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TITLE: FOOD AND AGRICULTURE OF THE CENTRALLY PLANNED ECONOMIES: Implications for the World Food System

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SUMMARY

FOOD AND AGRICULTURE OF THE CENTRALLY PLANNED ECONOMIES:
IMPLICATIONS FOR THE WORLD FOOD SYSTEM

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The report, of which this is a summary, dealt with two of the topics of the research proposal--Price Policies and Food Subsidies and Trade in Agricultural Products. With respect to trade in agricultural products, the paper is concerned primarily with the changes in the general balance of agricultural trade and in changes in the net grain trade. These two topics have been considered together because it is the author's conclusion that a large part of the increase in grain and feed imports have resulted from the efforts of governments in the centrally planned economies to maintain stable retail prices for livestock products in the face of rising costs of producing those products.

The Soviet Union, the seven Eastern European economies and China significantly increased their roles in international trade in grain and other agricultural products during the 1970s. At the beginning of the decade the Soviet Union was a small net exporter of grain, and the net grain imports of all the centrally planned economies accounted for only 7 percent of the world's grain imports. By the end of the decade, however, these nine countries accounted for 30 percent of the world's grain imports.

During the 1970s world grain trade increased by 95 million tons or by about 90 percent. The centrally planned economies were responsible for more than 55 percent of the increase in world grain imports.

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Several factors have been responsible for the rapid growth of grain imports by these economies, though each did not operate equally in every country. The three most important factors have been the rapid growth in demand for meat and livestock products in the U.S.S.R. and Eastern Europe, the slow growth of agricultural production during the second half of the 1970s, especially in the U.S.S.R., and the policies of food price subsidies. In China the major source of the increased demand for grain has been the growth of real and money incomes in both rural and urban areas as a result of policies adopted in 1977 and 1978. China, also, introduced food price subsidies in 1979 when it increased procurement prices.

During the 1970s the costs of the food price subsidies increased several fold and by the end of the 1970s constituted a major financial burden in Poland, the German Democratic Republic, U.S.S.R., Hungary, Czechoslovakia and China. In Poland, prior to the events of late 1981, and int he U.S.S.R. the subsidies on a kilogram of meat were equal to or greater than the official retail prices. In some of the other countries the subsidies were equal to a quarter to half of the retail prices.

The governments have generally been unwilling to create public displeasure and resistance by increasing the prices of meat and milk. However, in an effort to encourage expansion of livestock production prices paid to farms have been increased substantially during the 1970s. Thus the cost of the price subsidies have grown and continue to grow. The cost of the food price subsidies in the U.S.S.R. during 1981 was approximately 35 billion rubles. Yet with this high cost per capita meat consumption in 1980 and 1981 was no higher than in 1975.

The study indicates the close interrelationships between food and agricultural price policies and international trade by the socialist

economies. The unwillingness of the governments to increase the prices of meat and milk has meant that demand for these products has been artificially encouraged. The governments are then faced with the unpleasant choices of either permitting substantial unsatisfied demand and long queues at the stores or making a major effort to expand livestock production. One of the major alternatives for expanding livestock production has been to increase the importation of grain and other feeding materials. It is estimated that nearly a third of the Polish external debt was caused by the large grain imports of the 1970s.

INTRODUCTION

The Soviet Union, the seven Centrally Planned Economies of Eastern Europe and China substantially increased their roles in the international trade in grain and other agricultural products during the 1970s. At the beginning of the decade the Soviet Union was a small net exporter of grain and the net grain imports of all of the Centrally Planned Economies accounted for only 7 percent of the world's grain imports. However, by the end of the decade these nine countries accounted for 30 percent of grain imports.

During the 1970s world grain trade increased by 95 million tons or by about 90 percent. The Centrally Planned Economies accounted for more than 55 percent of the increase in world grain imports.

Several factors have been responsible for the rapid growth of grain imports by the CPEs during the 1970s. The factors did not operate with equal strength in the USSR, China and Eastern Europe. The three most important factors have been the rapid growth of demand for meat and livestock products in the USSR and Eastern Europe, the introduction of substantial food price subsidies, and the slow growth of agricultural production during the second half of the 1970s, especially in the USSR. In China the major source of increased demand for grain has been the growth of real and money incomes in both rural and urban areas as a result of policies adopted in 1977 and 1978.

The growth in the demand for livestock products in the USSR and Eastern Europe was the result of a significant rate of growth of per capita incomes and relatively high income elasticities of demand.

The growth in demand for meat and other livestock products has been augmented by the food price subsidies. Starting in the 1960s and accelerating during the 1970s the USSR and five of the seven Eastern European countries such subsidies resulted in low meat and milk prices with subsidies that in some cases equaled the actual retail price and in numerous cases amounted to half or more of the retail price.

The increase in per capita meat consumption in the Eastern European economies during the 1970s was very remarkable, increasing about one fourth. To a degree, the feed required to produce the meat required to meet the demand growth depended upon the increased importation of grain. This was especially true for Poland, which increased its annual level of grain imports from 2 million tons during 1966-70 to 7 million tons during 1978-80.

The Soviet Union, in contrast to the Eastern European CPEs, failed to achieve a significant growth in per capita meat production during the 1970s. In fact, in 1980 per capita meat production was the same as in 1974, which in turn was only 10 percent above the 1970 level. The expansion of meat and livestock production during the 1970s, and especially after 1975, was modest indeed given the efforts made to increase such production. One means used to expand livestock production was the great expansion of grain imports, shifting from net grain exports of 4 million tons annually from 1969-71 to net imports of more than 30 million tons in both 1979/80 and 1980/81. During the last half of the 1970s grain fed to livestock increased by more than a fifth while livestock output increased by only a third as much.

Grain imports by China increased significantly after 1975. The increase in grain imports was not due to poor grain crops in 1978 and 1979, which were years of very good crops; the 1980 crop was somewhat disappointing.

Policy changes made in 1978 and 1979 provided for significant increases in prices paid to farms by the state, a reduction in the grain tax for poor farms, the introduction of food price subsidies that prevented an increase in the urban retail prices for the grains and vegetable oil, a significant increase in wages in the state sector and a subsidy to urban workers to compensate them for the permitted retail price increases for farm products other than the grains and vegetable oil. All of these changes added to the demand for food and especially for grain. The rapid growth of grain imports resulted, in large part, from these policies that both increased the demand for grain and held its price at a relatively low level in urban areas.

Continued rapid growth of grain imports by the CPEs could result in a substantial increase in the real prices of grain in international markets. It is not predicted that there will be rapid growth of grain imports by the CPEs during the 1980s. However, there is abundant evidence that changing the food price and subsidy policies that have had a major role in increasing the grain imports will prove to be very difficult, indeed.

FOOD AND AGRICULTURE OF THE CENTRALLY PLANNED ECONOMIES

Implications for the World Food System

D. Gale Johnson

The Centrally Planned Economies (CPEs) have 28 percent of the world's population and produce about a fifth of the world's gross national product.[1] In 1980/81 it is estimated that these economies consumed 39 percent of the world's grain, and produced 35.5 percent.[2]

If these economies were self sufficient in food, as it has long been their objective to be, the performance of their agricultures and the characteristics of their food policies would have little direct impact upon the rest of the world. Until 1960 the CPEs were self sufficient in grains or cereals and were net exporters of agricultural products. It now seems quite incongruous that two decades ago the Soviet Union was seen (and feared) as a major export competitor in the world grain and oilseeds market and the Peoples' Republic of China was viewed as an important competitor in the international soybean market. During the 1970s the Soviet Union became the world's largest grain importer and China the third largest. Further, China has been a significant importer of oilseeds in some years and recently China even has been a small net importer of soybeans. A striking indication of the changing agricultural fortunes of the CPEs is that during the 1970s they accounted for 55 percent of the increase in world grain imports and for 30 percent of world grain imports by the end of the 1970s compared to 7 percent at the beginning of the decade.[3]

Why has this remarkable shift in the agricultural and food trading relationship occurred? This is the primary question that I wish to explore. I shall give emphasis to three factors: First, the income elasticities of demand for meat and other livestock products remain at levels near unity; second, during the 1960s in the Soviet Union and Eastern Europe and in the late 1970s in China there was a significant change in food price policies that encouraged the growth of demand for food, and, third, the growth of agricultural production during the second half of the 1970s, especially in the Soviet Union, was significantly slower than for any similar period since the end of World War II.

The relatively high income elasticity of demand for meat and livestock products is important since the Eastern European CPEs achieved significant growth in per capita incomes during the 1960s and 1970s, in both money and real terms. Consequently in most of these economies the demand for meat has been growing at a rate significantly greater than could be met from local feed resources. The income elasticities of demand for meat in the European CPEs appear to be higher than in other countries with similar per capita incomes. There are probably several reasons for this, but one may well be the neglect of agriculture in the early years of collectivization. Livestock product, and thus meat supplies, were held to low levels. These economies may have been in a "catching up process" in moving toward a level of meat consumption consistent with the demand patterns for their real income levels. In addition, the limited supplies of quality consumer goods and limited amounts of poor quality and highly subsidized housing, may have shifted demand toward meat and other livestock products.

During the 1960s the Soviet Union embarked upon a policy of increasing prices paid to farms for meat and milk, while at the same time leaving

unchanged the prices charged at retail. In other words, a policy of subsidizing food consumption was instituted. As is so often the case in governmental programs, this policy was supposed to be a temporary one. The higher prices paid to farmers were to generate sufficient expansion of production, through realizing efficiencies in production, that the prices paid to farms could soon be lowered to the prior level and thus be consistent with the retail prices. As late as 1973 a Russian acquaintance said that this new policy was intended to be an emergency program and that it was believed that the subsidies could be eliminated in a few years. History has refuted this expectation and instead the amount of the subsidies have grown year by year and in 1981 almost certainly will exceed 30 billion rubles.[4]

Why were subsidies instituted? One reason seems to have been that Khrushchev did increase the retail prices of meat and milk significantly in 1962 and there was substantial resistance to the increase, with rumors of riots and other disturbances. In 1965 Brezhnev increased farm purchase prices but did so without increasing retail prices and there have been no significant increases in official prices in the state stores since that time. The increase in prices received by farmers after 1965 were due both because the base procurement prices were increased and because bonus prices were introduced for deliveries in excess of procurement quotas. The premium for deliveries in excess of the required deliveries was 50 percent; this system was introduced for grains in 1965 and for livestock in 1970 with extensions to additional commodities in 1981.

In 1965 large zonal price differences were introduced as a means of maintaining production in high cost regions and preventing high incomes in agricultural regions that were well endowed if prices for all farms had been

increased to the level required to generate the desired level of output. Between 1965 and 1977 the average prices paid by the state, including the bonus prices for meat, increased by almost 60 percent without significant increases in the retail prices in the state stores. Between 1965 and 1979 milk procurement prices increased by even more, namely by 80 percent with no increase in state store prices.[5]

Similar subsidy policies were adopted in other Eastern European CPEs, especially in Poland and apparently in all of the countries except Yugoslavia. The consequences of the Polish government's attempts to reduce or eliminate the enormous and growing cost of food subsidies are well known as a result of riots and strikes that occurred subsequent to attempts to increase retail food prices in 1970, 1976 and 1980. In 1970 and in 1980 the disruptions that followed the food price increases were followed by major governmental shakeups. In February 1971 the new governmental officials rescinded the price increases announced in December 1970. Once again in 1976 the price increases were rescinded and food subsidies continued to grow and may have reached 8 percent of national income by 1976.

The Polish experiences with efforts to increase food prices have influenced policies in other European CPEs. There is good reason to believe that an important reason why the Soviet Union has not increased meat and milk prices in more than a decade has been a fear that their citizens might strongly protest. The Polish strikes in the summer of 1980 appear to have intensified the reluctance of other Eastern European governments to raise retail food prices. Since then Bulgaria, the GDR and Romania have absorbed higher agricultural procurement prices in the state budget rather than passing the higher prices on to consumers. Romania may not have had significant food subsidies prior to 1981.

China had some food subsidies during the 1950s, increased them during the 1960s and increased them again very substantially in 1978 and 1979. In 1979 procurement prices were increased significantly and bonuses for deliveries in excess of established delivery quotas for each farm were also increased. Bonuses for excess deliveries are now 50 percent of the procurement price for grains and somewhat less for cotton.

The food price policies result in subsidizing food consumption in most of the CPEs. The effect of the price subsidies is additive to the relatively high income elasticities of demand in their effect on demand. Where there has been some significant degree of inflation, as there has been in most of the CPEs, the failure to adjust retail food prices to the level required by the prices paid to farms has meant that the real price of food has declined over the past decade or so. Consequently one of the important reasons for more rapid growth of demand than of supply has been declining real prices for food products. The prices of meat products in state stores are especially out of line in the Soviet Union and some of the Eastern European economies. Subsidies have been paid on grain products and potatoes, as well as for livestock products. In some instances, bread prices were set so low that bread was a cheaper livestock feed than grain.

The third factor has been the relatively slow growth of agricultural output in the Soviet Union and some Eastern European economies during the 1970s. For the USSR agricultural output growth during the 1970s was less than half that of the 1960s. In Eastern Europe output growth declined significantly in the last half of the 1970s.

For China a fourth factor has been important, namely a decision made in 1977 or 1978 to increase the real incomes of commune members by reducing required procurements as well as increasing prices paid to farms. Since the

rural population accounts for 80 percent of the total population, an increase in the real incomes of the rural population has a major impact upon the demand for food due to their high income elasticity of demand.

The CPEs do not have a monopoly in the use of food and agricultural subsidies. Many developing countries subsidize particular foods, while many industrial countries expend billions of dollars on direct subsidies to farms or to pay the cost of farm price support programs.

Economic Performance of the CPEs

Some data on the overall performance of the economies may be of help in interpreting the analysis of factors associated with the sharp increase in reliance on grain imports required to meet demand in the CPEs. Table 1 gives data on the growth of real gross national product per capita for OECD countries and the Communist countries for 1961-65 to date. The data indicate that the general pattern of real growth in the CPEs for the past two decades compares favorably with the growth in OECD. There appears to have been a slowing down of growth after 1973 in most countries. It may be of interest to note that Poland, which seems to be in such turmoil, has had a growth record that is equal to the average of six Eastern European CPEs for the two decades. Climatic factors were responsible, at least in part, for the Chinese low growth rate for 1974-76 and the high growth rate for 1977-79. Some credit for the 1977-79 growth rate may go to the general relaxation of regulations and increased incentives instituted after the fall of the Gang of Four in 1976.

Table 2 presents data on agricultural production since 1961-65. These data bear out the statement made earlier that the rate of growth of agricultural output in the 1970s in the Soviet Union was significantly smaller than

TABLE 1

GROWTH RATES OF REAL GROSS NATIONAL PRODUCTS PER CAPITA, 1961-65 to 1979, SELECTED YEARS

(percent per annum)

	1960-65	1865-70	1970-73	1973-76	1976-79	1960-79
United States	3.2	1.9	3.8	0.2	3.2	2.5
Japan	8.9	10.9	7.2	1.1	4.7	7.2
Sweden	4.5	3.2	1.1	1.7	0.9	2.6
European Community	3.9	4.1	3.8	1.5	2.7	3.4
United Kingdom	2.6	1.9	4.1	0.4	1.7	2.2
West Germany	4.0	3.9	3.2	1.5	3.7	3.4
Eastern Europe	3.2	3.1	4.0	3.6	2.2	3.4
Bulgaria	5.5	4.1	3.5	4.5	1.2	4.0
Czechoslovakia	1.3	3.2	2.6	2.1	1.5	2.2
East Germany	3.1	3.2	3.5	4.1	2.8	3.2
Hungary	3.9	2.7	4.9	1.0	2.2	3.5
Poland	2.8	3.0	6.4	3.9	1.4	3.4
Romania	4.4	3.2	2.4	6.4	3.7	4.0
Yugoslavia	4.9	4.2	3.9	4.3	6.4	4.6
USSR	3.6	4.2	3.4	2.5	1.7	3.2
China	3.3	4.2	5.5	1.6	7.2	4.2

Source: National Foreign Assessment Center, Central Intelligence Agency, Handbook of Economic Statistics 1980, Washington, D.C.: U.S. Government Printing Office, 1980, p. 29.

in the 1960s. In the Soviet Union the level of agricultural output during 1978-80 was only 8 percent higher than in 1974-76. Output growth during the 1960s was 3.9 percent, in the 1970s less than half of this. Agricultural output increased more in each of the Eastern European countries than in the Soviet Union and for the group the performance compares favorably with any region in the world. Two countries performed very well--Hungary and Romania--while the other four Eastern European CPEs increased output at the respectable rate of 2 percent annually for the 1970s. The Chinese output index is subject to considerable uncertainty and should not be accepted as firm evidence of successful performance during the 1970s.

Table 3 gives an estimate of the hard currency debt to the West of the Eastern European CPEs. In 1979 the debt is estimated to be $49 billion. Of this Poland owed approximately 40 percent. Table 4 presents some estimates of consumer prices for OECD countries and the European CPEs. As the table indicates, the Centrally Planned Economies can have significant rates of inflation. However, the indexes of consumer prices for the CPEs are presented more to indicate the potential for consumption substitution effects when the prices of important foods have not been permitted to increase for a decade or more. The Soviet Union, as of 1978, had a gross debt to the West of about $10 billion. However, the Soviet Union has significant financial assets in the West and its net debt may be about half the gross debt.

Exports and Imports of Agricultural Products

While I have noted the dramatic increase in grain imports, the increasing deficit in grain trade of the CPEs is only the "tip of the iceberg." In times past the Soviet Union was a major net exporter of agricultural

TABLE 2

TOTAL AGRICULTURAL PRODUCTION, INDEXES AND GROWTH RATES, CENTRALLY PLANNED ECONOMIES

	(1961-65 = 100)			Growth Rates	
	1969-71	1974-76	1978-80	1969-71 / 1961-65	1978-80 / 1969-71
Eastern Europe					
Bulgaria	126	138	-	3.4	-
Czechoslovakia	123	140	-	3.0	-
GDR	112	133	-	1.6	-
Hungary	127	154	-	3.5	-
Poland	113	130	-	1.8	-
Romania	123	162	-	3.0	-
Yugoslavia	124	152	-	3.1	-
Total	119	141	148	2.5	2.5
Soviet Union	131	143	154	3.9	1.8
China[a]	124	148	171	3.7	3.6

Sources: ESCS, USDA, Indices of Agricultural and Food Production for Europe and the U.S.S.R., Stat. Bul. No. 635; World Agricultural Situation, WAS-24, Dec. 1980; and A. M. Tang and C. J. Huang, Changes in Input Relations in the Agriculture of the Chinese Mainland, 1952-1979, paper presented at Conference on Agricultural Development in China, Japan and Korea, Dec. 17-20, 1980, Taipei, Taiwan.

[a]Base period for China is 1963065 to exclude low output at end of the Great Leap Forward years.

TABLE 3

EASTERN EUROPE: NET HARD CURRENCY DEBT TO WEST
(Billion US$)

	1971	1973	1975	1977	1979
Bulgaria	0.7	1.0	2.3	3.1	3.7
Czechoslovakia	0.2	0.3	0.8	2.1	3.1
GDR	1.2	1.9	3.5	6.2	8.4
Hungary	0.8	1.1	2.2	4.5	7.3
Poland	0.8	2.2	7.4	13.5	20.0
Romania	1.2	1.5	2.4	3.4	6.7
Total	4.9	8.0	18.7	32.9	49.3

Source: National Foreign Assessment Center, Central Intelligence Agency, Handbook of Economic Statistics 1980, ER 80-10452, October 1980, p. 39.

TABLE 4

CONSUMER PRICE INDEXES

	1960	1965	1970	1973	1974	1975	1976	1977	1978	1979
OECD										
United States	76	81	100	114	127	139	147	156	168	187
Canada	77	83	100	116	129	142	153	165	180	197
Japan	57	77	100	124	254	172	188	204	211	219
European Community										
Belgium	74	84	100	118	133	150	163	175	183	189
France	67	81	100	120	136	152	167	182	199	220
Italy	68	87	100	122	146	171	199	237	265	305
Netherlands	66	79	100	125	137	151	165	175	182	190
United Kingdom	67	80	100	127	148	184	215	249	270	306
West Germany	77	88	100	119	127	135	141	146	150	156
Communist Countries										
USSR[a]	88	96	100	106	108	109	111	113	115	118
Eastern Europe[b]										
Bulgaria[c]	73	86	100	109	114	116	120	126	132	135
Czechoslovakia	74	80	100	106	109	111	113	114	116	120
East Germany	87	92	100	100	103	103	104	108	109	110
Hungary	82	88	100	115	118	123	130	134	140	152
Poland	78	88	100	113	124	132	142	155	168	181
Other										
Yugoslavia	31	59	100	160	196	242	269	208	350	425

Source: National Foreign Assessment Center, Central Intelligence Agency, Handbook of Economic Statistics 1980, Washington, D.C.: U.S. Government Printing Office, 1980, p. 43.

[a]Implicit price index obtained from a comparison of indexes of goods sold in the retail trade network in constant and in current prices. The current price index is based on the values of total retail and collective farm market sales in current prices regularly published in Soviet statistical abstracts. The index in constant prices is derived from the goods components of the CIA index of total consumption. A more complete explanation of the methodology and a discussion of the relative merits of an "official" or "alternative" price index are contained in "Soviet Economy in a New Perspective," U.S. Congress, Joint Economic Committee, 14 October 1976, p. 631.

[b]Calculated differently from that for the USSR; the official index of personal consumption in current prices was deflated by a calculated index of personal consumption in constant prices. An explanation of the methodology used to calculate personal consumption is presented in T. P. Alton, "Index of Personal Consumption in Poland, 1937 and 1946-1967," Occasional Papers of the Research Project on National Income in East Central Europe (New York: L. W. International Financial Research, Inc., 1973).

[c]Price indexes are calculated from official figures for total consumption of the population, including estimates of health and education expenses.

products. There has not been a single year since 1968 that the Soviet Union has had a net surplus in its agricultural trade (Table 5). The net deficit grew from a little more than $300 million in 1969 to almost $8 billion in 1978.

The Eastern European CPEs have had a deficit in the balance of their agricultural trade throughout the 1970s but in contrast to the experience of the Soviet Union the deficit for the region as a whole has increased very little during the 1970s. There are differences among the countries. Poland's deficit in agricultural trades had increased from $283 million in 1971 to $1.3 billion in 1978. Hungary, on the other hand, has increased its export surplus in agricultural products from $188 million in 1971 to $650 million in 1979. Bulgaria and Romania have had small export surpluses in their agricultural trade. In spite of the very substantial growth of grain and cotton imports, China maintained a net positive balance in its agricultural trade throughout the 1970s.

Table 6 presents data on the grain trade for the CPEs for 1960 to date. To simplify the presentation, the figures are for net trade--imports are subtracted from exports to arrive at a net trade figure. Data are given for the Soviet Union, Eastern Europe, China and for the CPEs as a whole. Data are not available for Cuba, North Korea or Vietnam.

As noted in the introduction, net grain imports of the CPEs increased sharply during the 1960s and 1970s. In fact, much of the growth in grain imports occurred during the 1970s with a large increase during the last two years of the decade. Given the small 1980 grain crop in the Soviet Union and the known import commitments made by the Chinese, the 1980/81 grain imports of the CPEs will be in excess of 60 million tons.

The data on grain trade for each of the Eastern European CPEs given

TABLE 5

NET BALANCE IN AGRICULTURAL TRADE FOR CENTRALLY PLANNED ECONOMIES, 1969 TO 1979[a]

(Millions of U.S.$)

Year	USSR	China	Eastern Europe	GDR	Hungary	Poland	Yugoslavia
1969	- 325	--	--	- 505	195	- 173	- 9
1970	-1,046	380	--	- 704	156	- 149	- 20
1971	- 843	625	--	- 665	188	- 283	-142
1972	-2,048	645	--	- 780	355	- 115	- 95
1973	-3,340	425	--	- 873	556	- 265	-275
1974	-6,786	240	-2,807	-1,314	442	- 556	-735
1975	-7,415	1,500	-2,108	-1,308	588	- 663	-287
1976	-7,257	1,720	-3,003	-1,634	515	- 941	-301
1977	-6,403	625	-2,844	-1,611	593	-1,073	-545
1978	-7,910	1,655	-2,756	-1,596	652	-1,292	-444
1979		600					

Sources: 1969-73, FAO Trade Yearbook, various issues;

1974 to date, USDA, Supplement 1, 3 and 6 to World Agricultural Situation , WAS-21, December 1979.

[a]A negative sign means net imports.

TABLE 6

NET GRAIN TRADE BY EASTERN EUROPE, THE SOVIET UNION AND CHINA, SELECTED PERIODS AND YEARS, 1960.61-1980/81[a]

(Million metric tons)

Period or Year	Eastern Europe	Soviet Union	China	Centrally Planned Economies
1960/61-62/63	- 6.8	+ 7.3	- 4.1	- 3.4
1969/70-71/72	- 7.5	+ 4.0	- 3.1	- 6.6
1971/72	- 9.2	- 1.3	- 2.5	-13.1
1972/73	- 7.3	-21.0	- 4.6	-32.9
1973/74	- 4.9	- 5.7	- 5.7	-16.3
1974/75	- 8.3	- 0.5	- 4.5	-13.3
1975/76	- 8.0	-25.4	- 1.3	-34.7
1976/77	-11.7	- 7.3	- 2.4	-21.4
1977/78	- 9.8	-16.4	- 8.7	-34.9
1978/79	-11.8	-13.2	-10.2	-35.2
1979/80	-13.3	-30.4	- 9.8	-53.5
1980/81	-13.2	-33.6	-13.5	-60.3

Source: Economics, Statistics and Cooperatives Service, U.S. Department of Agriculture, World Agricultural Situations, various issues.

[a]A minus sign indicates net grain imports; the year is from July to June.

in Table 7 indicate that there are major differences among the countries. Hungary was a small net importer of grain during the late 1950s and early 1960s but generally has been a net exporter since 1966. Romania had a net export position from 1956 through 1970 but by the end of the 1970s seemed to have reached a rough balance between imports and exports. Bulgaria has a relatively minor role in grain trade, shifting from modest net exports to modest net imports from year to year. Yugoslavia has a somewhat erratic pattern of grain trade with either small surpluses or deficits. Two countries, Czechoslovakia and the German Democratic Republic (GDR) were substantial net importers of grain over the entire period covered by the table. There appears to be no trend in the net import balance for Czechoslovakia while there is an upward trend for GDR. As will be noted later these two countries have limited amounts of arable land for the size of their populations. Their grain yields are relatively high and have increased significantly over the past two decades and are approaching those achieved in West Germany and France.

Poland is the source of a large part of the growth in net grain imports by the Eastern European CPEs; it has accounted for more than half of the grain imports during the 1970s. Poland is one of the two countries that has retained a large private agriculture sector consisting primarily of smallholders. The indexes of total agricultural production given in Table 2 show that Poland had the smallest increase in total agricultural production from 1961-65 to date of any of the CPEs. Further, the increase in per capita food production of less than 15 percent since 1961-65 has been much smaller in Poland than in any of the other countries, for all of Eastern Europe the increase in per capita food production has been about 35 percent.[7] Without the sharp increase in grain imports and other feed materials, the growth of

TABLE 7

NET GRAIN TRADE OF EASTERN EUROPEAN CENTRALLY PLANNED ECONOMIES, 1961-1980[a]

(1,000 metric tons)

Country	1956-60	1961-65	1966-70	1971-75	1976	1977	1978	1979	1980
Bulgaria	-43	-255	210	93	15	266	-226	-532	-125
Czechoslovakia	-1,656	-1,889	-1,764	-1,488	-1,989	-1,173	-900	-870	-1,960
GDR	-1,968	-1,908	-2,220	-2,834	-4,681	-2,443	-2,962	-2,482	-2,383
Hungary	-256	-533	23	601	1,440	721	446	719	250
Poland	-1,595	-2,663	-2,041	-3,140	-6,061	-5,732	-7,317	-6,783	-7,475
Romania	223	931	1,361	229	27	-100	729	-223	-359
Yugoslavia	-516	-904	21	-484	-395	-31	117	-1,202	-1,030
Eastern Europe	-5,811	-7,221	-4,410	-7,116	-11,659	-8,492	-10,163	-11,373	-13,082

Sources: Francis S. Urban, H. Christine Collins, James R. Hurst and Thomas A. Vankai, The Feed-Livestock Economy of Eastern Europe: Prospects to 1980, For. Agric. Econ. Rpt. No. 90, Econ. Res. Series, U.S.D.A., 1973, p. 101; Agricultural Situation: Review of 1979 and Outlook for 1980: Eastern Europe, Supp. 3 to WAS-21, ESCS, USDA, 1980, pp. 28-29.

[a]Data are for calendar years and thus differ from data in Table 6, which are for July-June years. A minus sign indicates net grain imports. The data are annual averages.

food production would have been even smaller. In 1979/80 grain use in Poland for both food and feed was 26.3 million tons; of this 7.6 million tons or almost 30 percent was imported.[8]

Some might argue that the relatively poor performance of Polish agriculture has been due to the persistence of the small private farms. I do not accept this view. I put primary emphasis upon the policies toward agriculture in general and toward the private sector in particular that have been followed by the Polish government. Yugoslavia, as indicated below in Table 8, has only a slightly larger fraction of its land in the socialized sector than does Poland, yet growth of food production in Yugoslavia has been well above the average for Eastern Europe. What Polish experience does indicate, however, is that a productive agriculture depends upon much more than the form of land ownership or whether the agriculture is private or socialized.[9]

Some Characteristics of Agriculture in the CPEs

A limited number of facts about the agriculture of the CPEs may help in understanding the problems of agriculture and food in these economies as well as to provide some basis for comparison among them. Table 8 gives some general data about the nine economies--land, population, labor force and GNP. Agriculture remains a significant employer of labor, utilizing approximately a third of the labor force in Poland, Yugoslavia and Romania and almost a fifth in the Soviet Union. In China it is probable that 65 percent of the labor force is in agriculture. The GDR has the lowest percentage of its labor force in agriculture at 10 percent. Eastern Europe has 0.4 hectare (about one acre) of arable land per capita; the Soviet Union has 0.9 hectare. China has but 0.13 hectare of arable land per capita,

TABLE 8

AGRICULTURAL DATA, POPULATION, LABOR FORCE AND GROSS NATIONAL PRODUCT, CENTRALLY PLANNED ECONOMIES, 1978

	Land		Socialized Agriculture Land	Population	Labor Force		GNP[a]	
	Agricultural	Arable			Total	Agriculture	Total	Per Capita
	(1,000 hectares)		(Percent)	(Millions)	(Millions)		(Billions)	($)
Eastern Europe								
Bulgaria	6,215	4,292	99	8.8	4.72	1.27	25	2,799
Czechoslovakia	6,952	5,246	94	15.1	7.57	1.12	71	4,673
GDR	6,282	5,040	94	16.8	8.86	0.86	81	4,834
Hungary	6,698	5,389	93	10.7	5.23	1.02	32	3,000
Poland	19,059	14,988	23	35.0	19.09	5,94	108	3,094
Romania	14,965	10,540	91	21.9	12.02	4.64	67	3,083
Yugoslavia	14,281	7,927	30	22.0	8.52	2.75	56	2,544
Total	74,452	53,422	--	130.3	66.01	17.60	440	3,385
Soviet Union	605,706	232,306	100	261.2	131.8	32.80	1,046	4,004
China	343,500	129,500	--	997.2	(460.0)	(300.0)	324	323
CPE Total	1,023,658	415,228	--	1,388.7	(657.8)	(341.4)	1,810	1,303

Sources: Supplements 1, 3, and 6 to World Agricultural Situation, WAS-21, Dec. 1979. Income data from Bureau of Public Affairs, U.S. Dept. of State, The Planetary Product: Progress Despite "the Blues" 1977-78, Spec. Rpt. No. 58, 1979. Chinese labor force figures are guestimates by the author.

[a]In 1978 U.S. dollars.

though a significant part of the land can be cropped more than once each year and nearly two-fifths of the arable land is irrigated.

Per capita gross national products range from a low of $323 for China to a high of $4,834 for the GDR. The average for the Eastern European economies is $3,400 while the USSR figure is $4,000.

Table 9 presents data on grain production and yields for five-year periods. Both production and yields increased significantly between the early 1960s and the late 1970s in each of the countries. The largest increase in yield was in Hungary, with a doubling. Poland had the smallest increase with 30 percent; Yugoslavia and the GDR had increases of about 40 percent. The USSR yield increased by 60 percent, approximately the average for Eastern Europe. For rough comparative purposes only, it may be noted that in the late 1970s the United States produced about one half as much grain as the CPEs and its yield was double that of the CPEs.

Table 10 shows the level of per capita meat consumption in the Centrally Planned Economies. The highest levels in 1979 were in the GDR and Czechoslovakia, with Poland and Hungary next. It is more than a little ironic that the Soviet Union is providing financial assistance to Poland to meet its trade deficit with the West. One of the alleged sources of the 1980 strikes and disturbances was the increase in the price of meat. However, there can be no doubt that a significant part of the trade deficit is due to the purchase of grain for feed. As Table 10 shows, the per capita meat consumption in Poland is significantly higher than in the Soviet Union. Soviet citizens would be somewhat more pleased with their food supply if per capita meat consumption were 72 kilograms per year, a level that will not be reached during the 1980s and perhaps not by the end of the century unless Soviet Agriculture's performance improves significantly over what it was during the 1970s.[10]

TABLE 9

GRAIN PRODUCTION AND YIELDS, CENTRALLY PLANNED ECONOMIES, SELECTED PERIODS, 1961 TO 1980

Country	Annual Output (million tons)				Average Yield (centners/hectare)			
	1961-65	1966-70	1971-75	1976-80	1961-65	1966-70	1971-75	1976-80
Bulgaria	4.7	6.2	7.5	7.7	19.7	28.1	33.1	34.8
Czechoslovakia	5.5	7.0	9.4	10.2	22.2	27.0	35.0	37.9
GDR	5.8	6.7	8.8	9.0	25.8	28.8	35.7	35.4
Hungary	6.7	8.2	11.5	12.4	21.0	26.5	35.0	42.1
Poland	15.0	16.8	21.2	19.7	17.2	19.9	25.1	25.1
Romania	10.9	12.7	14.0	18.9	16.1	19.5	24.1	29.8
Yugoslavia	10.3	12.9	14.5	15.5	19.3	25.2	29.9	34.9
Eastern Europe	59.0	70.5	87.9	93.4	18.9	23.2	28.2	32.0
USSR	130.3	167.6	181.5	204.9	10.2	13.7	14.7	16.0
China[a]	169.0	199.0	230.0	264.0	15.6	17.0	18.7	21.4
CPEs	358.3	437.1	499.4	562.3	13.4	16.2	18.0	20.0

Sources: Francis S. Urban, H. Christine Collins, James R. Horst and Thomas A. Vankai, The Feed-Livestock Economy of Eastern Europe: Prospects to 1980, Econ. Res. Service, U.S. Dept. of Agric., For. Agric. Econ. Rpt. No. 90, Oct. 1973, pp. 79-82; and Supplements 1, 3 and 6 to WAS-21, and Foreign Agricultural Service, U.S. Dept. of Agric., Foreign Agriculture Circular: Grains, FG-11-81, March 12, 1981.

[a]Chinese grain production data include paddy or rough rice and exclude tubers and legumes.

TABLE 10

PER CAPITA CONSUMPTION OF MEAT, CENTRALLY PLANNED ECONOMIES, 1965 TO 1979 AND PROJECTED FOR 1980

(Kilograms)

Country or Region	1965	1971	1975	1979	Ratio 1979/1965	Projected[a] 1980
Bulgaria	40	44	58	62	1.55	58
Czechoslovakia	62	74	81	84	1.35	80
GDR	59	68	78	87	1.47	78
Hungary	52	60	68	71	1.37	70
Poland	49	56	70	72	1.47	64
Romania	23[b]	29	46	52[c]	2.26	45
Yugoslavia	27	38	48	50	1.85	39
Eastern Europe	43	54	--	67	1.56	60
USSR[d]	41	50	57	56	1.37	--
China	--	--	--	10	--	--

Sources: Economic Research Service, U.S. Dept. of Agric., Agricultural Statistics of Eastern Europe and the Soviet Union 1950-70, ERS-Foreign 349, June 1973, pp. 100-06; Supplements 1, 3 and 6 to ESCS, U.S.D.A., World Agricultural Situation, WAS-21, Dec. 1979; and Francis S. Urban, H. Christine Collins, James R. Hurst and Thomas R. Vankai, The Feed-Livestock Economy of Eastern Europe: Prospects to 1980, For. Agric. Econ. Rpt. No. 90, ERS, U.S.D.A., 1973, pp. 28-29.

[a]As projected in early 1970s in The Feed-Livestock Economy of Eastern Europe: Prospects to 1980.

[b]Average for 1956-60.

[c]For 1977.

[d]Includes slaughter fats; deductions for slaughter fat may not be uniform for other countries.

Estimates are available for the percentage of consumption expenditures deboted to food for four of the CPEs--Yugoslavia, Poland, Hungary and the USSR for 1977.[11] In Yugoslavia 40 percent of all expenditures was devoted to food and nonalcoholic beverages, in Poland the percentage was 31, and in Hungary, 30. In Poland the percent of expenditures on food, all beverages (including alcohol) and tobacco was 45 percent. A similar percentage for the Soviet Union was 47 percent; if tobacco and alcoholic beverages are excluded, the percentage is 34. In Hungary, food plus nonalcoholic beverages accounted for 30 percent of private consumption expenditures.

The percentage of total consumption expenditures for food in Poland is approximately the same as for two Western European countries with similar per capita incomes. In Greece, 35 percent of consumer expenditures was for food; in Italy, 31 percent. Yugoslavia and Ireland had similar per capita incomes--the Irish allocated only 27 percent of their consumption expenditures to food.[12] The percentage of consumption expenditures on food in the Soviet Union is clearly very high compared to countries with comparable per capita incomes. At most, with the per capita income of the Soviet Union, it should be expected that less than 30 percent of consumption expenditures should go for food and nonalcoholic beverages.

It is worth noting that the data on consumption expenditures exclude the large subsidies paid on food products in Poland and the Soviet Union and, to a lesser degree, in Hungary. Thus the real social costs of food are greater than indicated by expenditures on food as a percentage of consumer expenditures. Later we shall present data on the size of the subsidies, though it is not out of place to note that such subsidies amount to as much as a third to a half of consumer expenditures on food in the Soviet Union and Poland.

The amounts of food consumed in Eastern Europe and the USSR are fully adequate to meet nutritional requirements.[13] Nor is the consumption of animal products strikingly low, a fact shown by Table 10. The Chinese, of course, have a much lower intake of animal protein than European countries. But, it should be noted, a high intake of animal protein is not required for an adequate diet.

Horses and Tractors

Earlier I quite categorically stated that I did not agree that it was the continued existence of a large private sector in Polish agriculture, with its large number of small farms, that was responsible for the recent rather poor performance of Polish agriculture. This poor performance was reflected in the low growth rate of output since 1961-65 and the importation of 30 percent of grain used. Polish agricultura output grew at an annual rate of 1.6 percent from 1961-65 to 1979 compared to 3.0 percent for the six other Eastern European countries. Since Yugoslavia's agricultural output growth rate was 3.0 percent for the period, the source of the Polish problem had to be more than its reliance upon private agriculture for approximately three-fourths of its farm output.

However, there may be some relationship between grain imports and the interaction between small private farms and Polish agricultural policy, broadly defined. Polish agriculture retains a large number of horses. In 1977 there remained 2 million horses in Poland, or 133 horses per 1,000 hectares of arable land. Hungary had but 26 horses per 1,000 hectares. Yugoslavia had 95 horses per 1,000 hectares.[14] The 2 million Polish horses may have consumed about 1.6 million tons of grain.[15] This amount compares to the 7.6 million tons of grain imported in 1979/80. The nearly 800 thousand

horses in Yugoslavia might consume about 450 thousand tons of grain. The potential irony of the large number of horses in Poland is that Poland has more tractors per thousand hectares of arable land than any of the other Eastern European countries, except Yugoslavia and the Soviet Union.

There can be several explanations for the retention of such a large number of horses in Poland. One is that governmental policy has resulted in few tractors being produced of the appropriate size for the small private farms. Instead the government has tried to force most farms to obtain their tractor power from machine tractor stations. The other is that the farmers, or at least many of them, simply do not accept the government and its agencies as reliable suppliers of power for their farms. In terms of 15 horsepower units, the socialized sector of Polisy agriculture has 55 percent of all tractors even though it has but 25 percent of the arable land. The long-run objective of the Polish government is to achieve a socialized agriculture; this may well be the major impediment to efficient use of agricultural resources when the private sector still produces approximately three-fourths of total output.

A reasonably full explanation of the limited performance of Polish agriculture is not possible in a brief space. But some further points may be worth noting. Poland's policy towards agriculture has vacillated. At times policy measures to improve the performance have been adopted, including increasing the amount of farm inputs, raising the level of investment and increasing the prices paid to farmers. Yet governmental officials at the same time they reiterate the commitment to the maintenance of private agriculture also point to the socialization of agriculture as the ultimate policy goal. Farmers are thus skeptical of the credibility of official statements that private agriculture will be maintained indefinitely. One

result of this skepticism is the effect upon private investment in agriculture.

Farmers have had other dissatisfactions. There is opposition to compulsory deliveries of farm products. Some inputs, such as coal, are made available to the private farms on terms that depend on meeting targets for selling output to the state. When an important input is controlled in this way, the authority of local officials over individuals is significantly enhanced.

The quality, quantities and reliability of input supply to agriculture leaves a great deal to be desired and this is true of both the private and socialized agricultures. It has been stated, for example, that a quarter of the tractor fleet is idled at any one time for the lack of spare parts.

Causes of Growing Dependence

In the introduction I noted that three factors may explain the increasing dependence of the CPEs upon the rest of the world for grain and feed. These three factors were: First, the high income elasticities of demand for meat and other livestock products; second, food price policies that hold retail prices of food below cost, and, third, a reduction in the rate of growth of agricultural output, especially in the Soviet Union, during the second half of the 1970s.

As indicated in Tables 5, 6 and 7, the increasing dependence upon the rest of the world for food has not been uniform among the Centrally Planned Economies. In fact, almost all of the increase in grain imports has been due to four countries--the Soviet Union, Poland, GDR and China. These four countries account for all but 2 million tons of the increase in net grain imports between the early 1960s and the late 1970s.

While four countries are responsible for most of the increase in net grain imports, the relative importance of the three factors differ significantly among them. In fact, the primary reason for the increased dependence of Eastern Europe upon grain imports has been the very rapid growth of meat consumption during the 1970s, while the Soviet Union achieved only a very modest increase in per capita meat consumption (none during the last half of the 1970s). The primary cause of increased grain imports by the Soviet Union has been slow growth of grain production and other feed supplies.

Eastern Europe

Table 10 depicts the very rapid growth of meat consumption in each of the Eastern European countries from 1965 through 1979. The increases in per capita meat consumption in Poland and the GDR of 23 and 28 kilograms, respectively, were very large indeed. The increases were more than 47 percent for both countries. For all of the Eastern European countries per capita meat consumption increased by 24 kilograms or 56 percent. This was a remarkable increase in consumption and was derived solely from the expansion of domestic meat production since net exports of meat in 1978 (and for the last half of the 1970s) were slightly larger than during the mid-1960s.

It is true, of course, that some of the feed required to expand meat production at such a striking pace was imported. And it has been the larger than anticipated growth in meat production and the grain required to produce that meat that has been a primary source of the increased imports of grain. In saying that the growth of meat consumption has been greater than anticipated, I rely upon the competent study undertaken by economists in the Economic Research Service of the U.S. Department of Agriculture--The Feed-Livestock Economy of Eastern Europe: Prospects to 1980.[16] The study was published in late 1973 and made projections of per capita meat, milk and

egg consumption, livestock production and feed requirements for 1975 and 1980. Projections were also made of uses of grain other than feed. The last column in Table 10 gives the projected per capita meat consumption for 1980. Actual consumption of meat in 1979 exceeded the projected consumption for each of the seven Eastern European countries. The difference between the actual and the projected consumption for the Eastern European economies as a group was 7.2 kilograms or 12 percent.

If estimates of feed requirements for livestock products in the U.S.D.A. study are used to estimate the amount of grain required to produce the difference between actual and projected meat consumption, the amount would be approximately 4.7 million tons of grain. Milk output in 1979 was slightly less than the projected output while egg output exceeded the projected level. The net effect of these two differences between actual and projected outputs was an additional grain use requirement of approximately 1 million tons. Thus livestock output in excess of projected 1980 levels required approximately 5.7 million tons of grain.

In the U.S.D.A. study the 1980 projected level of grain imports was 3 million tons. Actual grain imports for 1980 were 13 million tons or 10 million tons greater than projected. The projection for grain production for 1980 was 94.3 million tons. The average level of grain production for 1978 and 1979, the two crops that supplied the feed for the 1979 production of meat and livestock products, was--surprisingly--94.2 million tons. Thus the increased grain imports were not due to a grain production shortfall. In the study, 1980 grain use as feed was projected to be 62 million tons. Actual use in 1979/80 was 72 million tons or 10 million tons in excess of the projected level.

Consequently we can conclude that the substantial growth in imports

of grain in Eastern Europe resulted largely from rapid growth of livestock output. The latter source was quite small, both absolutely and relatively. It would appear that the increased grain use per unit of livestock output amounted to but 4 million tons or only a little more than 4 percent of actual grain use for feed.

The other important component of concentrated feed consists of oilseeds. The projections of both use and net imports were uncannily close to actual use in 1979. Thus differences in oilmeal availability did not affect the use of grain for livestock feed.

The projected levels of meat production and consumption for 1980 were reasonable. In the U.S.D.A. study there appeared to be two offsetting errors that influenced meat consumption. One was an overestimate of the growth of per capita real incomes; the other was an apparent underestimate of the income elasticities of demand. Since per capita incomes did increase, these two projection errors had offsetting effects. As is true of most such projections, it was assumed that the relative prices of livestock products would remain unchanged during the period. This was clearly not the case. In most, if not all, of the Eastern European CPEs the prices of meat and other livestock products were either unchanged during the 1970s or increased at a slower rate than the prices of other consumer goods.

I wish it were possible clearly to show how far prices of meat, milk and eggs have been permitted to decline in real terms or relative to all other consumer prices. Much of the information required for such an exercise is not readily available. However, it is possible to provide some insights.

The data on consumer prices in Table 4 indicate significant increases in consumer prices generally during the 1960s and 1970s. The indexes in the

table are not the official price indexes but have been independently estimated. During the 1960s consumer prices in the GDR increased by 15 percent; there was no increase between 1960 and 1970 in the prices of beef, pork, mutton, milk or eggs or, for that matter, in bread or flour. In the 1970s there was a further increase in consumer prices of 10 percent with no significant change in the retail prices of livestock products. While consumer prices of food have been held approximately stable, prices paid to the farms were increased from the mid-1950s to the mid-1970s at an annual rate of more than 2 percent As a result subsidies were required to cover the differences between the prices paid to farmers plus transportation, processing and marketing costs and the retail prices. One estimate indicated that in 1972 retail food prices in the GDR were 23 percent lower than they would have been without government subsidy. By the end of the 1970s subsidies grew further both absolutely and relative to retail prices. The 1979 budget for the GDR included 7.7 billion marks of subsidies for foodstuffs; during the same year the state's expenditure on all education amounted to 9.7 billion marks. At the end of the 1970s one-tenth of the national income was used to subsidize the same percentage as during the mid-1970s.[17]

Hungary has been one of the Eastern European countries that has been willing (and able) to increase food prices. In mid-1979 consumer prices of food were increased by 20 percent, including a 30 percent increase for meats and 50 percent for bread prices. Foodprices had also been increased significantly in 1976, with meats increasing by a third. As a result of the mid-1979 consumer price increases the price subsidy was reduced for a number of food products. One report indicates that the subsidy rate for pork fat declined from 38 to 11 percent; for cow's milk, from 57 to 38 percent; for sugar, from 24 to 13 percent; and one-kilogram loafs of white bread from 42

to 8 percent. However, the subsidy on pork meat increased from 16 to 28 percent.[18]

However, even with the price readjustments that occurred in 1979 and in 1981, the Hungarian Minister of Finance in presenting the 1981 national budget in December 1980 noted that budget expenditures "in the form of consumer price subsidy will be 10 percent, that is 7 thousand million forints more next year."[19] This indicates that consumer subsidies would cost 77 billion forints in 1981 or 16 percent of the entire budget. Not all of these subsidies are for food, though an OECD report indicates that in 1976 food subsidies alone amounted to 45 billion forints or 10 percent of the budget.[20]

I have only limited information on food price subsidies in Bulgaria. Bulgaria increased food prices by large percentages in November 1979--meat and eggs by 30 percent; processed meat by 40 percent; milk, cheese, rice and flour prices were increased by similar percentages. Butter prices were doubled.[21] These increases were the first since 1956 for bread and the first since 1968 for meat, milk and sugar. Since there had been increases in the prices paid to farms for cattle, hogs and milk, subsidies were required during the 1970s prior to the sharp increase in consumer prices. Vankai in 1978 described the situation as follows: "Consumer prices of staple foods are fixed independently of producer prices and remained stable with the help of subsidies."[22]

At the beginning of 1981 purchase prices of many agricultural products were increased substantially in Bulgaria. Some examples are, in percent: wheat, 40; corn, 4; sugar beets, 15; cow's milk, 14.5; beef, 15; wool, 63; and poultry, 5.5. The cost of the increase in purchase prices will be paid from budget funds, costing approximately 3 percent of planned

budget for 1981.[23] However, retail prices were not increased and food subsidies were increased.

We know even less about the food subsidy situation in Romania than in Bulgaria. It is quite possible that there were no significant food subsidies prior to 1981. Retail price increases and shortages were reported to have resulted in labor unrest in 1980. Retail price increases that had been announced for 1981 were not put into effect. As a result, the cost of the increased farm procurement prices has been met from budget funds; it had been planned that the increased farm prices would be covered by higher retail prices.[24]

Czechoslovakia has had and continues to have a major programtof food price subsidies. In addition to direct consumer price subsidies, subsidies are paid on agricultural inputs. For example, subsidies equal 13.5 percent of the wholesale prices of mixed feeds and 16 percent of the wholesale prices of chemical fertilizers. Milk and slaughter cattle subsidies were increased significantly in 1977 and again in 1979. For this group of products (presumably milk and beef only), subsidy expensitures increased by 16 percent or 3.8 billion korunas as a result of changes made in 1979. This indicates that the total subsidy had grown to over 27 billion korunas.[25] How much is a koruna worth? Its value is probably less than 10 cents and more than 6 cents. Thus the cost of the subsidy might be about $2 billion. This is approximately $130 per capita, a not insignificant figure. Vankai reports that in 1977 the price subsidies for food accounted for "about one-fourth of the retail prices of meat, bread, and sugar."[26]

Yugoslavia has made little use of subsidies for agriculture and food. At times fertilizer has been subsidized, but such subsidies were supposed to have been removed in 1980. Price controls have been imposed on major

agricultural products, but prices of farm products appear to have increased roughly in line with general price increases.[27]

The description of food price subsidies in Poland has been left to the last. This was done, in part, because Poland has been the major factor in the increased grain imports by the Eastern European CPEs. Further, we know rather more about the Polish subsidies than we do for other countries.

Poland increased food prices in 1970, but most of the increases were rescinded. Otherwise retail prices of livestock products in the state stores in 1979 were little changed from the 1960 prices. Yet between 1960 and 1979 all consumer prices had more than doubled. Since food prices in the state stores had changed little during the period, the official retail prices of livestock products relative to all goods and services declined significantly, perhaps by as much as 50 percent. Of course, the supplies of meat in the state stores did not meet demand at the official prices. Following the aborted attempt to increase meat and other food prices in 1976, the Polish government opened a significant number of "commercial shops" where meat and meat products of better than average quality were available at prices significantly higher than in the state stores. In 1979 approximately one-seventh of the market meat supplies were sold in the commercial stores at prices approximately double those in the state stores.[28]

In 1980 the direct consumer price subsidy for meat cost 67 billion zlotys. However, in 1979 it was estimated that total meat and poultry subsidies, including subsidies for livestock feed, amounted to 91.4 billion zlotys. In 1971 such subsidies totaled just 12.3 billion zlotys and were estimated to cost 100 billion in 1980. The 91.4 billion zloty cost equaled 11.2 percent of the wages fund.

The direct meat subsidies account for less than half of total food

subsidies. In 1980 total food subsidies were 144 billion zlotys; additional subsidies to farmers for feed, fertilizer and seeds equaled 28 billion zlotys. In the 1981 budget food subsidies were increased by 40 percent over the 1980 level to 228 billion.[29]

In 1979 the government price subsidy (excluding subsidies paid to farmers) averaged 34.40 zlotys per kilogram; the average price of meat sold in the state stores at about 48 zlotys. Thus the subsidy amounted to more than 70 percent of the retail price or, put another way, the retail price was less than 60 percent of the cost of producing, processing, transporting and selling the meat. If the subsidies paid directly to the farmers were included, the subsidy per kilogram of meat equaled the retail price of meat.[30]

Given that meat supplies were available, it is hardly surprising that per capita meat consumption in Poland increased by 40 percent during the 1970s. The prices of meat products have been held at exceedingly low levels. Using the tourist exchange rate for the zloty of 31 per dollar, which is at least double the black market rate, the price of pork at retail in 1980 was $1.80 per kilogram or about $0.80 per pound. The beef retail price in the state stores for the same year, was $0.97 per kilogram or $0.44 per pound.[31]

In 1980 procurement prices for livestock products were increased and it was assumed that retail prices would be increased to cover all or part of the increase. However, taking all factors into account, the price subsidies for 1981 had to be increased significantly from the 1980 and earlier levels. The subsidies, in zlotys per kilogram, for 1981 are: pork, 53; beef, 48; butter, 101; sugar, 15.5; and flour, 7.3.[32]

One part of the summer 1980 agreement between the government and the labor groups was that the commercial stores would be closed or that the

pricesprices in these stores would be the same as in the state stores. In a press conference held December 5, 1980 it was stated that the retail trade would sell 1.1 million tons of meat at an average price of 55 zlotys per kilogram. A system of rationing was announced for the first of February but later postponed until April, indicating that even at the higher prices imposed, the available supply would fall short of the demand. An average price of 55 zlotys per kilogram is a low price by comparison with prices in other countries. Using the tourist exchange rate, which certainly overvalues the zloty relative to the dollar, the meat price is $1.77 per kilogram ($0.81 per pound). Given this average price and the price subsidies indicated in the previous paragraph, in 1981 the meat price subsidies equal the retail price. In other words, the consumer is paying approximately half of the actual costs incurred in bringing the meat to the retail store.[33]

The Polish meat price subsidies have resulted in shortages in the stores and, finally, rationing. The substantial expansion in per capita meat consumption in the 1970s of 20 kilograms was based upon increased imports of feed. As one Polish writer put it: "The balance sheet of the imports of grain, fodders and meat and of exports of livestock and meat is worsening from year to year. During 1970-79 the imports of grain and fodders increased three-fold in terms of volume and five-fold in terms of value. A steadily increasing part of meat consumption is based upon imported fodders. It has been calculated that last year about 1.1 million tons of meat (including fat), i.e., about 27 kg. of meat and 3.5 kg. of fat per capita, was produced from imported raw materials. To simplify the argument, it may be said thateveryone of us bought 27 kg. of meat abroad."[34]

Is there some important social purpose being served by these price subsidies? Two brief quotations indicate that at least some individuals

have been unable to determine the existence of substantial benefits:[35]

> "Without risking to make an error, one may state that out of that 91.4 billion zl a lion's share were subsidies for the benefit of people in higher income brackets because the more affluent buy more meat. . . . The meat subsidies system and the extensive pumping of money into the meat market, creates a barrier to wage increases and necessitates the keeping of prices of products other than food at a relatively high level. Every wage increase, given the present price structure, increases the stresses on the market."

> "I have already had occasion to tell the House the view that the problem of subsidies, despite their social motivation, arouses numerous controversies and reservations as regards their desirability as a form of social insurance. It is well known that they apply to all citizens, and thus the view that both those who earn more as well as those who earn less benefit from them, and perhaps those earning more benefit more, is correct. That is why we must not ignore the matter, but must search for methods which, while enabling us fully to guarantee incomes for lower and medium earners, will at the same time enable us to shape a more just distribution of goods among the nation."

The meat and food price subsidies in Poland represent an additional confirmation of Director's Law that most actions of governments are for the benefit of the middle class majority and at the expense of the poor and the rich. Farmers receive less direct benefit than urban workers with the same real incomes because much of their consumption is derived from their own production. Further, low income urban families derive less absolute benefit because they spend less on food than do higher income consumers. Yet it is exceptionally difficult to abolish the subsidy system or to modify it to significantly reduce its great cost. The adverse economic effects are enormous, including major distortions in resource allocation and contributions to increased inequality in the distribution of income.

There are a number of ways in which the price subsidies distort resource use. But perhaps the most important is that the subsidies have resulted in excess imports of grain and other feeds and the products derived from these materials are sold at prices that cover no more than half of the foreign exchange expenditures incurred. Thus a considerable part of

the very large Polish foreign exchange debt can be attributed to holding the price of meat at too low a level. If meat and milk prices to consumers had covered the costs of producing these products over the past decade, grain and feed imports by Poland would have increased little, if at all, and the hard currency debt could have been much smaller than it now is.

The summary of meat and food price subsidies reveals that more than 85 million of the 130 million population of Eastern Europe pay significantly less for meat, milk, eggs and numerous other foods than what it actually costs to bring these products to and through the retail outlets. Only Romania and Yugoslavia have not engaged in major food subsidies. And the food subsidies can only be described as major, ranging from approximately a quarter to as much as half of the total retail value of food. And for meat, a product with high income and price elasticities of demand, some of the subsidies have been equal to the retail prices of the subsidized products.

The growth of agricultural output in Eastern Europe has been at a satisfactory pace since 1960. Output growth was slowest in Poland, with no growth in production after 1973. It was quite unfortunate that the country with the slowest output growth was also the one with the largest subsidies for livestock products. And it has been the rapid growth in consumption of livestock products that has resulted in the increase in grain imports of 10 million tons during the 1970s by the Eastern European economies.

I conclude that primary responsibility for the large grain imports and much of the foreign currency debt of Eastern European CPEs has been due to agricultural and food price policies. In Poland it is not only that

food has been subsidized, but the continuing uncertainty about the future of private agriculture and the failure to provide adequate and appropriate inputs have extracted a high price in foregone opportunities.

Soviet Union

Of the approximately 50 million ton net increase in grain imports by the CPEs during the 1970s, the Soviet Union accounted for 35 million tons. Since this comparison is based on two years (1979 and 1980) when the Soviet Union had poor grain crops, a more appropriate comparison might be for a five-year period starting with 1976/77. If the most recent five years are used, the increase in net grain imports by the CPEs is reduced to 35 million tons. However, the Soviet Union was responsible for 24 million tons of the increase or 70 percent, the same percentage as above.

There can be little doubt that the demand for meat and other livestock products increased significantly during the 1970s. During the decade annual per capita growth in real GNP was approximately 3 percent. True, this was substantially below the 4 percent growth achieved during the 1960s, but even with the slower growth in real gross GNP, the per capita demand for meat increased by as much as 2 percent annually. Population growth of almost 1 percent per annum added to the demand. But demand growth is not the same as consumption growth.

A very important difference between the Soviet Union and the seven Eastern European economies is that the Soviet Union was not able to significantly increase meat output, and thus meat consumption, during the 1970s while the seven countries increased their per capita consumption by about a fourth. Per capita meat consumption in 1980 in the Soviet Union was no more than 55 kilograms; this was the same as the 1974 figure and the lowest

since that year. Per capita consumption in 1971 was 50 kilograms. Thus a decade of heavy investment in fertilizer and large imports of feeding materials achieved but a 10 percent increase in per capita consumption.

In passing, it may be noted that the Soviet per capita consumption refers to meat and fat while the figures that have been presented for Eastern Europe exclude the slaughter fats. Thus compared to per capita meat consumption in the Eastern European CPEs the Soviet consumption figures are overestimated by at least 10 percent and perhaps by as much as 20 percent.[36]

The Soviet Union has a large and growing subsidy program for meat, milk and certain other food products. As noted earlier, the total cost of the subsidy is probably now of the order of 30 billion rubles. The magnitude of these subsidies is indicated by the following quotation from a major Soviet journal:[37] "In the USSR the state's outlay for the production, processing and sale of products were in the mid-seventies double the retail prices for beef, 1.4-fold higher for mutton, 1.3-fold higher for pork, 1.4-fold higher for butter and 1.3-fold higher for potatoes." Since the prices of milk and potatoes were increased at the beginning of 1979 by 15 percent and 32 percent, respectively, with a simultaneous commitment not to increase the retail prices of these products, the total subsidy for food products was increased by 3.2 billion rubles annually. In 1981 there has been a further increase in farm prices and an increase in annual subsidies of 4 billion rubles.

As I noted earlier, a Russian acauaintance informed me that in the mid-1960s it was anticipated that the meat and milk subsidies would be temporary in nature. It is interesting to note that there remains, as of early 1980, a similar view that the current high subsidy rates can be

gradually reduced and eventually eliminated. These sentences followed the quote above:

> "To a greater or lesser degree a similar picture is observed for all practical purposes in the other European CEMA countries as well. For instance, in 1975 subsidies in Poland covered 25 percent of the value of agricultural production. In order to raise the rate of profit of agricultural production, in 1978 the state allocated 60 percent more subsidies than in 1975. But in the future, as industrialization of agriculture is completed and as costs drop in the various branches of animal husbandry, this type of subsidy is to decrease or disappear altogether. This conclusion is specifically confirmed by development of industrial-type poultry raising in the CEMA countries, where production has been doing without subsidies for a long time now. Moreover, in a number of countries--the GDR and Czechoslovakia, for example--purchase prices for eggs and broilers have dropped somewhat in recent years."

The assumption and hope that the cost trends for livestock generally will follow those exhibited by poultry during the past two or three decades have little foundation. The countries that contributed the management and technology required for the sharp reductions in the real cost of poultry products have not realized significant reductions in the real costs of producing pork and beef. Nor does it seem likely that such will happen. It will not be easy to keep real costs from increasing for livestock products other than poultry and eggs. Consequently, there is no basis for officials in the CEMA countries to assume that all they have to do is wait until declining supply prices for beef, pork and milk make it possible to retain current retail prices without the use of price subsidies. The wait will be a very long one at best. Unless retail prices are increased, the cost of the subsidies will increase. In fact, one can say with a high degree of certainty that the only way the cost of subsidies can be held constant or reduced will be by increasing retail prices of subsidized products.

The poor output performance of Soviet livestock farms during the

Tenth Plan is inexplicable, at least to me. The Tenth Plan covered 1976-80. Compared to the Ninth Plan meat production and milk production increased just 6 percent. Egg production did increase by 22 percent but overall livestock output increased no more than 7 to 8 percent. While grain production did not increase as much as indicated by the Tenth Plan goals, it did increase by 13 percent over the average for the Ninth Plan period. With the very large increase in grain imports, it is reasonable to estimate that grain fed to livestock during the Tenth Plan was up 22 percent over the previous plan.[38] How can it be that there was such a small increase in livestock output? One possibility is that other sources of feed --hay, green feed, silage, straw, pasture--did not increase during the five years and may have even decreased in quantity and quality. But even if this were factually correct one is left to inquire why there was no increase in the other types of feed.

But 2hatever the reasons for the poor performance of the livestock sector, there can be no denying that performance. This poor performance plus the meat and milk price policy has induced the Soviet government to import large and growing quantities of grain. The 1980 grain crop brought no relief. The 1979 grain crop was the smallest since 1974; the 1980 grain crop was only a little larger and apparently of significantly lower quality due to wet weather during the harvest of much of the spring sown grain. In addition to the poor grain crop, the potato crop (which is an important source of feed as well as food) was the smallest in nearly three decades and more than a quarter below the 1979 crop. For the second year in a row there was a poor sunflower crop; the 1980 output of sunflowers was only 60 percent of the 1980 goal.[39] Sunflowers are a significant source of high protein feed for livestock; a short crop results in a deterioration

in the quality of livestock rations or requires significant increases in imports of oilmeals or oilseeds.

China

During the 1950s China imported no grain. As indicated in Table 6 China became a net importer in the 1960s, with net imports ranging from a low of 3.1 million tons in 1969 to a high of 5.4 million tons in 1964. The early 1970s saw a slight downward trend in grain imports, with a low of 1.2 million tons of net imports in 1976. But since then net grain imports have increased rapidly, reaching 13.5 million tons in the 1980/81 marketing year.

The significant increase in grain imports in 1980/81 may have been due to a 1980 grain crop that was perhaps 12 million tons smaller than the record 1979 crop. However, China has entered into a significant number of bilateral commitments with major grain exporters for periods that extend beyond 1980/81. The Foreign Agricultural Service of the U.S. Department of Agriculture has summarized the bilateral agreements and concludes: ". . . commitments under these agreements imply annual import requirements of 12.3 to 17.2 million tons, 1 to 6 million tons greater than the previous record."[40] The previous record level of grain imports had been gross imports of 11 million tons in 1978/79.

Why has China so substantially increased grain imports? Though there is some ambiguity about grain production data for China due to recent revisions in such data, the growth of grain production during the last decade has been at a reasonable rate and, in any case, at least as high as the apprent long-term growth rate of approximately 2.5 percent annually. If one accepts the recently revised data for 1978-80, the growth rate for grain production since 1969-71 has been approximately 3 percent.[41] The

apparent reason for increased grain imports must be found elsewhere than a slowing of the rate of grain production growth in recent years.

It is my conclusion that the growth of grain imports has resulted primarily from policy changes and not from any reduction in the rate of growth of agricultural output in recent years compared to the rate since the mid-1950s. The policy changes that directly affected import demands were the following:[42]

1. A significant increase in prices paid for agricultural products, estimated to cost 7.8 billion yuan, and some tax reductions that increased the incomes of communes. The effects of these and related changes, along with an increase in agricultural output, was to increase the per capita income from communes (including food received in kind) by almost 13 percent. The average price paid to farms in 1979 was 22 percent higher than in 1978.

2. Wages in state-run enterprises were increased significantly during 1979--by more than 9 percent.

3. The growth of grain procurements, largely used to supply the cities, appears to have slowed in 1979 and presumably in later years. In part this was due to the reduction of the agricultural tax, which was collected in grain and in 1979 was reduced by 2.4 million tons.

4. When farm purchase prices were increased in 1979, the consumer prices for grains and edible oils were not increased. While the prices of other food products were increased by about 30 percent, a five yuan per month subsidy was paid to most urban workers. Consequently the price of grain at retail fell significantly relative to other food products and worker incomes. The effect was to increase the desired consumption levels of grain.

The effects of these and some other changes was that there was a budget deficit in 1979 of about 10 billion yuan or approximately 9 percent of domestic budget revenues. In the 1980 budget it was estimated that "a wide variety of price subsidies to offset prices increases . . . will exceed 20 billion yuan in 1980."[43] Of this total, about 12 billion yuan was for consumer subsidies, mainly food products. Another 5 billion yuan was to cover the cost of the above quota purchase prices for agricultural

products; generally sales to the state in excess of required deliveries are paid at a price 50 percent in excess of the basic price. Finally, approximately 3 billion yuan was to be spent to provide preferential prices for agricultural inputs such as fertilizer and machinery. The subsidies listed above relate primarily to agriculture; the only specific exception appears to be coal. There are many other subsidies, for house rent and transport, which it was said wogld make the total subsidy figure much bigger. The actual outcome for 1980 with respect to these subsidies is not known as of the time of writing. In 1979 such subsidies turned out to be larger than anticipated.

In last year's article in this series I devoted several paragraphs to a review of generally officially disclosed information concerning the recent food situation in China.[44] To summarize briefly, per capita grain production had not increased between 1955 and 1977. Official reports indicated that peasants, except in better areas, had a hard life throughout the year. It was indicated that in a province not far from Shanghai that "there are many people in the villages who have not enough to eat or enough clothing to keep them warm." A high Chinese official reported in 1979 that 10 percent of the Chinese population did not have enough to eat.

There is substantial evidence that famine has not been eliminated in China. On a visit to China in late 1980 reports of a famine in Anhwei Province in 1976 were verified by reliable informants. Information that I have received since writing last year's article, if anything, substantiates an even starker picture than was presented then. An article in the People's Daily in late 1978 reported that living standards in Northwest China, including Gansu Province, "are lower than those in pre-liberation days or the time of the war of resistance with Japan." Fox Butterfield, writing in the

New York Times, reported that in 1976 communes in Gansu Province distributed only 354 pounds of grain per capita and that, given the heavy reliance upon grains for calories (perhaps 80 to 90 percent), this was probably a hunger diet. The poorest production teams in the Province were said to have earned about $20 per year in 1976. Since 1976 grain distribution had increased to 500 pounds, a level providing for more than adequate calories and some excess for livestock feed.[45]

The Economist of April 4, 1981 carried the quite surprising story that the United Nations appealed for $700 million of disaster relief to assist China to provide food and other types of relief for 20 million people. Hebei Province was said to have suffered the worst drought in 26 years and Hubei Province the worst flood in 37 years. It was also reported that five other northern provinces had been adversely affected by drought. The flood damage in Hubei Province was extensive, presumably as many as 200,000 homes were destroyed. While much of the relief was sought to help repair broken dikes and repair other flood damage, food relief was also requested. The Economist stated: "But (food) relief is being provided only in areas where more than 50 percent of the harvest was destroyed; this leaves some 100m(illion) other Chinese victims to fend for themselves."[46]

Given the food situation as it has been and is, it is not too surprising that the Chinese officials who succeeded Mao and the Gang of Four should make a serious effort to improve food supplies for a large fraction of the population. In addition, the unwillingness to pass on farm price increases for grains and edible oils as well as the introduction of the monthly subsidy to meet the costs of other food price increses indicate that governmental officials are seriously concerned about the support of populations in large urban centers.

Yet there is no doubt that urban incomes are much higher than rural incomes, almost certainly by a factor of more than two. The results of a recent survey of urban and rural incomes has been released. It shows an annual per capita income in urban areas of 392 yuan and 160 yuan for the rural population.[47] These data refer to income from all sources, including home consumption and private subsidiary production.

The purchasing power of a yuan for urban and rural areas should not differ significantly. Urban workers pay very little for housing and transportation and the subsidized retail prices of grains are no higher than the prices received by the farms and the prices that are probably used to value food products consumed in the farm households. Since commune members must pay most if not all of the costs of their housing, rural families may well spend more on housing than urban families.

But even if some adjustment to urban income is requied to achieve comparability to rural purchasing power of income, it remains true that urban real incomes are substantially higher than farm incomes. Thus the use of food price subsidies, available to all urban consumers but not to farm people, cannot be justified on the basis of the relatively low incomes of urban consumers. Urban consumers could have paid the full costs of the increases in farm prices and still had real incomes substantially higher than those of the farm people who produced the food. But the same pattern of using food subsidies to benefit higher income urban consumers prevails in almost all of the CPEs.

It should not be too surprising that the various measures adopted by the Chinese government in 1979 should have resulted in a significant growth in the demand for food. This is true in the urban areas given the subsidized food prices, even with rationing of major food items, both

because of some increase in ration allowances and a probable increase in the percentage of the ration allowance purchased with higher incomes, including the special subsidy as well as wage increases. Given the modest food consumption levels of large numbers of farm people, higher farm incomes have certainly resulted in increased per capita consumption of all foods. It appears that the percentage of grain output procured by the state has declined in recent years, the response that one would expect if the steps to increase rural incomes were carried out. Most of the grain imports are consumed in the cities, presumably to minimize transport and distribution costs. It has been estimated that grain imports now provide for 40 percent of grain consumption in the cities.[48]

The significance of the food price policy of China to the rest of the world rests to a considerable degree upon the fact that China consumes about a fifth of the world's grain supply. Rather modest shortfalls in supply in China, if met by increased grain impdts, can have a major impact upon world grain imports. Chinese net grain imports in 1980/81 were 13.5 million tons; this is only 4.5 percent of probable grain use during the year. If demand for grain, due to low prices and money income growth, should increase at a rate just 1 percent per annum faster than supply, Chinese grain imports would increase by approximately 3 million tons annually, or more than 30 million tons in a decade to a level of more than 45 million tons. Even if the difference in annual demand and supply growth rates were as small as 0.5 percent, in a decade grain imports would be 30 million tons or double the 1980/81 level of gross grain imports.[49]

The Chinese government is currently following food price, subsidy and income policies that it believes are best suited to its current

situation. But these policies will most certainly result in a growing dependence of China upon grain imports. Whether such an outcome will be feasible depends upon the Chinese capacity to provide the foreign exchange to purchase increasing quantities of grain and the availability of supplies at prices China is willing and able to pay. So far, or at least through 1979, China has had a small positive balance in its agricultural trade even though it has run a deficit in its total trade since 1977.

Food and Agricultural Subsidies in the Market Economies

I do not want to leave the impression that food and agricultural subsidies are a monopoly of the Centrally Planned Economies. There are some market economies with subsidies for particular commodities that are even higher than the subsidies in the CPEs. Japan, for example, pays its farmers prices for rice and wheat that are three to four times the prices charged to the first processor of these products. In recent years the agricultural subsidies of the European Community have equaled approximately an eighth of the value of EEC farm production. In 1978 farm production was valued at 96 billion units of account and the farm fund spending was 11.5 billion units of account.[50] In addition the various member states of the Community spent substantial amounts in agricultural subsidies.

The budget costs of farm price and income support programs in the United States have ranged from $3 billion to $5 billion in the latter 1970s. In addition, food stamps, school lunch programs and nutrition programs targeted for children and mothers have involved expenditures of $15 billion annually in recent years.

A number of developing countries subsidize the consumer prices of one or more food products. Egypt, for example, has priced wheat to the

processors at about a third of the world market price in recent years. Ecuador, Brazil, Iran, Mexico, Peru, Korea, and Taiwan sell wheat to processors at prices significantly below either import prices or the prices paid to their own farmers.[51]

However, the aggregate effects of the subsidy policies of the market economies upon the average level of world grain prices have been relatively small. While some of the market economies have price followed policies that have encouraged a higher rate of food consumption than if internal prices had been at the world market prices, other market economies have held internal prices significantly above world market prices. The very large subsidies in Japan for rice and wheat have not resulted in particularly low consumer prices. And by holding beef prices at levels well above import prices, Japan has discouraged the consumption of beef and has thus reduced grain use as feed substantially what it would be if Japanese consumers had access to beef at the same price as, say, consumers in the United States. The farm price policies of the European Community have also restricted the consumption of beef and pork and thus of grain as feed.

Concluding Comments

The experience of the Centrally Planned Economies during the 1970s indicates how rapidly a country can shift from being self sufficient in grain and food to a significant level of dependence upon grain imports. As has been shown, three factors were primarily responsible for the shifts that occurred--a relatively high income elasticity of demand for livestock products; a food price policy that resulted in lowering the price of food relative to other consumer products, and in the case of the Soviet Union, very slow growth of agricultural output including the products that are so highly subsidized.

In China the increase in money and real incomes since 1978 has contributed to a rapid growth in the demand for grain.

It has been primarily four countries that have been responsible for almost all of the increased grain imports by the CPEs--Poland, the GDR, the Soviet Union and China. In both Poland and GDR, meat production and consumption increased rapidly during the 1970s. However, domestic feed production did not increase enough to support the growth of livestock production and thus it was necessary to increase feed imports, including grains. In the Soviet Union the substantial increase in grain use as feed had seemingly little effect upon livestock production and the large increase in grain imports was due, in part, to rather modest growth of grain production during the last half of the 1970s.

The increase in Chinese grain imports seems to have been associated with the institution of food price subsidies and the increase in the incomes of both rural and urban people. It appears that China has embarked upon an inflationary path, with significant implications for the desired consumption levels for grain and edible oils, products whose retail prices have been kept at low levels by the use of price subsidies.

The poor people of the world in countries outside the CPEs have some stake in the food and agricultural policies of the CPEs. If the current policies of the CPEs are continued without change for this decade, the growth of their grain imports could result in a significant increase in the real prices of grain in international markets. I do not predict that the policies will remain unchanged and that grain imports will continue to grow for another decade. However, the available evidence indicates that it is very difficult to significantly reduce food price subsidies and thus stem the growth of grain and food imports.[52]

FOOTNOTES

Author's Note: For those readers who wish to add to their knowledge of the Centrally Planned Economies generally and of agriculture in particular, the following publications may be of interest and value. Any person who has an interest in the economies discussed in this articles owes a great debt to the Joint Economic Committee of the U.S. Congress for its impressive collections of articles that it creates every three years on the Soviet Union, on Eastern Europe and China. The most recent volumes are Soviet Economy in a Time of Change, two volumes, October 10, 1979; Chinese Economy Post-Mao, two volumes, November 9, 1978, and East European Economies Post-Helsinki, 1977.

For highly readable and authoritative discussions of a wide range of economic topics dealing with the Soviet Union and Eastern Europe, one should not miss two books by Alec Nove: The Soviet Economic System (London: George Allen & Unwin, 1977) and Political Economy and Soviet Socialism (London: George Allen & Unwin, 1979). Ronald A. Francisco, Betty A. Laird and Roy D. Laird have edited two very good collections of articles concerning agriculture in the Soviet Union and Eastern Europe: The Political Economy of Collectivized Agriculture: A Comparative Study of Communist and Non-Communist Systems (New York: Pergamon Press, 1979) and Agricultural Policies in the USSR and Eastern Europe (Boulder: Westview Press, 1980).

Anthony M. Tang and Bruce Stone have combined to produce a most useful analysis Food Production int he People's Republic of China (Washington, D.C.: International Food Policy Research Institute, 1980), Research Report 15.

1. National Foreign Assessment Center, Central Intelligence Agency, Handbook of Economic Statistics, ER 80-10452, Washington, U.S. Government Printing Office, 1980, p. 1. The Centrally Planned Economies include the Union of Soviet Socialist Republics (USSR) or the Soviet Union, the People's Republic of China and seven Eastern European countries--Bulgaria, Czechoslovakia, German Democratic Republic (East Germany) Hungary, Poland, Romania, and Yugoslavia. When the term Eastern Europe is used it generally refers to the first six countries as listed and thus excludes Yugoslavia.

2. Economics and Statistics Service, U.S. Department of Agriculture, World Agricultural Situation, WAS-24, December 1980, p. 41.

3. During the 1970s--from 1969-71 to 1979-80 world grain trade increased approximately 90 million tons; net grain imports by the Centrally Planned Economies increased by 50 million tons. For source, see Table 6 below.

4. This is my estimate based on a budget allocation of 25 billion rubles in 1977 and the increase in such subsidies in 1979 by increased prices for milk, wool, potatoes and vegetables estimated to cost 3.2 billion rubles and further changes in farm prices in 1981 costing about 4 billion rubles. See Economics, Statistics and Cooperatives Service, U.S. Department of Agriculture, USSR Agricultural Situation: Review of 1978 and Outlook for 1979, Supplement 1 to WAS-18, April 1979, p. 25.

5. Ibid., pp. 25 and 29.

6. Calculated from U.S. Department of Agriculture, ESCS, Indices of Agricultural and Food Production for Europe and the USSR, Average 1960-65 and Annual Through 1979, Stat. Bul. No. 635, p. 5.

7. Ibid., p. 8.

8. U.S. Department of Agriculture, Foreign Agricultural Service, Foreign Agriculture Circular: Grains, FG-5-80, February 1980, p. 91.

9. In an analysis for various factors that might explain the relatively poor performance of USSR agriculture, I concluded that the socialized organization was not the critical factor. The high percentage of national investment devoted to agriculture (more than a quarter during the 1970s), the high costs of farm products and the instability of farm output were due much more to inappropriate farm price policies, to the use of quantitative plan indicators as criteria for distribution of bonuses for management, the unwillingness of the Moscow planners to trust farm people to act in their own and national interest, the continuing intervention of Moscow in the minutest details of farm operations, and a very ineffective marketing and input sector with which agriculture must work. Almost none of these features of the setting within which agriculture must function is required by socialism; they result either from a particular ideology or sheer ineffectiveness in the organization of resources that buys from and sells to the farms. See my paper "Agricultural Organization and Management in the Soviet Union: Change and Constancy," Office of Agricultural Economics Research, The University of Chicago, Paper No. 80:26, revised.

10. Data on per capita consumption of meat and other foods since 1950 are given in U.S. Department of Agriculture, ESCS, USSR Agricultural Situation: Review of 1979 and Outlook for 1980, Supplement 1 to WAS-21, April 1980, p. 43. My rather pessimistic estimate of the potential for expansion of meat production and consumption is based upon the slow

growth of the past two decades and the very modest goals that have been set for the Eleventh Plan Period, which ends in 1985.

11. U.S. Department of Agriculture, ESCS, World Agricultural Situation, WAS-22, June 1980, p. 37.

12. Ibid.

13. Food and Agriculture Organization of the United Nations, FAO Production Yearbook, 1978, Vol. 32, Rome, 1979, pp. 247-51.

14. Ibid., pp. 199-200, 257-59 and 45-57.

15. Francis S. Urban, H. Christine Collins, James R. Horst and Thomas A. Vankai, The Feed-Livestock Economy of Eastern Europe: Prospects to 1980, For. Agric. Econ. Rpt. No. 90, Economic Research Service, U.S. Department of Agriculture, October 1973, p. 23. It is estimated that the feed requirements for a horse for a year under Polish conditions would be 0.79 metric tons of grain.

16. Ibid.

17. Ibid., p. 19 and Ad Hoc Group on East/West Economic Relations in Agriculture, "Agricultural Production and Food Consumption in GDR," Organization for Economic Co-operation and Development, Directorate for Food, Agriculture and Fisheries, DAA/1731, November 28, 1980, p. 32.

18. JPRS, April 3, 1980, translation from Budapest Figyelo of February 20, 1980.

19. Nepszabadsac, December 19, 1980.

20. Ad Hoc Group on East/West Economic Relations in Agriculture, "Agricultural Production and Food Consumption in Hungary," Organization for Economic

Co-operation and Development, Directorate for Food, Agriculture and Fisheries, DAA/1712, September 8, 1980, p. 14. In the same report the following is noted: "The Hungarian government intends to diminish the subsidies for agricultural products gradually. As a first step, farms will increasingly be made, in 1981-90, to pay for the rapidly rising energy costs" (ibid., p. 48). Hungary's subsidy system is a complex one, involving a wide range of subsidies directly to agriculture, including investment subsidies, as well as subsidies for meeting the differences between prices paid to farms plus processing, transportation and marketing costs and the retail prices.

21. U.S.D.A., Supplement 3 to WAS-21, p. 18.

22. Thomas A. Vankai, Progress and Outlook for East European Agriculture, 1976-80, U.S.D.A., ESCS, For. Agric. Econ. Rpt. No. 153, p. 13. Vankai's next sentence was: "During 1971-75, real income increased 32 percent, causing difficulty in satisfying demands for goods and services."

23. F.B.I.S. Bulgaria, December 23, 1980, translation from Sofia Rabotnichesko Delo, December 15, 1980.

24. In December 1980 it was announced that agricultural producer prices would be increased by 12 percent effective January 1, 1981. (The Economist, Feb. 28, 1981, pp. 46-47.)

25. Prague Statni Statky, Vol. 12, 1979.

26. Vankai, Progress and Outlook, p. 18.

27. Ibid., p. 49.

28. Polish News Bulletin, translation from Trybuna Ludu, No. 126, May 28, 1980, p. XI.

29. Ibid., pp. X and XI and report by Radio Free Europe of the 1981 budget presentation by the Polish Minister of Finance on December 19, 1980, EE/6608/C/1 (B,W), December 23, 1980. If 91 billion zlotys in 1979 for meat and poultry subsidies equaled 11 percent of the wages fund, the total food subsidy bill estimated for 1981 of 228 billion zlotys must be at least 20 percent of the 1981 wages fund.

30. Average retail price of meat estimated from data in Polish News Bulletin; subsidy indicated on p. X. It was noted that between 1970 and mid-1980 procurement prices for livestock increased by 129 percent while retail prices hardly increased at all.

31. Urban, The Feed-Livestock Economy of Eastern Europe, p. 21.

32. Minister of Finance, Radio Free Europe, December 23, 1980, p. 3.

33. Radio Free Europe, December 18, 1980. It is reasonable to argue that the subsidy per kilogram of meat distributed through the retail network is greater than 55 zlotys per kilogram. The subsidy does not apply to meat produced and consumed by farm people; thus the amount of meat moving through the retail network is less than the total available supply. Assuming the 1981 subsidy cost will be 67 billion zlotys and the meat sold through the state stores will be 1.1 million tons, the price subsidy equals 61 zlotys per kilogram. However, even more important than the difference in volume of meat produced and that moving through the state stores is the effect of including the food subsidies. If these are added the subsidy per kilogram is 100 zlotys or perhaps $3.00.

34. Polish News Bulletin, translation from Trybuna Ludu, No. 126, May 28, 1980, p. XIII.

35. The first quotation is from Trybuna Ludu, ibid., pp. XI and XII. The second quotation is from the Minister of Finance's presentation of the 1981 budget in late December.

36. If edible slaughter fat and offal are included in the Eastern Europe per capita consumption in 1979 the estimate was 89 kilograms. While this estimate may not be strictly comparable with the Soviet one, it indicates a wide difference between what has been accomplished in the Soviet Union and in the Eastern European CEPs. Sources: U.S.D.A. Supplements 1 and 3 to WAS-21.

37. JPRS, 75754, May 22, 1980; translation of an article by M. Ye. Bukh and L. V. Popova in Izvestiya Akademii Nauk SSSR--Seriya Ekonomicheskaya, No. 1, 1980. Quotation from page 8 of JPRS.

38. U.S.D.A., Supplement 1 to WAS-21, p. 22 and U.S. Department of Agriculture, Foreign Agricultural Service, Foreign Agriculture Circular: Grains, FG-2-81, January 15, 1981, p. 4. For 1976/77 through 1980/81 the U.S.D.A. estimates grain used for feed at an annual rate of 120 million tons for 1971/72 through 1975/76 at 98 million tons.

39. Report on 1980 Plan Fulfillment," USSR Council of Ministers, translated in Current Digest of the Soviet Press, XXXIII, No. 4 (Feb. 25, 1981), pp. 14-15.

40. U.S. Department of Agriculture, Foreign Agricultural Service, Foreign Agriculture Circular: Grains, FG-5-81, January 28, 1981, pp. 5 and 8.

41. The revisions for the year 1978 through 1980 may have added about 3 percent to grain output for the three years. Without the revisions, the annual growth rate would be approximately 2.8 percent.

42. Based on Beijing Review, No. 39 (September 29, 1980), pp. 11-18; U.S.D.A. Supplement 6 to WAS-21, pp. 2-7 and Agriculture Abroad, October 1980, pp. 9-15 and 25-30.

43. Beijing Review, No. 39, 1980, p. 16.

44. "The World Food Situation: Developments During the 1970s and Prospects for the 1980s," in Contemporary Economic Problems 1980 (Washington, D.C.: AEI, 1980), pp. 322-28. Note that in last year's article Chinese grain production includes rice in milled form; in Table 9 in this article rice is included as paddy or rough rice.

45. New York Times, November 5, 1980.

46. The Economist, April 4, 1981, p. 17.

47. Ibid., February 14, 1981, p. 69.

48. U.S.D.A., Supplement 6 to WAS-21, p. 10.

49. Obviously if grain supply increases more rapidly than grain demand, even by as little as 0.5 percent annually, Chinese grain imports could decline to near zero in a decade. I am not in a position to predict whether it is more likely that demand will grow more rapidly than supply or vice versa. The example in the text is intended to indicate how large Chinese grain imports could become if their demand grew somewhat more rapidly than supply.

50. The Economist, November 1, 1980, pp. 51-54.

51. U.S. Department of Agriculture, Foreign Agricultural Service, Wheat and Corn Prices for Selected Countries, FG-6-79, April 18, 1979, pp. 47-48. The prices data are for 1977.

52. There is another way in which the price policies of the CPEs have an effect upon the rest of the world. Since these economies attempt to stabilize their domestic prices by varying net trade, they impose the instability arising from variations in their production and demand upon the international markets. In addition, these countries absorb very little of any variations in supply and demand in the rest of the world. Thus the CPEs follow policies that contribute significantly to international price instability. But similar policies of domestic price stability are followed by the European Community and other Western European countries as well as by a number of developing countries. Consequently the instability of international market prices is both substantial and increasing as an increasing percentage of international trade is undertaken to stabilize domestic prices. For further discussion of my topic, see my article "World Agriculture

Agriculture and the broader food system are both producers and consumers of energy. Currently, the whole agri-food system accounts for around 30 per cent of the world s total energy consumption, and more than 70 per cent of this use occurs beyond the farm gate. Greenhouse gas emissions from the entire food chain, including landfill gas produced from food waste, account for approximately 20 per cent of total greenhouse gas emissions. Most of the additional food production needed to feed the world in 2050 will have to come from agricultural intensification, which means increased energy consumpti In a centrally planned economy, planners cannot accurately predict consumer preferences, surpluses and shortages, so they cannot efficiently allocate resources. This results in an abundance of goods that cannot be sold in some areas and a shortage of goods that are in high demand in others.Â The desire to earn profit is a foundation of the free market system. Central planners suppress the profit motive by taking decisions from businessmen and transferring them to the government. Economist Adam Smith believed that society functioned best when the economy was guided by an "invisible hand" that rewarded personal economic freedom and risk taking. Central planning handcuffs the "invisible hand." Centrally planned economy. Figure 1. The flag of the Union of Soviet Socialist Republics (USSR). The USSR is the quintessential example of a centrally planned economy.[1].Â There are implications to limiting or promoting certain economic activities but depending on what planners think is best for an economy or country, the strict planning can produce a positive outcome.[3]. Suppose a central planning committee wanted to minimize or eliminate the negative externality created by the combustion of fossil fuels and the emissions they release.Â The main disadvantage of centrally planned economies is the vast inefficiency that comes from ignoring natural market forces.