World Development, Vol. 13, No. 1, pp. 123–150, 1985.
Printed in Great Britain.

0305-750X/85 $3.00 + 0.00
Pergamon Press Ltd.

Hungarian Agriculture: A Model for the Socialist World?

KATHLEEN HARTFORD*
University of Massachusetts, Boston

Summary. — Hungary's status as a model in agriculture is examined in terms of its economic, social and political performance, its planning and organizational components and the contextual factors affecting its transferability. In economic and social performance the Hungarian strategy compares favourably with the rest of Eastern Europe and the USSR. Planning and institutional factors contributing to this performance include the New Economic Mechanism planning approach, autonomous agricultural producers' co-operatives, new structures for diffusion of technology, and integration of household producers into the commodity system. While the transferability of the model remains doubtful due to factors such as size, technical base, and political choices, increased participation in the world economy may force the USSR and the rest of Eastern Europe into reforms bearing some resemblance to those in Hungary.

1. INTRODUCTION

In a world which discovers new developmental 'miracles' about every 5 years — just as the previous miracles are expiring — it is perhaps too faddish to nominate yet another candidate for the honour. But if what has been happening in Hungarian agriculture over the past decade and a half is not miraculous, it is at least unprecedented for the socialist world. As Poland flounders in an economic crisis compounded by, and compounding, agricultural stagnation; as the Soviet Union chalks up a record string of dismal harvests; as the rest of Eastern Europe wrestles with perennially undynamic agricultural sectors — Hungary stands out as an emblem of successful socialist agriculture. In the entire socialist world, only the very recent performance of the People's Republic of China can begin to match it.

Therefore, it is not surprising that other socialist countries, particularly the USSR and some of Eastern Europe, and even China, have begun to eye Hungary more carefully. Countries formerly suspicious of its deviations from orthodoxy now see Hungary as having solved decisively what are for them still persistent problems of food scarcity, low agricultural productivity and inefficient applications of large-scale production techniques. More and more other socialist countries have themselves examined the Hungarian experience. For those concerned with developing agriculture in a socialist context, Hungary is potentially a model of some importance.

Unfortunately for all those looking for certain solutions to complex developmental problems, models frequently have a short track record. Too often a model is dismembered and applied piecemeal and mechanically in the interests of rapid development. Too often the conception of the model ignores either essential conditions for

*The research on which this paper is based was made possible by a postdoctoral research fellowship and travel grants from the Harvard Graduate School of Business Administration. My interviews and field visits in Hungary were made possible through the sponsorship of the Institute of World Economics, the Research Institute for Agricultural Economics, and the Co-operatives Research Institute, whose members (particularly Drs Judit Kiss, Gyula Varga, Tamas Ujhelyi, Janos Juhasz and Balint Magyar) generously put their expertise and much time at my disposal. Special thanks are due to Dr Kiss, who gave up several weeks on her own work to arrange my interviews and act as interpreter. These interviews are referred to in the Notes by number. The essay has benefited from the criticisms of Thomas P. Bernstein, Elisabeth Croll, Winston Langley, Craig Malone, Michael Marrese, Arthur MacEwan, Karl-Eugen Waedekin and Gordon White. These institutions and individuals deserve much of the credit for the essay's strong points; the remaining flaws, and the views expressed, are my responsibility alone.

its operation or crucial and inevitable long-term costs. Eventually we may even hear, as with the PRC's recent criticisms of the Maoist experiment, that the model was no model after all, but a facade concealing a disaster area for national economic policy.

For Hungary's food and agriculture sector to stand as a bona fide model, then, several conditions would have to exist. First, it has to be ascertained whether it has indeed produced the results that would be expected of a model. Second, the model must be conceived as a whole so as to include all the factors integral to it and essential to the operation of its parts. Finally, the context that permits those factors to interact properly must be identified and the question of whether the potential model is truly transferable must be addressed.

Section 2 of this essay presents the economic, social and political results of policy and organization in Hungarian agriculture. Section 3 explores the major parts of the potential model: the New Economic Mechanism (NEM) reforms in the national economy, the agricultural producers' co-operatives, 'technically operated production systems' for introducing modern agricultural technology and 'small-scale' (household-based) farming. Finally, in Section 4 the factors related to transferability of the model are examined.

Before developing the issues, a brief explanation of the organizational structure of Hungarian agriculture is in order. Agricultural production in Hungary has been based on socialist ownership since collectivization was basically completed in 1961. A very few privately owned farms still exist, but the private sector farms now occupy only 1.1% of the farmland. Of the remainder, by 1981, 130 state farms operated some 832,000 ha of agricultural land (including crops, gardens, orchards and pasture), while some 1300 agricultural producers' co-operatives operated another 4,652,000 ha. (See Table 1.) In 1981, the state farms produced 15.0% of gross production value of agricultural products, while the co-operative agricultural sector accounted for 68.8% (of which 49.3% was from the co-operatives' large-scale farms and 16.8% from the household plots).[1] These state and co-operative enterprises in the socialist sector are the basic local units in the national system of agricultural planning, production and marketing. Hungarian state farms and co-operatives are not, however, distinguished in the manner usual in socialist settings in that for both, the ownership situation can be complicated. For example, co-operative farms own only about half the land they farm; the rest is owned by the state and by individuals, mostly the co-operative members themselves. Nor does managerial control necessarily constitute a clear distinction between state and co-operative farms; while state farms are more subject to state control in such matters as appointment of managers, both types of farm are technically independent 'enterprises', which do not receive direct orders from the state. However, state farm employees are employees of the state and enjoy

Table 1. *Major data of Hungarian agricultural organization* 1970–1981

	1970	1975	1980	1981
Number of agricultural enterprises:				
State farms and combinates	184	150	132	130
Large-scale farms of co-operatives	2441	1598	1338	1320
Average farm size (ha)				
State farms and combinates	5548	6602	7588	7664
Large-scale farms of co-operatives	1985	3161	3961	4023
Agricultural area (1000 ha)				
State farms and combinates	—	—	—	832.6
Large-scale farms of co-operatives	—	—	—	4652.5
Household plots of co-operatives	—	—	—	344.6
Auxiliary and private farms	—	—	—	438.8
Number of active earners				
Total (thousands)	1193.7	1032.2	988.9	983.7
of which:				
State agriculture	164.7	154.6	157.1	153.9
Co-operative agriculture	939.1	775.0	735.7	734.7
Active earners as percentage of active earners in national economy	24.0%	20.3%	19.5%	19.6%

Source: Kozponti Statisztikai Hivatal [Central Statistical Office], *Statisztikai evkonyv 1981* [1981 *Statistical Yearbook*] (Budapest: 1982), pp. 155, 156.

the benefits of such employment. Co-operative members, on the other hand, are technically not 'employees' and receive only the benefits of membership permitted by their particular co-operatives.

Because the agricultural producers' co-operatives account for the largest part of production, and because their roles may be taken as basically analogous to those of the state farms, this essay generally concentrates on the co-operatives whenever agricultural enterprises are under consideration.

2. HAS HUNGARY ACHIEVED MODEL RESULTS?

Most favourable evaluations of Hungary's food and agriculture sector have concentrated on economic indicators of performance, but as Karl-Eugen Waedekin reminds us, a country's success must be measured in terms of priorities set by the country itself.[2] Hungary shares with most socialist countries a set of social and political goals beyond the economic objectives with which nearly any country might identify. It stands to reason, therefore, that for other socialist countries justifiably to regard Hungary as a model, certain political and social performance criteria will be as important as its economic results.

The economic results are persuasive on their own. Both production and yields have increased rapidly since the early 1960s. (See Table 2.) In grain production, the foundation for the agricultural sector, Hungary has shown tremendous improvements over the past two decades. The country's average yields of wheat and maize (approx. 78% of total grain acreage) in 1979–81 were 89 and 77%, respectively, greater than the 1961–69 averages.[3] From 1969–71 to 1979–81, Hungary showed greater improvement in grain yields than the USSR or any other East European country.

Indeed, by most indicators of economic performance, Hungary has fared better than the rest of Eastern Europe. From 1965 to 1982, the average annual rates of growth in net agricultural product in Hungary exceeded those in the rest of Eastern Europe, with a particularly strong lead in 1980–82.[4] (See Table 3.) In index numbers of per capita gross agricultural production, 1977–79 (1969–71=100), Hungary was surpassed only by Romania, which started from a much lower base.[5] In 1976–79 Hungary's net product per agricultural worker was 70% above the East

Table 2. *Hungarian agricultural production and yields*, 1961–82

	1961–65 average	1966–70 average	1971–75 average	1976–80 average	1981	1982
Production						
Crops (1000 tons)						
Cereals	6768	8261	11,403	12,633	12,887	14,919
Wheat	2009	2996	4299	5186	4614	5762
Maize	3316	3992	5934	6374	4614	5762
Sugarbeets	3093	3175	3097	3979	4719	5371
Sunflower seed	110	96	143	300	627	582
Potatoes	1735	1659	1602	1567	1608	1459
Vegetables	1470	1730	1784	1984	1816	1855
Fruit (other than grapes)	955	1218	1379	1510	1791	1935
Grapes	646	775	822	837	628	1047
Livestock and dairy						
Slaughter animals (1000 tons)	1136	1287	1682	1970	2079	2201
Pigs	653	692	968	1108	1183	1220
Milk (1 million litres)	1499	1643	1692	2214	2600	2659
Eggs (1 million pieces)	2046	2787	3521	4475	4394	4361
Wool (tons)	9652	10,303	8279	10,564	12,160	12,762
Yields (tons/ha)						
Wheat	1.86	2.43	3.32	4.06	4.00	4.39
Maize	2.61	3.23	4.17	4.85	5.86	6.86
Sugarbeet	26.45	–	33.00	33.64	38.75	42.56
Sunflower	0.96	1.11	1.24	1.61	2.07	1.95
Potatoes	7.91	10.45	11.74	14.16	18.20	17.34

Sources: OECD (1981), p.237: Kozponti Statisztikai Hivatal, *Statisztikai Evkonyv*, 1981 (Budapest: 1982), pp. 12, 13, 159–160, 165; *Statisztikai Evkonyv*, 1982 (Budapest: 1983), pp. 153, 154, 158.

Table 3(a). *Average annual growth rate of net agricultural product*

Country	1965–70	1970–75	1975–80	1980–82
Bulgaria	−2.1%	1.5%	−4.2%	−3.7%
Czechoslovakia	1.4	1.7	0.2	−4.3
East Germany	−0.8	2.0	1.2	−2.3
Hungary	−0.2	2.7	1.0	3.2
Poland	−3.1	1.1	−1.5	−4.1
Romania	−2.3	0.8	1.3	−4.1

Table 3(b). *Average annual rates of growth in agricultural output*

Country	1970–75	1975–80	1980–82
Bulgaria	1.7%	1.4%	2.3%
Czechoslovakia	3.1	1.9	0.7
GDR	3.1	1.5	−0.6
Hungary	4.8	3.2	2.6
Poland	4.1	0.2	−6.9
Romania	5.5	2.6	−0.6

Source: Alton *et al.*, (1983), pp. 26–27.

European average, exceeded only by the GDR, which has a far higher level of mechanization.[6]

More striking to the Western observer, Hungary has also achieved certain measures of agricultural performance that compare quite favourably with the West. The country's per capita agricultural output rose from 81.4% of that of the US in 1966–70, to 93.1% in 1976–79 — 20 percentage points ahead of any of the rest of Eastern Europe, Yugoslavia, or the USSR.[7] Hungarian grain yields in the 1970s showed greater improvement than the world total, or the United States or major West European farm-producer countries.[8] (See Table 4.) Hungary's average total grain yield in 1979–81 was over twice the world average, 10% more than Denmark's, 7% more than neighbouring Austria's and 6% more than that of the United States. Wheat yields during that period exceeded those of the United States by 78% and Austria's by 8%. Hungary's maize yields were less than those in the United States and Austria by a large margin, but were only 5% less than France's.

The point here is not that Hungary has overtaken the West or that it still has to catch up with some Western nations for some crops. Yields in any setting will be the result of several factors including natural conditions and the relative prices of different crops or of crops and inputs, which strongly reflect national policy choices. The point is that Hungary's productivity has reached what is by any world standard quite a respectable level, and that by virtue of its impressive rapid gains in productivity, Hungary has proven that agriculture in a socialist context can indeed meet the productivity goals set for it by policymakers.

Hungary's general gains in agricultural productivity have permitted expansion of the agricultural export sector without sacrifices in domestic consumption. Hungary's per capita food consumption has shown considerable improvements: in meat, from 59.8 kg in 1971 to 72.1 kg in 1980; in milk and dairy products, from 111.2 to 160.6 kg; in vegetables and greens, from 82.5 to 87.0 kg; and in fruits, from 71.9 to 76.0 kg.[9]

In terms of per capita consumption, compared to other East European countries (including Yugoslavia but excluding Albania) and the USSR, Hungary in 1979 was only fourth in meat and meat products (though Hungary's were probably of higher quality), sixth in milk and milk products, first in eggs, fifth in sugar and sugar products, sixth in cereals and bread, sixth in vegetables, sixth in potatoes and fourth in calories per day (3494 kcal, which was still 100 kcal ahead of the West European average). However, Romania and Poland faced frequent food shortages, while Czechoslovakia, East Germany and Yugoslavia required high food or feed imports.[10] Unlike other East European countries which achieved similar consumption increases at the cost of steeply rising food or feed imports, Hungary has been an important agricultural

Table 4. *Comparison of cereals yields,* 1969/71–1979/81

	1969–71 average (tons/ha)	1979–81 average (tons/ha)	1979/81 increase over 1969/71
World			
total	1.806	2.188	17.6%
wheat	1.540	1.888	22.6%
maize	2.472	3.252	31.6%
Hungary			
total	2.891	4.410	52.6%
wheat	2.645	4.068	53.8%
maize	3.570	5.183	45.2%
Denmark			
total	3.853	4.018	4.3%
wheat	4.582	5.066	10.6%
maize	–	–	–
France			
total	3.596	4.661	29.6%
wheat	3.626	4.913	35.5%
maize	5.148	5.447	5.8%
USA			
total	3.458	4.162	20.4%
wheat	2.144	2.289	6.8%
maize	5.164	6.497	25.8%
USSR			
total	1.475	1.445	−2.0%
wheat	1.423	1.549	8.9%
maize	2.763	2.857	3.4%
Austria			
total	3.469	4.130	19.0%
wheat	3.273	3.783	15.6%
maize	5.547	7.047	27.0%

Source: *FAO Production Yearbook,* 1981, pp. 93–97, 102–103.

exporter over the past 10 years. It has been a net exporter of grain since 1973 and is the largest exporter of meat and meat products among the countries of Eastern Europe, shipping out nearly twice the exports of the runner-up, Romania. Hungary's livestock industry has been built upon a basically self-sufficient foundation and there has been no trade-off between livestock export earnings and dependence on grain imports.[11]

The development of exports has increased the food and agriculture sector's importance to the national economy as a whole. Seen in terms of contribution only to aggregate national income (net material product), agriculture's importance has actually declined, as one would expect in an industrializing economy. In 1971, agriculture and forestry accounted for 22.8% of the national income; by 1981, that proportion had declined to 16.5%. However, agricultural products accounted for a steadily increasing proportion of export earnings. By 1981, agricultural and food products were 25.2% of Hungary's total exports and fully 33% of the non-rouble, hard currency-earning trade. For 1982, the figures were, again, about 25% of total exports, but 37% of dollar exports.[12] For a country that depends on foreign trade for nearly half its national income, and that requires substantial imports of Western technology, this means that agriculture has become very important indeed.[13]

Hungarian scholars and policymakers are the first to point out that there are also economic problems in the food and agriculture sector; high among these are rising production costs, difficulties in expanding exports as rapidly as hoped, the continued dependence on imports of crucial agricultural inputs and problems in balancing incentives to producer units against preventing income inequalities.[14] The production costs and import dependence are most easily quantified. On the cost side, Michael Marrese's calculations show that while Hungary's gross agricultural

output value increased by an average annual 3.5% from 1970 to 1980, the *value added* in agricultural output increased by an annual average of only 1.4%[15] On the import side, the country remains dependent on imports of protein feeds which rose 9-fold from 1963 to 1978. By 1980 they were 2% of total imports and may reach 1 million tons by 1990. The country must also import half its agricultural machinery.[16]

Some of these problems stem from factors beyond the control of the agricultural sector. Export difficulties, for example, probably owe far less to domestic factors than to increasing agricultural protectionism in the West and shrinking demand due to the world recession.[17] The dependence on imported inputs is in large part a function of the country's size, its co-operation in CMEA division of labour in manufacturing industries, its natural climatic conditions (e.g., unfavourable for soybean production), its lack of raw materials (e.g., petroleum and the raw materials for non-nitrogenous fertilizers), and to the shortcomings of Hungarian industrial performance. Rising production costs to some extent grow out of the rocketing energy prices of the 1970s and the expanding share of industrial goods in agricultural production costs.[18]

However, certain features of the agricultural system do contribute significantly to all of these problems. For example, Marrese points to several major problem areas: the high levels of subsidies for agricultural enterprises, the complexity of agricultural policies (including price supplements, direct and indirect subsidies) which make it difficult to calculate comparative costs, the wage regulation policies which amount to negative incentives for work effort, and major investment errors, particularly in buildings and equipment for large-scale livestock production.[19] Clearly all of these bear some relation to the cost issue; and that, in turn, has significant impact on the country's export performance. Finally, the incentives problem grows out of past policy choices which gave higher priority to minimizing income gaps between agricultural enterprises than to rewarding more profitable operations. (This and other aspects of the incentive issue will be discussed in Part 2.)

What of the social and political achievements? Here the record is more problematic, but still impressive. Like most Marxist–Leninist systems, Hungary officially aims at a society characterized by a high degree of equality. At the same time, it also aims at the 'industrialization' of all work, a process whose necessity is assumed although its meaning has been quite variously interpreted.

For many socialist countries, the record for agriculture does not look good on either of these scores. In the southern countries of Eastern Europe, the gap between rural and urban incomes and standards of living shows little sign of disappearing. The gap is reflected in the 'feminization' of the rural labour force, with an accompanying decline in agricultural labour productivity as able-bodied young men move to better paying urban jobs.[20] Soviet and East European attempts to industrialize agriuclture by combining producers into ever larger units, by increasing mechanization or by increasing vertical integration have had at best mixed results and are of questionable viability for the long run.[21]

In one respect, the pattern of urban–rural differentiation in Hungary is similar to much of Eastern Europe and the USSR. Rural areas are now far from purely agricultural settings. While 46% of Hungary's population of 10 million still reside in rural areas, less than 17% of those employed in the socialist sector nationally (*ca.* 96.5% of the total workforce) work in agricultural enterprises.[22] Thus over half the labour force living in the countryside is working in industry or services, either commuting to nearby towns or working in small enterprises within the villages. With this mixture of residential and occupational patterns, there has grown also the phenomenon of the 'mixed household' in which one earner — not necessarily the household head — works in industry, and another in agriculture.[23]

In other respects, however, Hungary's rural–urban pattern differs significantly from much of Eastern Europe. While there is certainly still an urban–rural gap, it may be one of the world's smallest. Hungarian co-operative farm families' average per capita incomes in 1973 were actually higher than those of working class households and were only 12% under the average for self-employed households. The differentials are probably similar now. Although no current figures are available which include incomes from household plots or the 'second economy', average salaries between the co-operative agricultural and state industrial sectors still show only about an 11% gap. Income from non-salary sources probably closes this gap, or even reverses it (although at the cost of longer hours worked). The relative equality of agricultural and non-agricultural incomes helps explain a novel phenomenon in Hungary: the movement of young people back into agricultural occupations. In 1960, of the co-operative farm members under 60, some 40.8% were under 40. By 1967 the proportion had declined to 37.1%. By 1976 it had risen to 43.8% and a third of those of working age employed were under 30. In 1967 the average

age of active (working) co-operative members was 47.1 years; by 1978 it had fallen to 40.3. The agricultural sector now actually competes with industry in attracting skilled workers, technicians and managers.[24] For hundreds of thousands of Hungarians, therefore, agriculture has become a job like any other job rather than a dead-end that one is born into.

Even those critical of Hungary's social achievements for rural areas have noted its success in achieving the 'de-peasantization' of most of rural society, the industrialization of agricultural tasks and a congruence of urban and rural patterns of life and work.[25] Apparently, Hungary's agricultural performance has come not at the expense of, but hand in hand with, the realization of important social goals.

But Hungary is still far from the egalitarian utopia. Rural areas in general still lag behind the cities in amenities such as modern housing, cultural and other facilities.[26] There are significant variations within rural areas. Rural Hungary still has pockets of poverty, disadvantaged groups and a pattern of social stratification within the socialist agricultural sector widely recognized by Hungarian sociologists.[27] From one co-operative to another and even from one village to another, there are often startling differences in prosperity. A tour of the countryside quickly reveals disparities between villages which are as pronounced as those, for example, between farming areas in Appalachia and in Lancaster County, Pennsylvania, in the United States. Approximately one-third of all co-operatives are still considered poor enough to need direct state subsidies. (See Section 3.) The 369 co-operatives (out of the total of 1300) which earned per capita gross incomes of under 50,000 forint in 1980, occupied 25.6% of total national co-operative-farmed area, employed 23.5% of the total labour force and 19.4% of the total constant capital of agricultural co-operatives nationally. However they produced only 14.9% of production value and earned only 2.8% of total profits.[28]

Finally, Hungarian socialism can claim some political achievements in the countryside. First of all there is the present general acceptance of agricultural collectivization and the generally happy coexistence of public and private endeavours in farming. (These will be discussed in Section 3.) Secondly, there is the successful replacement of the old rural elite. According to Ivan Volgyes, the 'regime has made determined efforts . . . to increase the percentage of the peasantry among the political leadership and the intelligentsia'. Although at a national level and in urban areas these efforts have met with mixed success, the goal has been relatively well accomplished in the rural areas. By 1975, '57.1% of the rural elite and 33.8% of . . . the rural intelligentsia' were from peasant origins.[29]

The ostensible goal of democratization must be treated with a degree of scepticism. While the Hungarian Socialist Workers' Party (HSWP) does not appear to ride roughshod over Hungarian farmers, the degree of political control which individual farmers can exert is limited indeed. Furthermore, the dream of self-government and democratic decision-making through co-operatives (which at least some Hungarian agricultural experts would appear still to cherish) seems circumscribed now both by the growth in size of agricultural enterprises and by the increasingly prominent role of technical experts in making enterprise decisions.[30] Finally, one political achievement of the regime represents a mixed blessing. The changes of the past 20 years have brought the peasantry into immediate contact with urban values, modern technology and national or even international issues. The HSWP's helmsman role in this process has guaranteed the party's salience in the countryside, but that very salience can cause dissatisfaction, as Volgyes points out:

> And in all this process, the regime must take the blame and the responsibility as well as the praise for all that has been accomplished. In a Communist state, where there is really only one party, one real centre of power, it is the party and the leadership that is blamed, or praised, for all things ugly and beautiful; for good weather and floods, for greater profits and higher world prices, for inflation and the death of a cousin at the wheel of his car. It is unfair, but that's the way the regime wanted it originally and now there is no way to change it.[31]

In light of the economic, social and political problems, therefore, it is clear that Hungary has not yet found an immediate or easy formula for socialist agriculture. Nevertheless, the achievements are noteworthy. The wistfulness with which the rest of Eastern Europe and the USSR regard Hungary's agricultural success suggests that, at least in so far as the *results* are concerned, the others would cheerfully trade their problems for Hungary's. Whether they would be willing or able to trade the methods is another matter entirely.

3. THE MODEL

(a) *Economic environment for agriculture: The New Economic Mechanism*

Reform of Hungary's entire socialist economy began in 1968 with the adoption of a

comprehensive set of measures referred to as the 'New Economic Mechanism' (NEM). The introduction of NEM followed 3 years of careful study, but once the decision was made to adopt it, change proceeded on several fronts at once and rather quickly. Each aspect of the reform required the others for effectiveness.[32] The most striking features of NEM were the introduction of enterprise autonomy — which meant abandoning compulsory planning — and the transition to reliance on market signals (prices, interest rates and taxation policies) to guide enterprise decisions. Enterprises are supposed to be 'responsible for their own profits and losses' and to pursue profits through market competition.

Naturally exchange cannot take place on a competitive basis if prices are fixed beforehand. The Hungarian Socialist Workers' Party approved therefore a market price mechanism as early as 1966:

> Valuation by the market will have to find expression in price so that, on the one hand, the resulting differential in profitability should influence the structure of production (supply) and, on the other, these prices should help to reach market equilibrium through their effects on increasing or decreasing the quantity demanded. For this purpose, it should be made possible in the new price system to determine market prices over a wide area through the agreement of buyers and sellers.[33]

In line with this view, the NEM has gradually released prices to respond to market forces; the aim is eventually to have average prices move to world price levels.[34]

The NEM has not progressed with uninterrupted smoothness. The international economic shocks of the early 1970s and concern over possibly widening income inequalities and lowered levels of consumption prompted Hungarian policymakers to increase central intervention in enterprise decisions. Since 1976, however, and particularly since January 1980, new policies have reoriented the system towards competitive prices and increased enterprise autonomy.[35]

Just how far has NEM been taken in agriculture? The autonomy of agricultural enterprises after 1968 increased significantly over the nominal autonomy which co-operative (not state) farms had enjoyed earlier. In 1957 the state compulsory deliveries from agriculture had been abolished and agricultural procurement prices had been increased. But the procurement 'recommendations' of local government bodies, based on breaking down state plans' requirements for local areas, did tend to carry the force of orders through the next decade.[36] In 1968 however, the NEM reforms provided a broader basis for agricultural enterprise autonomy. Cancellation of their heavy debts and increased producer prices gave the co-operatives the opportunity for more self-financed investment and thus more control over investment decisions.[37]

Planning continues to have a strong impact on agricultural as on other enterprises, but the planning mechanism under the NEM differs markedly from the old compulsory plans. At the national level, Hungary sets economic plans with three different time horizons: long-term, medium-term, and annual. The annual plan is the detailed operative plan. It is based on 'balances' drawn up by the Central Planning Office projecting supply and demand for the year. Demand projections include both domestic and foreign demand. Projections of supply are based on annual and medium-term plans which all Hungarian enterprises must submit each year. If the supply and demand projections are unbalanced, the planners adjust prices, credit policies, subsidies and income and salary regulations in order to induce enterprises to revise their production plans. Managers of some of the major agricultural enterprises are consulted while these regulations are under consideration, and managers of all the enterprises are briefed on the year's regulatory mechanisms before they go into effect. Mid-year adjustments may be made if interim assessments indicate the need.[38]

Agricultural producers may buy inputs from a variety of different sources, in quantities and types of their own choosing (see the section on TOPS below). They may also sell to purchasers of their choice. The range of choice is limited in practice by the state purchasing organs' size and capacity advantages, but the choices seem to be expanding, particularly as the government deliberately breaks up the monopolistic food industry 'trusts' into smaller competing units, and as a non-state sector in the food industry grows.[39]

Nonetheless, several factors ensure that the 'invisible hand' is not yet the prime mover for co-operatives. First, large subsidies still provide a strong buffer against market forces (and, incidentally, a strong lever for government influence). Approximately 26–28% of co-operatives qualify for fixed-rate state subsidies for the farming of low quality land. However *all* co-operatives receive subsidies and it is only the types that differ. In 1979, 'advantaged' co-operatives received 3828 forint/ha in state subsidies, and 'disadvantaged' co-operatives received 3984 forint. Disadvantaged co-operatives got 2040 forint in support of 'everyday accounting' (i.e., to cover operating losses), 934 forint

for fertilizer and pesticide, and 1010 forint for investment. The corresponding figures for advantaged co-operatives were 1166, 1392 and 1270 forint respectively.[40]

Second, state-fixed prices still cover a large share of total agricultural production, making them more important than in industry. Fixed prices apply to maize, wheat and beef cattle. Prices for pig sales by large-scale producers (state farms and co-operatives) are also fixed. In 1981, these categories accounted for 39.3% of the total value of agricultural products.[41] At present, domestic producer prices are based on world market prices for products which rely heavily on inputs derived from hard currency imports, are exported for hard currency or, increasingly, are substituted for hard currency imports. But the prices of products primarily intended for domestic consumption are based on domestic input costs. To hold down retail prices, producer prices for basic foodstuffs are set to cover only costs in average or better than average enterprises. This practice holds net income of agricultural enterprises lower than in industry.[42]

The pricing policy places some lines of agriculture production at more of a disadvantage than others. As one recent study reported:

> grain producers would receive 30 percent more for their products if world prices were adopted, while fruit and vegetable producers would receive 15 percent less and live animal and meat producers 10 percent less.[43]

Hungary is not planning to adjust these prices in line with the world market, in part because the Hungarians consider world market prices distorted by protectionism, and in part because the country cannot afford reduced incentives for producing hard currency earning exports like meat.

Third, as Nigel Swain points out, the low level of agricultural producer prices has forced co-operatives to rely on credit or government aid for a large (but decreasing) portion of their investment. In principle, bank credits are granted on the basis of co-operatives' creditworthiness and in keeping with government investment preferences. The two criteria may clash, with a resulting limitation on enterprise autonomy. An enterprise that chose to concentrate investments in more profitable lines of production, going against government preferences, runs the risk of 'ignoring present government requests' and thereby losing 'its future "creditworthiness"'.[44]

Finally, although this is compatible with market considerations, much agricultural exchange is arranged well in advance. Since both agricultural enterprises and household producers must plan productive investments in advance, and because price stability and export planning are important goals for the government, both producers and purchasers generally prefer to use advance contracts (with durations from one season to several years) to arrange sales of agricultural products. These contracts specify the price and quantity of the product. Deliveries may vary by 10% from the amount stipulated in the contract, but only at the producer's discretion. Approximately 70–80% of Hungary's agricultural products are traded under such advance contracts. This includes approx. 90–95% of pig production, 85% of poultry, 80–90% of sugarbeet output and 50% of the vegetable needs of the canneries. Producers are generally free to conclude these contracts with the purchaser they choose or to take their chances on the current market.[45]

The agricultural enterprise in Hungary thus does not enjoy — or suffer — the full freedom of market competition. So long as government policies (such as low fixed producer prices) place agricultural enterprises at a severe disadvantage, various compensatory bailout mechanisms will continue to rescue those foundering due to imposed handicaps. Nor does any realistic appraisal suggest a form of economic triage for enterprises handicapped by inhospitable natural conditions. However, agricultural enterprises' 'soft budget constraints' are generally 'harder' than those in industry.[46] During a conversation with several Hungarian economists in fall 1982, it was even remarked upon as a point of pride that an agricultural co-operative had recently gone bankrupt, which was interpreted as a signal to others that 'responsible for own losses' meant just that, and as a healthy jolt for the entrepreneurial behaviour of agricultural enterprises. Ongoing revisions of regulatory mechanisms, for example of those to transfer much of the weight from subsidies onto taxation policies, are expected to clear the arena for more such entrepreneurial behaviour.[47]

But entrepreneurship is not a novel concept in Hungarian agriculture, and in the years since 1968, the sector has evolved a number of new organizational and managerial approaches to meet its challenge. In particular, these include the continuing changes in the co-operative form of agricultural organization, the development of a set of high-technology packages for agricultural enterprises and a symbiotic arrangement between large-scale collectivized enterprises and small-scale, household-based production.

(b) *Agricultural co-operatives*

Hungarian agricultural co-operatives had a difficult infancy. Collectivization's first stage in 1949–56 was characterized by administrative orders for the formation of co-operatives and the consolidation of land-holdings, by compulsory deliveries of produce and by low producer prices. While the new co-operatives were popular with many formerly landless peasants, many of the landowning peasants responded to co-operativization by leaving the agricultural sector entirely. In the 4 years from 1949 to 1953 the number of agricultural earners fell by ¼ million.[48] (As an illustration of the magnitude of this change, the co-operatives at their zenith had fewer than 1.04 million members.)[49] A large proportion of those who joined the co-operatives had done so unwillingly and the work on collective lands suffered accordingly. As Ferenc Donath describes the situation, many former landowning peasants 'backed into' the co-operatives while focusing most of their energies on their household plots.[50] In 1956, after the 20th Congress of the CPSU and the HSWP's 'open admission of injustices that had been committed also in Hungary', and in the general national political turmoil, resistance to co-operatives began to spread. Most former landowning peasants left the co-operatives in the course of the year and over half the co-operatives dissolved entirely. At the end of June 1956 there were 3911 co-operatives with 294,000 members; by year's end there were only 1617 co-operatives with 96,000 members.[51]

In 1957 the HSWP adopted a new approach towards co-operatives by abolishing compulsory deliveries, compulsory insurance, state dictation of cropping patterns (to a limited extent); raising agricultural producer prices; suspending land consolidation; and revising procedures for establishing co-operatives to reassure the private farmers who still produced 80% of agricultural output.[52] As agricultural production recovered in 1957–58, the HSWP geared up for a new round of collectivization which, carefully organized beforehand, began in January 1959. Persuasion rather than coercion was the norm, but persuasion assisted by selective state investment, price, subsidy and taxation policies; by the availability of social insurance in the co-operatives; and by the greater freedom of members' choices in selecting leaders and determining remuneration and work organization. The transition was probably made all the smoother by the outmigration of many of the old landowning peasants in reaction to the earlier wave of collectivization. By 1961, nearly 94% of the agricultural earners were in the socialist sector.[53]

In the several years between the completion of collectivization and the 1968 reforms, agricultural co-operatives were plagued by a number of problems: the need for large investments merely to replace labour which had moved to the cities, various forms of state interference with the managerial autonomy of the co-operatives, difficulties in motivating members to work conscientiously at their tasks on the large-scale farms and a shortage of skilled managers and technicians.[54] In addition, due to both ideological and pragmatic considerations, the government pushed for consolidation of co-operatives into large units which sometimes took in several villages. The number of co-operatives fell from 4507 in 1960 to 3278 in 1965, and then to 2441 in 1970, even though total membership in 1970 exceeded that in 1960. The average farm size more than doubled.[55] Rapid and repeated farm consolidation, particularly those combining weak with healthy co-operatives, strained organizational coherence and managerial abilities in many units.

Since 1968 the economic health of most co-operatives has improved substantially. The NEM reforms brought the first real autonomy most of these units had experienced. Still, it was not until late in the 1970s that co-operatives stabilized in size. Consolidations continued throughout the decade and an especially rapid transformation in 1974–76 resulted in a 25% drop in the number of co-operatives.[56] By 1981, the average co-operative size was more than double that in 1970.

These organizational changes resulted from a confluence of ideological, political and practical pressures. Co-operatives received confusing signals from above during the merger peak of 1974–76. On the ideological side, the HSWP in the early 1970s briefly leaned towards larger scale and eventually state ownership as higher forms of socialism. Alarmed at the rapidity of the mergers, the party in early 1975 began officially to caution against such arbitrary mergers. But at around the same time, the Ministry of Agriculture had issued projections of some 500 co-operatives to be merged early in 1975 (leaving only 1600–1620) — which sounded very like a target.[57] Other reasons for the mergers included: arm-twisting by over-zealous party and state officials in county, district and village posts; the desire of smaller and poorer co-operatives to merge with larger and more prosperous units, the preferential treatment given to richer co-operatives which accepted poor ones and the incentive effect of large size in providing better economic and personnel conditions for entrepreneurial activity (greater ease in attracting qualified managers and skilled workers); and

better opportunities for ancillary industrial activities.[58] In sum, there were some strong reasons for voluntary acquiescence by members and co-operative managers, but the merger movement was strongly promoted by party and state functionaries. In recent years, however, the party has acknowledged once more that co-operative ownership is as genuinely socialist in form as state ownership.[59] Future organizational changes, which may or may not involve further size increases, are expected to grow in response to the emerging technical and economic needs of agriculture as resource availability, markets and labour supply dictate.

There is still a great deal more organizational variety within the co-operative sector than overall trends suggest. (See Fig. 1 for an organizational chart of an ordinary, medium- to large-size co-operative.) However, certain developments common to all co-operatives in the period after 1968 have permitted their transformation from entities responding to imposed requirements for quantities of production to *enterprises* which are more profit-oriented, efficient enough to produce internationally competitive products, flexible enough to adjust quickly to changing market situations (or to government regulatory mechanisms calculated to spark an adjustment) and still able to provide security of employment and increasing incomes to their members.

Five developments in particular have enabled co-operatives to make this transition: the increased technical skills of both managers and co-operative workers, the adoption of new compensation methods, the growth of ancillary industries run by agricultural co-operatives, participation in 'technically operated production systems' (TOPS), and a new approach to expanding household-based production. The latter two will be treated separately in the next two sections; the technical work force, compensation and ancillary industries will be discussed here.

Most co-operative managers now generally have specialized technical training. By the late 1970s, two-thirds of co-operative farm chairmen had received university-level professional

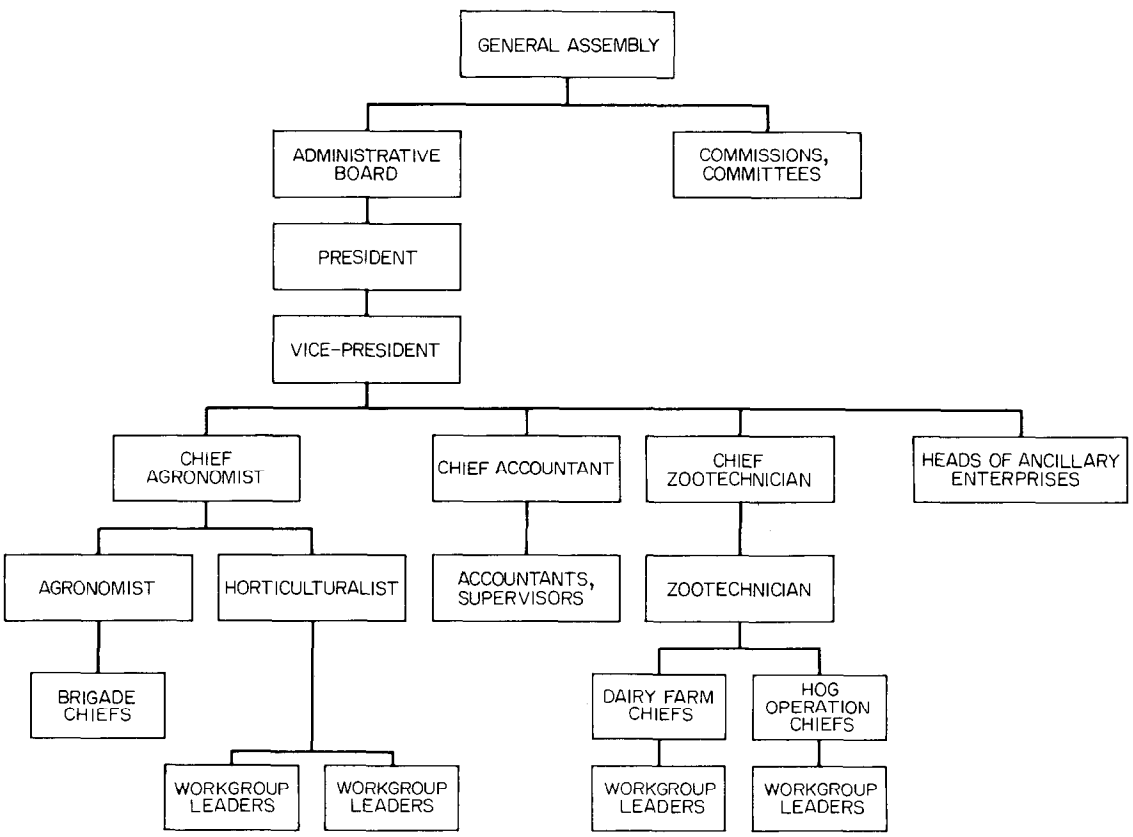

Figure 1. *Managerial structure of the Hungarian large agricultural producers' cooperatives.*
Source: Fekete, F., 'The major social and economic features of co-operative farming in Hungary', *Acta Oeconomica*, 11.1 (1973), p. 29.

training.[60] About half of them were university graduates by the early 1980s. Some 90% of the agronomists in co-operatives were university graduates. The co-operatives compete nationally in attracting agricultural and technical specialists of high calibre. Poorer farms and those in remote areas find it quite difficult to attract qualified personnel, while those near Budapest can take their pick.[61] Although the greater technical skills for managers have been required by the application of modern technology and the implementation of NEM, some sociological research indicates that the introduction of new technology (regardless of cost) was used by the 'agrarian intellectuals' to enhance their own position *vis-à-vis* the older and more traditional 'peasant leadership of the co-operatives.[62] The 1970s mergers of co-operatives provided these experts with a better chance of winning in this power struggle. In a sense, therefore, agricultural experts have created some of the 'necessity' for themselves.

Whatever the reasons for the growing role of experts in management, the combination of large size and technocratization of agricultural enterprises has carried political costs, particularly by eroding the sphere of co-operative democracy. Even early in the 1970s, as the trend towards expert managers became apparent, a sociological survey demonstrated these costs. Although managers and other strata in the co-operatives professed roughly the same opinions on which issues required membership consultation before decision, on the question of whether co-operative members actually exercised influence over decisions a large gap existed. Over half the managerial group considered such influence significant; while not even 20% of one of the manual worker categories thought so.[63] The gap may be due to a different definition of influence (managers may consider objections to their actions 'influence', while workers recognize their influence only in concrete results); or it may be due to the managers' mediating demands and interests of a diverse membership.

On certain issues of general interest, and particularly those related to overall performance or general production plans, the membership may participate quite vocally in plan discussions and may dismiss a manager who is not discharging responsibilities adequately.[64] However, as one agricultural expert pointed out, the annual plan of a co-operative is worked out by the chairman, economic vice-chairman, engineers and all those directly involved in management. The plan is brought before the Assembly of members' representatives, which theoretically could challenge or alter the plan. But, as the expert remarked, 'Who could argue for a proposal to change something in a complex plan prepared by professionals?' Some increase in members' decision-making power is promised by recent experiments which return plan control to 'complex brigades' within the co-operative which control their own machinery and income.[65] For the time being, however, the issue of members' power in most co-operatives remains problematic.

Below the managerial level, the complexion of the co-operative labour force has changed as well. Among those classified as manual workers in agriculture in 1981, 28.6% were classified as skilled workers, and 42.1% as semi-skilled.[66] Because of the greater skills required, for example to operate grain combines, and a shortage of those with the requisite skills, co-operatives have even found it necessary to bid competitively for manual workers. Thus not only may professional managers not be co-operative members, but a significant part of the manual workforce in co-operatives are classed as 'employees' rather than members. Employees cannot vote in the co-operative assembly and are not eligible for certain social benefits granted to members. On the other hand, there are compensating factors for the employee, as Antal Gyenes reports:

> First and foremost, an employee works for a preagreed sum, whereas a member's income depends on the overall success of the co-op. The employee risks nothing, in the case of the *permanent employees*, the co-op guarantees year-round employment, whereas members get work only during certain parts of the year. Lastly, social security arrangements are more favourable for employees, for example, the so-called 'industrial retirement age', which is 60 for men and 55 for women.[67]

The average annual income of co-operative employees was 38% higher than that of members in 1976; now it is more roughly equal, with employees generally making more in the poorer enterprises and members making more in the wealthier ones. In 1981, employees were 18.8% of the work force in agricultural co-operatives. According to Gyenes, the proportion of employees is particularly high in areas with many industrial workers and in co-operatives with low membership incomes.[68]

Expanded technical decision-making and the complexity of the work force in co-operatives have complicated the issue of incentives. Managerial incentives are perhaps the least problematic aspects of this issue. Those whose expertise is much in demand can command high salaries by Hungarian standards. Effective managers have received additional incentives. Since the early

1970s they have received salaries as a basic annual wage and earned year-end supplements equalling perhaps 25–30% of their yearly income. The size of the supplement depends upon the overall performance of the co-operative, including its performance in raising members' incomes.[69]

Compensation for the general membership constitutes one of the more hotly debated agricultural policy areas. The remuneration methods which came into general use with the NEM reforms do provide some incentive for increasing the quality of labour efforts. However, co-operative members and policymakers alike remain dissatisfied with the current remuneration policies, though for different reasons.

The remuneration issue must be seen in the context of earlier compensation methods. Two forms of compensation were prominent in Hungarian agriculture in the 1950s through the mid-1960s. The first was the 'distribution of the residuum' method, which placed members' income claims last in priority. The 'residue' of the co-operative's net income was distributed at year's end on the basis of the work units (measurements of labour input) accrued by each member. Having little control over the size of the residue (it will be recalled that co-operatives still had largely to respond to state production demands), members tended to maximize their individual incomes by earning more work units, sacrificing quality of work for quantity and wasting inputs. Later, many farms turned to a sharecropping system whereby households were assigned plots and kept a proportion of the product. This method elicited more productivity, but obviously was more suitable in small-scale and unmechanized operations.[71]

With the 1967 Co-operatives Law, co-operatives were authorized to pay members guaranteed annual salaries which take precedence over liabilities to the state or material replacement costs. These salaries amount to about 80–95% of members' personal income for the year. The remainder of the income is paid as a year-end dividend based on the co-operative's net profit.[71] The dividend system is thought to increase members' 'interestedness' (a term one hears frequently in Hungarian discussions of incentives) in raising the efficiency and profitability of the co-operatives as a whole. The 'interestedness' must be seen in the light of *two* goals at which incentives must aim: first, obviously, to induce *effort*; but second — and for Hungarian agriculture more fundamentally — to induce *employment*. With the effective shortage of skilled labour and the mobility of young workers, agriculture must be able to attract workers with an option of industrial employment. As Gyenes pointed out, younger agricultural workers require 'a fixed, guaranteed income, year-round employment and appropriate social security measures'.[72]

On the other hand, rapid increases in the profitability of a co-operative do not automatically translate into large income increases for members. Due to the government's concern with maintaining a modicum of equality between units and keeping effective consumer demand roughly in line with supply, the degree to which a co-operative distributes profits as income is regulated, though indirectly, through a steeply progressive tax system. The co-operative must pay taxes commensurate with members' increased incomes. Depending upon the co-operative's average wage, these taxes are triggered when labour remuneration increases from 2% (in the wealthiest co-operatives) to 6% (in the poorest). The taxes then paid by the co-operative are figured according to both the size of increment in the co-operative's average wage and to the wealth of the co-operative. The tax can range from 50% to over 500% of the increased remuneration paid to members.[73]

Several experiments are now in progress for altering wage regulation to improve incentives. Taxes on individual incomes rather than at the enterprise level are being tested in about 100 enterprises. Other agricultural enterprises were given a new option in 1983 of either staying with the old wage regulation system or altering the balance between distribution and other funds.[74] The Ministry of Finance, which enforces the tax regulations, may also give special dispensation for other experiments.

Such a dispensation has been granted to a co-operative at Baksa, which began experimenting in 1980 with incentives for specialized work groups.[75] These groups negotiate a profit target with the co-operative. They receive a guaranteed wage for the unit as a whole based on the previous wages. If they overfulfill their profit targets, they may keep 40% of the surplus for distribution among the group members. By special Ministry permission, the co-operative does not have to pay the usual tax penalties for the income increases that result from this method of compensation.

The Baksa experiment was prompted by stagnation in the co-operative's profits in the 1970s. Up to 1979, it had proved impossible to raise the profit level above 14 million forint. The experiment rapidly succeeded in its aims. In 1980, profits rose to 20 million forints; in 1981 to 24 million; and in 1982 to 29 million. Members' average income from the large-scale farm was

43,000 forints in 1979; by 1982, it had risen to 58,000. The results were so encouraging that the Finance Ministry in 1983 decided to permit another 38 co-operatives to try arrangements like Baksa's, although this permission, as for Baksa itself, is for a limited time only.

Most of the economic literature on Hungarian incentives tends to emphasize the 'more pay for better work' principle of remuneration. It is important to note, however, that experiments such as Baksa's, relying as they do on organizational as well as incentive changes, incorporate the remunerative incentive with two other features: more participation in decisions affecting work and possibly the more appropriate planning of activities due to the work group's autonomy. These may have important incentive effects on co-operative members. On the basis of available information, it is impossible to determine the relative weight of each factor in the results, but we should at least not assume that remunerative incentives on their own will produce the desired result.

Ancillary industries are the third development within agricultural co-operatives of relevance to the Hungarian model. Space does not permit a thorough treatment of them, but their importance for co-operative employment and income must be noted. Ancillary activities (industry, construction, etc.) by co-operatives averaged an 8.5% annual increase in gross output (at constant prices) during the 1970s. By 1981, these pursuits produced 24.3% of the gross production value in the entire agricultural branch (co-operative, state and private) and 31.4% of the gross production value of the co-operatives (excluding private plots). Hungarian experts stress various functions of the ancillary activities, which include providing off-season employment for co-operative members (and as my field observations suggest, regular employment for many women in the co-ops), raising the income of the membership and the development funds of the co-operative, providing services and simple manufactures (e.g., spare parts) otherwise unavailable and arresting the drift of labour to urban areas. The ancillary industries alone range from those more directly related to agriculture, such as food processing or machinery repair (originally the only types of ancillary activity approved by the government), to relatively sophisticated manufacturing of specialized electronics products.[76]

Improved management and member incentives do not alone explain the improved economic performance of the co-operatives after 1968. The huge increases in yields for grain and other crops farmed on a large scale have also come about through co-operatives' participation in programmes bringing technological packages to the farms. These programmes, the 'technically operated production systems', have brought a new form of large-scale organization which has modernized Hungarian agriculture with breathtaking speed.

(c) *Technically operated production systems (TOPS)*

'Production systems' originated in Hungary in the 1960s with the development of automated livestock production technology adapted from Western techniques. As Hungary's livestock production expanded, the lack of feed grains quickly became a serious drag on further development. With government encouragement, several organizations began in the early 1970s to develop technical production systems for grains such as maize and wheat; others later were developed for many other crops. The systems have grown at a phenomenal rate. By 1975, they organized production on 19.0% of Hungary's croplands; by 1977 the proportion had risen to over 30% of the arable land with 86% of all state farms and 78% of co-operatives participating in at least one system.[77] By 1982, Hungary had some 70 production systems, 20 of which were for crops such as grain, sugarbeets and oilseeds. These systems now organize production on about 80% of Hungary's arable land in major crops. Another 20 systems have been developed in animal husbandry and 30 in horticultural and orchard crops.[78]

Because these systems have been developed and are independently marketed by many different sources, they are far from uniform. But all seem to share four common characteristics. First, they absorb the most advanced technology available in a given line of production be it from East or West. Second, they adapt such technologies to Hungarian economic and natural conditions. Third, they provide integrated packages of inputs — seeds or breeding stock, fertilizers or feeds, machinery, and so on. Participating farms are to use these inputs as not piecemeal but integrated *systems*, hence the name 'production systems'. One principal aspect of this integration is that units of production must be in multiples of set sizes: perhaps one hundred thousand broiler chickens or 600 ha of maize for a system contract. Finally, the production system centres (the developers of the technology package) must market their packages competitively. No agricultural enterprise is required to join one, or any, production system. If it chooses it may join several, perhaps for different production lines.

Participating enterprises have the freedom to change or abandon production systems within the terms of their contracts. The competition among production systems is seen as one of the main sources of their dynamism, pushing their developers towards continual improvements in technology.[79]

Peter Elek has distinguished two principal types of TOPS characterized by their legal structures as 'proprietary' and 'technological transfer' varieties. The proprietary type

> is an operational unit with a separate legal entity, formed for the exploitation of profit. . . . The profit will be earned by the publicly owned proprietary TOPS, which in turn will disburse a certain percentage of such profits, in the form of dividends, to the shareholders. The shareholders are collective and state farms. . . . The proprietor (TOPS) owns all the equipment. The shareholders . . . pay for leasing such equipment.[80]

A prime example of such a proprietary TOPS is I.K.R., one of the first and also one of the largest production systems enterprises in Hungary. I.K.R. grew out of technologies developed by the well-known Babolna State Farm in co-operation with Western agribusiness firms, but is now an independent company. It developed minimum packages for maize production in the early 1970s consisting of hybrid seeds, machinery, pesticides and fertilizers. Labour needs were also calculated in the package. For this type of package, a minimum land area of several hundred hectares had to be planted in maize in order for all of the inputs to be used most efficiently. This was especially important for the use of the expensive machinery, much of it of Western manufacture. Participating farms had to contract to abide by all terms in the technical package. They leased the machinery and received the other inputs from I.K.R.: in return, they had to pay I.K.R. a percentage of their increased maize yield. Because I.K.R. is a profit-oriented enterprise, its leasing charges and levies on yield increases are calculated to provide a profit. I.K.R. began with maize technology, but now provides integrated technical packages for other crops as well.[81]

The technological transfer type of TOPS

> sell know-how and arrange easy credit terms to acquire equipment for associated member farms. . . [T]heir role is more that of middleman, promotion agent, than the profit maximizer. . . . The role of members joining this type of TOPS differs, *because they purchase their own equipment*. . . . [This type of TOPS] could be classified loosely as co-operatives with independently operating profit-seeking members.[82]

The premier example of the technology transfer TOPS is K.I.T.E.[83] K.I.T.E., based at the model Red Star Co-operative in Nadudvar, was founded in 1972. Legally it is still a part of the co-operative, but organizationally it is completely separate. K.I.T.E. was founded by a group of co-operatives to assist in their technical development and has not been profit-oriented. At present, 50% of its costs are covered by the member co-operatives and 50% from its earnings on purchases of inputs or on sales of products on behalf of member co-operatives. K.I.T.E., like I.K.R., tries to develop advanced technical packages of inputs. However, unlike I.K.R., it helps to organize financing for member farms' purchases (by evaluating and combining their applications for state bank credits), and organizes the purchase of inputs (as in negotiating a better price on large purchases) rather than purchasing the inputs itself. In addition to helping members obtain these inputs, K.I.T.E. also provides extension services to member farms such as technical training and machinery maintenance and repair. These are offered primarily through regional subcentres of the K.I.T.E. system.

Because much of K.I.T.E.'s purpose is to develop the technical expertise and intelligent enterprise planning of its member farms, it stresses development of membership by stages. The first stage is a 1- or 2-year period in which the regional K.I.T.E. specialists visit the co-operative, and the co-operative's managers and technicians participate in training sessions offered at the system subcentres. At the second stage, member co-operatives are advised by K.I.T.E on the best technical methods for specific crops. In the third, most advanced stage, the member co-operative has its entire production planned by K.I.T.E. The system now has about 380 member co-operatives (a quarter of Hungary's total), of which about 80 are at the third stage of membership.

Given their emphasis on technological inputs, the production systems can be quite expensive for member farms. However, they have in general proven economically worthwhile to members because they have brought large increases in yields. K.I.T.E system grain yields, for example, are about 10–15% above the national average, and I.K.R. yields have enjoyed similar success. Moreover, since member farms may change to another system, there is an incentive for each TOPS to keep its costs down. An additional inducement to joining a TOPS is that it may be the only way for a farm to gain access to more sophisticated machinery. AGROKER (the state firm distributing agricultural machinery) gives priority to systems enterprises.[84] Thus

although a farm may choose among TOPS, it may find the choice not to join at all more expensive (in lost investment opportunities) over the long run.

(d) *Small-scale farming*

Among the collectivized agricultural systems of Eastern Europe and the USSR, 'private plot' farming contributed a large proportion of agricultural gross output until the late 1960s. The private plot, a small area allotted to a collective farm member once membership obligations were met, served several functions: complementing incomes from collective work which might be inadequate for subsistence, utilizing unproductive labour reserves, contributing to urban food supply, and relieving the state or collective retail outlets of the need to supply rural food. However, by now only in Hungary and Romania does the 'private' sector in collectivized agriculture still contribute more than 30% of total agricultural output.[85] For Hungary, the 7.6% of total arable land classified as either 'household plot' or 'auxiliary and private farms' still accounted for 31.4% of gross agricultural production in 1981.[86] At a time when the rest of Eastern Europe's collectivized agricultural sectors tended to phase out or discriminate against household-based production, Hungary has been actively encouraging and materially assisting its 'small-scale agricultural production' *within* collectivized agriculture, and side-by-side with the large-scale production which TOPS entail.

Small-scale production in Hungary includes three types of units: the 800,000 household plots of co-operative members, the nearly 1 million small auxiliary farms of non-agricultural or state farm employees and the few remaining private farms. Altogether 1.8 million families are producing in the small-scale sector, which means approximately half the national population.[87]

The auxiliary farms form a diverse group, including plots of land provided as part of the remuneration of state farm and other workers, areas of home gardens and courtyards and land still being tended by former agricultural workers. Only 75,000 of these units are larger than 1 ha.[88] Auxiliary farms have been gradually increasing in number.

To be eligible for a household plot, co-operative members must work a specified number of days for the co-operative, between 180 and 280 days annually for men and between 130 and 150 days for women. Only one household member need perform this work to have access to a plot and retired members need not meet any labour requirement. Present regulations limit the size of plots to 0.6 ha of crop ('arable') land or 0.23 ha of vineyard or orchard per worker (thus some households may receive 1.2, or 1.8 ha). Government-imposed ceilings on the number of livestock on household plots have long since been abandoned. Co-operatives themselves are legally permitted to set a limit,[89] but tend not to.

Official policy in Hungary has in the past vacillated over the status of small-scale farming. The effects of the most recent vacillations probably guaranteed the small-scale farms a secure niche in the agricultural sector. In 1974–75, the press reported statements by party and government officials which led farmers to believe that a crackdown on their small-scale activities was coming; a tax on household plot earnings was also introduced. Peasants' swift response — slaughtering many livestock and drastically curtailing production — quickly made itself felt in shortages of meat, fruit, and vegetables. The party rushed to reaffirm its commitment to small-scale farming, first in its 1975 Congress, and then in a speech by Party Secretary Janos Kadar to the Congress of Agricultural Co-operatives in December 1976.[90]

Agricultural officialdom has particularly emphasized that (unlike the early experience of the co-operatives) production in small-scale farming complements rather than competes with large-scale farming. Small-scale farming's labour force and its means of production are usually unsuitable for large-scale operations. Surveys of household time allocations have shown that most of the work on small-scale farms is not performed by the active agricultural earners. These contribute only 20.1% of the total work time invested in household and auxiliary plots; of the rest, the major proportions are contributed by pensioners (24.9%) and family dependents, mostly housewives (33.2%). The remaining 21.9% of work time was mainly contributed by non-agricultural employees, intellectuals and students. Applying this otherwise unproductive time to agriculture provides 2.3 billion work hours annually — more than the total labour invested in large-scale farming.[91]

That small-scale agriculture uses buildings, machinery and other means of production unsuitable for large-scale operations — and incidentally, uses households' own funds for investments — means a considerable economizing on investments by the government or agricultural enterprises. In 1976, for example, it was estimated that:

> it would take 100–110 billion forints to replace the

> animal quarters and plantings of the small farms with production equipment suitable for the large farm. Furthermore, it would require tying up 45–50 billion forints in working capital.[92]

In the economic difficulties occasioned by the international oil price shocks and now the global recession, Hungary cannot afford to entertain the notion of supplanting small-scale with large-scale production.

That small-scale production is still significant for the food economy is obvious from the figures. The share of small-scale production in total agricultural products declined from 54.8% in 1960 to 31.4% in 1981; the decline has been consistent over time. (See Table 5.) Despite its declining percentage share, small-scale farming's absolute value of output has been increasing. Hungarian policymakers hope to sustain those increases as much as possible, while assuming that the share in the total will fall throughout the 1980s and beyond. As one might expect, the share of small-scale production varies by product. This is reflected in the fact that 85% of total horticultural (mainly vegetable) area, 52% of vineyards and 26% of fruit-growing area are under small-scale production. Concentration is higher in livestock production (40.2% of total output) than in crops (27.2%). But among crops, small-scale production accounts for over half the potatoes and vegetables, nearly half the fruit and almost two-fifths of the wine grapes.[93] (See Table 6.)

Table 5. *Share of small-scale agriculture in total gross agricultural prodution*

Year	Gross production of agricultural branch	Gross production of agricultural products		
		All small-scale	Household plots	Auxiliary & private farms
1960	53.1%	54.8%	21.3%	33.5%
1965	–	43.1	24.9	18.2
1970	29.7	36.0	23.4	12.6
1979	–	35.5	16.5	19.0
1981	22.0	31.4	16.7	14.7

Source: Data for 1960, 1970, 1981 are from Kozponti Statisztikai Hivatal, *Statisztikai Evkonyv 1981* [Statistical Yearbook 1981] (Budapest: 1982), p. 26; for 1965 and 1979, from Misi (1981), p. 21.

Table 6. *Share of Hungarian small scale production in total agricultural production*, 1981 (*by value, at current prices*)

Product	Share of total production produced by small-scale units (per cent)	
Wheat	1.3%	
Maize	16.8	
Sugarbeet	2.1	
Potatoes	57.1	
Vegetables	59.3	
Fruit	47.8	
Wine grapes	38.8	
Other crops	8.3	
Total crops		22.7%
Cattle	25.8	
Pigs	51.6	
Sheep	17.5	
Poultry	40.7	
Other livestock	61.0	
Total livestock		40.2
Total agricultural production		31.6

Source: Kozponti Statisztikai Hivatal, *Statisztikai Evkonyv 1981* [1981 Statistical Yearbook] (Budapest: 1982), p. 158. The figures given here relate to the combined gross output value of co-operative farms' household plots, auxiliary farms of non-agricultural employees, and private farms.

Hungarian agricultural economists see their small-scale farming sector as different from those in other socialist countries where self-sufficient provisioning of households from the private plot is stressed. In such systems, large-scale farming is for commodity production for the national and especially the urban food system, while household plots provide for the farm families' own consumption needs.[94] For Hungary, there is indeed a division of labour between large- and small-scale farming, but it is of an entirely different order. Large-scale farming concentrates on the types of production which are capital-intensive and where economies of scale are significant. Small-scale production concentrates on the more labour-intensive products or in the activities where the risks of investment are best assumed by those doing the work. Both scales of operation are oriented towards commodity production — large-scale entirely so, and small-scale about half so. Moreover official policy encourages expanding this commodity production as much as possible.[95]

The integration of small-scale farming with the large-scale farming sector has made possible the rapid development of household-based commodity production. As one source described the situation: 'The large-scale co-operative enterprise and its members' homeplot farms are . . . not independent units but essential parts of one single entity: the co-operative farm'. State policy requires the co-operatives to render assistance to members' household plot production — an assistance which appears to have been extended to many auxiliary farms as well.[96]

Several types of assistance are rendered. For example 1000 (or about 75% of the total) co-operatives buy inputs on behalf of their small-scale producers; 500 co-operatives pick up and deliver green fodder for household livestock. Twelve hundred co-operatives or nearly all of them organize pig production through 'basic lease contracts' whereby the co-operative provides the piglets, the fodder or veterinary services and picks up the fattened pigs for slaughter. Ninety per cent of these contracts are long-term, which provides households with an incentive to invest in better facilities. Poultry-raising may be conducted under similar arrangements.[97] Other arrangements for household/co-operative links vary from enterprise to enterprise. For example, at the Arpad specialized vegetable co-operative, the 'household plots' produce vegetables under heated plastic tents, which are set up by the co-operative in one place and heated by the co-operative power plant. The co-operative's own greenhouses are adjacent to the 'household plots'. This arrangement economizes on energy and thus helps maximize net income for both co-operative and households.[98]

As incentives for household-based production, those who produce under a labour contract on the household plot and sell their product to a co-operative or other large-scale enterprise become eligible for pensions from the co-operative. Households producers are eligible for subsidies on certain inputs: for purchase at discount prices of machinery, agricultural chemicals, and so on; for the state subsidies for cattle-raising; and for loans from state banks. They also receive special tax breaks.[99]

The development of commodity production on household plots has meant that small-scale production continues to provide a large share of household incomes even as real wages in the large-scale agricultural sector have risen. In the early 1970s, an agricultural census showed one-third of the income of co-operative members' households derived from their household plots. This was significantly below the high point of 54.4% in 1961. There do not seem to be any recent national figures available in English on this point, but in general the impression given is of a slow, gradual decrease.[100] As the proportion falls, even if the absolute income contribution rises, one might expect the incentive for household-based production to fall as well. Nevertheless, small-scale farming for some time will continue to have an important income-incentive function for agricultural producers. Taxation on incomes earned in household and auxiliary plots is negligible to nil, and income increases are not limited as in the large-scale sector.[101] Indeed, one Hungarian economist privately confirmed that many co-operatives have used the expansion of household production as a way of increasing member incomes rapidly without incurring the severe tax penalties on co-operative salary increases. The logical conclusion would be that to the extent the incentive problems are solved in large-scale farms, the salience of small-scale producer income will decrease. However, no Hungarian informants seemed to expect experiments such as Baksa to become common practice in the near future.

(e) *The parts and the whole*

Sooner or later, in any open discussion of the Hungarian experience someone will express the opinion that the newer elements in the system (often dubbed the 'capitalist' elements) deserve the credit for the progress of Hungarian agriculture, while the older and more traditional socialist elements deserve the blame for any remaining

difficulties. Yet although it may be the departures from traditional socialist agricultural institutions which are immediately striking, the most distinctive feature in Hungarian agriculture may well be its successful melding of new elements not only with each other but also with traditional socialist forms.

Hungary uses both plan and market, but in novel fashion. It is common for socialist systems to use the market to supplement the central plan, and Hungary does indeed do this. But in addition, the NEM fosters a market which, rather than replacing planning, is used in order to plan. As the NEM is extended, planning is likely to be no less important. The country's involvement in the world market makes old-style command planning inappropriate and unwieldy. But as many Hungarians see it, the very involvement in international trade, in the context of a volatile international economy and a low level of domestic development, makes some kind of planning essential.

The autonomy of producer enterprises, a rarity in socialist settings, has been a crucial component of Hungary's agricultural progress. Yet the agricultural co-operatives also constitute essential parts of the planning process. Without the annual production plans of enterprises and without the follow-up consultation with some enterprise managers, the 'regulators' would have to be devised in ignorance and planning would be a series of shots in the dark.[102] The co-operatives also provide a conduit for rapid transmission of household producers' intentions to policymakers, and of policies to households.

The relatively recent development of ancillary industries within the co-operatives might be seen as a non-traditional element, but in addition to promoting the co-operatives' autonomy (by adding to the coffers of the development fund), ancillary activities help the co-operatives discharge a traditional obligation to provide employment for members.

The high productivity of small-scale production is sometimes adduced as evidence that, as elsewhere in the Soviet Union and Eastern Europe, private production works better than collective. But the complexities introduced by the pricing system and the specialized division of labour between large- and small-scale producers should at least raise doubts on this point. Moreover, with so many transfers of inputs and services from co-operative to households, it is impossible any longer to establish a clear dividing line between collective and private production. Hungary has accomplished in this regard a symbiosis of 'industrial' and traditional 'peasant' production which has eluded most modernizing agricultures, capitalist or socialist.[103]

Elsewhere in Eastern Europe and the USSR large organizations are devoted to the dissemination of new technology, but nowhere else is this achieved, as in the TOPS, through competitive marketing by organizations autonomous from the state. And yet, because of their size and due to the allocation of scarce machinery through the state channels, the TOPS mix flexibility and user choice with a channel for government influence over the trend of development. From the traditional socialist perspective, TOPS also satisfy a traditional assumption linking size and progress, while at the same time providing an alternative to unwieldy gigantism in producer organizations.

Because of the complexity and interlinkages of these organizational aspects of Hungarian agriculture, it is impossible to attribute the success of the agricultural sector to any one of them, or even to disaggregate the precise contribution of each to Hungarian agricultural productivity and growth of agricultural incomes. Although they were introduced at different times and their interrelations have changed over time, the parts do now fit together as a relatively smoothly functioning whole by blending old and new elements in planning and enterprise autonomy, competition and control, private endeavour and collective productivity. If the foregoing survey of key organizational elements of the Hungarian system can be taken to demonstrate anything, it is not the bankruptcy of socialist approaches, but the lesson that it is possible to put new wine into the old bottles. The co-operatives of today are on the average much stronger, more vital, and more dynamic than their counterparts of 20 years ago. The household producers of today are much more closely tied into the network of state-dominated commodity exchange and co-operative organization of production than their predecessors a generation ago. State plans probably come closer to meeting their objectives than they did before the NEM reforms.

As noted in Section 2, and as should be clear from the discussion in Section 3, not all that has grown out of the Hungarian 'model' is positive. But neither can all that is inefficient or unsatisfactory be laid at the door of the more traditional aspects of the system. The system, like any developing system, must continually strike a balance between conflicting demands and objectives: between employment and efficiency, between equality and incentives, between the expansion of expert management and the realization of membership control in the co-operatives, between technological decision-making and the autonomy of enterprises, between economic

growth and political acceptability. The 'model', more than exemplifying some static organizational ideal, lies in the process of continual organizational change and adaptation to balance such conflicts as the demands and the level of development change.

4. IS IT TRANSFERABLE?

Most of those responsible for the success of Hungarian agriculture would be aghast at the suggestion that Hungary's institutions and practices should be applied elsewhere just as they are in Hungary. In any discussion of this question, the unanimous view was that Hungary's practices were worked out for Hungarian conditions and objectives and could not be adopted wholesale elsewhere. However, it is at least conceivable that one might apply elsewhere an appropriate combination of the elements of the model: planning by regulating market indicators combined with enterprise autonomy and competition, organization of large-scale production through medium-sized units controlled by their members, compensation methods linking individual incomes to profitability, the packaging and competitive marketing of new production technologies, and the use of household-based production for flexibility in production structure. The TOPS element has attracted the greatest interest elsewhere in the socialist world, but if the foregoing analysis is correct, its results will prove to be less than magical if it is applied without the other elements of the model. The question then becomes: are the other elements of the model transferable, and if they are, what are the chances that other socialist systems might consider them seriously?

Two features peculiar to the Hungarian context cast some doubt upon the appropriateness of the model in most other settings. First, the country's small size offers what may be a rare opportunity among socialist nations for the type of planning approach and enterprise autonomy for which Hungary has opted. With a population of only 10 million, basically homogenous both ethnically and linguistically, Hungary does not face the potential problems of regionalism and ethnic conflict which could be exacerbated by decentralization of economic decision-making. Nor, with a *relatively* (and one must stress the relativity) equal distribution of natural agricultural resources within the country, Hungary need not fear the enormous regional inequalities that relaxation of central control and enterprise autonomy could entail under other circumstances. In addition, and paradoxically, the very homogeneity of the country probably makes acceptable the considerable organizational flexibility and wide range of organizational diversity found there.

The response to a request to visit a typical agricultural co-operative in Hungary is that there *is* no typical co-operative. What is perhaps more accurate, and very much true, is that there is no *ideal type* of co-operative. In a larger and more diverse country, organizational and administrative diversity might be even more conducive to efficient economic performance, but at the same time it would seem far more of a threat to central government's capacity to direct, or even guide, the agricultural sector.[104]

Size alone may have a great deal to do with a government's ability to guide, as Hungary has done, through indirect regulatory mechanisms. As Elek points out, building on Kindelberger, the 'small size' of the national market 'reduces the "recognition gap" and "diseconomies of scale" and increases the perception of plan adjustment, and thus such "elastic planning" becomes feasible'.[105] Moreover, the small number of units which must be affected would also seem to make Hungary's planning methods peculiarly practicable. Common sense suggests, for example, how much easier it would be to make up the annual planning calculations based on producers' plans for Hungary's 1400-odd agricultural enterprises than for China's 5 million production teams.

The size issue might seem to suggest that something like the Hungarian approach would be more appropriate for the younger and smaller socialist countries of Africa and Asia. However, a second feature in the Hungarian context is woefully lacking there and that is economic and technical expertise. Even much of Eastern Europe and the USSR would find it hard to match the superbly trained economists whose talents were essential, first, to working out the NEM and devising successive stages of it, and second, to managing planning within the government and production within the enterprises. Hungary also stands out in its agricultural scientific talent. In this respect, numbers may not count for quite so much as quality, and it must strike anyone who enjoys a firsthand encounter with the Hungarian food system that the quality of personnel responsible for its workings at all levels is unusually high. That quality is apparent not only in their technical skills, but also in their energy and their deep interest in making agriculture work well.

Neither of these contextual factors may be a

sine qua non for another country to start adapting the Hungarian approach to its own conditions. Most of the limitations imposed by size may yield to intelligent and adroit political leadership; and experts, of course, may be obtained the same way they were in Hungary, by training them carefully and placing high priority on motivating them to work well. Moreover, not all elements of the Hungarian model were simultaneously acquired; experts could be cultivated in conjunction with a gradual transformation. (The exception may be a planning mechanism like the NEM, which required an initial comprehensive implementation.)

But what are the chances that other socialist countries might want to try introducing something like the Hungarian model? The most likely candidates, for the near future, would be the USSR and the rest of Eastern Europe, which at least have a respectable technical base in agriculture. Many of these countries are already discussing some types of agricultural reform or even general economic reforms (some even dubbed New Economic Mechanism).[106] The Soviet Union has recently introduced a Food Program which incorporates some elements reminiscent of features of the Hungarian system.[107] The question is not whether these countries will consider reforms, then, but what might impel them to adopt reforms of the Hungarian type *and to act upon them effectively*.

Here a brief consideration of the factors which impelled the reforms in Hungary may provide us with some (though not certain) clues to this issue. Part of the motivation in the Hungarian case was caused by the country's recognition by the mid-1960s of the necessity of improving the standard of living of its people, demonstrably and regularly, if social peace and political stability were to be guaranteed. In Hungary, the commitment engendered the NEM; in other contexts, it has engendered stepped up agricultural imports and sometimes sharply increasing international debts. There is therefore no one-to-one correspondence between the commitment and the choice of mechanism for realizing it.[108]

The crucial variable determining Hungary's choice (and its enforcement) is held by many scholars to be a political one: the willingness of the party leadership to contemplate, and indeed encourage, bold reform measures; and the political capacity to sell those reforms to powerful interest groups (workers, bureaucrats, intellectuals, etc.) who might otherwise have stymied the reform attempt. Most stress the role of Kadar particularly strongly in this regard: his prior successful consolidation of control over the party apparatus (which eliminated serious factionalism within the party) and his willingness to back the reformers publicly.[109] Even in Hungary, political pressures in the early 1970s forced a retrenchment on the NEM which was only reversed at the end of the decade.[110]

Of course other socialist countries contemplated reforms during the 1960s and even attempted to implement them. Czechoslovakia offers the most striking case of failure — perhaps by 'going too far'. But in his analysis, Korbonski suggests that the speed of the reforms might have doomed them even in the absence of the Soviet invasion.[111] As Nyers points out, the 'reform wave' in the rest of Eastern Europe 'died down by the early seventies — a strong reflection of political forces at work as well as of the economic difficulties of the transition'.[112] What gave the reform coalition an added boost in Hungary? A number of analyses (and my informal conversations with Hungarian economists) suggest that it was Hungary's need to make its exports competitive. Certainly one crucial factor influencing Hungary's choice was its strong and unavoidable involvement in international trade. With some 40–50% of its gross national product depending on that trade, Hungary had to make internal adjustments which permitted efficiency, profitability and quality of production matching world levels.[113] However, one might argue that other socialist countries will increasingly find themselves in a situation very like that which helped determine Hungary's choice of reform and in part due to their previous pursuit of very different policies. Other East European countries have just about exhausted all the other measures which might insulate them from the need for reforms in planning and production organization, and by doing so they have amassed debts which require their continuing involvement in the international economy. Serious austerity measures or reform would appear to be the next logical alternatives.[114]

There is one remaining question which must be addressed here. That is whether the Hungarian model of the past 15 years can even be transferred to the Hungarian future. Already, as noted earlier, there have been a number of social and demographic changes which indicate the gradual diminution of small-scale farming. Within the large-scale farming sector, there are new problems for incentive systems if younger and more skilled workers are to be attracted; and there are tendencies to technocratic administration of the co-operatives which may increase their economic efficiency at the price of the non-participation and even decreasing incomes of segments of the co-operative membership. For the not too distant future, as agricultural enter-

prises sink more investment into capital-intensive improvements, they will find their degrees of freedom to change lines of production or switch between TOPS decreasing. If the policy of increasing the role of market factors persists, the subsidies and other benefits which have cushioned the effects of competition upon the poorer or less well-endowed co-operatives will no longer insulate them from the wear and tear of market competition. As one agricultural expert remarked to me, 'Everyone is in favour of more competition, but no one thinks that in the competition they may lose. But it is the nature of competition that someone always loses.' What many in Hungary see as the next difficult decision is to what extent it can afford to maintain its commitment to equality and employment if — as seems likely, and is certainly stressed by the IMF — further improvements in efficiency and flexible adjustment to international markets dictate the opposite tack.

To a considerable extent, the painfulness of that choice, and the degree to which equality and efficiency become either–or alternatives, depend upon factors beyond the control of the food sector itself. The opportunities in the international market, now increasingly constrained by protectionism in potential markets for Hungarian food products,[115] will have a decisive influence upon the demands made on the food sector. In addition, the profitability of agricultural production, and the availability of employment outside the food sector, are integrally related to the health of the industrial sector domestically. A more efficient industry would lower costs and raise profitability in agriculture; it would also be more competitive on the international market and thereby relieve agriculture of some of the burden of furnishing foreign exchange. Over the long run, the very developments in the domestic economy which might help solve agriculture's present problems will decrease it importance relative to industry in national economics and in economic policy. Such a transformation might indeed make it less costly for the Hungarian leaders to discard the 'Hungarian model' in favour of one which more emphasizes increasing scale, state ownership, and centralized control.

For the short-run future, however, such a development is highly unlikely. As a result of its past successes, and the changes in organizational structure and technology which it has occasioned, the present model will encounter some growing contradictions between efficiency and equality and between technological improvement and flexibility. But until the circumstances responsible for the reforms themselves change quite materially, the present system still seems the best solution to bridging the contradictions in a manner which enhances forward movement.

NOTES

1. Kozponti Statisztikai Hivatl [Central Statistical Office, hereafter KSH], *Statisztikai Evkonyv 1981* [1981 Statistical Yearbook] (Budapest: 1982), p. 156.

2. Waedekin (1983). The same principle informs the joint essay of Miller, Stuart and Waedekin (1977), pp. 351–357.

3. Nemeti (1981), p. 26.

4. Alton *et al.* (1983), p. 26. Throughout this essay, unless stated otherwise, the term 'Eastern Europe' is used to denote the centrally planned economies of Bulgaria, the German Democratic Republic, Czechoslovakia, Hungary, Poland and Romania. The Yugoslavian 'self-management socialist' system is not included. In Table 3, 'agricultural output' refers to 'gross crop and animal products' minus 'all intermediate products consumed in further production, including seed, litter, manure, and feed from own production, and waste on farms'. 'Net product' refers to gross production ('gross value added by productive activity') minus depreciation. *Ibid.*, p. 4. It is thus equivalent to net value added.

It should be noted here that the comparative computations of such indicators of agricultural performance for Eastern Europe are almost invariably different in every source, due to the guesswork required in estimates that render statistical categories comparable for the different countries or that translate those statistical categories into the types current in the West. Alton's project represents perhaps the most ambitious and comprehensive attempt at establishing reliable comparative data. It should, however, not be expected that the figures his group arrives at for Hungarian indicators — e.g., for value added — would perfectly match those provided by others using different assumptions in their calculations.

5. Jacobs (1982), pp. 34, 35.

6. The GDR had 267% of the East European average of tractors per worker, as compared to Hungary's 108%. Lazarcik (1981), pp. 616, 618.

7. *Ibid.*, p. 622.

8. *FAO Production Yearbook 1981*, pp. 93–97 and 102–103.

9. Nemeti (1981), p. 57.

10. Jacobs (1982), pp. 38–39.

11. U.S. Department of Agriculture (1982), pp. 32–33, 35. Hungary has however remained somewhat dependent on protein feed imports. On feed import needs, and possible solutions, see Varga (1982a), pp. 291–293.

12. Hungarian Central Statistical Office, *Statistical Pocket Book of Hungary 1981* (Budapest: Statistical Publishing House, 1982), pp. 11, 197; Radio Free Europe Research (13 May 1983), pp. 19, 20.

13. Part of the increase in agricultural production has required increased imports of agricultural inputs, but these still occupy a relatively negligible proportion of total imports. A comparison of agricultural and agriculturally related imports and exports is made in Hartford (1984), p. 26. These commodities were found to take up 11.7% of the total import value in 1980 and 17.7% of the total export value. Those figures can be taken as only a rough indication of relative weights of agriculturally related commodities in imports and exports. But the proportions seem to jibe with the notion generally current in Hungary that agriculture is more than carrying its weight in foreign trade.

14. Budapest interviews nos. 4 and 11 at Agricultural Economics Research Institute (26 November and 3 December 1982), no. 7 at Central Planning Office (30 November 1982), nos. 8a and 17 at Co-operatives Research Institute (1 December 1982), and no. 16 at Ministry of Agriculture and Food Industry (3 December 1982). See also OECD (1981), pp. 177–180, 201.

15. Marrese (1983), pp. 330–331, 341.

16. OECD (1981), pp. 178, 225, 231; Hartford (1984), p. 26.

17. A discussion of some internal problems for agricultural exports is contained in Hartford (1984), pp. 27–29.

18. OECD (1981), pp. 178, 216, 213.

19. Marrese (1983), pp. 330–331. However, before we conclude that this is a problem peculiar to socialist agriculture, it is instructive to compare the situation of French agriculture. Taking 1970 as the index of 100, France's gross agricultural production index in 1973 was 137, and in 1981, 101 (in constant francs). Its net agricultural income (with depreciation deducted) was 127.5 in 1973, and 83.2 in 1981. 'La Politique agricole européenne . . .' (1984), p. 30. While the categories are not strictly comparable to those we have for Hungary, the indexes at least indicate that the rising cost problem plagues the most productive agricultural economy in Western Europe.

20. The urban–rural gap may not be a problem in Czechoslovakia and the GDR. The gap between agricultural and non-agricultural incomes there favours agriculture. In Czechoslovakia the 'average agricultural labour income was 6% higher than the average nonagricultural labour income in 1979'. Lazarcik (1981), p. 592. On East Germany, see Fischer (1981), p. 48. However, East German agriculture is far from self-sufficient in grain; an estimated 28.2% of total supply was imported in 1980, and imports are expected to remain above 25% through 1990. OECD (1981), p. 167. Czechoslovakia imported 12% of its grain in 1976–80. Joseph Hajda, Waedekin (ed.) (1982), pp. 178, 180.

On the 'feminization' issue, for example, Robert Miller attributes a significant part of 'Yugoslavia's present agricultural difficulties' to 'de-agrarization, feminization, and ageing [sic] in the village . . .' 'Comment', in Waedekin (ed.) (1982), p. 333. The trend of feminization in Romanian agriculture is documented in Michael Cernea (1978), pp. 107–124.

21. On the problems for 'industrialization' of agriculture, see Waedekin (1982a), pp. 233–263.

22. KSH, *Evkonyv 1981*, pp. 22, 58.

23. Andorka (1979), pp. 532–547; Volgyes (1980), pp. 442–453; Hegedus (1977), pp. 106–107, 116–117.

24. Andorka (1979), p. 26; KSH, *Evkonyv 1981* (1982), p. 59; OECD (1981), p. 182; Fekete and Sebestyen (1967), pp. 98–99; Juhasz (1979), p. 53; Szovetkezeti Kutato Intezet [Cooperatives Research Institute, hereafter SzKI], *Evkonyv 1975* [1975 Yearbook] (Budapest: Kozgazdasagi es Jogi Konyvkiado, 1976), pp. 272–274; Budapest interview no. 16.

25. Volgyes (1980), p. 353.

26. Budapest interview no. 1, at Central Statistical Office (23 November 1982); Volgyes (1980), pp. 449–450, 454–458.

27. Hegedus (1977), pp. 122–128; SzKI, *Evkonyv 1975*, pp. 442–444; Gyenes (1976), pp. 161–176; Volgyes (1980), pp. 481–483.

28. The differentiation among villages is in part due to past governmental policies aimed at centralizing services and resources in the most 'economically viable' villages, which encouraged the movement of the more enterprising and upwardly mobile peasants out of the villages slated for extinction. Many of these villages survived, but are populated largely by those who could not afford to move to the more favoured locales. This information was obtained in informal conversations with Hungarian sociologists, but some perspective on the issue may be gained from Hanto, Karpati and Vagvolgyi (1978), pp. 134–158. Differences in natural resource endowments have also been important sources of economic differentiation between locales, as have differences in cooperatives' leadership and management. On this point, see Hollos (1983), pp. 57–65. The figures on the 369 co-operatives are from Nemeti (1981), p. 170.

29. Volgyes (1980), pp. 472–473, 477.

30. Some aspects of these issues will be discussed

later in the essay. For a highly provocative and fascinating discussion of the intelligentsia as an embryonic ruling class, see Szelenyi (1978/79), pp. 51–76.

31. Volgyes (1980), p. 499.

32. Hare, Radice and Swain (1981), pp. 12–13.

33. Balassa (1982), p. 6.

34. *Ibid.*, pp. 6–7.

35. *Ibid.*, pp. 12, 20–24.

36. Donath (1980), pp. 348–350. From 1965 to 1967 the gains in enterprise autonomy in agriculture included release from dictation of plan targets by county and district governments (except for grain); the setting of state procurement prices to permit self-financed investment by enterprises; and reduced government supervision of co-operatives' management. Marrese (1983), pp. 335–336.

37. Donath (1980), pp. 352, 359, 384.

38. Budapest interview no. 7.

39. Donath (1980), p. 364. Restrictions on the selection of trading partners include: (1) animals bought from the state for resale can be sold only to the state animal and meat trading company; (2) bread crops such as wheat and rye are all purchased by the state grain trading and milling companies; (3) crude sheep's wool can be purchased only by the state wool and textile trading company; (4) tobacco must be sold to the tobacco factories; and (5) paprikas (fresh peppers) must be sold to the state. Sarandi (1982), p. 18. Interviews nos. 9a and 9b at Agricultural Economics Institute (3 and 8 December 1982).

40. Csaki (1983), p. 328; Nemeti (1981), p. 171.

41. Budapest interview no. 24 at Agricultural Economics Research Institute (13 December 1982); KSH, *Statisztikai Evkonyv*, p. 158. The percentage of value is given at current prices.

42. Csaki (1983), p. 327.

43. Kramer and Danylyk (1981), p. 564.

44. Swain (1981), p. 235; Czismadia (1977), pp. 113–115, presents the criteria for credit.

45. Budapest interview no. 22 at Ministry of Agriculture (13 December 1982). The judgment on desirability of contract arrangements was expressed not only at Ministry of Agriculture but also by the National Association of Co-operatives. Sarandi (1982), p. 16.

46. Kornai (1983), p. 241.

47. Budapest interview no. 15 at Karl Marx University (8 December 1982).

48. Donath (1980), pp. 237–241.

49. Juhasz (1979), p. 27.

50. Donath (1980), pp. 237–241.

51. *Ibid.*, pp. 266–268.

52. *Ibid.*, pp. 269–273.

53. *Ibid.*, pp. 284–288, 291–292; Budapest interview no. 4. More coercion may have been used in some instances. See for example the account of formation of 'simple co-operatives' in 1960, in Hann (1980), p. 40.

54. Donath (1980), pp. 297–340.

55. Juhasz (1979), p. 26.

56. *Ibid.*, p. 27.

57. Cf. statements by Balazs Dajka, chief of the Main Department for Co-operatives in the Ministry of Agriculture and Food Industry, in *Nepszabadsag* (15 January 1975), and on Radio Budapest (9 January 1975), as reported in *Radio Free Europe Research* (4 February 1975), pp. 5–6. See also the summary of an ambiguous don't-merge-too-fast-but-merge statement by Karoly Nemeth, Politburo and CC Secretariat member in charge of agriculture, at the Spring 1975 HSWP Congress, reported in *RFE Research* (9 April 1975), pp. 15–16.

58. *Ibid.*, pp. 8–10; and Swain (1981), pp. 240–244.

59. Budapest interview no. 2 at Co-operative Research Institute (25 November 1982).

60. OECD (1981), p. 214.

61. Budapest interview no. 13 at Horticultural University (6 December 1982).

62. Budapest interview no. 18, Co-operatives Research Institute (9 December 1982).

63. Hegedus (1977), p. 182.

64. Budapest interview no. 14 at Institute of Ethnology (7 December 1982); Hungary field visit no. 1 (2 December 1982).

65. Budapest interview no. 17 at Co-operatives Research Institute (9 December 1982).

66. KSH, *Statisztikai Evkonyv 1981*, p. 55. Unfortunately the statistics do not distinguish co-operative from other agricultural workers.

67. Gyenes (1976), p. 163.

68. *Ibid.*, pp. 163–164; KSH, *Statisztikai Evkonyv, 1981*, pp. 58–59.

69. Donath (1980), p. 381. Guidelines suggest that the year-end income supplements for managers should not exceed 50% of their basic wages.

70. *Ibid.*, pp. 340–346. The *lack* of modern technology may obstruct the possibilities for organizing efficiently in any other fashion. Fekete (1973), pp. 29–30.

71. Donath (1980), p. 375. As of the early 1970s, however, a large number of farms were still using the work-units/residuum or sharecropping (otherwise known as the Nadudvar system). Fekete (1973), p. 30. Csaki (1983) notes that 6–20% of the guaranteed wage is distributed as a bonus, depending on the financial performance of the enterprise (p. 321).

72. Gyenes (1976), p. 171.

73. Budapest interview no. 23 at Agricultural Economics Research Institute (13 December 1982); Kovacs (1981), pp. 67–68.

74. Budapest interview no. 23.

75. Hungary field visit no. 4 (17 July 1983).

76. Csaki (1983), p. 325; Budapest interviews nos. 19 at Karl Marx University (10 December 1982), and 16.

77. Elek (1979), p. 69; Fekete and Sebestyen (1967). p. 100.

78. Budapest interview no. 13 (7 December 1982).

79. Czismadia (1977), p. 174; Elek (1979), pp. 68–70; Budapest interview no. 21 at Agricultural Economics Research Institute (11 December 1982). For an informative and thoughtful discussion of Hungary's approach to technology transfer through TOPS, see Winpenny (1981), pp. 6–41.

80. Elek (1979), p. 70.

81. Winpenny (1981), pp. 42–152, provides an in-depth study of I.K.R. and other ventures begun at Babolna.

82. Elek (1979), p. 70; emphasis in original.

83. The following discussion is based on Hungary field visit no. 3 (K.I.T.E. system centre at Nadudvar) (11 December 1982).

84. Swain (1981), p. 240.

85. Waedekin (1982a), pp. 96–97. Obviously Poland and Yugoslavia are not included in this group, because their agricultural sectors are still primarily made up of individual private farms.

86. KSH, *Evkonyv 1981*, pp. 26, 156. Gross agricultural production should be distinguished from gross production of the 'agricultural branch', which includes the industrial operations of co-operatives and state farms. The share in gross production of the agricultural branch declined much more in the period since the early 1960s, and stood at 21.38% in 1981. The difference is due to the rapid increase in ancillary activities operated through the large-scale enterprises. *Ibid.*

The figures on the share of small-scale production, especially the later ones, may be taken with a fair degree of certainty. For other East European countries, there is some belief among Western scholars that official data understate the contribution of the private sector. At least one expert confided a similar suspicion to me with respect to Hungary. However, in Hungary, there are several factors contributing to the accuracy of the figures: one, that the generally highly reliable statistical system automatically records the commodity output of small-scale farms; and two, that the economic benefits accruing to small-scale farmers in the form of subsidies, discounts on inputs, etc., constitute a positive incentive for truthful reporting of output. Moreover, co-operative contracts with small-scale producers enhance accuracy of records.

87. Misi (1981), pp. 8, 9, 11. For auxiliary farms, the figure includes nearly 200,000 units without land, devoted to apiary, poultry, rabbit and pig production.

88. *Ibid.*, p. 9.

89. Budapest interview no. 4; Misi (1981), p. 17.

90. Budapest interview no. 17 at Co-operatives Research Institute (9 December 1982); Misi (1981), p. 14; 'Kadar Speech', Foreign Broadcasts Information Service (15 December 1976), p. F7. The commitment was reaffirmed at the Central Committee's March 1978 meeting. Misi (1981), p. 14.

91. *Ibid.*, pp. 31–33; Andorka (1979), p. 19.

92. FBIS/EE (4 March 1976), p. F3.

93. Misi (1981), p. 16. With the exception of vegetables, these proportions have fallen since 1978, and especially since 1965. *Ibid.*, p. 23.

94. Varga (1982b), p. 9. Recent policy responses to agricultural problems in state and collective agriculture elsewhere in Eastern Europe and the USSR have relied heavily on bringing the household producers more deeply into commodity production — though with apparently more limited success than in Hungary. See for example, Gilberg (1982), p. 257; Markish and Malish (1983), pp. 47–55; and Waedekin (1982b), pp. 7, 43–44.

95. Budapest interview no. 12 at Institute of Economics (6 December 1982); Fekete and Sebestyen (1967), p. 93, report 50% of small-scale production entering the commodity network in the late 1970s. Interviews in

1982 and 1983 indicated increasing production for commodity circulation since then. See also Varga (1982b), p. 9.

96. Fekete *et al.* (1976), p. 74; Misi (1981), p. 11.

97. *Ibid.*, pp. 35–39, 49; Hungary field visit no. 1; Budapest interview no. 4.

98. Andorka (1979), p. 25.

99. Budapest interview no. 4; Misi (1981), pp. 35–39.

100. Andorka (1979), p. 25; Fekete and Varga (1968), p. 351. See also Varga (1982b), p. 8.

101. Budapest interview no. 23 at Agricultural Economics Research Institute (13 December 1982).

102. The sophistication of the Hungarian planning system's data base is quite impressive. The Ministry of Agriculture's Information Centre maintains a computerized data base incorporating input and output data for all agricultural enterprises going back ten years. Budapest interview no. 16.

103. Budapest interview no. 18. The recent work by Hungarian sociologists indicates that the combination of large- and small-scale farming has also allowed a secure niche, and alternative opportunities, to the 'traditional peasant' who is uncomfortable with more technically skilled and 'industrially organized' work on the large-scale farm. The uniqueness of the Hungarian situation is not that both groups exist, for they can be found in numerous other settings, but that they seem generally to be mutually supportive rather than competing with each other for productive resources or government favour.

104. The most recent attempt to permit organizational diversity in another socialist agricultural setting is that in China. But there diversity has already apparently been subordinated to the central desire for some uniform model. See Hartford (forthcoming).

105. Elek, 'Comment', in Waedekin (ed.) (1982), p. 235.

106. For example, Romania [see Gilberg (1982), pp. 254–256] and Bulgaria [see Wiedemann (1982), pp. 277–280].

107. In addition to sources cited in note 94, see Johnson (1983), pp. 92–98.

108. See the discussion of reform proposals in Eastern Europe and the USSR in Hare *et al.* (1981), pp. 3–12.

109. See for example the discussion in Korbonski, (1976), pp. 10–18.

110. Knight (1984), pp. 65–66. Swain notes that this trend was accompanied by increased central control over agricultural enterprises. Swain (1981), p. 233.

111. Korbonski (1976), p. 14.

112. Nyers (1983), p. 213.

113. For example, see Knight (1984); Hare *et al.*, pp. 6–7.

114. Nyers (1983), p. 213; see the debt estimates given in *Institutional Investor* (International Edition) (January 1982), p. 80. Of course it is always possible, particularly if delay in readjustment stretches out, that *both* will prove necessary to solve the difficulties. Hungary too has debt problems due to its borrowing to keep up consumption levels of industrial goods during the 1970s world price inflation. Those current problems, while not of such a serious order as those of say Poland or Romania, are likely to impel further implementation of the NEM. Its external finance problems have mainly been the result of withdrawal of short-term deposits by foreign banks in early 1982 (when all East European countries were having trouble getting new credits from commercial banks). Hungary did not need to reschedule, drawing rather on short-term credit from Western central banks. In August 1982 it got a three-year US$260 million Euro-loan from commercial banks. The country joined the IMF and the World Bank in 1982. Towards the end of 1982 it got a $600 million standby arrangement with the IMF, but under stringent conditions about the economic policies to be pursued. OECD (1983), p. 26.

115. A recent UNCTAD study shows that agricultural protectionism — 'agricultural trade barriers' — falls particularly heavily on the Eastern European socialist countries. See Olechowski and Yeats (1982), p. 24.

REFERENCES

Alton, Thad, *et al.*, 'Agricultural output, expenses and depreciation, gross product, and net product in Eastern Europe, 1965, 1970, and 1975–1982', Occasional Paper No. 76 of the Research Project on National Income in East Central Europe (New York: L.W. International Research, Inc., 1983).

Andorka, R., 'Household structure and household-auxiliary plots in the Hungarian village at present,' manuscript translation of 'Haztartasszerkeget es haztajikisegito gazdasagok a mai magyar falvakban', *Ethnographia*, No. 4 (1979), pp. 532–547. (Translation supplied by the author.)

Balassa, Bela, 'The Hungarian economic reform, 1968–1981', World Bank Staff Working Paper No.

506 (Washington, D.C.: The World Bank, 1982).
Central Statistical Office (KSH), *1981 Statistical Yearbook* (Budapest: 1982).
Cernea, Michael, 'Macrosocial change, feminization of agriculture, and peasant women's threefold economic role', *Sociologia Ruralis*, Vol. 18, Nos. 2/3 (1978), pp. 107–124.
Csaki, Csaba, 'Economic management and organization of Hungarian agriculture', *Journal of Comparative Economics*, Vol. 7 (1983).
Czismadia, Erno, *Socialist Agriculture in Hungary* (Budapest: Akademiai Kiado, 1977).
Dajka, Balazs, quoted in *Neoszabadsa* (15 January 1975).
Donath, Ferenc, *Reform and Revolution: Transformation of Hungary's Agriculture 1945–1967* (Budapest: Corvina Kiado, 1980).
Elek, Peter, 'Agro mass production and the private sector in Hungary', in Ivan Volgyes (ed.), *The Peasantry in Eastern Europe*, Vol. 2 (New York: Pergamon Press, 1979).
Fekete, F., 'The major social and economic features of co-operative farming in Hungary', *Acta Oeconomica*, 11.1 (1973).
Fekete, F., *et al.*, *Economics of Cooperative Farming* (Leyden: A. W. Sijthoff; Budapest: Akademiai Kiado, 1976).
Fekete, F. and K. Sebestyen, 'Organization and recent development in Hungarian agriculture', *Acta Oeconomica*, 2.4 (1967).
Fekete, F. and G. Varga, 'Household plot farming of co-operative peasants in Hungary', *Acta Oeconomica*, 2.4 (1968).
Fischer, Lewis A., 'Agriculture and rural development', in Stephen Fischer-Galati (ed.), *Eastern Europe in the 1980s* (Boulder: Westview Press, 1981).
Food and Agriculture Organization of the United Nations (FAO), *FAO Production Yearbook 1981* (Rome: FAO, 1982).
Foreign Broadcasts Information Service (FBIS/EE), *Daily Report: Eastern Europe* (15 December 1976); (4 March 1976).
Gilberg, Tron, 'Romanian agriculture policy: persisting problems,' in Waedekin (ed.) (1982).
Gyenes, Antal, 'Some aspects of stratification in Hungarian co-operative farms', *Sociologia Ruralis*, 16.3 (1976).
Hajda, Joseph, 'Czechoslovakia's food and agriculture policy agenda', in Waedekin (ed.) (1982).
Hann, C. M., *Tazlar: A Village in Hungary* (Cambridge: Cambridge University Press, 1980).
Hanto, Zsuzsa, Zoltan Karpati, and Andras Vagvolgyi, 'The development of settlement structure in the Hungarian village (with special emphasis on small village settlement)', in Tibor Huszar, *et al.* (eds.), *Hungarian Society and Marxist Sociology in the Nineteen-Seventies* (Budapest: Corvina, 1978).
Hare, Paul, Hugo Radice and Nigel Swain, *Hungary: A Decade of Economic Reform* (London: George Allen & Unwin, 1981).
Hartford, Kathleen, 'Socialist countries in the free world food system', Paper presented at the Colloquium on Global Agribusiness, Harvard Business School, Boston, Massachusetts (8–11 April 1984).
Hartford, Kathleen, 'Socialist agriculture is dead, long live socialist agriculture: Organizational transformations in rural China', in Elizabeth J. Perry and Christine Wong (eds.), *The Political Economy of Reform in Post-Mao China*, (Cambridge, Massachusetts: Harvard University Council on East Asian Studies, forthcoming.)
Hegedus, Andras, *The Structure of Socialist Society* (London: Constable, 1977).
Hollos, Marida, 'The effect of collectivization on village social organization in Hungary', *East European Quarterly*, 17.1 (March 1983).
Hungarian Central Statistical Office, *Statistical Pocket Book of Hungary 1981* (Budapest: Statistical Publishing House, 1982).
Jacobs, Everett, 'Agricultural development in communist Europe', in Waedekin (ed.) (1982).
Johnson, D. Gale, 'Policies and performance in Soviet agriculture,' in D. Gale Johnson and Karen McConnell Brooks (eds.), *Prospects for Soviet Agriculture in the 1980s* (Bloomington: Indiana University Press, 1983).
Juhasz, Janos (ed.), *The Hungarian Co-operative Movement in Figures* (Budapest: National Cooperative Council, 1979).
Knight, Peter T., 'Economic reform in socialist countries: The experiences of China, Hungary, Romania, and Yugoslavia', World Bank Staff Working Paper No. 579 (Washington, D.C.: The World Bank, 1984).
Korbonski, Andrzej, 'Political aspects of economic reforms in Eastern Europe', in Zbigniew M. Fallenbuchi (ed.), *Economic Development in the Soviet Union and Eastern Europe, Vol. 1 — Reforms, Technology, and Income Distribution* (New York: Praeger, 1976).
Kornai, Janos, 'Comments on the present state and the prospects of the Hungarian economic reform', *Journal of Comparative Economics*, Vol. 7 (1983).
Kovacs, Kalman, 'Regulation of personal and enterprisal income in the Hungarian agriculture', *Bulletin of the Research Institute for Agricultural Economics* (Budapest), No. 48 (1981).
Kramer, Joseph C. and John Danylyk, 'Economic reform in Eastern Europe: Hungary at the forefront', in *East European Economic Assessment, Part 1 — Country Studies, 1980* (A Compendium of papers submitted to the Joint Economic Committee, Congress of the United States) (Washington, D.C.: Government Printing Office, 1981).
'La politique agricole européenne et le sort des paysans français', *Le Monde Diplomatique* (February 1984).
Lazarcik, Gregor, 'Comparative growth, structure, and levels of agricultural output, inputs, and productivity in Eastern Europe, 1965–79', in *East European Economic Assessment, Part 2* (A Compendium of papers submitted to the Joint Economic Committee, Congress of the United States) (Washington, D.C.: U.S. Government Printing Office, 1981).
Markish, Yuri and Anton F. Malish, 'The Soviet food program: Prospects for the 1980s', *ACES Bulletin*, Vol. 25 (Spring 1983).
Marrese, Michael, 'Agricultural policy and perform-

ance in Hungary', *Journal of Comparative Economics*, Vol. 7 (1983).
Miller, Robert, Robert C. Stuart and Karl-Eugen Waedekin, 'Some retrospective thoughts on the adaptability of the Soviet model for collectivization', in Peter Dorner (ed.), *Cooperative and Commune: Group Farming in the Economic Development of Agriculture* (Madison: University of Wisconsin Press, 1977).
Miller, Robert, 'Comment', in Waedekin (ed.) (1982).
Misi, Sandor, *Household and Subsidiary Farming in Hungarian Agriculture* (Budapest: Information Centre of the Ministry of Agriculture and Food, 1981).
Nemeti, Laszlo, *Magyarorszag elelmiszer-gazdasaga a hetvenes evekben* [*The Hungarian Food Economy in the Seventies*] (Budapest: Mezogazdasagi Kiado, 1981).
Nyers, Rezso, 'Interrelations between policy and the economic reform in Hungary', *Journal of Comparative Economics*, Vol. 7 (1983).
OECD, *Prospects for Agricultural Production and Trade in Eastern Europe, Vol. 1: Poland, German Democratic Republic, Hungary* (Paris: OECD, 1981).
OECD, *Financial Market Trends*, 24 (March 1983).
Olechowski, Andrzej and Alexander Yeats, 'The influence of non-tariff barriers on exports from socialist countries of Eastern Europe', UNCTAD Discussion Paper No. 6 (Geneva: UNCTAD, 1982).
Radio Free Europe Research, 'Large scale merger of agricultural producers' cooperatives poses problems', *RAD Background Report/20: Hungary* (4 February 1975).
Radio Free Europe Research, *Situation Report: Hungary/17* (9 April 1975).
Radio Free Europe Research, *Hungary: Situation Report* (13 May 1983).
Sarandi, *Contracts of the Agricultural Cooperatives* (Budapest: National Council of Agricultural Cooperatives, 1982).
Swain, Nigel, 'The evolution of Hungary's agricultural system since 1967', in Hare, Radice and Swain (1981).
Szelenyi, Ivan, 'The position of the intelligentsia in the class structure of state socialist societies', *Critique*, No. 10/11 (Winter 1978/79).
Szovetkezeti Kutato Intezet-Cooperatives Research Institute (SzKI), *Evkonyv 1975* (1975 Yearbook) (Budapest: Kozgazdasagi es Jogi Konyvkiado, 1976).
U.S. Department of Agriculture Economic Research Service, *Eastern Europe: Review of Agriculture in 1981 and Outlook for 1982* (Washington, D.C.: U.S. Government Printing Office, 1982).
Varga, Gyula, 'Alternatives of the development of agriculture and food industry in Hungary', *Acta Oeconomica*, 29 (1982a).
Varga, Gyula, 'The part of Hungarian small-scale farming in production, employment, standard of living, and way of life', *Bulletin of the Research Institute for Agricultural Economics*, No. 51 (1982b).
Volgyes, Ivan, 'Dynamic change: Rural transformation, 1945–1975', in Joseph Held (ed.), *The Modernization of Agriculture: Rural Transformation in Hungary* (Boulder: East European Monographs, distributed by Columbia University Press, 1980).
Waedekin, Karl-Eugen, *Agrarian Policies in Communist Europe* (The Hague and London: Allanheld Osmun, 1982a).
Waedekin, Karl-Eugen (ed.), *Current Trends in the Soviet and East European Food Economy* (Berlin: Duncker Humblot, 1982).
Waedekin, Karl-Eugen, 'The new food program of the Soviet Union', *Feedstuffs* (23 August 1982b).
Waedekin, Karl-Eugen, Seminar presented at Harvard University Russian Center (12 October 1983).
Wiedemann, Paul, 'Agricultural development in Bulgaria: 1976–1985', in Waedekin (ed.) (1982).
Winpenny, Patricia Giles, 'The impact of western technology on the Hungarian feed-livestock economy: A case study of the Babolna Agriculture Combinate' (Unpublished M.A. thesis, Carleton University, 1981).