THE THIRD SCIENTIFIC MEETING OF THE CENTRE OF ECONOMIC COMPUTATION AND ECONOMIC CYBERNETICS — BUCHAREST

Within the complex action of developing and diversifying the production of material values, of promoting advanced methods of management and control in the development of economic processes, in organizing production and work in agreement with scientific criteria, an increasingly prominent place is held by the application of cybernetics and economic computation achievements.

Scientific research is now facing the paramount task consisting in theoretically generalizing the many-sided aspects raised by social practice, the development of theories, concepts and tools belonging to these new scientific disciplines, as well as the finding of ways and means for the practical utilization of present achievements. Scientific conferences play an important part in submitting and confronting investigation results, in promoting fruitful debates among specialists, in effecting wide information exchanges, in checking the working assumptions, and so forth. The same lines of approach were also followed by the proceedings of the Third Scientific Meeting of the Centre of Economic Computation and Economic Cybernetics-Bucharest, which took place on May, 23 to 27, 1968, bringing together in a fruitful debate a numerous group of economists, mathematicians, engineers and other experts.

A number of 126 papers, submitted during this scientific meeting, contained a great part of the results recently obtained by research workers of the Centre of Economic Computation and Economic Cybernetics in their efforts directed towards the elucidation, by means of cybernetics and modern computation techniques, of some important aspects related to the management and planning of national economy, its branches and enterprises, to the scientific organization of production and work. The solutions achieved for some problems raised by actual practice were also presented on this occasion.

A valuable contribution to the proceedings was also brought by some staff belonging to the State Committee for the Problems of Organizing and Remuneration, the Ministry of Finance, the National Bank of the Romanian Socialist Republic, the Academy's Centre of Mathematical Statistics, the Polytechnic Institute "Gheorghe Gheorghiu Dej", the Academy of Economic Studies, the Rolling Mill Designing Institute, the "23 August" Works in Bucharest, the Enterprise for Conditioning and Delivering Petroleum Products in Constanţa, and so on, who presented papers or took an active part in the debates.

Reflecting the increasingly deeper insight of modern mathematical methods and of the computation techniques, based on the use of computers, in the study of economic and sociologic phenomena and processes, the papers dealt with a wide range of problems and aspects.

As could also be seen from the papers presented at this meeting, a prominent part in the activity of the Centre of Economic Computation and Economic Cybernetics is played by the investigations referring to production requirements. The results achieved so far allow us to envisage the excellent resources offered by economic cybernetics and the modern computation techniques for the modernization of our national economy, for the higher organization of production and work, with a view to increase the efficiency of using social work. On the other hand, due to practical needs, the scientific research is naturally faced with important theoretical problems, opening new vistas for the basic research which, in turn, will allow the clarification of certain concrete and practical aspects.

An essential aspect of economic cybernetics is modelling. The economic model has both cognitive value and, particularly, a practical one, by its use in the management of the phenomenon or economic process. In view of managing and planning economy, macro- and micro-economic models are necessary, according to the purpose to be pursued. If we are considering, from this angle the activity of the Computation Centre, we may see, as was pointed out by Professor Manea *Mănescu, Corresponding Member* of the Academy, in his concluding speech of the meeting, an obvious progress as compared to the previous years, materialized in the transition from the general analysis of models to the elaboration of real models. As an exemple, we may emphasize that a model has been developed, describing the evolution of an economy characterized by a high rate of growth, allowing the investigation of real assets, total social product, national income and other synthetic indexes size development; also a model for the planning of the educational system, considered as being partly controllable and consisting of three overlapping systems: persons' circulation, information circulation and objectives and energy circulation; a macro-economic model for the main indexes of national economy development; models of forecasting computations referring to the demand adaptability in foreign trade; national economy fuel and energy supply system modelling, a model for the determination of the forest planning production cycle, a predicting model for the electric power stations development, etc.

In this field the activity will have to be largely extended so as to become one of the main concerns of the Centre of Economic Computation and Economic Cybernetics. With that end in view, constant efforts are necessary for the further theoretical and practical development of cybernetic models, starting with simple process modelling of production departments and ending with most complex modellings of national economy departments, such as the plan of economic development or the balance of branch relations.

In the activity of economic process modelling, the use of simulating theory and techniques is prescribed. Actual practice proves that these are constituting particularly efficient means in reality investigation, in disclosing the inner connections of phenomena and processes, their very nature.

A direct and indestructible relationship exists between cybernetic modelling and economic informatics. The analysis and formulation of options are not possible without the availability, at the right moment, of the essential data reflecting the economic activity. In view of ascertaining the volume of necessary data, their circulation, the processing system, etc., a whole set of modern methods and techniques is used at present. On the other hand, simultaneously with the development and improvement of electronic computers, new programming methods and techniques are coming into being, research is conducted in view of establishing algorithmic languages and programmes written in a natural language are being drawn up.

At the present meeting of the Centre of Computation, algorithms and programming systems were particularly stressed. This trend, shown by the topics referring to economic informatics, reflects the increasingly stringent need of the economy to establish programme stores, as well as the still early stage in supplying economy with modern computation equipment. By adopting the idea of elaborating programmes and systems of programmes, the papers obviously contribute to the necessary provisions in view of introducing electronic computers, to the working out of the algorithms for the material solution of various issues brought up by actual practice.

A paramount importance in the use of computers and, in general, in the use of economic cybernetics and economic computation methods and techniques, even greater than the "technical" preparation of computer introduction, lies in training the necessary expert staff. As Professor Manea Mănescu emphasized in his paper, by taking into account this requirement, steps were taken in view of training the staff in faculties — i.e. the Academy of Economic Studies, the University of Bucharest, the Polytechnic Institute of Bucharest — as well as through special courses organized at the University of Bucharest and the Academy of Economic Studies, the Centre for Raising Qualification of Management Staff in Enterprises etc.

An appreciable number of papers dealt with the mathematical methods used in decision making, known under the generic name of operational studies. They evidence the ever increasing concern shown by investigators for the promotion of these methods — the theory of graphs, linear and non-linear programming, dynamics, stochastic processes, etc. — in optimizing the management of economic phenomena. As can be seen from the papers presented at the meeting, these methods have a vast application area, starting, for instance, with the study of social processes' structure, of labour organization for the technical and administrative staff and ending with the working out of optimal manufacturing formulae for a product or for the preparation of blends.

It may be rightly considered that research of economic computation is part of the traditional interests of the Centre of Computation. A great number of papers referring to the solution of economic computation problems derived from actual practice, or raised by the national economy, were presented at this meeting.

The proceedings of this meeting showed the noticeable progress recorded in the development of economic computation and economic cybernetics investigations in our country. They simultaneously pointed out that the Centre of Economic Computation and Economic Cybernetics, the main authority where the research activities in these areas are being performed, has directed its efforts towards the major problems at issue in these fields and has at its disposal a distinguished and talented team of research workers

E.N.