

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search http://ageconsearch.umn.edu aesearch@umn.edu

Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

RURAL CHANGE

The Challenge for Agricultural Economists

PROCEEDINGS

SEVENTEENTH INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

> Held at Banff, Canada 3rd – 12th SEPTEMBER 1979

Edited by Glenn Johnson, Department of Agricultural Economics, Michigan State University, USA and Allen Maunder, Institute of Agricultural Economics University of Oxford, England

INTERNATIONAL ASSOCIATION OF AGRICULTURAL ECONOMISTS INSTITUTE OF AGRICULTURAL ECONOMICS OXFORD

1981

Gower

FERENCFEKETE

Accomplishments of and Challenges for Agricultural Economists Working at the National Level of Centrally Managed Economies*

To undertake an account concerning the activity of agricultural economists working at national level in the CME means also to face the old but straight challenge thrown out by the French reasoner Chamfort almost 200 years ago to the corps of economists with his ironic words: "The economists are like operating surgeons who dispose of sharp dissectors but their operating scalpel is notched and therefore they brilliantly carry out a necrotomy but they torture flesh". This paper endeavours to prove that agricultural economists working at the national level in CME performed already resultful activities so far and they are ready also in the future to do much for the end that they and other people active in the sphere of economics should be acknowledged and kept in evidence not as "necrotomists" but as calculating, planning, constructing, developing, competent masters of their profession.

1 HISTORICAL AND IDEOLOGICAL BACKGROUND

The roots of the ideology characteristic for agricultural economists working in the national institutions of the CME can be dated back to the outset of the organized movement of the working class and to the emergence of the Marxist theory of socialism. The ideological seeds of socialist agriculture were sown by the Communist Manifesto speaking about the "improvement of the soil generally in accordance with a common plan" as well as about "farming on collective account". Marx and Engels declare in the Manifesto about a school of socialist literature that it

^{*} On the basis of practical considerations, the author accepts the term "centrally managed economies" (CME) and means thereby the European countries belonging to the CMEA. Corresponding to the previously established List of Agenda of the Conference, the attention of the author is focused on the activities of agricultural economists working in national organizations and in governmental institutions. His exposition is mostly based upon the situation prevailing in Hungary but he endeavours also to outline the general historico-theoretical characteristics as well as experience gained in other countries, mainly in the Soviet Union.

"disserted with great acuteness the contradictions in the conditions of modern production. It laid bare the hypocritical apologies of economists".

The role of Lenin was determinant in the construction of the theoretical model of socialist agriculture and in the establishment of its first practical types. Among his words far-reachingly written about agrarian subjects which embrace a long period of time, one must first of all refer to the Agrarian Theses formulated in 1920 and to his respective articles published in 1923 about co-operative subjects. Socialist agriculture was established in the Soviet Union about one and a half decades after the October Revolution. In Hungary this process began in 1948 and was finished in 1961. The organization of socialist agriculture was established earlier in Bulgaria, at the same time in Czechoslovakia, while a short time later in the GDR and in Rumania than it had been in Hungary.

The major characteristics of the socialist system of agriculture can be summarized as follows: collective ownership of land and of the other important means of production; the organization of large-scale collective agricultural enterprises in the form of co-operative and state farms and more recently in the form of inter-firm organizations; the application of farming systems based upon a concerted enterprise plan; the same of up-to-date technologies and scientifically founded production techniques in the large-scale farms under collective ownership; the getting nearer of the incomes and living conditions of farm people to those of industrial workers i.e. to the income level and living standards of the urban population.

Socialist agriculture was established and is further developing as a result of processes accompanied by multifarious social, economic, cultural and human problems. The requirement that agricultural production should grow in the course of the socialist transformation period (including the years 1958–61) stood in the focus of the agricultural economists' attention in Hungary. It was also an important objective in the period of socialist transformation that the evolving large-scale farm organization should result in the substantial and systematic increase of agricultural production. Today it is already proven that this task was accomplished. In the course of the last 25 years the net value of agricultural production increased by 1.2 per cent yearly in Hungary and the annual increase amounted to 1.6 per cent in the recent 5 years. Simultaneously, mainly in the course of the last decade, the personal incomes of labourers of the socialist large-scale farm enterprises increased more rapidly than the social average did and the amount of personal income per caput in agriculture practically equalled that of people working in other branches of the national economy.

The interrelations existing between economy and policy which were intensively examined by Lenin have a particular importance in the socioeconomic system of socialism and, we may add, in each modern social system as well as also in the activity itself of agricultural economists. According to his conclusions "policy is the concentrated expression of economy" on the one hand and "policy has a primacy against economy" on the other. These general principles mean in the practice of economists' activities at the national level first of all that the socialist state deliberately formulates and sets the major economic objectives and also develops the relevant conditions for their implementation within the planned management of the national economy. The above quoted principles represent at the same time the "political approach" to economic problems which is nothing else than a firm effort to set out from the public interests of the whole population and to concert the interests of the diverse social groups.¹

Veritable milestones were represented in the agriculture of the Soviet Union and of the European people's democratic states as well as in the agricultural economic activity at national level by Party and state decisions made between autumn 1953 and spring 1957 and by the changes which started following them. The nature of these changes is symbolized by the XXth Congress of the CPSU. Mr Machewicz, former minister of agriculture, said at this Congress: "... up to recent times the economic categories were quite carelessly treated in the activity of agricultural agencies and experts ... the recommended agrotechnical and other techniques were not evaluated under the aspect of economic efficiency ... no economically justified remarks were set up against the plans of crop structure or against the diverse recommended agrotechniques which were mechanically prescribed by the central institutions although in several cases they were inadequate for the farms".

In the Soviet Union and in the other CME the route passed since 1956 can partly be marked by the accomplishments of the agricultural economists: like the new system of agricultural planning, and the increasing role of farm planning, the reorganization of the machine and tractor stations of the state and the selling of the big machines to the kolkhozes (cooperative farms), the gradual elimination of the compulsory delivery of agricultural produce and the increased role of purchasing (producer) prices, the progress of the system of labour remuneration and the significant increase of the personal incomes of the agricultural labourers, mainly of the kolkhoz (co-operative farm) members (including also the income originated in their home plot farms).

The decision taken in the political and professional leading bodies of the CME statutorily and systematically deal with the development tasks of socialist agriculture and with the duties of agricultural economists. Under this aspect we may lay particular stress on the Programme of the CP in this Soviet Union, on the resolutions of the XXIIIrd, XXIVth and XXVth Congresses of the Party, as well as on the decisions made at the plenary sessions of the Central Committee of the CPSU, and at the plenum in November 1978 among them. In Hungary the Central Committee of the HSWP discussed at its session of March 1978 an item of agenda having the title "The situation of agriculture and food industry and the tasks of their further development" and adopted a detailed resolution thereon. At the General Assembly of the Hungarian Academy of Sciences the 1978 plenary session took place under the title "The development of agriculture and food industry and the tasks of the sciences". In its resolution the Academy invites the representatives of each discipline "to take part in the construction of an optimum organizational framework in order to promote the more efficient use of the resources and . . . to assist in answering those great economic questions which will emerge before the future development of agricultural production".

2 ACHIEVEMENTS, POSSIBILITIES – NATIONAL ECONOMIC PLANNING AND CENTRAL MANAGEMENT

National economic planning can look back to a past longer than half a century in the Soviet Union and longer than three decades in the other European CME. In the course of this period abundant experience cumulated in both the theory and practice of national economic planning as well as the activity of agricultural economists progressed. In addition to the general determinant characteristics, also the particular conditions, state of development and the fundamental economic planning of the diverse countries are reflected in the national economic planning of the CME. Considerable changes resulted in the practice of national economic planning in Hungary by the reform of economic management elaborated in 1966 and introduced in 1968.

An important element, i.e. one of the starting point of national economic planning, is represented by the assessment of domestic needs, of the demand in the country and in the world market. Facts indicate that in close connection with national consumption habits characteristic exporter and importer countries can appear in respect of certain commodities. Thus, e.g., Hungary is a beef exporting country where at the same time beef consumption is relatively small. It is well known that Hungary carries on an extensive international trade and therefore when developing agriculture it is very important for the country to reckon with the changes in the world economic situation which exert an impact upon the CMEA as well as also upon the capitalist world market.

In recent years the overemphasized orientation of planning towards production and mainly towards the recent organization of production became apparent in the practice of Hungarian national economic planning; but also in other CMEA countries. The so called "problem oriented" approach began in planning what was called systems approach or complex planning in the Soviet Union. This approach relates to the category of social planning, to intersectoral problems (arising, e.g., between production and domestic commerce), to technical development, etc. In Hungary, agriculture, food industry and farm machine, fertilizer, etc. industries are taken together as a unit in the development plans of "production blocks". Block-building and a "problem oriented" approach mean the application of new complementary aspects in national economic planning. National economic planning and the central (state) economic management form an organic unity. Therefore significant changes were effected in Hungary by the reform of economic management (the so called economic mechanism) also in the national economic planning. This reform was a continuation of the same economic-political tendency which was expressed in the abolition of the compulsory delivery of agricultural produce to the state implemented ten years ago, in the earlier initiated easing of the inflexibilities of national economic planning and of the central direction over economy.

The reform endeavoured to replace – by means of stopping the administrative "breaking down" (specification) of detailed production plans constructed at national level to the production units – with planned assessment and operation of economic regulators (prices, credit conditions, taxes, rate of exchange of foreign currencies, etc.). The mostly bureaucratic system of the fully centralized distribution of the material resources was replaced by the methods of commodity turnover and by the centrally influenced (controlled) market. The major investments and the establishment of new firms and large-scale enterprises represent, of course, the subject of central governmental decisions also in the future. The role of prices in orienting and encouraging the economic decisions of the producers and consumers are emphasized by the reform of economic management (direction).

The reasons for the existence and the positive effects of the reform of economic management are indicated also by the increase of agricultural production. Compared to the average of the preceding five years it increased by 20 per cent in the years 1971–75. (A 15–16 per cent increase was envisaged in the national economic plan.) The increase of national income (by 35 per cent) and of industrial production (by 37 per cent) was also more rapid than envisaged for the same period; real wages per earner increased by 18 per cent.

Today in Hungary agricultural economists acting in diverse positions of the national economic planning and central management over the economy operate under the conditions of the so called intensive phase of economic progress. In this phase the tripartite watch words of efficiency, quality and competitiveness formulate the most important requirements. These requirements are to be satisfied under conditions becoming ever more exacting since (a) the acreage suitable for agricultural production of the country is constantly diminishing; (b) the number of agricultural earners radically diminishes and particular measures are needed for the good performance of labour peaks; (c) up-to-date large-scale agricultural production is still young and costly; (d) agrarian protectionism regained its strength all over the world again and competition become keener in the markets abroad. Under such severe conditions - as it was emphasized also in the resolutions of the Central Committee of the HSWP - the export orientation of agricultural production as well as the rentability of the exports are to be increased and the efficiency and structure of the production activities must be improved. In spite of the fact that compared to the past the growth rate of investments decreased, the planners reckon in the long term development plans with the annual 4–5 per cent increase of large-scale agricultural production.

The plenary session of the Central Committee of the CPSU held in July 1978 declared necessary the development of agricultural planning and the consolidation of the inter-sectoral relations of the agro-industrial complex. The importance of the correct economic foundation of the five-year plan of purchasing and of the development of the agricultural price system were also emphasized. The making of concrete governmental decisions was envisaged for the improvement of the realization (marketing) system of agricultural produce and of stimulation of the enterprises. Soviet agricultural economists working at diverse posts of national economic planning and management are performing responsible tasks nowadays in the preparation of the plan for the years 1981–85 and of the long term socio-economic development plan for 1990.

3 PROBLEMS, URGENT TASKS-PRICING

Pricing and price planning represent an organic part of the system of national planning while price policy does the same in the sets of economic policy. National economic plans and prices can also be considered in the CME as interlinking means for the central management of the economy.

In the sphere of pricing, economists working at the national level construct by means of calculations and models so called price centres (calculated prices). In quantitative respect each price centre is determined by the amount of net income surpassing costs in the calculation i.e. by the distribution of net social income among the diverse branches (products) of the economy. The types of calculated prices are distinguished by the principles accordingly to which the co-ordination of inputs (costs) and net incomes is performed. The price centres, the calculated price-types, are created through great simplifications and therefore their weaknesses are first of all the following: (a) they do not reckon with the fact that the application of a new price necessarily alters the produced and consumed quantity of the diverse products and thereby the quantity of inputs per unit output of the respective produce also changes; (b) calculated prices do not express those economic political preferences which deliberately deflect prices from the inputs; (c) they do not reflect the demand supply relations of the diverse products. Because of these and other (political, social, etc.) reasons calculated prices are considered only the starting point in price planning.

Prices in practice play their parts well when they are assessed under the combined impact of production costs, the value-judgements of the markets (users) and state (social) preferences. The enforcement of this triple requirement in price policy is not a simple task and it cannot be solved without compromises and contradictions. In the CME there asserts a mixed price mechanism itself i.e. centrally fixed or maximized prices,

prices moving between established limits, centrally guaranteed (minimum) prices and "free" market prices exist simultaneously. The reform of economic management in Hungary increased this latter sphere of prices. At the same time about 60 per cent of the purchasing of agricultural products is performed by the state and/or by the co-operatives at centrally fixed prices.

Agricultural economists of the CME are of the opinion that the most important economic condition for a planned increase of agricultural production is the establishment of a producers' price level which covers the costs of production and maintains also a net income rate suitable for the producer enterprises. Producers' prices play a key role in the indication of social interests and of needs (demands) to the producers. The role and the scope of the diverse subsidies (subventions, donations for investments and operation) are very large in Hungary rendering thereby the economic overlook and the efficient stimulation of the producing enterprises more difficult.

In most of the CME there is a great difficulty caused by the fact that a particular gap, a certain kind of reversed two-level phenomenon exists between the producers' and consumers' prices of agricultural products. This gap is bridged over by the sophisticated system of dotations granted by the state for the processing industries and for the retaining sector (commerce). Great importance is attributed to the stability of consumers' prices from the aspect of the planned development of people's living standards. Simultaneously with the consideration of this principle, consumers' prices of agricultural products should better reflect the costs of production and relations between consumers' and producers' prices should become more pronounced. This requirement was distinctly formulated in the professional circles of economists earlier and unambiguously expressed in economic-political measures recently taken. Also the consolidation of the connection between the domestic price system and world market prices became the question of the day in Hungary.

The adequate co-ordination of the orienting and income distributing functions of prices present a sophisticated task also for the economists of the CME. The scientific foundation and the planned development of the territorially differentiated system of agricultural producer (purchasing) prices sets a particular task for the Soviet agricultural economists. In the territory of the Soviet Union there are 73 price zones for the purchasing of milk and 62 ones for cattle on foot. There are 27 price zones for wheat in the territory of the USSR.

4 PROSPECTS AND LONG TERM CHALLENGES – AGRARIAN ORGANIZATION AND DECISION–MAKING MECHANISM

While the main supporting pillars of the socialist agrarian system invariably remain the state farms (sovkhozes) and the co-operative farms (kolkhozes), new types of agricultural organizations also emerge and gain ground in the agriculture of almost each CME.

At present or as they formulate "in the new implementation stage of the co-operative plan of Lenin" agricultural inter-firm organizations and agro-industrial unions are gaining ground at a very rapid rate in the Soviet Union. All kolkhozes and more than half of sovkhozes take part in these organizations. The total number of agricultural inter-firm organizations was 7,000 at the beginning of 1977 and 1,200 agro-industrial unions operated among them. At the beginning of 1978 the number of these inter-firm organizations amounted to 7,800. An important task is for agricultural economists working in the Ministry of Agriculture and in the other national institutions to survey the activities and experiences of these inter-firm organizations. The activity of agricultural economists is directly motivated also by the fact that the operation of the new agricultural and agro-industrial organizations is related with the development of the central management of agriculture. The elaboration of the basic theoretical principles of the so called automated system of national economic and sectoral management is also of great importance. At the plenary session of the Central Committee of the CPSU held in July 1978 critical conclusions were drawn in the statement that the Gosplan and the Ministry of Agriculture "could not become so far such centres which are able to control and co-ordinate the activities related to the specialization and concentration of agricultural production".

The system of agro-industrial complexes (APK) in formation represent the new organizational basis of large-scale socialist agriculture in Bulgaria. The specialization and concentration of production rapidly develops in the GDR. The so called organizations for co-operation in crop growing – in co-operation with the agro-chemical centres – represent the new type of specialized agricultural enterprise and at the end of 1975 they cultivated already 88 per cent of the total agricultural area in the GDR.

At the beginning of the 1970s, production systems came into existence in Hungary as the new organizations of agricultural inter-firm cooperation. Already 67 production systems were active at the end of 1977 and 86 per cent of the state farms as well as 78 per cent of the farmers' co-operatives were co-operating in these systems. Four production systems are operated in large-scale corn production; there exists certain division of function among them but their competition is not fully eliminated. The production system implements general collaboration in respect of the supply of production means, the elaboration and continuous development of production technology, the organization of marketing and professional training for one or more organically interlinked lines of agricultural production. Co-ordinating and extension services are performed by the so called system master or gestor farm. Partner farms are joined to the former. Farms may voluntarily join the system most suitable for them; each large-scale agricultural enterprise is allowed, of course, to be a member of several production systems at the same time. The partner farms can establish the system centre in the form of their joint venture. The production systems, however, can operate also as simple associations and the functions of the system centre are performed in this case by the separated section of a larger state farm or farmers' co-operative.

The partner farms pay for the services of the system centre a fee in cash or in kind which consists of the base fee and of a contracted part of the increase of yield. Within the economic concerns of the system centre and the partner farms also contrasting tendencies can be observed. The former is mainly interested in the quantitative increase of yields while the latter is interested in the increase of the enterprise's income.

With an experimental character four agro-industrial unions were established in Hungary in 1976. These organizations are created with the co-operation of agricultural producing enterprises, food industrial firms and agro-commercial agencies for the complex utilization of resources in a given zone.

All the aforesaid facts well indicate that a number of particular agricultural economic problems originate in the new organizational formations of socialist agriculture.

The development problems of the decision-making mechanism energetically take up the attention of agricultural economists in the CME. Herbert A. Simon, the 1978 winner of the Nobel prize in economics, states that instead of procedural rationality substantive rationality prevailed in the economic decisions. Starting out from this standpoint he intensively studies the applicability of operations research, programming and simulation as the apparatus of technical procedures for economic decision-making. The attention of Marxist economists covers also the social and political dimensions of the economic decision making mechanism. At the XIVth Conference of the IAAE they treated in detail the democratic character of planning and the consolidation of the democratization of economic decisions made at national level.

One of the most important sources of the vitality of the socialist system of agriculture is represented by its "multisectorality" and by its richness in respect of the types and diverse sizes of the enterprises. Even in these days the household farms of the co-operative (kolkhoz) members and the relatively small-scale agricultural production carried out by workers and employees – partly as their hobby – represent an organic complementing of the activities of the large-scale collective agricultural organizations managed as enterprises.

It was already earlier obvious for the agricultural economists of the CME that the members of kolkhozes (farmers' co-operatives) are not only labourers but also co-owners and even associate undertakers in the one and same person. The principle of consolidating co-operative democratization remains in prominence, but also the problem of enterprise democratization of the state-owned enterprises comes into the focus of attention in the recent period. Socialist democracy in the firm or enterprise should and can be studied also under a national economic aspect. The agricultural economists of the CME are to consolidate the essential character of socialist property and to promote the assertion of this essen-

tial character in economic decisions made in the decisive spheres of increasing the collective owner's role as worker in the utilization of production means and of surplus produce as well as selecting, consistently with principles, the determinant factors of personal incomes.

From the lessons of the past, agricultural economists may draw the direct conclusion that they should assume commitment and they are to be resolute for action. Let us express this with the words of Goethe: "Who has the case at heart should take a stand for it otherwise he does not merit to exert any influence anywhere."

REFERENCES

- Balassa, Ákos A magyar népgazdaság tervezésének alapjai (The bases of national economic planning in Hungary), Közgazdasági és Jogi Könyvkiadó, Budapest 1979.
- Erdei, Ferenc "An Idea and its Realization", *The New Hungarian Quarterly*, Budapest 1968, No. 30.
- Erdei, Ferenc A XX. Kongresszus utmutatása az agrárgazdasági és üzemszervezési munka számára (Guidance provided by the XXth Congress for agricultural economics and farm management), Agrárgazdasági és Üzemszervezési Közlemények, Budapest 1956, No. 1.
- *Essays on Economic Policy and Planning in Hungary* (ed. by István Friss) Corvina Kiadó, Budapest 1978.
- Fekete, Ferenc, Heady, Earl O., Holdren, Bob R. *Economics of Co-operative Farming*, Sijthoff, Leyden, Akadémiai Kiadó, Budapest 1976.
- Friss, I. "Ten Years of Economic Reform in Hungary", Acta Oeconomica, Budapest 1978, No. 1-2.
- K. Marx F. Engels Collected Works, Progress Publishers, Moscow 1976, Vol. 6.
- Lenin Selected Works, Progress Publishers, Moscow 1967, Vol. 3.
- Magyar Tudomány, 1978, No. 6.
- Mezshozjajsztvennaja kooperacija i agropromüslennaja intyegracija v szel'szkom hozjajsztve, Kolosz Izdatyelsztvo, Moszkva 1978.
- Politicseszkaja Ekonomija, Ucsebnyik 2, Politizdat, Moszkva 1976.
- Öri, J. "Pricing of Agricultural Products and Foodstuff in Hungary", Acta Oeconomica, Budapest 1976, No. 1.
- Schulze, H.G., Trutzschler, A. "Zur Kombination der Produktion landwirtschaftlicher Erzeugnisse und ihrer Be- und Verarbeitung beim Übergang zur industriemässigen Produktion in der Landwirtschaft der DDR" (To the combination of agricultural production and of processing agricultural products in course of the transition to industrial production in the agriculture of the GDR), Wirtschaftswissenschaft, Berlin 1976, No. 6.
- Simon, H.A. "On how to decide what to do", *Economic Impact*, Washington DC 1979, No. 3.
- Szabó, K. "Factory Democracy and Political Economy", *Acta Oeconomica*, Budapest 1974, No. 1.
- Voproszü Ekonomiki, Moszkva 1979, No. 2.

DISCUSSION OPENING - ROBERT L. THOMPSON

I have read Dr Fekete's paper with considerable interest and find it quite informative. We have too little professional dialogue between agricultural economists working in different economic systems. While our respective points of departure in terms of social objectives and the distribution of ownership of factors of production may differ, all are ultimately concerned with increasing the efficiency of resource allocation to achieve the respective objectives. Dr Fekete's survey of the accomplishments of and challenges for agricultural economists working at the national level in centrally planned economies makes a useful contribution to this dialogue.

In my comments I attempt to review briefly what I interpret to be the principal issues raised in Dr Fekete's paper and suggest several other questions which he does not specifically treat. The comments are organized in four areas of research and analysis in which I think agricultural economists can potentially play a very important role at the national level in the centrally planned economies: (1) Price determination; (2) Demand analysis and projection; (3) Marketing and transportation and (4) Production planning and projection. These are discussed in turn.

Price determination

I concur with Dr Fekete that one of the greatest challenges for agricultural economists in centrally planned economies lies in the area of price determination. In an economy where both prices and target quantities are centrally planned there exists a great challenge to ensure consistency of the production plans in all sectors with demand for their respective outputs, whether as inputs for further processing or as final consumption or export. The ultimate measure of planning success is whether or not there exists excess supply or excess demand at the administered price. While economists in centrally planned economies have made important contributions to the development and application of input-output analysis for this purpose, the data requirements are enormous. Moreover, in agricultural production which is characterized by climatic risk, it is inevitable that realized production will not equal planned use. Observed disequilibria and bottlenecks in centrally planned economies provide prima facie evidence that planning in practice still leaves much to be desired. The move towards greater reliance on less rigid planning with some market determination of price in some eastern European countries suggests an official recognition of the inevitability of planning failures at least in the agricultural sector.

In recent years more use has been made of linear programming models in central planning. Some years ago Oscar Lange demonstrated that theoretically a centrally planned economy organized according to shadow prices would achieve the same efficient allocation of resources as an otherwise identical market economy. By implication, if there were not data constraints or limitations on computer capacity, one could construct an immense mathematical programming model of the economy and use the resulting shadow prices as the administered prices in the economy. Agricultural economists in centrally planned economies have made progress in building some aggregate linear programming models, as evidence in Professor Csaki's paper, also presented at this conference. These can provide a useful input into price determination in centrally planned economies; however in the real world we have several data constraints and measurement problems. The correspondence between large quantitative models and reality usually leaves much to be desired in both centrally planned and market economies. While much more research is probably merited in this area, it may have limited payoff until better data and improved supply and demand forecasting techniques are available.

Demand analysis and projection

In the planning process and in making pricing decisions in centrally planned economies, agricultural economists have to project the change in quantity demanded in response to changes in prices and income. My review of the literature suggests that demand analysis is a weakly developed area of agricultural economic research in centrally planned economies, but one in which much more work is needed.

Demand analysis poses particular problems for at least two reasons. First, under administered consumer prices there is very little variation in price. This makes it difficult, if not impossible, for regression techniques to measure the effect of price change on quantity demanded. Second, and more important, since there exists nonprice rationing, the observed price quantity points do not lie on the demand functions. Therefore, the analyst must resort to recent developments in disequilibrium econometrics. Not surprisingly, this field was pioneered by a Hungarian economist, Kornai, but there is also work done by many others outside the centrally planned economies, such as Chambers and Just in the United States.

Marketing and transportation

The agricultural product distribution and marketing system is a third area in which agricultural economists could make an important contribution in centrally planned economies. Casual observation suggests that bottleneck and inefficiencies abound, and heavy subsidization is required. While linear programming transportation models are employed to improve efficiency in some parts of the transportation system, such as railcar allocation, much wider application of the available techniques could be made.

Closely related to the marketing issues is the problem of determination of the spatial pattern of prices, as well as the consistency between internal and world market prices. As a result of a product pricing strategy in some countries, which attempts to remove economic rent associated with differences in land quality and environment, a spatial pattern of production results, which at times is not only at odds with the factor endowments but which also places additional strains on the transportation system. Agricultural economists in centrally planned economies need to provide analysis of the social costs of following present pricing policies to planners.

Production

Agricultural economists working at the national level in centrally planned economies have made their greatest contributions in agricultural production and farm management analysis. Useful applications of mathematical programming have been made in annual enterprise planning and in selecting the optimum machinery complement for state or collective farms. Farm management simulation games are now being effectively used in training farm managers (for example, by Csaki). While advances have been made in this area, more work is nevertheless needed. Recent developments in multigoal programming can permit the analyst to maximize more than one objective, subject to whatever constraints exist, to determine an optimum farm plan. Moreover, given the relatively large variance in crop yields due to climatic variability, use of stochastic programming needs to be made to define optimum farm plans in a risky environment.

For purposes of investment planning at the national level, more research is needed on both economies of scale and appropriate technology in agriculture. Closely related to this is the question of optimum energy intensity of agricultural production. An energy-intensive agricultural development strategy may have been appropriate while the CMEA countries were energy self-sufficient. But now with the energy crunch agricultural economists need to determine the optimum future energy intensity of agricultural production. More generally, their input is needed in determining agricultural research priorities, as well as in assessing the ecological effects of technological change in agriculture.

At the aggregate level agricultural economists need to improve production forecasting techniques and produce regular forecasts of supplies of agricultural products. This may require close collaboration with agricultural meteorologists to improve short-run forecasting performance. Nevertheless, this could be a very high pay-off endeavour for agricultural economists; one which is essential in a centrally planned economy in which market prices do not function to signal needed changes in demand and in foreign trade.

GENERAL DISCUSSION - RAPPORTEUR: SHEILA DICKINSON

In discussion attention was drawn to the problem of determining prices in trade between CMEA and non-CMEA countries and it was suggested that this topic should be included in the next IAAE Conference. With the introduction of free price determination in the CMEs it was also suggested that differences from the free market economies were diminishing.

In response, Dr Fekete recalled that prices were not just arbitrarily determined but were the concrete realisation of socio-economic realities. Conditions in Hungary differed from those in other CMEs and because of the importance of trade to Hungary they tried to create close links between domestic and world prices. Producer and consumer prices might be closely linked; but they might differ. He could not in any event accept the suggestion that the Hungarian economy was a market economy since 60 per cent of agricultural produce was marketed at fixed prices and only 14 per cent at free prices.

Questions were asked about the co-ordination of the profit method with the Marxist theory of value and about the welfare function of a socialist system. Dr Fekete explained that the profit sharing arrangements amounted simply to a distribution of any surplus to workers in proportion to their direct wages. A socialist system did not work for the sake of profit but in response to the needs of society.

Dr Fekete added that questions of demand had not commanded much interest in the CMEs for some time but a group was now working on income and price elasticities of demand and on nutritional aspects. His paper had not covered questions of marketing and transport or of economies of scale and technology, since these were micro-economic questions, but they received considerable attention. They were particularly interested in the most efficient method of production and optimum farm size. In addition they had applied a range of existing technologies imported from countries where relative input prices were different and they were now trying to adjust these technologies to their own conditions.

Participants in the discussion included Ichiro Kaneda and Adolf A. Weber.