with the declines in other industrialized countries and still accounts for about one-quarter of total employment. The productivity of farm labor has remained low and labor requirements high despite large investments in farm machinery, equipment, and structures. Generous wage increases for farm workers have failed to stimulate productivity. Thus, Soviet agriculture still experiences labor shortages and has made increasing use of temporary seasonal help from nonfarm sectors.

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The causes of this situation are rooted in the system of state-run agriculture:

- Under the wage system still prevailing in much of Soviet agriculture, the size and quality of the harvest and the level of production costs have little impact on financial rewards for farm workers and managers.
- The low quality and inappropriate assortment of farm machinery has hindered the mechanization process.
- The slow pace of improvement in rural living conditions has encouraged younger, skilled workers to migrate to cities.
- The rural education system has not provided the high-quality technical training needed by workers in modern agriculture.

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Between 1976 and Gorbachev's advent to power in early 1985, Moscow issued numerous decrees to improve the productivity and regional distribution of the farm labor force. The Brezhnev Food Program of May 1982 was by far the most important of these measures, which amounted to:

- Making minor adjustments to the existing system of wages and bonuses.
- Allocating more investment funds for rural housing, roads, and other infrastructure as well as for the agricultural machinery industry.
- Offering nonmonetary incentives to attract skilled workers to agriculture and encouraging workers from southern, labor-surplus regions to resettle in northern areas where labor is insufficient to meet demand.
- Attempting to get the collective contract system of labor organization off the ground.

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Gorbachev's strategy for increasing the productivity of farm labor builds on the Food Program, but he has given far more emphasis and support than did the Food Program to the collective contract system of labor organization as a source of the incentives necessary for productivity increases. By calling for farm labor to be organized into small groups whose financial

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rewards are, in theory, closely linked to quantities produced and costs of production, Gorbachev is seeking to shift the attention of workers from piecework wage criteria, such as the number of hectares plowed in a day, to the quantity and quality of the harvest. [redacted]

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Soviet statistics on the farm sector indicate that efforts to increase the productivity of farm labor have not yet had a widespread positive impact. Investment in rural infrastructure picked up sharply in the 11th Five-Year Plan period (1981-85), but there is little evidence of an increase in the supply of skilled workers. Furthermore, Gorbachev noted in November 1986 that the development of new farm machinery was still lagging and that the quality was still very low. Finally, schemes to resettle workers from labor-surplus republics in the south to northern areas where labor is in short supply have had no substantial impact on the regional distribution of farm labor. [redacted]

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The biggest disappointment for Soviet leaders has been the failure, so far, of collective contracts to stimulate productivity growth and reduce costs to the extent expected. More than 400,000 contract teams have been formed since the Food Program was initiated, but many evidently exist in name only. Evidence suggests that, where collective contracts have been properly implemented, they have had good results. But Soviet leaders admit that, for the farm sector as a whole, the anticipated productivity gains have not materialized. [redacted]

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Plan documents as well as recent speeches and writings of Soviet leaders suggest that, for the next few years, the strategy to improve labor productivity in agriculture will consist of better implementation of programs already in place:

- Raising rural living standards and improving the quality of rural life by increasing supplies of housing, services, and other rural infrastructure.
- Providing more and better farm machinery.
- Improving implementation of collective contracts to effectively tie financial rewards for farm workers to the size and quality of the harvest. [redacted]


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If fully implemented, these measures could have a beneficial effect on the quality of the farm labor force, lessen the use of inefficient manual labor, and give workers more incentive to work harder and reduce waste. However, vast improvement is needed in rural living conditions and in the


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quality and assortment of farm machinery to sustain productivity growth. Such improvement is unlikely to be achieved in the short run under the best of circumstances. The 1986-90 goal for housing construction may be threatened by investment allocations too small to cover rapidly rising construction costs. Although full implementation of collective contracts holds some promise for at least modest efficiency gains, the leadership must simplify the complex rules for concluding contracts, give teams real autonomy to make production decisions, and convince farm managers to abandon the easily administered piecework wage system. 

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Fulfilling these conditions will be difficult as long as farms remain subject to imposed output targets for much of their production and as long as application of labor, materials, and investment goods are geared to rigid norms. Furthermore, party and government officials who have been made personally responsible for plan fulfillment are not likely to risk leaving major production decisions to farm managers and contract teams until such a course of action has been demonstrated to be effective. The March 1986 decree on agricultural management and the June 1987 plenum documents demonstrate that for the present Gorbachev is relying on changes well within the existing system of central planning, price setting, and resource allocation. He has not, so far, been able to implement reforms that would allow a large role in agriculture for market forces and on-farm decisionmaking. Gorbachev recently stated, however, that a party plenum this year will be devoted to agriculture. There are no indications yet that policy toward agriculture will be changed, but, if the plenum is held, it will provide an opportunity for new initiatives. 

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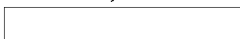
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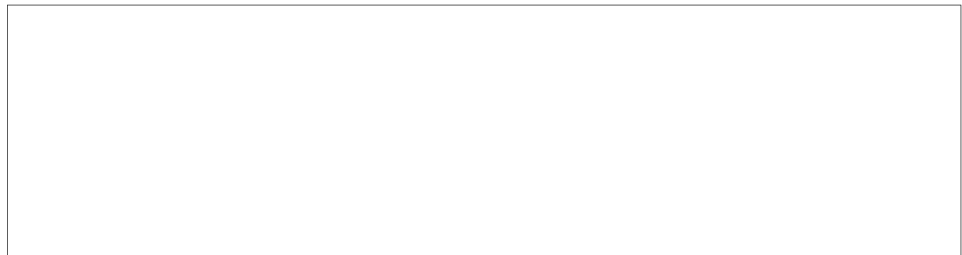
Farm production in the USSR reached record levels in 1986, and 1987 will be another good year. These gains are due, in part, to Moscow's campaign to "intensify" agriculture, particularly grain production. Since the initiation of the Food Program in May 1982, the flow of fertilizers, pesticides, and other industrial goods to agriculture has been accelerated, and more care has been taken to apply them where they would do the most good. But the farm sector continues to be exceptionally resource intensive, requiring large investments and an inordinate number of workers. At the same time, because of unfavorable demographic trends, other sectors of the economy are suffering from labor shortages. 

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This paper focuses on Gorbachev's program to raise the productivity of farm workers so that fewer will be needed in agriculture and more can be released to other sectors of the economy. Evidence bearing on the nature and impact of labor policy in the Soviet farm sector came mainly from speeches and writings of Soviet leaders and economists, as well as from published statistical data on the farm sector. Estimates of the number of farm workers in each of the USSR's 15 republics were prepared by an external contractor, who also helped to assess the likely impact of Gorbachev's program. 

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Raising the Efficiency of Soviet Farm Labor: Problems and Prospects

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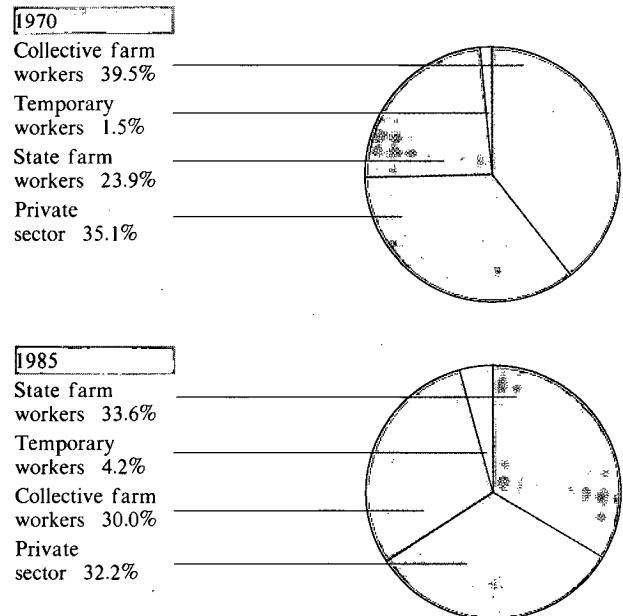
Soviet Farm Labor in Perspective

Agricultural employment in the USSR has declined slowly compared with the declines in other industrialized countries, and the rate of decline has slowed markedly in the past decade. In 1985 the farm sector in the USSR still accounted for about one-quarter of total employment—a share even greater than that in Bulgaria. Countries such as Japan and Italy, which had employment patterns similar to those of the USSR in 1950, have experienced a much more rapid decline in agricultural employment (table 1). Thus, the transfer of labor from farms to industry has contributed much less to economic growth in the USSR than in the West.

The productivity of the vast Soviet farm labor force is low. Soviet statistics put labor productivity at 20 to 25 percent of that in the United States, but Western measures put it at only 10 percent. Western research has shown that Soviet agriculture uses far more

Figure 1
USSR: Man-Hours of Labor Used in Agriculture

Percent



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Table 1
Employment in Agriculture as a Share of Total Employment^a

Percent

	1950	1970	1975	1980	1985
USSR	53.9	32.2	28.8	26.4	25.4
Italy	43.9	18.2	15.2	13.2	11.2
Japan	51.6	17.4	12.7	10.4	8.7
United States	12.1	4.5	4.1	3.6	3.1

^a Data for the United States, Italy, and Japan include agriculture, forestry, and fishing. For the USSR, employment in forestry has been added to total employment in agriculture to make the measure for the USSR more comparable to those for the other countries. Data for fishing are not available.

workers per hectare than US agriculture.¹ Because of low productivity, Soviet agriculture experiences labor shortages and has made increasing use of temporary seasonal help (figure 1).

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¹ D. Gale Johnson and Karen McConnell Brooks, *Prospects for Soviet Agriculture in the 1980s* (Indiana University Press: 1983), p. 166. The authors base their conclusions on data from the 1970 census. The 1979 census was not published in detail sufficient to make comparable calculations for that year.

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Table 2
Direct Labor Outlays per
100 Kilograms of Output
for Selected Farm Products

Man Hours

	Collective Farms			State Farms		
	1971-75	1976-80	1981-85	1971-75	1976-80	1981-85
USSR						
Grain	1.8	1.4	1.3	1.3	1.1	1.3
Beef	61.0	53.0	51.0	46.0	41.0	41.0
Milk	11.0	10.0	9.0	9.0	8.0	8.0
RSFSR						
Grain	1.6	1.3	1.2	1.2	1.1	1.1
Beef	58.0	55.0	51.0	44.0	39.0	38.0
Milk	11.0	10.0	9.0	9.0	8.0	7.0
Ukrainian SSR						
Grain	1.7	1.3	1.2	1.1	1.1	1.1
Beef	73.4	60.3	57.3	46.4	42.4	41.4
Milk	11.9	10.3	9.9	8.1	7.5	7.1
Belorussian SSR						
Grain	2.5	2.0	NA	2.9	2.4	NA
Beef	49.0	45.0	45.0	41.0	38.0	39.0
Milk	11.0	9.0	9.0	10.0	9.0	8.0
Lithuanian SSR						
Grain	2.4	1.8	1.4 ^a	2.3	2.0	1.6 ^a
Beef	35.0	30.0	30.0 ^a	29.0	28.0	28.0 ^a
Milk	7.0	5.0	5.0 ^a	7.0	6.0	5.0 ^a
Kazakh SSR						
Grain	1.4	1.1	1.3	1.1	0.9	1.1
Beef	52.0	52.0	55.0	50.0	44.0	47.0
Milk	11.0	9.0	9.0	9.0	8.0	8.0
Uzbek SSR						
Grain	10.9	7.4	8.1	7.0	5.0	6.6
Beef	86.0	65.0	71.0	61.0	59.0	69.0
Milk	14.0	11.0	11.0	13.0	11.0	11.0

^a Includes 1982-85.

[]

The high labor requirements in Soviet agriculture are not due to the failure of the state to invest in physical and human capital, at least in recent years. Since 1970 the stock of machinery, equipment, and nonresidential structures has more than tripled. During 1971-85 the number of agronomists, veterinarians, and other livestock specialists increased by 86 percent

over the very low numbers of 1970.² Despite these enormous increases in physical and human capital, the USSR has made little progress in reducing labor inputs per unit of physical output. In some republics, labor inputs for farm products have actually increased in the past decade (table 2). []

² In 1985 these workers still accounted for only 4.4 percent of employment in agricultural work in the socialized sector. []

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The Agricultural Labor Force

Agricultural workers fall into three basic categories—workers and employees on state farms, collective farmers, and persons engaged in private farming. The latter keep livestock and work garden plots for their own use and the local market. Over 35 million people are principally employed in agriculture—about 25 percent of total employment in the economy. The total number of people who participate in some way in annual farm production, however, is at least double this figure. [redacted]

Employment on state farms and in other state agricultural enterprises has more than tripled since 1950, reaching about 12 million in 1985. Of this number, 11 million were employed directly in agriculture, while the remainder worked within the farm sector in farm-related activities such as repair, food processing, and so forth. The share of total man-hours in agriculture attributable to state farm workers has risen sharply since 1975. [redacted]

Until 1955 the bulk of agricultural employment was engaged in collective farming. However, because of the gradual conversion of collective farms to state farms, and the creation of new state farms in previously unfarmed regions, employment in the two sectors is now almost equal. In 1985 average annual employment on collective farms totaled about 12.8 million, of which about 10 million were employed directly in agriculture. [redacted]

Collective farm families and state employees are permitted to cultivate small private plots of agricultural land, up to 0.5 hectare in size, and to keep

livestock. According to Western estimates, employment in private agriculture has remained relatively stable since 1950—equivalent to between 10 million and 12 million full-time employees. Restrictions on private agriculture are now relatively relaxed, but a gradual decline in the role of private farming is continuing. Nevertheless, the private sector still contributes some 25 percent of total agricultural production. [redacted]

The Soviet farm sector annually recruits students, military personnel, and nonfarm industrial workers to provide temporary help, mostly during the harvest season. During peak periods in 1984, for example, the agricultural labor force swelled by 18 million people sent to farms for temporary labor.^a Enterprises send roughly 10 percent of their work force for harvest support. Students and school children also work in the fields. Some schools close completely for several months during peak agricultural periods. Despite the high cost and low efficiency of temporary labor, the Soviets continue to make heavy use of it. Some Soviet officials, however, are trying to end this "harvest drain" on nonfarm sectors. The chairman of the Tajik Republic agroindustrial committee claimed that in 1986 this "bad tradition" had been broken, and Tajik cotton had been harvested without outside help. [redacted]

^a According to official statistics, in 1984 the number of workers "attached" from enterprises to work on farms was 1.5 million. In Soviet calculations, the number of people involved in temporary seasonal activity is derived assuming that each temporary worker works only one month per year. The figure, therefore, consists of 18 million people working one month each. [redacted]

Nor can the low level and slow growth of labor productivity be attributed to the failure to raise farm wages. Since the death of Stalin, the USSR has deliberately pursued a policy of increasing farm wages to enhance incentives and to reduce the large urban-rural income gap. The gap has narrowed markedly, but the productivity payoff has been unexpectedly small. Since 1970 wages for farm workers have risen twice as fast as labor productivity, contributing to the soaring costs of production in agriculture. [redacted]

For decades, Soviet policymakers have expressed great concern about the poor utilization of labor resources in agriculture, and program after program has been enacted with disappointing results. Given Gorbachev's ambitious goals for the economy and the present stringency in supplies of labor and investment, a real breakthrough in the productivity of farm labor is needed to reduce the tremendous burden of agriculture on the Soviet economy and to release farm labor to other sectors (see inset, "The Agricultural Labor Force"). [redacted]

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Why Labor Productivity Is Low

Pay Not Linked to Performance. Farm workers are paid on the basis of an extremely complex system of wages and bonuses. As in industry, jobs are graded on the basis of their difficulty and the skills required.³ Each grade is assigned a rate differential over the minimum wage applicable to the lowest grade. Workers are assigned a fixed unit of work (norm), such as the number of hectares to be plowed in a day. If the norms are met, workers are entitled to the basic pay rate for their labor grades. Numerous complicated bonuses—for exceeding the norms, for cost savings, for product quality, and so forth—provide a supplement to the basic wage. []

In practice, the norms are set so that it is relatively easy for workers to meet them. Thus, the size of the harvest has little impact on incomes. A good harvest does not raise incomes proportionately, and, in years of unfavorable weather, the threat of income loss is minimal. Even when additional work can minimize the impact of poor weather, there is little incentive for extra effort. Moreover, the nature of the system for organizing labor activity, in which each phase of the production cycle is carried out by different workers, has hampered efforts to relate individual incomes to the size and quality of the harvest. []

Similarly, there is little incentive to produce high-quality output or to use inputs more efficiently because bonuses for product quality and cost savings are, in practice, a very small share of wage payments, especially for managers and specialists. Finally, farms have little opportunity to adjust wages in response to changes in supply and demand for various kinds of skilled workers. []

Machinery Not Effectively Substituted for Labor.

Manual labor still predominates on state and collective farms in the USSR and is, of course, routine in the private sector. Stocks of machinery on farms have grown rapidly since 1970, but an aggregate measure of mechanization, such as tractor horsepower per 100

³ For example, in 1984 on state farms, 32.9 percent of general machine operators, tractor drivers, and combine operators met requirements for Class I—the top skill level. Class II included 28.4 percent of these workers, Class III included 37.3 percent, and 1.4 percent was ungraded. []

Table 3
Comparisons of Tractor
Horsepower in the United States,
USSR, and Eastern Europe

Horsepower per
100 hectares^a

	1970	1984
USSR	48	96
Eastern Europe		
Bulgaria	48	94
Hungary	56	88
East Germany	134	205
Poland	50	234
Romania	59	110
Czechoslovakia	108	179
United States	115	164

^a Land is defined as arable land plus permanent crops. Tractor horsepower data for all countries are from the statistical handbook published by the Council for Mutual Economic Assistance (*Statisticheskii yezhegodnik stranchlenov soveta ekonomicheskoy vzaimopomoshchi*, Moscow, 1985). This handbook does not give the definition of agriculture used to calculate tractor horsepower. Cross-checking with data published by the individual East European countries suggests that agriculture has been defined to include state and cooperative enterprises except for Poland, where the comparatively large private sector has been included.

[] hectares, shows that the USSR is far behind the United States and is about at the same level as the less mechanized agricultural sectors of Eastern Europe (table 3).⁴ []

The lack of effective mechanization is partly the result of shoddy farm machinery. According to officials of the Ministry of Tractor and Agricultural Machine Building, "During the operation of equipment, massive defects are observed in connection with welded joints, assembly work, adjustments, and painting." The difficulty and expense involved in obtaining repair services result in large amounts of downtime. In addition, the assortment of farm machinery is

⁴ When these comparisons are restricted to climatically similar areas, the gap between the USSR and the United States is somewhat smaller. According to data presented by Johnson and Brooks, horsepower per hectare in the USSR is probably about two-thirds of that in climatically similar areas of the United States. []

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Table 4Percent of farm workers ^a**USSR: Mechanized and Manual Labor
on State and Collective Farms**

	Mechanized Tasks and Supervision of Machinery ^b	Manual Labor (with and without tools and machines) ^c	Repair and Adjustment of Machinery
Collective farms			
Crop raising			
1982	23.6	75.2	1.2
1985	25.5	73.3	1.2
Animal husbandry			
1982	23.5	73.9	2.6
1985	28.3	68.5	3.2
State farms			
Crop raising			
1975	24.9	75.1	
1982	27.0	71.2	1.8
1985	28.5	69.8	1.7
Animal husbandry			
1975	17.7	78.8	3.5
1982	19.4	76.9	3.7
1985	23.6	72.4	4.0

^a The source of these statistics, *Narodnoye khozyaystvo SSSR 1985*, does not give definitions of the three categories.

^b Soviet agricultural employment statistics suggest that this category may consist primarily of tractor, combine, and truck drivers, and general machinery operators. It probably also includes workers that supervise mechanized livestock operations such as feed distribution and milking.

^c This category almost certainly includes workers using hand implements such as hoes and rakes. It probably also includes workers using machines that require a large component of manual labor, such as feed mixers that are filled and emptied by hand.



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poorly tailored to the particular needs of individual farms. All machinery deficiencies reduce the productivity of resources in agriculture, but several are directly responsible for keeping labor requirements in agriculture high:

- A lack of attachments for tractors and other machinery necessitates the use of supplementary manual labor (table 4).
- Too few new machinery models have been aimed at mechanizing operations presently done by hand. According to the Minister of Machine Building for

Animal Husbandry and Feed Production, the majority of new models included in the 11th Five-Year Plan were merely replacements for obsolete models of existing machines.

- The agricultural-machinery park is not structured to facilitate "ganging," that is, linking several machines together to perform several operations, such as plowing, fertilizing, and seeding, in one trip through the fields.

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- Shortages and inefficient distribution of spare parts are legendary, forcing farm workers to resort to hand operations because machines are inoperative.

[redacted]

Low Rural Living Standards. Although the gap has been narrowing, quantitative measures of per capita consumption indicate that rural living standards are probably between two-thirds and three-quarters of those in urban areas; anecdotal evidence suggests, however, that qualitative differences are much larger.⁵ Particularly trying to rural residents is the paucity of housing with amenities such as indoor plumbing and central heat, greatly inadequate recreation facilities, and lack of personal services of all kinds. Soviet surveys indicate that improving living conditions on farms ranks equally with wages as a means of attracting and retaining skilled workers. Inadequate housing and services were cited as the principal reasons for the high rate of rural-urban migration of farm workers in the Ukraine during 1976-80. Low rural living standards also make it difficult to attract and retain qualified teachers and medical personnel. As a result, health care for rural residents is generally far less than that for urban residents and contributes to dissatisfaction with rural living. A lack of transportation, furthermore, makes access to consumer services difficult and creates a sense of isolation. [redacted]

Difficulty Retaining Skilled Workers. General Secretary Brezhnev stated in 1982 that less than half of all trained agricultural specialists are employed on state and collective farms. Relatively few workers trained to operate tractors, trucks, and grain combines actually end up doing so. About 35 to 40 percent of the higher and specialized secondary school graduates who are directed to farms either do not report for their assignments or leave shortly thereafter.⁶ Turn-over is also high among farm managers and supervisory personnel. A 1983 Soviet article notes, for example, that, during the preceding five years, about 85

⁵ Per capita consumption includes food, soft goods, consumer durables, and personal services. Soviet press accounts suggest that many of the goods and services available in rural areas—housing, retail trade, personal services, health and education programs, cultural opportunities, and recreational facilities—are inferior to those in urban areas. [redacted]

⁶ Many of these graduates avoid farm work by finding jobs in factories where they operate or maintain industrial machinery. [redacted]

percent of all farm managers in Georgia and Azerbaijan changed jobs. The inexperience of many managers and the poor quality of others have been cited as hindrances to agriculture's performance. [redacted]

In addition to poor rural living conditions, workers dislike the low prestige of farm occupations, the irregular working hours, and the poor condition of equipment. Many agricultural specialists, furthermore, claim to be dissatisfied because they are not working at jobs for which they were trained. In one survey, for example, workers complained about the large amount of time spent performing functions not connected with official duties, doing the work of subordinates, and completing paperwork. [redacted]

Younger women without specialized training have only a limited choice of farm jobs and are employed mainly in unappealing manual jobs that have had low priority in terms of mechanization. Their educational and employment opportunities are better in urban areas and many migrate to cities. According to Soviet sociologist Tatyana Zaslavskaya, "A secondary school graduate who wants to remain in the village has almost no choice but to become a milkmaid." [redacted]

Low-Quality Rural Education Programs. Rural general education schools are usually small and poorly staffed. Some schools do not offer even basic courses because of the shortage of trained staff. Vocational-technical schools, which train about half of the new workers slated for agriculture each year, operate in only 70 percent of rural rayons in the USSR. Furthermore, they have been criticized for neglecting specialties in short supply, such as animal husbandry, construction, and repair and technical servicing of machinery. [redacted]

In addition to the shortage of schools, the low prestige of rural agricultural occupations and widespread criticism of the training make it difficult for rural vocational-technical schools to attract students. In the Baltic republics, about 30 percent of rural eighth-grade graduates enroll in rural vocational schools,

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while in Central Asia the share is only 10 percent.⁷ Farm managers are reluctant to release young workers for training because of the absence from work and the risk that they will not return after graduation. Education officials accuse farm managers of indifference, claiming they fail to stimulate interest in agricultural occupations either through career counseling or by giving newly trained workers appropriate assignments and equipment.

Significant advances have been made in narrowing the gaps in educational attainment between the urban and rural population, but, according to 1979 census data, 70 percent of collective farmers had not completed secondary education (10th grade). Moreover, more than one-third of those classified as engineers and technicians had no formal technical training.

Low educational standards have a direct impact on productivity. For example, successful use of the collective contract system of labor organization has been prevented, in part, because workers are not well enough trained to assume responsibility for the entire crop production cycle. Also, lack of good educational opportunities for their children is often cited by younger, better educated workers as a major reason for leaving farms.

Regional Imbalances in Labor Supply. Most of the migration of younger workers to cities has occurred in regions with low birthrates, such as the RSFSR, thus creating shortages of labor on farms in those areas. According to Soviet writers, some farming regions of the Non-Black-Soil Zone of the RSFSR have had their populations reduced by half in the past 25 years. At the same time, areas with high birthrates and slower migration trends, such as Central Asia, have surpluses of farm labor (figure 2). Average annual employment in agriculture during 1976-80 increased

⁷ After completing the eighth grade, rural students can attend (1) two-year vocational-technical schools for training in skilled blue-collar trades such as field machinery operation; (2) two-year general secondary schools with largely academic programs and some vocational training; or (3) two- to four-year specialized secondary schools for semiprofessional training in technical fields such as agronomy, zoology, and engineering. Graduates of all three programs may be admitted to institutions of higher education where they can specialize in agricultural fields such as agronomy, veterinary medicine, and engineering.

by 10 percent in the Central Asian republics and the Kazakh SSR and by 8 percent in the Transcaucasian republics.

As a result of these demographic trends, in northern, labor-short areas a comparatively large share of the rural population is of retirement age.⁸ In 1970, for example, there were eight regions of the RSFSR where at least 30 percent of the rural population exceeded pension age. By 1978 the number of such regions had increased to 22, including 16 in the Non-Black-Soil Zone. In regions with relatively high birthrates, however, the share of pension-age rural residents is small. For example, in 1979 the share of pension-age rural residents in Uzbek SSR was only 8 percent because of the large share of young people.

Older workers are employed mainly on private plots and during peak agricultural periods, as well as in manual jobs unappealing to younger, better educated workers. Most employed pensioners continue working for only a short time—one to four years—after achieving pension eligibility, particularly on farms that have a low level of mechanization or make no provision for part-time or less strenuous work.

Efforts To Cope in the 10th and 11th Five-Year Plan Periods

Between 1976 and Gorbachev's advent to power in early 1985, Moscow issued several decrees aimed at improving the productivity and distribution of the agricultural labor force. The May 1982 Food Program was by far the most important. In general, decrees published since 1976 included measures to:

- Make minor adjustments to the existing system of wages and bonuses.
- Allocate more investment funds for rural housing, roads, and other infrastructure as well as for the agricultural machinery industry.
- Offer nonmonetary incentives to attract skilled workers to agriculture and encourage workers in areas of surplus labor to resettle in areas of labor shortages.

⁸ The retirement age is 60 for men and 55 for women.

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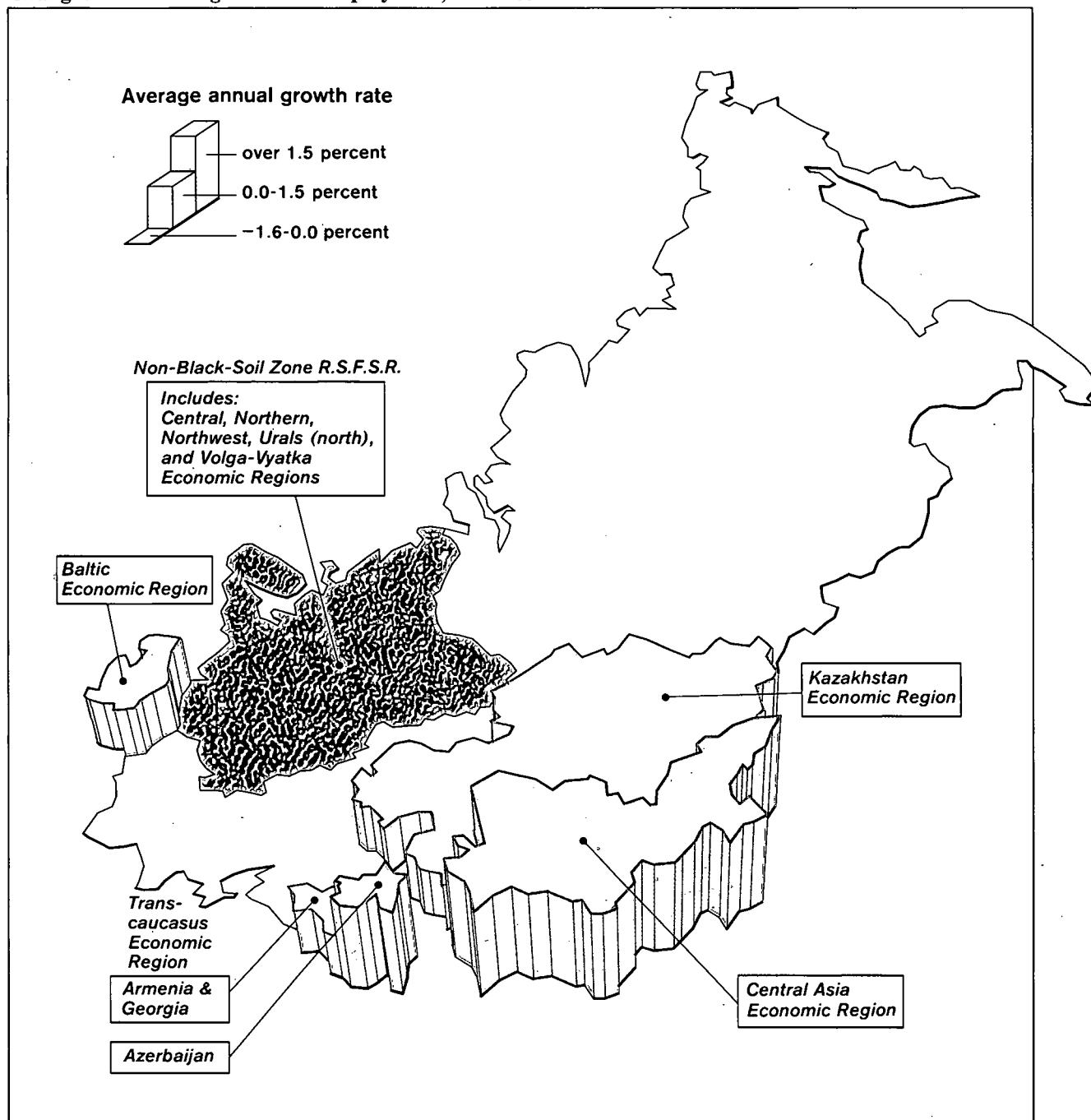
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Figure 2
Changes in Soviet Agricultural Employment, 1981- 85



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- Attempt to get the collective contract system of labor organization off the ground. [redacted]

The Food Program. The May 1982 Food Program put far more emphasis on labor issues than did earlier decrees, addressing the problems of retaining, training, and improving living conditions and incentives for farm workers. The Food Program, in conjunction with the 11th Five-Year Plan for 1981-85, also called for a greater share of investment to be allocated to developing rural infrastructure—housing, schools, roads, and other services. [redacted]

In addition, the Food Program established a number of special incentives for people transferring to work on farms as managers and professionals. Young professionals were offered free apartments for three years, a special allowance for setting up households, and priority in purchasing cars and motorcycles. [redacted]

There was also an effort in the Food Program to tackle regional problems of labor distribution. It called for expansion of education of engineers, veterinarians, and bookkeepers especially in the Non-Black-Soil Zone, the Central Black-Soil region, Siberia, Northern Kazakhstan, and the Far East. Furthermore, special wage increments and vacation time were provided for livestock workers. This provision was to be put into effect first in the Non-Black-Soil Zone, Siberia, the Far East, the Ural region, and the Central Black-Soil region. [redacted]

The Food Program, as did the 11th Five-Year Plan, continued the policy of raising farm wages faster than those of other workers. Managers, semiprofessionals, and professionals received additional pay raises and bonuses. Furthermore, agricultural workers were to receive a larger share of wages in products, primarily grain, fruit, and vegetables. Policymakers recognized that payments in the form of scarce or expensive farm products often provide greater incentive than money when goods and services that the population wants are not available. [redacted]

Mechanization of farm operations was also treated in the 11th Five-Year Plan and in the Food Program, which called for 60-70 billion rubles' worth of machinery to be delivered to farms in the 1980s—almost double the value of shipments in the 1970s (see inset, "Mechanization Goals"). [redacted]

Mechanization Goals

Top priority for the 1981-85 period was to be the modernization of grain combines. The Food Program also provided a comprehensive list of machinery that was to be developed "at an accelerated rate." By including small-scale equipment for farms and the general population on this list, the Food Program repeated the perennial promise to enhance mechanization in private agriculture. In addition, the Food Program called for improved quality and reliability of farm machinery and an expansion of machinery repair and storage facilities. To support these goals, investment in the agricultural machinery industry in the 1980s was to be double that of the 1970s. By 1985 grain production, as well as harvesting of sugar beets and flax, was to be fully mechanized. The proportion of potatoes and vegetables harvested by machine was to increase substantially, as was integrated mechanization at livestock complexes. [redacted]

An additional measure was taken to ensure that the farm machinery industry adequately supported the goals of the Food Program. A special decree, issued in April 1983, obliged the various branches of industry to provide producers of farm machinery with high-quality materials and component parts. Producers of fuel and raw materials were instructed to supply farm machinery plants as ordered, regardless of the level of their own plan fulfillment. To help speed up the expansion of the farm machinery industry, the decree called for limits on investment in this industry to be raised for the remainder of the 11th Five-Year Plan period. [redacted]

The Food Program also advocated the collective contract approach to organizing farm workers. Collective contracting has existed largely on an experimental basis since the 1960s, but it has received new emphasis and leadership support since 1982. An all-union conference on introduction of the collective contract—at which the contract was strongly endorsed by Gorbachev, then party secretary for agriculture—was convened in 1983. In his speech, Gorbachev stated that "one specific and effective form

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which can be employed for . . . achieving considerable growth in the production of goods and a savings in resources is that of a collective contract. . . In such collectives the labor productivity is considerably higher, production costs are lower, and, it follows, the return from investments is considerably better.” [redacted]

In this system, semiautonomous brigades or teams, usually made up of machine operators, work under a contract with the farm to deliver specified farm products at a stipulated price per unit. The teams are given latitude to manage the production process as they see fit. The farm, for its part, guarantees the required machinery, fertilizer, and other supplies. The quantities of these inputs that the team should need to fulfill the contract are determined in advance according to norms. [redacted]

During the growing season, workers receive monthly cash advances. Total earnings for the team are determined after the harvest and depend on quantities actually produced and the contract price per unit. Total earnings are increased if the team has used less than the normed quantities of inputs. Earnings are reduced by the amount of any overexpenditure. The excess of total earnings over the sum of advance payments is given to the team to be divided among members according to the contribution of each worker as determined by the team. [redacted]

According to the Soviet statistical handbooks, the number of contracting teams increased from 57,000 in 1982 to 420,000 in 1986. There were 1.1 million workers in contract teams in 1982 and 9.4 million in 1986. Soviet writers claim that, by 1985, teams operated on 65 percent of arable land on state and collective farms and grew two-thirds of grain and forage crops, three-fourths of potatoes and vegetables, almost all sugar beets, and two-thirds of fiber flax. Official statistics show that coverage in the livestock sector was somewhat less—34 percent of cattle, 42 percent of hogs, 73 percent of sheep, and 56 percent of poultry. [redacted]

In the early stages of Gorbachev’s campaign for team contracting, promising results were claimed. According to the Central Statistical Administration, in 1984 grain yields of contract teams were 16 percent higher

and labor outlays per unit of grain and other crops were 8 to 10 percent lower than those obtained without using contract teams in 1984. Production per head of livestock was also higher—22 percent for the fattening of cattle, 14 percent for hog raising, and 12 percent for sheep raising. In the summer of 1987, furthermore, [redacted] visitors to eastern regions of the USSR observed contracting teams working overtime and doing whatever was necessary to complete the harvest with minimum losses. [redacted]

Despite the glowing claims for the benefits of collective contracts and their rapid spread, the productivity record and speeches by Soviet leaders suggest that the impact of contracting teams on agriculture as a whole thus far has been small. Soviet writers admit that many contract teams exist in name only and that there are some barriers to full implementation.⁹ [redacted]

First, Soviet authors point out a number of problems associated with forming teams. Potential productivity gains are eroded and wage costs are kept high because teams often include more workers than called for by norms.¹⁰ Some teams, furthermore, are allowed to “migrate,” that is, work in several areas of the farm, spending only 20 to 30 percent of the time in their own fields. In these cases, contract earnings are only a small share of their total receipts, giving the workers little interest in the final harvest results. The effectiveness of teams is also undermined by a high rate of turnover among machine operators. [redacted]

⁹ The absence of substantial productivity gains for agriculture as a whole and complaints by Soviet leaders about poor results from contracting are somewhat puzzling in view of the higher yields claimed for teams in 1984 and subsequent years. Lack of overall gains would be consistent with the good results claimed for teams if (1) yields for teams referred only to those achieved by properly organized teams, which have performed well but are few in number; (2) yields and productivity were declining on lands not worked by teams; or (3) yields claimed for teams were substantially exaggerated. [redacted]

¹⁰ Contracting teams are, in theory, small, voluntary groups. According to Soviet statistics, in 1984 teams averaged 15 workers. By 1986 this average had risen to 22. Furthermore, it is likely that, as the campaign intensified, fewer teams were formed strictly on a voluntary basis. [redacted]

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Second, teams have been unsuccessful in some cases because farms do not supply the necessary inputs. Either the farm does not receive the inputs in the first place or switches them to other uses. Furthermore, farm managers, under pressure to meet plan targets, limit the decisionmaking authority of the team. The salaried farm managers and professionals, who receive no reward for introducing collective contracts, have no great incentive to turn control over to team leaders and thus jeopardize plan targets. In some areas of the RSFSR and the Ukraine, farms have withheld teams' payments to keep from overspending the wage fund. [redacted]

Finally, there have been financial problems. In theory, the team is supposed to divide the advance payment and the postharvest settlement among its members. In practice, however, many farms have not left this decision to the team and have continued to use individual piecework payments, which are comparatively easy to administer, to allocate the advance payments. Dividing the postharvest settlement also has proved cumbersome and contentious, because each worker's share is supposed to be determined according to "labor participation coefficients," which involve complex calculations that take into account everything from skill levels and job difficulty to the worker's attitude toward the job. Teams have also faced difficulty and even disbanded because inappropriate or inaccurate norms have been used to calculate the quantities of fertilizer and other inputs that the team should need to fulfill the contract. [redacted]

Redistribution and Resettlement of the Rural Population. Because the system of labor and wages in agriculture does not allocate available labor resources efficiently, policymakers have supported resettlement schemes to help correct regional imbalances in labor supply. In the southern republics, where there is a surplus of labor on many farms, rural outmigration has been encouraged, and more rapid development of industrial enterprises in rural areas has been promised.¹¹ At the same time, programs are being designed

¹¹ More rapid industrial development in all rural areas is also important for providing off-season employment for farm workers who are either idle or engaged in menial tasks during winter months. More off-season employment opportunities are intended to make farm jobs more attractive, particularly to young women and to skilled machinery operators. [redacted]

to increase educational attainment and vocational training to expand employment opportunities outside of agriculture. Despite efforts to resettle rural Central Asian families to farms in labor-short areas such as the Non-Black-Soil Zone in European Russia and the Far East, strong ethnic and cultural traditions, large family size, and language barriers provide strong barriers to success. [redacted]

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Past attempts to encourage resettlement have been costly and ineffective. For example, the Komsomol promoted a resettlement program involving mass mobilization of Central Asian young people. However, during 1981-84 only one-third of the Uzbeks recruited to the Non-Black-Soil Zone had settled there. Among the reasons for leaving, the returnees cite poor organization of food and consumer services, a large share of manual labor, and shortages of equipment, machinery, and construction materials. The cost of programs of this type, moreover, is probably extremely high. According to a Soviet lecturer, the cost of relocating a single worker is more than 12,000 rubles. It is clear

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[redacted] that no significant redistribution of population from south to north is occurring. [redacted]

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Another longstanding resettlement program, designed to eliminate sparsely populated settlements and centralize support services and social infrastructure, called for closing down 348,000 small villages—the so-called futureless hamlets. The plan has not worked, however, largely because of opposition from villagers who were reluctant to move or, when they did so, moved to larger cities instead of to regional centers as was intended. Indeed, the program, because of its unpopularity and considerable expense, appears to have been abandoned. [redacted]

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Improving Rural Education. Several special measures were designed to upgrade the quality of the farm labor force through better education. Graduates of general secondary schools with training in animal husbandry who enroll in rural vocational-technical schools were to receive monthly stipends of 96 to 104 rubles. Also, state farm and other agricultural enterprises were to pay rural vocational school graduates

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Table 5 Percent
USSR: Growth in Wages and Productivity in Socialized Agriculture ^a

	1980-82 ^b		1983-85 ^c	
	Monthly Wages	Productivity	Monthly Wages	Productivity
USSR	9.0	-2.4	17.8	11.3
RSFSR	9.9	-1.6	20.7	15.7

^a Data on average monthly wages on state and collective farms are weighted together using numbers of employees to derive a single estimate of average monthly wages in socialized agriculture. Productivity growth is calculated from official Soviet indexes. Data are from *Narodnoye khozyaystvo SSSR* and from the statistical handbook of the RSFSR.

^b From 1977-79 base.

^c From 1980-82 base.

[Redacted]

who accept employment in agriculture lump sum grants of 500 rubles, equivalent to about 30 percent of their first year's pay. Rural youth were to be given preference for admission to these schools. The quota for females was to be set at one-third of total enrollment, and training in nonagricultural occupations was to be expanded to keep young females from migrating to urban areas. [Redacted]

In 1981 the admissions policy in higher schools was changed to provide for noncompetitive admission to the correspondence (home study) division for rural students sponsored by farms. Educators readily admit the qualitative drawbacks of part-time education, but they believe that workers sponsored by their farms for training in the home-study programs will be more likely to continue working on those farms once they have completed their education. [Redacted]

An Assessment of Progress in 1983-86

According to Soviet official statistics, growth in the productivity of farm labor has picked up since the Food Program was initiated (table 5). However, these gains were not enough to offset growth in wages, and labor costs have continued to rise. Furthermore, slow progress in reducing the hours of labor needed for production of major farm products on state and collective farms has kept demand for labor high, while employment has continued to decline at previous slow

rates (table 6). Little progress has been made since the Food Program in raising productivity because Soviet policies toward agricultural labor have not yet been implemented sufficiently to improve incentives and mechanization, or to increase the proportion of skilled workers in farm employment. [Redacted]

Soviet statistics suggest that at least some progress was made in boosting investment in housing, roads, and other infrastructure. Average annual investment for these purposes in 1983-86 was 40 percent above 1980-82 levels. Gains were made in expanding the stock of rural housing.¹² During 1983-86 average annual commissionings of housing by collective farms—nearly one-fifth of rural commissionings—were 50 percent above those in 1980-82. Progress in improving the quality of rural housing, however, has evidently been slow. As recently as 1985, new housing built by farms was remarkably primitive. A survey of such housing showed that only 30 percent had water, sewer, and central heat. A very large proportion of this housing (42 percent) was built with none of these amenities.¹³ [Redacted]

Other Soviet statistics that shed light on rural living conditions show mixed results for recent years. For example, after the Food Program, there was a sharp jump in the number of rural preschool spaces commissioned and in the number of enterprises providing consumer services to rural residents. But the number of rural movie theatres, clubs, and cultural facilities declined. The Food Program promised 130,000 kilometers of new general rural roads and 150,000 kilometers of new internal farm roads, but few data are available to assess progress in this important area.¹⁴

[Redacted]

¹² The 1981-85 plan called for 176 million square meters of rural housing to be commissioned. Actual commissionings during the period were 167 million square meters—about 13 percent above commissionings during 1976-80. [Redacted]

¹³ Shares of housing without water, sewer, or central heat varied widely by region, ranging from a high of 63 percent in the Kazakh SSR to a low of 2 percent in the Baltics. The Slavic, Transcaucasian, and Central Asian regions all averaged about 40 percent. [Redacted]

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Table 6
USSR: Growth in Agricultural
Employment, Selected Periods ^a

Percent

	1976-80			1981-82			1983-85		
	Total	State Sector	Private Sector	Total	State Sector	Private Sector	Total	State Sector	Private Sector
USSR	-0.7	-0.8	-0.5	-0.5	-0.2	2.1	-1.0	-0.8	-1.3
Baltics	-0.6	-0.8	-0.4	1.1	-0.1	2.4	-0.3	0	-0.5
Slavic republics	-1.3	-1.4	-1.1	-0.4	-1.2	1.3	-1.5	-1.3	-1.8
RSFSR	-0.9	-1.1	-0.6	-0.2	-1.0	1.5	-1.2	-1.0	-1.6
Ukraine	-1.9	-1.9	-1.7	-0.8	-1.6	1.0	-2.1	-2.0	-2.2
Transcaucasus	1.2	1.0	1.4	2.2	1.2	3.8	-0.1	0.4	-0.3
Kazakhstan	0.9	0.7	1.5	1.5	0.8	3.2	0.8	1.2	0.1
Central Asia	1.9	1.9	2.1	4.9	2.8	6.7	0.5	0.6	0.2

^a Average annual rates of growth.

Source: Soviet statistical handbooks publish data on total average annual employment on collective farms and in state agricultural enterprises, including both work in agriculture per se and in industrial, construction, and service activities. Published data on the share of agricultural work alone in the total for the USSR as a whole were used to obtain similar numbers for the republics, on the assumption that the proportions did not differ among republics. Growth rates shown above for the state sector refer to employment

in agriculture per se and exclude other activities. Private-sector employment is estimated using official statistics on area sown and numbers of livestock in the private sector. The estimates assume that each hectare and each animal require a specific amount of labor per year. The ratio of private-sector employment to total farm employment (agriculture per se and other activities) that prevailed in 1975 were then used to estimate private-sector employment in other years.

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Retention of skilled workers is still a serious problem. The number of machinery operators actually declined slightly for the country as a whole during 1983-86. All of the decline occurred in the Slavic republics. In other regions, the number of these workers increased. While the number of machine operators was declining, furthermore, the inventory of tractors and grain combines on farms was increasing at an average annual rate of 2 percent per year (figure 3). Thus, the already existing gap between the number of operators and the number of machines widened further.¹⁵ [Redacted]

the Food Program was initiated. The number of agronomists per farm, for example, declined between 1983 and 1985. The largest gains in professionals per farm were made in the engineering-technical category (table 7). [Redacted]

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The number of professionals with higher and specialized secondary education, an additional indicator of labor force quality, has shown only small gains since

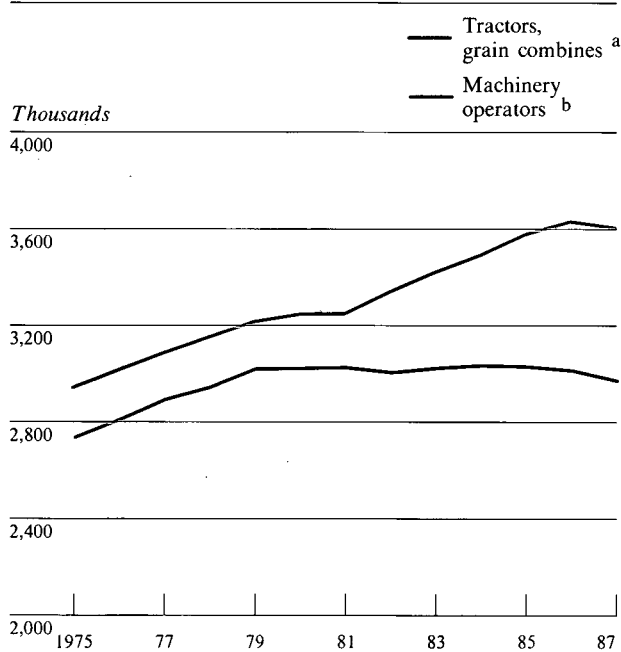
Despite efforts to improve agricultural machinery, Gorbachev noted in November 1986 that the development of new machinery was still lagging and that quality was still very low. Complaints by farmers about the newest grain combines, which were developed and produced on a high-priority, well-publicized basis, suggest that the Food Program and subsequent initiatives have not yet had substantial effects on the quality of farm machinery. There were also shortfalls

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¹⁵ Machinery operators are brought in from industry during peak periods to meet demand for tractor drivers and combine operators. [Redacted]

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Figure 3
USSR: Number of Tractors and Grain Combines and Number of Tractor Drivers, Combine Drivers, and General Machinery Operators



^a As of 1 January.

^b As of 1 April.

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in goals to mechanize farm operations. According to Soviet statistics, in 1985 harvesting of flax and sugar beets was still not fully mechanized, and less than half of the potatoes were harvested by combine, instead of the 65 percent targeted for 1985. [redacted]

Recent speeches by Soviet leaders suggest that their biggest disappointment is in the failure so far of collective contracts to stimulate productivity growth and reduce costs to the extent expected. Speaking to a January 1987 Central Committee conference, party secretary Nikonov stated that "When looking at the figures [people nominally working under collective contracts], it would appear that the march of labor contracting . . . is victorious; however, the high . . . productivity of labor of the proposed scale is not there." [redacted]

Initiatives for the 12th Five-Year Plan Period

According to plan documents, the entire increase in the output of agriculture is to be achieved by raising labor productivity. Soviet plan data imply a reduction in average annual labor inputs during 1986-90 far greater than the reduction achieved during earlier five-year plan periods. [redacted]

A key facet of the government's strategy to boost labor productivity is the program to raise rural living standards and improve the quality of rural life. In his speech to the 27th Party Congress, Gorbachev put the matter thus, "It is clear that the main motive force of progress, its soul, has been and will remain man. Today, as never before, agriculture needs people with an interest in working actively, with high professional skill and innovative bent. The strongest guarantee of our successes is constant concern for the agricultural worker's everyday working conditions. Our plans are aimed at this, and it is important that they be fulfilled rigorously." [redacted]

In line with that sentiment, the various documents giving plans for raising living standards—notably, the omnibus Consumer Goods and Services Program announced in late 1985 and the directives for the 12th Five-Year Plan—explicitly attach priority to the countryside in a number of areas. Retail trade in rural areas is slated to increase by 25 percent during 1986-90, compared with 18 to 22 percent for the economy as a whole. Similarly, paid services of all kinds are to be developed at "priority" rates in rural areas. In a kind of do-it-yourself approach, consumer cooperatives (operating mainly in rural areas), state farms, and collective farms are tasked with expanding the production of simpler kinds of consumer goods, using off-season farm labor and providing a sharply stepped-up flow of services to rural workers.¹⁶ Such services are supposed to rise by 70 percent by 1990. [redacted]

¹⁶ A party-government decree published in January 1986 provides details of the tasks that consumer cooperatives are expected to carry out. [redacted]

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Table 7
USSR: Professionals With
Higher and Specialized Secondary
Education Per Farm ^a

	Agronomists		Veterinarians ^b		Engineers, Technicians	
	1983	1985	1983	1985	1983	1985
USSR	1.9	1.8	2.1	2.2	3.3	3.6
Baltics	2.5	2.6	2.4	2.7	4.5	4.1
Slavic republics	1.8	1.8	2.1	2.2	3.3	3.6
RSFSR	1.7	1.7	2.0	2.1	3.2	3.5
Ukraine	2.1	2.0	2.2	2.2	3.6	3.7
Transcaucasus	1.7	1.8	1.1	1.1	1.6	1.8
Kazakhstan	2.5	2.7	3.9	4.2	4.2	4.6
Central Asia	2.7	2.8	2.0	2.1	4.1	4.7

^a As of 1 April.

^b Includes veterinarians and veterinary workers.

Source: Derived from various issues of *Narodnoye khozyaystvo SSSR* using tables that show (1) the number of professionals, (2) the share of professionals with higher and specialized secondary education, and (3) the number of state and collective farms.

[REDACTED]

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Perhaps the most touted goal is for rural housing construction. The number of square meters built is slated to increase by 27 percent, double the growth achieved in 1981-85. The goal is to be accomplished with only a 30-percent increase in investment, implying an intent to curb the rapidly rising construction costs. [REDACTED]

on a new quality control program—the state acceptance service—to prevent factories from shipping defective machinery to farms. [REDACTED]

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Finally, plans call for a further narrowing of the gap between wages of collective farmers and those of state-sector employees working in industry, agriculture, trade, and other branches of the economy. Wages of collective farmers are to rise by 18 to 20 percent compared with 13 to 15 percent for state workers. By 1990 the real income per capita (including social benefits and income from private plots) of the two groups is supposed to be approximately the same. [REDACTED]

The direction of future labor policy has also been indicated in three decrees issued since Gorbachev's advent to power. The first decree, issued in November 1985, established the USSR State Agroindustrial Committee (*Gosagroprom*) by merging five ministries, one state committee, and elements of three other ministries. The next decree in March 1986 dealt explicitly with incentives for farm workers. First, it sought to strengthen self-financing of farms by tying the size of the wage fund directly to the planned gross value of output.¹⁷ The norms used to determine the

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¹⁷ Self-financing requires enterprises to finance their operations out of their own revenues. If it is properly implemented, self-financing creates positive incentives for producers and is a prerequisite for managerial autonomy. To date, self-financing has been implemented largely in name only, and is undermined by the continuation of such practices as writing off debts of unprofitable farms, issuing cheap bank loans, and paying high minimum wages. The system of central allocation of industrial goods and the price system also weaken self-financing. [REDACTED]

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The regime is also continuing to emphasize investment in industries producing farm machinery. Planners have allocated 12.3 billion rubles for these industries, nearly two and a half times the amount allocated for 1981-85. The regime is counting heavily

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Family Contracts

The family contract is a form of collective contracting in which the farm concludes a contract with a family unit. The family may be assigned a single phase of production, such as weeding, or the entire cycle of cultivation. The family contract is also being used for livestock production. As in any collective contract, the farm—in return for a set amount of produce at a predetermined price—agrees to provide whatever facilities, machinery, and other inputs the family cannot provide and to pay a bonus for any above-plan amount produced. In crop farming, the family receives monthly advances and a final settlement after the harvest. With the present emphasis on self-financing, the family is charged for materials and services provided by the farm and keeps any revenues left after expenses are deducted. [redacted]

From the government's point of view, the family-based unit has a number of advantages over a regular team:

- Families are more likely to bring private plot motivation to the socialized sector—to see the same direct tie between effort, results, and reward that exists in private agriculture. The regime is counting on these incentives to reduce losses and raise productivity.
- Family contracts are easier to administer because families will not disband as readily as teams over squabbles about dividing payments. Furthermore, recordkeeping is simplified and the need for managerial oversight is reduced.

- Families can take on some farming activities that are not suited for regular teams, such as the management of remote dairy operations or mountain homesteads, which otherwise would be abandoned. [redacted]

From scattered reports in the press, it is evident that family contracts are growing in number and that some involve fairly large-scale operations. A variety of problems, however, has come to light as the use of family contracts has expanded. Most of the complaints are directed at farm managers for failing to live up to contract agreements, particularly in the supply of feed. Other reports indicate that farm managers take advantage of families by "relying on their enthusiasm alone," saddling them with dilapidated premises and broken-down machinery. As a result, some families work hard for a year or so and then leave. [redacted]

Family contracts have the potential to encourage better use of areas where large-scale or highly mechanized agriculture is not practical. Nevertheless, their role is limited because the USSR remains firmly committed to large-scale industrialized agriculture. [redacted]

wage fund were to be set so that wages did not increase faster than labor productivity. Should this occur, cost overruns were to be made up out of bonus funds. Next, the decree called for all subunits of farms, processing enterprises, and other organizations to use collective contracts and self-financing. Family and personal contracts were encouraged (see inset, "Family Contracts"). Also, farm leaders were empowered to allow workers in contract teams to keep 25

percent of above-contract production—a bonus-in-kind—to be paid in addition to the team's monetary earnings. Finally, the system of paying monthly cash advances during the growing season, with a postharvest payment depending on actual production, was extended to include managers and professionals working on farms. [redacted]

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Many of the provisions of the March decree merely tinkered with the existing system of wages and bonuses and resembled provisions in earlier decrees. For example, state farm directors were authorized to increase wage rates by up to 50 percent, depending on crop yields and livestock productivity, as long as overall wage costs per unit of output did not go up. Formerly, these wage rate increases were limited to 30 percent. Similarly, the portion of cost savings that can be channeled into bonus funds was increased. Finally, the March decree gave a boost to private housing construction by allowing state farm directors to pay for half of construction materials purchased by workers for this purpose. The decree recommended that collective farms set up a similar program. []

The third decree, issued in December 1986, consisted chiefly of complaints about the unsatisfactory pace of implementation of collective contracts and self-financing on farms. The decree denounced the "irresponsibility and formalism" that are hindering the introduction of these measures and restated the importance of linking the pay of all farm personnel—including managers—to end results. This decree also called for more opportunities for workers to take on-the-job training at farms where collective contracts and self-financing are operating correctly. []

Outlook

To sharply accelerate the release of labor from agriculture while achieving plan goals for growth in farm production would require a breakthrough in raising productivity of farm workers (see inset, "The Importance of Productivity Gains in Meeting 1986-90 Plan Targets"). The programs now in place, or planned, that are intended to bring this about seem inadequate to the task. Additional measures, however, probably will be introduced after a party plenum scheduled for this year, which Gorbachev recently announced would be devoted to agriculture. []

Some progress may be made under programs that are already on the books, but the many measures intended to improve the living conditions of farm workers—and thus, hopefully, their work attitudes—could founder on the shoals of insufficient investment. The allocation to housing, for instance, may be insufficient to

meet the construction target, given that the cost per square meter has been rising for decades at more than 3 percent per year. Additional funds evidently have been made available for housing and services in the 1988 plan, but it is not clear how much has been earmarked for rural areas or whether new allocations will be sufficient to offset rising construction costs. Over the next few years, rural amenities are likely to remain few and their quality poor relative to those in cities. Finally, the largely do-it-yourself approach to increasing the quantity of goods and services for farm people is not likely to result in a substantially larger supply of high-quality consumer goods and services in rural areas. The farm sector would benefit from more opportunities for off-season employment, but imposing large, year-round tasks, such as producing consumer goods, adds to the burden of farms and diverts them from their primary mission—efficient farming. Hence, in 1990, as now, the quality of rural life is hardly likely to appeal to the best and the brightest of rural youth. []

Neither is a near-term breakthrough in the cards for relieving the drudgery of most farm jobs by mechanization. The regime is counting on more investment and strict quality standards to raise the quality of agricultural machinery. Modernization, however, is a lengthy process. The state acceptance service, furthermore, is being undermined by industrial enterprises' discovering new ways to sidestep quality control. Without stronger economic ties between farms and producers of machinery, there is likely to be only slow progress in improving the quality and assortment of farm machinery. []

Gorbachev's remarks to the June 1987 plenum indicate that the leadership is still pinning its hopes for an upsurge in farm labor productivity on the mandated adoption of various forms of the collective contract, including family contracts and the so-called intensive brigade.¹⁸ Gorbachev cited numerous examples of

¹⁸ There are several variants of the collective contract. Intensive brigades are merely very small contract teams—usually two or three machine operators. []

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**The Importance of Labor Productivity
Gains in Meeting 1986-90 Plan Targets**

Soviet plans call for annual average farm production in 1986-90 to be 14.4 percent above that of 1981-85. According to our econometric model of the farm sector, this target will be out of reach unless attempts to improve labor productivity in agriculture are at least somewhat successful. [redacted]

Projections of average annual net farm output in 1986-90 using the model initially assume that:

- Labor inputs (including the private sector) decline at 1.7 percent per year—the rate planned for the socialized sector during 1986-90.
- Weather is average.
- Deliveries of industrial goods such as fertilizer, spare parts, and feed ingredients continue to grow at rates that have been achieved since the Food Program began.
- Labor productivity and on-farm technology improve only at the long-term average rate.

With these assumptions, the model indicates that average net farm output in 1986-90 is likely to be about 9.8 percent above that in 1981-85—far short of the plan target. [redacted]

[redacted]

Sources of growth other than labor productivity are unlikely to be sufficient to close the gap between this projected growth rate and the plan. Success in modernizing the plant and equipment delivered to agriculture over the next several years, for example, would not provide the gains needed to meet the plan target. Under the very optimistic assumption that new capital stock delivered to agriculture is 50 percent more efficient than that already in place, the model projects that the 9.8-percent growth rate would rise only to about 11.3 percent. [redacted]

Very favorable weather would have a larger impact, but would not, by itself, bring growth in production to planned rates. For example, the model shows that weather conditions so favorable that they have only a 10-percent chance of occurring would raise the growth rate from 9.8 percent to 12.8 percent. [redacted]

The need for more rapid growth in labor productivity could be considerably greater if, for example, the planned decline in labor inputs were accompanied by very unfavorable weather and no improvement in new capital stock. Under these conditions and assuming labor productivity grows only at the long-term average rate, the model projects that net farm output in 1986-90 would average as little as 6.6 percent above that in 1981-85. [redacted]

successful family contracts and intensive brigades, operating mainly in the labor-short northern areas. [redacted]

Collective contracts have had some success in raising yields and lowering costs where they have been implemented fully, but there are many conditions that must be met before widespread, successful use can occur. First, suppliers of machinery and other inputs must be made more responsive to farm needs so that farms and collective contract teams have the goods and services they need to carry out farm operations on a timely basis. As long as industrial enterprises are rewarded for fulfilling gross output plans and machinery is

rationed to farms, the link between farms and suppliers of industrial goods is likely to remain weak. The regime has announced its intention to solve this problem by revamping the wholesale trade system, but positive consequences for agriculture are not likely to be realized over the next few years (see inset, "The June 1987 Plenum and Agriculture"). Second, the rules, regulations, and legal procedures for formulating collective contracts must be simplified if many thousands of these contracts are to be concluded each

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The June 1987 Plenum and Agriculture

The June plenum produced a lengthy document outlining the main themes of Gorbachev's economic reform program. The plenum also endorsed the new law on state enterprises, which will apply to state farms. The plenum document and the enterprise law do not specifically address the problem of low labor productivity in agriculture. They are to influence the farm sector indirectly by a general restructuring of economic incentives, prices, and wholesale trade. In addition, the enterprise law provides for the election of leaders—presumably including leaders of contracting teams. [redacted]

It is unlikely, however, that productivity in agriculture will be affected by these measures over the next few years. Any gains from these measures probably will not be apparent before the first years of the 13th Five-Year Plan period, 1991-95:

- *The documents spelling out details and specific procedures for the various reform elements outlined in the plenum document have yet to be published. Once these documents become available, the entire scheme must be implemented. Even if this lengthy process goes smoothly, it will take several years.*
- *Some of the changes in economic incentives deemed important in the plenum document and in the enterprise law have already been applied in agriculture. In particular, the March 1986 decree on*

agricultural management called for all enterprises in the agroindustrial complex to utilize collective contracts and self-financing.

- *The plan to revamp wholesale trade is still vague and is scheduled to take four to five years to implement. The plenum document provides no basis on which to judge whether farms ultimately will have better access to goods and services for use in production.*

- *The short discussion in the plenum document of prices for farm products suggests that the scheduled "radical" reform of prices is likely to result in prices similar in nature to the rigid, centrally determined procurement prices now in effect. Although prices are to be determined on the basis of contracts, there are to be strict guidelines for forming contract prices and close monitoring to prevent inflation. Furthermore, if the method proposed for determining prices in industry is also applied to agriculture, prices for farm products sold to the state would be determined in advance of the harvest, probably on the basis of anticipated production costs. Such prices would remain in effect for several years. [redacted]*

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year as planned. Also, workers must be trained to manage the entire production process and not simply one phase of it. Finally, there must be willingness on the part of all concerned to tolerate year-to-year fluctuations in the incomes of farm workers. [redacted]

Extending the principles of self-financing to Soviet farms will be a tall order; enormous differences exist among farms in growing conditions, product prices, capital stock, and profitability. In 1986, a good year for agriculture, over 6,000 farms—12 percent of the total—operated at a loss. If formally implemented,

self-financing could encourage farms not to waste the inputs that have been allocated to them. But self-financing is unlikely to produce the intended efficient resource allocation, given the dubious nature of product prices for inputs and output and the limited real autonomy of farm managers. Even under allegedly more liberal rules, farms remain subject to the dictates of imposed output targets for much of their output. Furthermore, under these rules, many of the

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high-quality, scarce materials and investment goods needed by farms will continue to be centrally allocated. [redacted]

Interference by regional officials in day-to-day farm operations continues to undermine efforts made thus far to improve incentives for farm workers and managers. In January 1987 party secretary Nikonov complained that "leading officials . . . who are personally responsible for the improvement of the economic machinery in the agroindustrial complex, sometimes have only a superficial knowledge of the new provisions and, at times, display an irresponsible attitude toward their implementation. This is the only way to explain the never-ending flood of paperwork, demands, and instructions accumulating on farms." [redacted]

Proper implementation of collective contracts holds some promise for at least modest efficiency gains, but prospects are dim for any regional redistribution of farm labor. There have been no substantial new incentives to foster migration from the southern, labor-surplus areas to northern areas. If the leadership were to pursue such a policy, it would be costly

and would encounter strong resistance—both from the sending regions and from the regions that would have to absorb large numbers of new migrants with radically different cultural, ethnic, and educational characteristics. Expansion of industry in Central Asia, however, could absorb excess labor. In fact, the 12th Five-Year Plan calls for above-average economic growth in most republics with fast population growth. But investment patterns are not shifting to support industrial development in these areas. Statistics for the 12th Five-Year Plan suggest that, on a per capita basis, the relative investment position of the RSFSR will continue to rise and that of most of the other republics will fall, especially those in Central Asia. In general, there is little sign of any consistent policy to effect the transition of released rural labor into the industrial and service sectors. [redacted]

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