

ACTA

OECONOMICA

PERIODICAL OF THE
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SCIENCES

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CONTENTS

Editorial (J. BOGNÁR)	1
PAPERS OF THE SECOND BRITISH-HUNGARIAN ECONOMIC COLLOQUIUM	
J. BOGNÁR: The Role of East-West Economic Relations in Promoting European Co-operation	5
M. SHANKS: Economic Integration in Western Europe Since 1945	27
B. J. BARD: The Transfer of Technology	37
GY. VARGA: Some Questions of Technological Development in Hungarian Enterprises	45
E. N. EDEN: Investment Criteria in Public Enterprises	69
F. PIKLER: Optimization of Decisions Concerning Long-Term Energy Supply	87
T. BÁCSKAI: New Developments in State Enterprise Taxation in Hungary	107
REVIEWS	
M. SIMAI—T. PALÁNKAY: On the British-Hungarian Economic Colloquium	123
BOOK REVIEWS	
Contemporary World Economy I. (A. SIPOS)	131
25 Years: Industry, Agriculture, Living Standards, Culture (Mrs. K. FALUS-SZIKRA)	135
GY. VARGA: American Business (T. KÉRI)	137
I. GERGELY: Business Policy and Market Decision in Capitalist Companies (A. MÁRLÁS)	140
Books received	143
SÁNDOR CZEITLER (Obituary)	145

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PERIODICAL OF THE HUNGARIAN ACADEMY OF SCIENCES

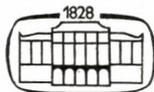
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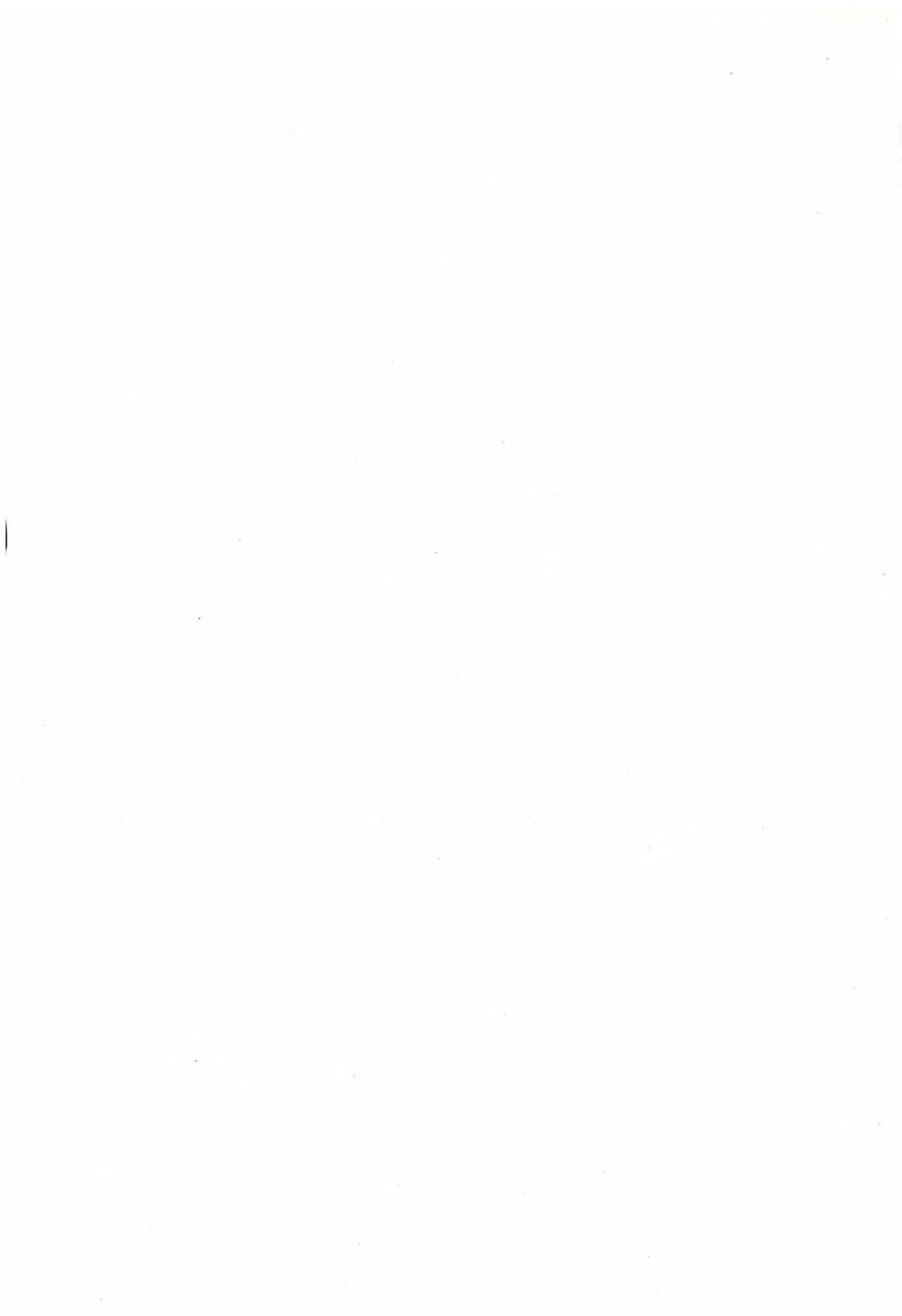
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CONTENTS

J. BOGNÁR: The Role of East-West Economic Relations in Promoting European Cooperation	5
M. SHANKS: Economic Integration in Western Europe Since 1945	27
B. J. A. BARD: The Transfer of Technology	37
GY. VARGA: Some Questions of Technological Development in Hungarian Enterprises	45
E. N. EDEN: Investment Criteria in Public Enterprises	69
F. PIKLER: Optimization of Decisions Concerning Long-Term Energy Supply	87
T. BÁCSKAI: New Developments in State Enterprise Taxation in Hungary	107
A. CSERNOK: Economic Policy Goals in the Use of the National Income	149
É. EHRLICH: Economic Development and Personal Consumption Levels: an International Comparison	167
E. GÁCS—Zs. MAGYAR: Changes in the Living Conditions of the Population from 1971 to 1975	185
Á. KISS—J. TIMÁR: The Supply of Qualified Manpower — Labour Force-Structure — Education	202
M. AUGUSTINOVICS: A Series of Models for Long-Term Planning	219
A. NAGY: The Role of Consistent Trade-Network Models in Foreign Trade Planning and Projection of the Socialist Countries	239
I. FRISS: Tenth Congress of the HSWP: Economy and Economic Science	273
P. НЬЕРШ: Вопросы международного экономического сотрудничества	281
J. KORNAI: Economic Systems Theory and General Equilibrium Theory	297
J. WILCSEK: Modern Small and Medium-Sized Factories in Hungarian Industry	319
B. PÁLOVICS: Perspective Development of Hungarian Agriculture	333
J. SZITA: Efficiency of Hungary's International Cooperation and Long Range Import Policies	347
J. RÉDEI: A New Approach to Industrial and Technological Cooperation with the Developing World	361

REVIEWS

M. SIMAI—T. PALÁNKAY: On the British-Hungarian Economic Colloquium	123
Ш. АУШ: Характер и проблемы рынка СЭВ	275
Income and Consumption	377
L. HALABUK: The Activities of the Economic Laboratory of the Central Statistical Office	381

OBITUARY

SÁNDOR CZEITLER (1930—1970)	143
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BOOK REVIEWS

Contemporary World Economy I. (A. SIPOS)	131
25 Years: Industry, Agriculture, Living Standards, Culture (Mrs. K. FALUS— SZIKRA)	135
GY. VARGA: American Business (T. KÉRI)	137
I. GERGELY: Business Policy and Market Decision in Capitalist Companies (A. MÁRIÁS)	140
Economic Development and Planning (T. FÖLDI)	265
A. BRÓDY: Proportions, Prices and Planning (J. VÁRI)	268
A. BURGER: Economic Problems of Consumers' Services (GY. HAJDU)	269
J. MÁRTON: The New Structure of the Food Economy (GY. MÓDOS)	269
E. CSIZMADIA: Economic Concepts and the Food Economy (I. GÖNCZI)	387
S. CZEITLER: Hungary and the Capitalist World Market (GY. NÉMETH)	389
GY. SIMON: Economic Management and the National Economic Optimum (K. LÁNYI)	391
Major Features in the Position and Development of Internal Enterprise Mecha- nisms. Practical Questions in the Development of Internal Enterprise Mecha- nisms. (L. LADÓ)	394

EDITORIAL

The *Acta Oeconomica* has gained in volume and will be visiting readers in all parts of the globe more frequently. Owing to a very painful event and to another factor, a very heartening one, our Editorial Board has had to be reorganized. The painful event was the loss of the chairman of the Board, Imre Vajda; the heartening factor is the advance of Hungarian economics which has deserved representation in our journal and has made it necessary for us to draw newer forces into the difficult work of editing.

Professor Imre Vajda was not only a distinguished economist, internationally recognized, but also something more: an unrelenting publicist who considered economic activity — to use the terminology of sociology — the centre of the goal-rational system and who both understood and unswervingly fulfilled the requirements of the value-rational system. On the pages of this periodical we should like to follow his intellectual heritage, the inspiration of his scientific bequest, the spirit of his unrestful creative talent always striving towards new knowledge.

The main purpose and effort of this periodical has been and will be in the future to inform the exponents of our discipline working in different countries under radically different conditions of what is happening in the Hungarian research workshops, of the recognitions made and conclusions drawn and of the trends in the manner of reasoning on the key problems of our economic growth and development. The answers to these questions are formulated at a time when the Hungarian economy — like the economies of other socialist countries, yet displaying certain specific features — is looking for new ways of improving efficiency, technological progress and management methods. Our country is striving to assert these postulates in harmony with the fundamental requirements of the socialist way of thinking and the socialist system of values. These problems claim the interest not only of those who live in a socialist society or for whom the creation of such a society is an organic part of their immediate system of objectives, but of all those concerned with the relationships between different systems of civilization and the economy.

This great problem has namely, not only a historical interest — as assumed by many people: it subsists and coexists with us even though under highly different forms. Trying to find answers to this intriguing questions are the socialist economies by engaging in reform experiments, the revolting youth of the capitalist countries by discarding the inherited systems of interests and purposes, the developing countries by struggling with a multitude of conflicts between the inherited system of civilization (tradition) and the economy.

We intend to examine the problems of *world economy* more frequently, more regularly and more actively. We live in an age, when the interdependences between national economies are rapidly growing in terms of both quantity and quality and when economies at extremely different levels of development participate in the international division of labour. How to find new approaches to the problems of the international division of labour in a world where the classical or neo-classical type of commodity exchange makes the rich richer and the poor poorer? On the other hand, the development conceptions of national economies may easily become irrational if the impulses of the world market are neglected. Yet, in fact, no economy can afford this in a world where the regrouping of assets from the most advanced countries to the least developed ones has become an objective necessity.

Particular care is devoted to the investigation of the economic cooperation problems on our continent, in Europe. Our starting point is that in order to bring about a European security system it is in the interest of both parties to establish such a quantity and quality of common economic interests as will secure, through the value systems of the national economies, a proper counterweight to the possibility of making “one aspect” decisions (“purely” political or “purely” security). The creation of common interest and the development of cooperation have been put on the agenda at a time when foreign trade has become the most dynamic factor of economic growth and development. The dimensions this dynamics has assumed in our days have engendered new forms of *economic cooperation*.

Our task is to investigate these great problems of political and economic history of our age from the point of view of the Hungarian economy. The Hungarian economy is a socialist economy, and this fact will, obviously, always underlie our views, without, however, making attempts to state some official standpoint.

The authors expound their views according to their best scientific conviction and conscience. They are socialists, and this will become manifest in their viewpoints, methods of approach and their value judgements, but science, politics and economic history alike testify that there are various alternatives for approaching the same problems and questions even under socialism.

Another reality of our age and our continent is that the majority of the European national economies are non-socialist economies. These countries are also looking for new ways in cooperation, with their own methods and within their own interest system. The opinions and views of economists in these countries on the expansion of economic relations are particularly important to us. It should be obvious that in the course of developing cooperation both — otherwise highly different — value systems should be taken into account, since joint work can only rely on a correct division of advantages achieved in common. Thus we intend to provide an opportunity for a dialogue between the representatives of European political economy — socialist and non-socialist alike — on the pages of this periodical. We ask for their cooperation and will regularly invite internationally known personalities to comment on the problems outlined above.

It will appear from the above that our periodical though centered on problems affecting also Hungary, has no provincial bias. We do not transmit only the creations of the Hungarian intellect to the world but, in several respects, also present the world — as an active and passive medium — to Hungarian economists.

On this basis we hope to be able to hand to our readers an up-to-date, active and interesting periodical. We shall be grateful to our readers for every useful proposal or idea. We hope that through the new ideas permeating economics and through the common humanistic heritage of mankind we shall find contact with our readers who will feel that this periodical is theirs.

J. BOGNÁR

J. BOGNÁR

THE ROLE OF EAST-WEST ECONOMIC RELATIONS IN PROMOTING EUROPEAN CO-OPERATION

East-West trade still is not more than a fraction of world trade; the reasons for it may be found rather in politics than economy. Though trade is on the increase now it can prosper only if mutual advantages are asserted; but once established, trade relations may favourably affect political decisions. — In the second part of the study, the author examines the theories of the international division of labour and of foreign trade, criticizing mainly the neoclassical theories, which have become an obstacle to new trends in economic relations. He stresses that international corporations present a new and important phenomenon in the history of capitalism. The foreign-trade behaviour of the socialist economies is also analysed, indicating that, due to the socialist ownership of the means of production, the state is inclined to think rather in terms of structure than in that of commodities. With the reforms under way this situation begins to change. — In conclusion, the author summarizes the ideas, which, if implemented, may promote East-West trade.

I.

East-West trade, in spite of its marked increase in the past years, is still not more than a marginal factor in world trade. According to the traditional view, economic (trade) relations are more flexible than political relations. It may, however, be presumed that this statement applies only to circumstances in which the leading powers of the world are countries sensitive to foreign trade, as was for instance Great Britain. But if great powers are less sensitive to foreign-trade relations (countries with a vast domestic market and rich in natural resources), it may well be that the level of economic relations will remain below the magnitude that would politically be permissible or desirable.

So let us first examine whether or not the factors determining the low level of East-West trade can be found in politics.

Three political strategists and an outstanding economist-diplomat should be quoted in support of this statement. Bernard Baruch, President Truman's adviser, has formulated the goal to be attained as follows: "In order to maintain its economic and military superiority, the US must try to curb the growth rate of the Soviet economy." George F. Kennan [1], an outstanding expert on Soviet-American relations, who organized the Policy Planning Staff of the State Department after the Second World War, summed up his opinion on East-West relations in the following words: East-West trade is "political rather than economic. Particularly is this true when it comes to United States trade with Russia and the bloc: for the economic dimensions are entirely of a secondary order. But it is also true when it comes to the question of

Western European policies in this field." My third quotation is from Z. Brzezinski [2], a well-known American expert on Central-east European questions, who quotes Abram Bergson's report to the Senate: "U. S. policy in this area (that is, in East-West relations) must be formulated primarily with reference to political aspects." And then, comparing economic relations to an electric switch, he essentially repeats Bernard Baruch's opinion: "It is not the purpose of the US to promote the development of the Soviet economy."

Gunnar Myrdal [3], the outstanding economist who was Secretary General of the Economic Committee for Europe in the most critical days of the cold war and in the early days of the thaw, also stressed the decisive significance of political factors: "There is one general point that I believe needs to be stressed in any discussion of East-West economic relations in Europe, viz., the paramount importance of politics in economic affairs. During the whole century before the First World War and right up today there has been a tendency to give too much stress to economic factors in international relations."

The reader may have the impression that the picture is not complete, since it was not exclusively the wish of US foreign-policy strategists to use international economic relations for political purposes. It would not be difficult to quote West European views and sources, but the particular responsibility of the United States in this field is beyond argument. The US Government was responsible for the Battle Act, and later for the Trade Expansion Act, the initiator and executor of legislative and organizational measures that eventually led to the freeze in East-West trade. It should also be remembered that open political discrimination still exists, and that Nixon has not formulated new politics in this respect, although he has couched it in a definitely more elegant and elaborate style: "We look forward to the time when our relations with the Communist countries will have improved to the point where trade relations can increase between us" [4]. The position outlined in the presidential message essentially reiterates B. Baruch and G. F. Kennan's view: East-West trade is a political problem in the first place, and it should be approached from this angle.

When emphasizing the paramount importance of political factors we, naturally, do not mean to underestimate the problems and difficulties deriving from the differences of socio-economic systems or from actual economic-political difficulties.

These factors show a very intricate interdependence and hence it is extremely difficult to separate their influence within a system of decisions and actions wherein they originate. In the abstract it is possible to conceive a socialist economy with a per capita national income and an economic efficiency as high as to rank first, but at present this does not exist. The construction

of a model and its analysis would therefore be needed in order to visualize the approach to problems of international trade of a socialist economy whose attitude is influenced exclusively by fundamental interrelations deriving from the socio-economic system. In practice, however, no national economy can be conceived whose attitude to foreign trade is influenced by one factor alone. These statements apply — *mutatis mutandis* — also to the capitalist economy. It is obvious that the more advanced an economy, the more interdependent factors emerge and the more alternatives for action are to be faced (the wider the range within which economy will be able to pick and choose).

Yet, what we must face today are not only the effects and developments radiating from these two factors (the socio-economic system and the actual economic-political situation complicated by the different levels of development) but also the consequences of economic events of the past two decades initiated by political motives and running along their own paths. It may well be that the effect of the above factors upon international trade have been overestimated or overemphasized, but it remains a fact that this value judgement has engendered economic decisions and actions which, in turn, have increased differences, created new institutions, have transformed the economic structure of interests to suit the new situation and have, in most cases, triggered off "counter-measures" on behalf of the other party. Thus, — in keeping with the scientific-technical revolution — economic integrations have come into being which, with the improvement of "co-operation techniques", have established a system of mutual advantages, on a much larger scale than before, a system that is not available to others (that is, to outsider countries). The agreements concluded on this governmental level have channeled enterprise actions into a new course. This again shows that politics has been a brake and obstacle in one direction and a promoting factor in another direction; and this has resulted in the development of "well-channelled" economy into a stage where the inherent laws of economy acquired the decisive role.

The interactions of political and economic processes described here should be thoroughly understood because the economic processes and interest relations that have evolved during the last two decades have turned today into concrete conditions for politics, too. The processes cannot be stopped or reversed by political neutrality or by a mere declaration of political goodwill.

In the second half of the sixties, however, essential changes could be observed in international political relations. I wish to stress some of them:

1. The military forces of the two superpowers have come to an equilibrium, on the one hand, and on the other, contemporary armament has

developed into such untold forces of destruction that the growing costs do no longer increase the security of the vying parties with respect to each other. The other countries are practically "defenceless" in the military sense of the term even though possessing certain destructive potentials (Great Britain, France, the Chinese People's Republic). Under such conditions, conventions between the great powers on reducing armaments have become conceivable in practice and reasonable in reality. The talks conducted to approach and gradually to achieve these conventions will presumably clarify the fundamental question of what kind of armament policy is best suited to attain the indispensable degree of security which is rational also in the nuclear age. The various international crises of the sixties seem to have convinced both parties of the necessity of avoiding an atomic war. Consequently, the parties are no longer afraid of being attacked by the other; what is more, the European continent has witnessed a renunciation-of-violence pact being negotiated, with such signatories as a member of the Warsaw Pact and a member of NATO.

2. A substantial improvement of the political situation within Europe, the most conspicuous result of which is the agreement signed by the Soviet Union and the Federal Republic of Germany. It may be presumed that this agreement of paramount importance will make it possible not only to regulate and improve the relationship between the FRG and the socialist countries of Europe but also to promote all-European relationships.

3. The proposals of the Soviet Union and of the socialist countries for creating a European security system open up new vistas in the development of this continent. Security does not only consist in solving merely political and military problems, mutually reassuring the parties. It is evidently necessary to solve these problems since centres of tension may develop unexpectedly not only in Europe; critical situations or crises evolving on other continents may spread to Europe where considerable military forces are still concentrated. (NATO — Warsaw Pact.) A system of European security could moderate and later minimize dangers of this type. Yet, beside creating a political and military security system, it is also necessary to develop economic, scientific and cultural co-operation since the common interests (residing in, and disclosed by, co-operation) are important factors in stabilizing the situation and in enhancing confidence.

In a changed political situation — and these changes are expected to culminate in the mid-years of the decade ahead of us — we may rely on the following assumptions in prognosticating East-West economic relations:

a. Political conditions in Europe are not going to hamper the development of relations; and a sound and circumspect political leadership will endeavour to promote commercial and economic ties. The strengthening of security and mutual trust is preconditioned by the postulate that the

parties should have more important interests involved in maintaining security and moderating possible tensions than in tolerating a possible deterioration of the situation. Peaceful co-existence and co-operation between countries with different social systems can only be conceived on the basis of common interests. In the modern world, economy is the firmest basis of any system of national and international interests and constitutes a sound counterweight to unilateral decisions deriving from different (political, military) interest structures. Every government acts under the impact of contradictory forces; any decision made on the basis of "purely" political or military considerations would substantially differ from a decision made on the basis of "purely" economic considerations. Common economic interests, joint decisions on maintaining and developing mutually advantageous economic processes may play an important part in creating mutual confidence and in preserving continuity in conditions for co-operation. With some exaggeration we might say that the accumulated amount of common interests is one of the indirect guarantees of the new system being created (i.e. of European security and co-operation).

b. The favourable development of political relations within Europe, however, is only a tendency, a promise for the future; our presence is still determined, in many respects, by mutual mistrust rooted in the period of the cold war. It is also evident, that both within and outside Europe there are great political and economic forces trying to hamper co-operation. There still is much doubt and scepticism, because the mainstream of thaw and improvement over the last one and a half decade has often been interrupted by real crises and crises of confidence, by periods of setback lasting for years.

c. Another thing to be reckoned with is that the difference between the economic systems, on the one hand, and the economic-political strategy due to the different levels of development, on the other, have given birth to very dissimilar approaches to the problems of international trade. Although these problems do exist, their traditional assessment has exaggerated their significance. The gaps can be bridged in a spirit of mutual understanding and goodwill, even though the importance of this possibility has often been contested in the course of the last decades. Mutual understanding today is still a postulate rather than established practice, since in the years of the cold war we made no attempts to understand the logic of actions of the other party. That is why so many prejudices survive in public opinion, including public economic thinking. Unfortunately, we are not sufficiently well acquainted scientifically with the actual conditions and endeavours of one another so as to help mould public opinion.

Consequently, the action programmes for improving East-West relations and for incorporating them into the interest relationship of the two parties will have to be figured out in the course of further development.

II.

Will progress not be too difficult and cumbersome under such circumstances? It will obviously not be easy, nor can it be so, a process that has gone on for a quarter of a century needs reversing under conditions when this necessity is still being questioned by considerable political and economic power factors and when the world outside Europe lives in tensions stemming from growth and development unprecedented in human history (the liquidation of economic backwardness, demographic revolution, conflicts of the inherited system of civilization with the requirements of the new world, the threat of exaggerated nationalism, tensions between tribes and ethnic groups straining the internal situation, etc.).

It should also be realized that the theories and conceptions concerning the international division of labour and foreign trade are the least explored and most backward fields of economics. With some exaggeration we might say that international trade today has its practice but no theory. This can be ascribed to two main reasons: first, in the last two decades research has been focussed on issues controlling and influencing national economies, and secondly, world economy consisting today of over a hundred national economies which represent extremely different stages of development, of many integrated groups, and of three types of socio-economic systems, all this has become too complicated. Under these circumstances it is extremely difficult to formulate action norms or postulates of universal validity that would equally distribute advantages between, for instance, the United States and the Republic of Mali. If, on the other hand, world optimum is looked upon as the resultant of combinations and compromises between national economic policies, then the best norm we can recommend is to say that every national economy should act according to its own interests. This, however, will not yield a world optimum. The problem evidently stems from the fact that the national state and the national economy constitute a system of forces and interests much more solid than anybody would have presumed. Let me recall that Imre Vajda [5] made this point in his dramatic inaugural lecture at the Hungarian Academy of Sciences in 1968. We shall come back to these issues when dealing with the factors determining or influencing the foreign-trade policies of socialist countries.

It follows that I understand the relative backwardness of economic theories and conceptions associated with the international division of labour. Yet, in spite of this understanding attitude, I consider it a danger that the views of most research workers studying the problems of international trade should be influenced by the welfare variant of the classical free-trade theory. Yet the western world of today is, naturally, not void of outstanding scholars who correctly interpret the relationship between international trade and

economic policy aimed at liquidating the economic disparity and at updating backward national structures [6].

I should like to stress that what I want is not scientific polemics provoked by my criticizing the present-day variants of the free-trade theory but to avert an obstacle that might hamper a possible understanding. No co-operation can be achieved between the dominating capitalist countries and the rest of the world on this basis.

The free exchange of commodities is the interest of the country (of all countries) — says the theory. Every country should specialize in products in which its comparative advantages are the best. A spontaneous division of labour between nations will ensure a maximum amount of products for both the given country and the world economy. Therefore the optimum develops at world level. Maximum welfare is characterized by such prices of all commodities which coincide with those formed in the course of free competition. Trade limitations are incompatible with these optimal requirements, hence their elimination (especially within an integration) leads to a better division of labour between producers and to the improvement of welfare or the welfare of the region).

But recently even neoclassical authors have given consideration to the arguments of a new industry in the making and even GATT is inclined to make exceptions for developing countries.

Unfortunately, it is not an easy thing either to prove or to disprove economic theories. Unknown in our discipline is the "stringency of the theory" whose interpretation has played such an important part in the development of mathematics, and so is the "scale of validity" which is of paramount importance in understanding the phenomena of the physical world. (According to J. v. Neumann, what our physical experience can encompass is a linear scale extending up to 10^{40}).

But how do we qualify theories of this type? As axioms, postulates, hypotheses or principles derived from actual economic policies and statistically proved? Have we, in formulating this or that thesis, considered the fact that economic phenomena are not affected by purely economic factors? Such uncertainties are generally associated with a large part of our present-day economic knowledge.

Yet when realizing the uncertainties deriving from the present state of our discipline, we must also point out the factors and circumstances that are simply ignored by neoclassical free-trade theory. Let us dwell on them at some length.

1. Examining the issue from the angle of economic history, we can say that the three most successful growth centres of capitalist economy in the 19th and 20th centuries, namely, the American, the German and the Japanese ventures, have relied on protectionism. Alexander Hamilton's Report

on Manufactures testifies that the American leading quarters realized the dangers deriving from the disparities of economic structures and decided to liquidate them with the help of industry protected by premiums. The Zollverein (1834) tried to protect itself against the invasion of goods by industrially more advanced powers, and Friedrich List evolved the theory of "educative import taxes".

The Japanese development in this respect displays specific traits, since it took several decades for the government to build up a standard on which it could conclude trade agreements with the western powers on equal footing, and it could only recover tariff autonomy of the country as late as in 1911. But beginning from this date, protectionism started developing vigorously [7].

The conditions today, naturally, differ from those in the 19th century or in the early 20th century; yet history proves that strong nations are not ready to submit to the consequences of economic disparity. In the right moment, even with risks involved, they start developing a contemporary economic structure.

2. The theory of comparative costs can, however, also be approached from the angle of practical observation. On the basis of Ricardo and the theory of the neoclassical authors, practical observations ought to show that the relative volume of exports is in negative correlation to the relative labour costs (productivity ratio divided by the ratio of wages), yet — according to M. E. Kreinin's [8] calculations, — this correlation does not hold. But the question is whether or not the positive correlation, to be expected on the basis of the theory, between the productivity and the export ratio of a given industry are valid.

M. E. Kreinin has examined twenty-five industries in the United States and in Great Britain in the period between 1958 and 1965 and has come to the conclusion that a positive correlation between labour productivity and the export ratio can only be ascertained in six of them. Such correlations have been found mostly in what are termed homogeneous industries (glass, leather, cellulose). Changes in the productivity of labour — in the case of differentiated products — do not involve changes in export performance. It may be assumed that in the case of such products, international demand has a much stronger effect on export performance than has either productivity or prices. This assumption corresponds, by the way, to experiences that can be gained in domestic economies.

3. The neoclassical theory neglects interrelations associated with the existence of states and national economies in spite of the fact that the political influencing faculty and responsibility of the states and governments have markedly increased. A state is, however, something more than the sum total of the firms, and production interests and welfare associated with the

population, nation, cannot be made dependent on the world market. The international exchange of commodities in this sense is a co-operation, and also conflict between national structures. Every national economy develops, updates and protects its own structure, that is, its right and possibility to create a structure desirable from the point of view of the nation, since the structures themselves constantly influence one another. Not only economies with weaker (backward) structure avail themselves of instruments of power to increase their cohesion and resistance, but this is what happens also in firmly structured economies. By the system of credits and taxation, the budget, by indicative planning, through the infrastructure and programmed strategies the state gives considerable help to economic enterprises. These central measures are, naturally, less overt than in economically weaker countries, because government measures blend with market elements in a peculiar way, but the substance is the same. The nations, the national economies and the examination of issues associated with their existence and strengthening cannot be overlooked in the international exchange of commodities. (The concept of the national economy as a unit is confirmed in capitalist economy, for instance, by the redistribution of incomes, by the policy of full employment and so on.)

4. Ricardo's teaching on the comparative advantages has a static character, which is understandable for two reasons: dynamic thinking did not yet effect economic thinking in his days, and the comparative advantages mostly relied on natural resources.

In our days, however, economic thinking has become dynamic, and the comparative advantages lie with the more advanced structure, higher technological and scientific level, with higher organizational capacity, elasticity and with possibilities of substitution. How can one, under such circumstances, think about a possible division of labour in certain regions or in the world, as about some idyllic or a ready-made, predetermined process — as the representatives of the neoclassical theory do? The dynamic comparative advantages are results of development which contain the elements of disparity, backwardness and asymmetry as long as they are not dissolved in the course of history. In the comparative advantages of our days the development, structural and organizational factors are coupled with power hierarchy the existence of which is often overlooked.

5. The neoclassical theory is still unaware of the "first sovereignty system" (the states) at a time when the "second sovereignty system" has already made an appearance in the form of large concerns. The theoreticians of world concerns are not as bashful as that when overtly proclaiming that "corporate management becomes quasi-political because of the necessity of using all the instruments of strategy that states use in this arena... The multinational corporation, in short, is in politics, whether it likes or not" [9].

Ferdinand Lundberg [10], too, speaks about "quasi-political states" when analyzing all the attributes of the world concern that are reminiscent of the functions of a state. Several authors point out that one of the characteristic features of business undertakings is that they may go bankrupt, but this would happen to big concerns no sooner than to the state. The leaders of big concerns openly boast that they shall do business more and more with themselves in the future throughout the world [11]. It is also commonly known that the large concerns "no longer concentrate on the export of certain commodities, on the profitability of individual transactions or on that of certain vertical production processes", because they assess their profitability on the basis of their entire activity and on a world scale.

6. Under these circumstances it is also evident that international trade or economic efficiency today does no longer mean enterprises of a "normal" order of magnitude, associated with "perfect competition". In 1967 the American world concerns exported commodities in the value of \$ 6,000 million to their affiliated firms, which amounts to about 23 to 24 per cent of contemporary American export. The world market is, therefore, no neutral judge assessing the productivity of nations with a view to a rational international division of labour, since it is a "manipulated" medium, one influenced and changing under the impact of concentrated economic powers.

7. Monetary policy can, evidently, not be separated from the structure preferred by the dominating economic powers. The accuracy of this statement is confirmed by the role and position of the key currency, the US dollar, by the policy of the International Monetary Fund, and also by other phenomena. But we cannot go into these details now.

It is therefore impermissible even on the basis of the neoclassical approach to idealise the theory of comparative advantages.

This theory should also be considered a principle serving as a yardstick and promoter of rational economic actions. But never in history has any economic policy been built or economic relations based on one single principle. Hence the adoption of this theory (within its own range of validity) must not lead to ignoring other factors in this complex and interdependent world of ours. In the course of stormy economic development, the substance of comparative advantages and the institutional background of foreign trade have been transformed, economic disparities have assumed tremendous dimensions, new economic systems have come into being, and world concerns embodying unfathomable economic power have been created. In spite of these changes, the national economies must continue trying to secure comparative advantages in the long run, but the judge of politics can no longer remain the non-neutral world market; we must trust that every nation is sufficiently mature and reasonable to be able to stick to its own economic self-interests. Conceptions and endeavours other than this contradict the

notion of national sovereignty on which international political relations rest today. Every nation must evidently take into account the economic interests of other nations and international relations, but an international division of labour derived from the present power conditions in world economy would mean the imposition of the interest structure of economically more powerful countries and organizations upon the weaker economies. It is indispensable to create gradually a form of international co-operation not hampering but promoting the liquidation of economic disparities. World economy, including the stronger economies, will find it useful to eliminate these disparities since the rate of development is, after all, determined by demand in the first place, — and demand necessarily remains low in economies on a lower level of development, having a rudimentary structure and unilaterally dependent on powers.

III.

It is extremely important to make economic public opinion understand what is really going on in the capitalist economy, and in the case of co-operation it is equally important to make people understand what is actually happening in socialist economy. At present, socialist foreign trade is also stronger in practice than in theory. There is, however, no doubt that the literature dealing with problems of foreign trade, of trade between socialist countries, has become considerably richer in the past decade. Yet, the number of studies devoted to analyzing the issues of East–West trade, i.e. trade between countries with different social systems, is relatively small. In the remaining part of my paper I wish to discuss these issues in the first place.

We have already mentioned that the present system of socialist economy and economic practice has certain criteria that stem from the fundamental principles of the socio-economic system, but also others that are associated with the level of development of these economies as compared to others, as well as with a policy trying to liquidate the disadvantages inherited from the past (relative backwardness or economic disparity).

The criteria of the first category (those deriving from the system) can evidently be considered — in the short or in the medium run — as frames determining the possible zone of economic-political actions. In the long run, of course, even the conception of the system criteria is subject to certain changes under the impact of economic development. For instance, the role of the state as the owner of capital may equally assert itself both in a centralized and in a decentralized management system. The criteria of the second category, in turn, undergo changes in implementing the perspective objectives of development (liquidation of disparities), depending on the actual economic-political situations and experiences.

To the system criteria belong such factors as the state's right to capital property which means that the economic interests, the responsibility of the state, its obligation to act and decide, encompass a much wider scope than in capitalist countries. Moreover the macro-economic interest aggregate (i.e. that of the national economy) is *not* the sum total of micro-economic actions but constitutes a system of values, backed by real power representation and asserting itself in advance (even in the case of decentralised management). Viewed from the angle of foreign trade this means that the owner of capital thinks not in terms of individual commodities or business transactions but in the aggregate outcome of interdependent activities.

The obligations of the state as the owner of capital are in conformity with its tasks deriving from its classical and new functions which can be summed up in the simple statement that the state is required to ensure the *welfare of the workers* of the socialist society. But according to the concept of socialism, the state is responsible not only for the development of the socialist nation and of the national economy but also for the fate of the socio-economic system. (In practice, this responsibility naturally exists also in the capitalist system, but is less explicitly formulated.)

Safeguarding the right to work, for instance, is one of the duties of the state in taking care of the workers in a socialist society, which — viewed from the economic-political angle — involves the endeavour to maintain *full employment*.

The interpretation of the system criteria as a framework for actions means that, for instance, in the case of imbalance, unemployment must not be used as a mode of restoring equilibrium.

The criteria associated with the degree of economic development require the economic management to follow a system of actions directed to the liquidation of relative economic backwardness and of the actual economic disparities. Economic disparity in international trade is revealed not so much in the selling and buying of individual commodities but rather in the unequal structures through which exchanges are realized.

The gradual liquidation of relative economic backwardness and of economic disparity is not just one of the many problems the socialist system is called upon to solve, but is a decisive issue, perhaps the most important one, since this is the main yardstick by which a nation measures the efficiency of the new system and of the new leadership. The liquidation of structural disparity obviously requires intensive trade with the outer world (including the advanced capitalist countries), since otherwise we would find ourselves in the necessity to re-invent whatever is already available in the world. The foreign trade which — on account of the capital owned by the state — cannot be concentrated on the mere exchange of individual commodities or on business transactions, is called upon to comply with new orientation require-

ments raised by economic policy directed to the liquidation of economic disparities.

This orientation requirements show certain changes depending on whether the management system is a centralized one, using direct instructions, or a decentralized one, indirectly regulating the economic conditions. As far as foreign trade is concerned, the direct, centralized model is comparatively closed. Within this relatively closed model, the economy establishes contacts with the outer (non-socialist) world only along the zone where they are indispensable (disregarding the accessory and associated effects and possibilities of combination) and uses the imported means of production chiefly for purposes of import substitution. But when passing judgement on this statement, let me recall that the conditions created by the cold war did not really permit the development of any other model (that is, foreign-trade policy). When embargo is imposed on 50 per cent of the commodities usually exchanged in international trade, the model of economic development gets distorted and can only be of the import-saving type.

The decentralized model, on the other hand, is more open to foreign trade. This means that the contacts with the partners are built on wider foundations (with due regard to possibilities of combination) and what is expected to restore the foreign-trade balance is no longer the reduction of imports.

What are, indeed, the orientation requirements raised by economic policy in foreign trade?

1. The main task of foreign trade is to encourage economic-technological development and to promote the liquidation of economic disparities. This applies to both models, though there is a substantial difference: in a closed model the profit attainable by means of exchanging goods is relatively insignificant, whereas in an overt model — owing to the larger freedom of action of the enterprises and to their increased interest in profits — the surpluses that can be gained from selling and buying commodities play a much more important role.

2. Economic policy is much more concerned with improving and updating the pattern of commodity exchange than with advantages attainable through traditional exports.

This requirement is also modified to some extent in an overt model since the activity of the enterprises will show that certain "contemporary exports" may not be profitable while traditional products — especially when up-to-date industrial and commercial technology is adapted — may yield substantial profits.

3. Economic policy intensively concentrates on markets where new industrial products can be placed. This gives birth to two kinds of trade structure. In an open model the endeavour to render industrial products

marketable everywhere will prevail. As a consequence, foreign trade will not only be an impulsive force but turns into a tractive force in the economy, since a substantial part of investment and scientific research will have to be mobilized to this end.

4. Economic policy tries to liquidate one-sided economic dependence, or to prevent them from developing. This requirement assumes a defensive form in the closed model; there is reluctance to being engaged in long-term commitments which have far-reaching multiplying effect. In the open model this requirement may assume a rather offensive character, an endeavour to engender interdependences.

5. Economic policy has assessed the situation and power relations in a sense that the new structures in the making — destined to liquidate the relative economic backwardness — should be protected by measures taken in foreign-exchange policy. On the other hand, since the dollar as a standard value is at the service of the dominating economies, it follows that an accommodation to the world economy cannot be achieved on a monetary basis. Owing to the different patterns of the products involved in commodity exchange (demand for up-to-date products is usually much more dynamic than that for traditional commodities), a disequilibrium in the balance of payments may be feared, which usually leads to capital imports and often even to direct investments. This is a state of "one-sided dependence" because what penetrates the receiving country is a structure suited to the lending country; direct investments, too, depend on foreign centres. Therefore, the general trend was to prevent crediting or direct investments which, in turn, meant that imports had to be kept at a level lower than would have otherwise been necessary.

In a more open model — provided international political and economic conditions permit — there is a readiness to accept middle- or long-term bank credits or bond credits if reimbursement seems to be guaranteed. In the case of long-term credits, Western inflation is, of course, a problem since it means — quite understandably — high interest rates. The main forms of international flow of capital (partial ownership, direct investments, international concerns etc.) are not applicable to relations between capitalist and socialist enterprises. On the other hand, forms of co-operation, involving joint economic activities and common profits, would be suitable solutions. In such cases, the modes of transferring invested capital can be regulated individually, management, employment etc. problems can also be solved separately. Co-operation in this sense still is in an experimental stage, and certainly to be moulded by practice, just as it happened to joint stock companies in the old days. The development of the modes of co-operation in mutually useful forms would have a decisive importance not only for East-West relations. It is common knowledge that direct investments are by no means

popular in our days either in Western Europe or in developing countries. For lack of space I shall dispense with quotations supporting this statement.

IV.

International political developments indicate that politics is no longer interested in restraining the progress of international ties; what is more, signs on the horizon promise the advent of an era when politics becomes definitely interested in promoting co-operation in order to achieve a degree and an order of magnitude which is the precondition and consequence of peaceful co-existence, of stability, security and confidence among nations.

But it is evident from the above considerations that neither party can adopt co-operation methods that contradict the fundamental principles of the socio-economic system it represents, or run against its social and economic-political aspirations. It follows that the technique of maintaining contacts can only be evolved on a pragmatic basis and with the help of compromises.

The most powerful driving force of international economic relations is interest, irrespective of whether the interests are coupled with some development target or with the increase of profits or with both. The prognostication of mutual interests promises favourable developments, since the demand in the socialist countries grows in products demand for which is the most dynamic. The acceleration of technological development (which is, naturally, qualitatively different from the establishment of the basic structure) requires an extremely large amount of imports, since simultaneous progress is to be made in improving the export structure, in realizing part of the manpower for services, in an accelerated building up of the infrastructure and in raising the welfare of the population. This gives the other party the possibility to expand its production in the most up-to-date area. On the other hand, if technological development is accelerated, the delivering capacity of socialist economies also increases considerably.

As to the commercial methods, these should not concentrate exclusively on the structure and dynamics of the present market. It is, for instance, clear that making the other party acquainted, in some form, with the economic-political decisions and endeavours, promises more combination possibilities for the future than just traditionally meeting market demand in a given commodity. This kind of trading method is evidently still in an experimental stage, requiring further considerations, but once widely adopted, it will give us greater stability and security than we have had so far.

With a view to gradually developing this trading method it seems expedient to deliberate on the institutional, enterprise and monetary forms which have already assumed some crude shape and could be refined by the slight

modification of the present practice. Indeed, this might become indispensable in large-scale co-operation.

Economic-political committees (Hungarian-French) and industrial-sectoral committees (Soviet-French) have already been set up at ministerial level. It would be expedient to extend the authority of these committees to dealing with such issues as the economic-political (development) plans of the countries concerned to an extent that would give sufficient orientation possibilities to the other party for various combinations. The working methods of these committees should acquaint the other party not only with the final conclusions (for instance, what we want to buy or to sell) but also with the motives and alternatives of the various development concepts.

It is evident that every development idea is born out of a wish to satisfy existing or predictable needs yet, when decisions are made, a wide variety of alternative solutions for meeting these demands are discussed. One of the alternatives in this sense is the utilization of imports to meet the demand in question in the long run, provided that development funds thereby released can be used for export, on the basis of favourable market prognoses. But possibilities and combinations of this nature will not be disclosed unless the partner or partners are also aware of the motives of the economic-political intention.

Scientific-technological mixed committees operate between several countries, and representatives of private industry can also be found among the members delegated by the Western partners.

There are frequent and regular contacts between experts on transportation and communication and also in the field of tourism, which should be welcome as an important step because these fields promise rapid and impressive results.

Foreign-trade delegations concluding long-term trade agreements, for instance, could be made to operate permanently.

Economic-political or scientific-technological committees could be authorized to function multilaterally through the Economic Committee for Europe.

All these suggestions take into account the fact that the various economic and trade integrations such as the Common Market, the CMEA (Comecon) and EFTA will continue functioning within Europe.

In addition to these, certain subregions could be created — evidently in a much looser form to comprise neighbouring or nearby countries in order to achieve a rational division of labour over the given area. Such attempts have already been made bilaterally (between Hungary and Austria, between Hungary and Yugoslavia, for instance); this type of co-operation could be organized more intensively.

There are international (European) organizations with the aim of promoting collaboration which used to be comprised of representatives of West-European countries alone in the past. An international union of this kind, pursuing scientific aims, is, for instance, the LECE (League of Economic Co-operation for Europe) whose statutory task is to promote co-operation and collaboration between European states. This society has been organizing East-West round-table conferences ever since 1965. In the framework of continued co-operation, negotiations were held in Prague with the participation of representatives of the European socialist countries. Experience shows that the League can usefully supplement the high-level activity of the ECE also by promoting actual business contacts as well.

The Chambers of Commerce of the various countries can also encourage co-operation in various fields. In Hungary, for instance, industrial enterprises are also members of the Chamber on their own accord. This has resulted in the formation of special departments and committees for different industries and groups of commodities. Very useful work is being done by the departments of the Hungarian Chamber abroad and by the Hungarian departments of the foreign Chambers.

It would be useful to organize co-operation among information centres in different countries. As far as I know, there is such a centre in the Federal Republic of Germany, which publishes several periodicals. The most important of them is the RKW (Rationalisierung Kuratorium der Wirtschaft) Kurznachrichten. Information centres ought to be organized in one or two socialist countries and in one more western country.

In connection with co-operation, — which I consider a decisive factor in boosting and updating trade relations, — I have already stated my opinion in brief. Joint economic activities with profit-sharing could be carried and the modes of transferring invested capital and profits, as well as management and employment issues could be individually settled. Practice will presumably develop the most efficient forms and methods acceptable to both parties.

I have pointed out above that I consider mutual political support (decisions) and the increasing amount of common interests more important than an approach to the problems on the basis of normative foreign trade methods. (Cf. the Platen Committee within the ECE.) It is obvious that such committees could do useful work in assessing the factual and important differences and in promoting better understanding, but the gap can only be bridged with the unequivocal support of the political power factors, on the basis of common economic interests. Common interests are known to find their own course as rivers create their beds. It should, however, be kept in mind that the chances of misunderstanding between countries with different economic systems are much greater than between countries with

identical system. Each party may easily interpret the steps of the other as if they were directed against it. To prevent this from happening it would still be useful to establish rules and norms of behaviour that can be endorsed by each party. These rules and norms could be compiled in a trade codex, and an Arbitration Committee on a party basis set up under the aegis of ECE entitled to bring and enforce decisions in controversial cases. The codex will, naturally, have to be elastic, since our experience in trading with one another is still insufficient and does not entitle us to hope for the regulation of all arising problems with a long-range validity; moreover, life and practice incessantly raise new problems (I mean in a positive sense, as a result of the rapid development of relations) and, finally, the dynamic changes in economic life create new and new possibilities and combinations from time to time.

Eventually new practice will have to be evolved — as I have pointed out when discussing co-operation problems — also in the financial relations. The subordinate role played by credits in the present forms of economic relations shows that the gap between the two economic systems is still very wide. It may be that the improvement of monetary links will have to start from two angles: from the institutional background, and from actual economic transactions. When reviewing the institutional background, I have such possibilities in mind as, for instance, contacts between the new Investment Bank of the CMEA and the World Bank, more intensive co-operation between various international financial organizations and the central banks of the socialist countries, the creation of a common bank, or mutual interests in some bank of the other party, and so on.

In the economic field we need transactions granting or making possible the flow of long-term credits in addition to medium-term loans. In this respect I should like to recall my view according to which co-operation in the broad sense of the term may facilitate the flow of long-term credits. When forms of co-operation involving joint economic activities for common profits are applied, it is possible to take into account the interests of both parties in regulating problems of transfer and management.

In conclusion, let me emphasize again that the reorganization of East-West trade and its development in compliance with the needs of our age and our continent are extremely intricate tasks indeed. What we have to face are not only the remnants of the cold war and the problems deriving from the difference of the two socio-economic systems, but also the automatism and interest relations diverting trade into other channels. Although mutual mistrust has abated, it still persists as a relevant force in international relations in our days. Yet the interests of mankind and of the population of this continent that are at stake in the future are considerable. A certain moderating effect of economic interests exerted upon the so-called “purely political and security” interests is a precondition of preserving balanced international

relations. If this postulate cannot be adhered to, then spectacular set-backs may ensue in international relations whenever a major political crisis develops (which may find its way to Europe even though it has started on some other continent). This would be highly dangerous since it would jeopardize even the minimum of mutual confidence without which there is no peaceful co-existence.

It logically follows from this complicated situation that caution and wide circumspection are needed for further progress. But caution should manifest itself in the choice of methods and not in the rate of progress. It is obvious that rapid actions are also needed because changes set in readily in the system of conditions of co-operation depending on so many circumstances.

We must also realize that certain conditions of co-operation (especially the system of common interests deeply penetrating different societies) will have to be called into existence in the very course of co-operation. Consequently, it does not seem to be expedient to start co-operation by raising the most complicated problems. All problems, — even the most intricate ones, — must, of course, be analyzed with an open mind, but actual co-operation should be started by solving questions in a way which both parties are more ready to accept. An attitude of enhanced patience should be displayed, particularly in understanding each other's viewpoints, interests and the motives underlying the actions. Our long-term possibilities must not be risked in favour of short-range advantages.

Many people will, perhaps, start asking whether it is worthwhile looking for new roads amidst such difficulties and complications at a time when we have not yet exhausted all possibilities offering themselves along the old roads. I am convinced that there is no other road towards progress in big issues in this very intricate and interdependent world of ours. We are bound to carry burdens either in the interest of co-operation or else because we failed to grasp the possibility of co-operation in the propitious moment.

Let me recall in this context the words of a brilliant American mathematician of Hungarian extraction, J. v. Neumann, who was the boldest spirit I know in prognosticating the consequences and the dangers of the technical-scientific revolution, and remember how cautious and circumspect an attitude he suggested to follow in shaping the socio-political international effects of this revolution. This is what he says about this question in his splendid study entitled "Can We Survive Technology?" [12]:*

* He mentions "refuge" because there are dangers. He doubts if the "practical" arguments against war can have a greater influence on human actions than can factors of passion and emotion. He has not found any proof, he says, so far to show that real dangers should sooner regulate human actions than would the "convincing" illusion of danger. (Italics are mine)

“What safeguard remains? Apparently only day-to-day — or perhaps year-to-year — opportunistic measures, a long sequence of small, correct decisions. And this is not surprising. After all, the crisis is due to the rapidity of progress, to the probable further acceleration thereof, and to the reaching of certain critical relationships. Specifically, the effects that we are now beginning to produce are of the same order of magnitude as that of ‘the great globe itself’. Indeed, they affect the earth as an entity. Hence, further acceleration can no longer be absorbed as in the past by an extension of the area of operations. Under present conditions it is unreasonable to expect a novel cure-all.

For progress there is no cure. Any attempt to find automatically safe channels for the present explosive variety of progress must lead to frustration. The only safety possible is relative, and it lies in intelligent exercise of day-to-day judgement.”

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РОЛЬ ЭКОНОМИЧЕСКИХ СВЯЗЕЙ МЕЖДУ ВОСТОКОМ И ЗАПАДОМ В РАЗВИТИИ ЕВРОПЕЙСКОГО СОТРУДНИЧЕСТВА

И. БОГНАР

В своем очерке автор рассматривает проблемы, трудности и ожидаемое движение торговли между Востоком и Западом, благоприятно развивавшейся в течение последних лет, но представляющей собой лишь маргинальную часть мировой торговли.

Причины низкого уровня торговли в период первых двух десятилетий после второй мировой войны автор усматривает в политике (холодной войне), подтверждая свой вывод заявлениями ряда американских политиков-стратегов.

Он подробно анализирует изменения в международной политике, которые во второй половине 60-х годов и в период после 1970 года направляют экономические связи между Востоком и Западом, в особенности на европейском континенте, в более благоприятное русло. Однако автор отмечает, что взаимосвязи между политикой и экономикой весьма сложны, так что одного лишь нейтралитета политики было бы недостаточно для улучшения экономических отношений.

Международные экономические связи могут развиваться в удовлетворяющей обе стороны форме только на базе солидных совместных интересов. Возникающие на почве экономических связей системы солидных интересов, в свою очередь, могут влиять на политические решения и оказывать смягчающее воздействие на события, вызывающие различные политические напряжения.

Во второй части своей статьи автор исследует вопрос, насколько существующие в настоящее время теории по международному разделению труда и внешней торговле способствуют развитию торговли между странами с различным общественно-экономическим строем.

Согласно мнению автора, в первую очередь неоклассические теории отражают ошибочно процессы, происходящие в экономике западных стран, ввиду чего они могут оказаться помехой в деле направления экономических связей в новое русло. Далее отмечается, что возникновение мировых консервов означает появление поведения нового типа в истории капиталистического хозяйства, поскольку образовались такие предприятия, которые измеряют свою результативность не сравнительными выгодами, полученными при сбыте или покупке отдельных товаров, а на основании всей деятельности и приобретенных в мировых масштабах позиций. Автор многосторонне анализирует сложившиеся в условиях социалистической экономики внешнеторговое поведение и образ мышления, указывая, что государство, будучи собственником капитала, мыслило скорее в категориях структуры, нежели в категориях конкретных товаров, когда и на практике осуществилось два типа его отношений к мировой экономике: один — более закрытый, а другой — более открытый.

С внешнеторговой точки зрения закрытый тип представляет собой систему с жесткой централизацией внутри страны и направлен на замещение импорта, а открытый тип — децентрализованную систему внутри страны и ориентацию на экспорт.

В результате образования определившейся сферы компетенций и системы собственных интересов предприятий, и в социалистической экономике возникли такие хозяйственные единицы, которые в большей мере мыслят в товарах и в меньшей мере — в структуре.

В заключительной части своей статьи автор подытоживает те замысли, которые в случае своего осуществления могли бы оказать содействие количественному росту взаимного экономического интереса между Востоком и Западом. Эти замысли отчасти связаны с институциональными факторами, а отчасти со связями между предприятиями. Очевидно, что социалистические страны в ходе следующего этапа своего развития будут заинтересованы прежде всего в адаптации современной техники к новым методам внешней торговли и в дальнейшем их усовершенствовании.

M. SHANKS

ECONOMIC INTEGRATION IN WESTERN EUROPE SINCE 1945*

The author analyses in his study the causes of the integration efforts in Western Europe after World War II, together with the results achieved hitherto by the EEC. The problems hindering at present that the latter should develop into a real economic and political union are discussed in detail. It is outlined what long-term consequences are involved by the Great Britain's joining the Community — which he thinks most likely — and by the expansion of the present framework of the Community.

The main motive force behind the post-war moves towards integration in Western Europe has been reaction to threats, real or imagined, of external domination — political (military domination by the Soviet Union, economic technological domination by the United States of America. In the early post-war years, it was the former fear which predominated: Western Europe was in any case at that time almost totally dependent on the U. S. But for most of the 1950s and 1960s, it has been the latter fear which has predominated. There have of course been other motives behind the drive for European unity — the political need to reconcile France and Germany, and to tie West Germany so closely to the Western economy that another “*Drang nach Osten*” would be impossible; the need for Western European industry to obtain the benefits of large-scale economies through access to mass markets and pressure to specialise; the idealistic desire to pool the energies of the various Western European states to create a United Europe which would no longer be able to indulge in fratricidal strife — all these and other motives have gone into the “making of Europe”. It is significant that all the members of the EEC except West Germany and Luxembourg experienced loss of colonies and power outside Europe in the postwar years, and in all of them the limitations of national sovereignty were ruthlessly exposed during the 1940s.

It must also be recalled that the Treaty of Rome, like the Treaty of Paris which created the ECSC, rested on a carefully defined balance of advantages for each member country, which provided specific opportunities for the solution of particular problems peculiar to each country, and guarantees (loosely or precisely defined) on issues which were particularly sensitive for any individual member country. It is this feature which has made opening the Community to new members so difficult.

* Mr. Shanks wishes to make clear that the following paper represents his personal view and is neither a statement of Her Majesty's Government's view nor does it necessarily reflect the views of all the British participants in the Colloquium.

Two aspects of the EEC need to be distinguished. First, the abolition of obstacles to inter-trade through the creation of a Common Market. Politically, this has been an easy operation, since once a programme for the removal of tariffs and other trade barriers has been agreed, no further exercise of political will or decision is called for. It is in this area that the EEC has achieved its outstanding success. The volume of trade between the Six member-countries has risen spectacularly, forcing each country to specialise in those areas where it is the strongest economically, and thus greatly strengthening the industrial structure throughout the area. However, this has not resulted as many feared in a slowing-down of the rate of overall economic growth, or in the emergence of major inequalities. Instead, the rate of growth throughout the whole EEC area has been very fast, and surprisingly uniform. As an example of the wisdom of Adam Smith economics, the Common Market has been a remarkable achievement.

However, the EEC was never intended to be simply a free trade area. The intention of its founders was to create a genuine economic union, destined in the minds of many to lead eventually to a full-scale political union. It is in this second aspect that the EEC has encountered increasing problems, which do not seem likely to be swiftly resolved. The most important are as follows:

1. Agricultural harmonisation

The creation of a common agricultural policy is an essential part of the EEC programme for a number of reasons. First, part of the delicate balancing of national interests which underlay the Treaty of Rome was an understanding that the Common Market would provide a guaranteed outlet for some of France's surplus agricultural production to compensate her for the opening of her market to the superior efficiency of German manufactures. Second, all the Six face a common problem of transferring part of their excessive peasant population into industry, and this movement needs to be planned and coordinated if it is not to set up explosive political strains. Third, agriculture is such a major component of the economies of all the Six that no economic union which ignores agriculture can be satisfactory. Consequently, a common agricultural policy (c. a. p.) which fixes prices for major foodstuffs throughout the Community and common tariffs on food imports from outside the Community was always conceived as the next stage of integration after the removal of obstacles to trade in industrial goods. But a c. a. p. differed from an industrial common market in that it required positive political decisions, on a continuing rather than a once-for-all basis; and consequently it exposed the differing priorities and interests of the different member countries. The c. a. p. in its present form is widely recognized to be unviable,

in that the price levels set for most foodstuffs have resulted in the accumulation of excessive food surpluses and unnecessarily high living costs. Yet any major move away from the present *c. a. p. concept* would be politically unworkable. The agricultural policy dilemma of the Six seems unresolvable at the present time, because of the different political interests involved.

2. Infrastructure harmonisation

Achievement of a genuine economic community requires that all members follow the same policies on energy, transport, on capital and labour movement, on industrial and social legislation, regional incentives and so on. Otherwise different members of the club are playing the game by different rules. Progress in this stage of integration is slow and painful — again, mainly because of the loss of political impetus due to the conflicting interests of the member governments.

3. Fiscal and monetary harmonisation

Again, achievement of a genuine economic community requires that all members follow the same fiscal and monetary policies. We have seen several times in recent years the extreme frictions and distortions which can arise within an entity like the EEC when one member is pursuing a divergent policy on the management of demand to the others. A persistent balance of payments, surplus or deficit, pronounced internal inflation or deflation, are bound within an integrated community to spill over national frontiers. At the extreme case, changes in exchange parities between Community countries can have a major distorting effect. Hence the EEC Commission now takes the view that changes in parity are incompatible with maintenance of the Community, and that it will be necessary for the Community to move as swiftly as possible towards a common financial policy with common financial institutions, and eventually a common currency. Unfortunately, this view runs counter to the growing desire among Western countries for greater flexibility in exchange rates as a means of international adjustment. Moreover, it raises the most delicate questions of national sovereignty which the movement for European integration has yet posed.

4. Political integration

This brings us, in fact, to the heart of the problems surrounding the future of the EEC — the distribution of power and the ultimate focus of decision-making. For obvious reasons, this question was carefully avoided

in the Treaty of Rome. The protagonists of the Treaty for the most part saw it leading by an inexorable process to the eventual formation of a federal or confederal United States of Europe, on the argument that one phase of integration once successfully completed would demonstrate the necessity for a next stage to resolve anomalies and consolidate gains already revealed; and that each stage would involve an increasing element of political commitment to unity. The member-governments implicitly accepted this logic, though the political structure established by the Treaty kept ultimate power in the hands of the six national governments rather than in the new supra-national EEC Commission. However, it was not until General de Gaulle had fully established himself in France with the solution of the Algerian problem that a major difference of political view emerged between the French Government and the rest.

This conflict took a number of forms. First, and most important, General de Gaulle ridiculed the idea of a United States of Europe and believed instead in a "*Europe des patries*" — a club of independent countries without strong supra-national institutions. Second, however, he argued that these countries should coordinate their foreign policies (implicitly, though not explicitly, under the leadership of France); this was an area on which the Treaty of Rome was silent, and which did not follow logically from the idea of economic integration, though as we shall see it was not necessarily as alien to it as many thought at the time. Third, France's idea of the EEC was much more "Continental" and much less "Atlantic" than that of the other members. France tended to see the Community as a tightly-organised continental bloc, with fairly high tariff barriers against the outside world, and not readily open to new members which might dilute its cohesion. The other members tended to think of the Community as a step towards a wider Atlantic grouping. It was this fundamental difference of approach which led to the famous conflict over the proposed entry of the U. K., and in turn to the debilitating internal struggles which effectively paralysed the internal development of Community integration (except for agriculture) until President de Gaulle's departure last year.

With the departure of de Gaulle, the logjam in the Community's development has been broken. The French veto on new entrants to the EEC has apparently been abandoned. France has been replaced as the dominant partner among the Six by West Germany — a West Germany which, moreover, under Chancellor Brandt is much more forward-looking and much less inhibited in its approach both to East and West than under his predecessors. But it would be quite wrong to suggest that all the internal contradictions of the EEC have been resolved, and that the Community will now rapidly resume its march towards an Atlantic-oriented, federal United States of Europe. For in the years since the first Gaullist—"European" clash in 1963,

there have been major changes both in attitudes within the Community and in the problems which it has had to face.

The first development which has occurred is that the apparent unity between the "Atlanticists" and the "United Europeans" — a unity forged in opposition to de Gaulle, whose ideas were antithetic to both concepts — has dissolved. The EEC Commission, the main protagonist of a United States of Europe, is now adopting a much more rigid attitude than in the past against any dilution of the Treaty of Rome to accommodate new entrants such as the U. K. In an apparently paradoxical but in fact logical development, those "Europeans" who resisted Gaullism most strongly have now taken up one aspect of Gaullist policies — namely, resistance to U. S. economic penetration. In a much more definite sense than in the past, "Europe" is now defining itself in opposition to the U. S., and an emerging United States of Europe is now likely to stress at every point its independence vis-à-vis the U. S. The old idea of the EEC developing via association with the British Commonwealth, EFTA and the U. S. into a loosely-structured free-trading Atlantic Community seems to be dead.

Why is this? Partly because, as the threat from the East has appeared to wane, Western Europe no longer feels the need for U. S. military support. Second, Western Europe is increasingly concerned about two aspects of U. S. policy. The first is the fact that, because the world is now effectively on a dollar standard, U. S. inflation is exported to the rest of the world — so long, that is, as the U. S. authorities are unable to keep inflation under control and maintain balance of payments stability and so long as the rest of the world continues to accept American IOUs (the basis of the Eurodollar market) as equivalent to money. The Western world is now in the anomalous position of accepting as the ultimate standard of value a national currency over which nobody outside the U. S. has any control. (An interesting question is whether even the Federal US authorities effectively control it.) This is a situation which alarms the Europeans. Allied to this is the growing fear — articulated by Jean-Jacques Servan-Schreiber in "Le Défi Américain" — that U. S. industry, particularly in the high-technology areas, is in process of taking control of the commanding heights of the European economy (aided by the above-mentioned fact that U. S. capital is able to increase its investments in Europe and elsewhere by its virtual ability, through the Eurodollar market, to print money).

So long as these fears were being expressed by the Gaullist regime in France, other Europeans were reluctant to endorse them, because of their dislike and suspicion of the French regime. Thus de Gaulle persistently thwarted his own objectives, partly because he regularly antagonised his European partners to the extent that they preferred American to French domination, partly because by his refusal to support the growth of European supra-national

institutions he denied the European Community the means to resist U. S. pressure. His departure has removed these anomalies, with the result that a genuine West European view on these vital questions can take shape.

One would therefore expect to see at this stage a dramatic move forward in the creation of common West European institutions, particularly in the field of monetary and fiscal policy, and in the harmonisation of policies towards industry; since it is clear that only by developing such policies can Western Europe prevent itself from being dragged along in the wake of the dollar. Yet in fact this is not happening. Why not?

It is not happening, essentially, for two reasons. First, the suspicions of national governments for supra-national institutions in the EEC remain very strong, and this element of Gaullism also — like its anti-Americanism — has spread in large measure to the other governments, now that the need to combine forces to resist French aggrandisement no longer holds them together. The political will to surrender authority to the supra-national Commission is today conspicuously absent from the European scene — partly, it must be said, because in the years of enforced atrophy the Commission itself has become noticeably less imaginative and noticeably more bureaucratic.

The other complication is, of course, the question of broadening the Community to admit new members — notably the U. K. and its EFTA partners, Denmark, Norway, and Eire. There appears at present to be a general consensus within the Six that this question should take priority over any internal strengthening of the Community institutions — though it is equally clear that no major institutional concessions can be made to aspirant members. It is also clear that the more tightly-knit the Community the greater the difficulty in absorbing new members, particularly countries as important and with as many complex problems as the U. K.

The U. K.'s position vis-à-vis the EEC has changed fundamentally in recent years. Not having been defeated or occupied in the 1939–45 war, the U. K. did not share in any significant sense the emotions which brought about the original impetus towards European integration. Instead the U. K. remained aloof from Europe, secure in her close alliance with the U. S. and her intimate relations with the Commonwealth. The U. K.'s original idea so far as Europe was concerned was a loose free trade area, with no political or agricultural commitments. Failing to get this from the EEC, she then established one with the Scandinavians, the Swiss, Austrians and Portuguese (subsequently joined by Iceland and by Finland as an associate member). EFTA has been remarkably successful in its limited objective. However, from the mid-1950s the underlying weakness of the U. K.'s economic position has been progressively exposed. The Commonwealth has largely disintegrated as a cohesive force. The "special relationship" with the U. S. has become increasingly tenuous. The U. K.'s rate of economic growth has persistently

fallen short of that of her main European competitors, while the EEC has emerged increasingly as the fastest-growing market for her industries. So the attractions of entry to the European "club" have grown steadily stronger, even though with the establishment of the c. a. p. the entry price has gone up. In 1962 the U. K. still hankered after a European Community which would be closely tied to the U. S., indeed her leaders tended to think of Britain as the link between the Six and the U. S. — a view which was anathema to General de Gaulle, though not unattractive to the rest of the Six who were frightened of the direction in which France threatened to lead them — and, of course, highly attractive to the U. S. itself.

Since her rejection for EEC membership in 1963, however, the U. K. has tended to move further away from the U. S. (especially after the assassination of John F. Kennedy) and closer to Europe. She has come to share many of the Continental fears about the implications of living on a dollar standard and of the dominance of U. S. technology. Indeed, in resistance to U. S. technological domination the U. K. has taken a tougher and more successful line than any of the Six, including France. With the shrinking of her world-wide commitments, the U. K. has tended to become more and more Europe-oriented. Broadly speaking the British "Establishment" — industrial, commercial, political, intellectual — is overwhelmingly in favour of entry into the EEC provided reasonable terms can be obtained. Public opinion on the other hand is fearful, mainly because of fears about the impact of the c. a. p. on food prices and on the balance of payments. (I do not propose to discuss this issue further in this paper, since there is little that can usefully be said in advance of the negotiations.)

However, it is clear that British opinion is not particularly enthusiastic about the prospect of any major move towards surrender of sovereignty to supra-national institutions, at least at present, beyond what is implicit in signing the Treaty of Rome. Another of the paradoxes of the present situation is that in this respect the U. K. is likely to find itself naturally allied to France. This is no doubt one of the reasons, beside the growing fear of German domination, for the changed French attitude to British entry (not that France will not use the prospect of British entry as an opportunity to extract from the rest of the Six a number of important concessions on internal issues in dispute).

If the Community is enlarged to include the U. K. and the other aspirants, at the same time defining its attitude to the other EFTA countries (and Spain?), there is little doubt that, at least for a time, this will slow down the move towards more supra-nationality — partly because of the likely cautious approach of Britain and the other newcomers, partly because of the greater complexity of the enlarged Community, partly because of the fact that the energies of Community officials will be largely pre-empted by the

negotiations over entry and its implications, and they will have little time to spare for other matters.

At the same time, there can be little doubt that the admission of the U. K. and the others (I would rate the chances of successful negotiations at around 55/45) will greatly strengthen the Community, which has already proved itself from the economic point of view an outstanding success. And, once the process of enlargement is complete — say, by about 1975 — the central question of the Community's future power structure will return, and will probably dominate the European scene during the second half of the 1970s.

These central questions really boil down to one. If Western Europe is to avoid economic-industrial domination by the U. S., it must develop a stronger central policy-making structure. It is clearly unsatisfactory that the dollar should be *de facto* the world's reserve currency. A European currency embracing sterling, the franc, the D-mark and the lira could play a comparable role, but none of these currencies in isolation can (as sterling has found to its cost). Similarly, in the industrial field the U. S. will continue to dominate, unless and until the European countries can develop what has been loosely — and rather inaccurately — called the Technological Community.

What does a European Technological Community imply? First, the creation of a common European body of law and regulations on industrial policy which will facilitate the creation of European mergers on the lines of Shell, Unilever, Agfa-Gevaert, Dunlop-Pirelli. Second, the development of common policies towards inward investment, public procurement and research and development, so that Europe's resources are concentrated on areas of strength rather than being dissipated for reasons of national interest. Third, the development of multi-national projects under a single supra-national control — rather than, as in Concorde, ELDO and other multi-national ventures hitherto, with divided control leading to high costs and inefficient operation. The difficulty about this approach is that it goes beyond the Treaty of Rome, and implies a degree of supra-national control over the allocation of resources which is bound at some points to go against the interests of particular member countries. In this respect the Community must learn from the failure of Euratom, which foundered exactly on these issues.

We come back, then, to these fundamental points. Western Europe is a potential super-power as powerful as the USA or the Soviet Union. In the financial and the technological fields powerful natural centripetal forces are at work, inspired in each case by reactions to the USA. A similar process is at work in the defence field. Until recently Western Europe has been content to shelter under the American military umbrella — with the exception of France, which under de Gaulle pulled out of NATO and played with the idea of a defence strategy "*à tout azimuth*". But with a U. S. military

withdrawal from Western Europe a strong possibility in the next few years, pressures for stronger defence coordination in Western Europe are growing and will continue to grow. The revival of the European Defence Community concept — but this time including Britain — is a strong possibility within the next few years.

Natural forces, therefore, despite the enormous reluctances of the politicians and their publics, are pulling the Western European countries towards greater supra-national coordination and the consequent surrender or at least subordination of national sovereignties. The basic political issues which the Treaty of Rome neatly side-stepped can no longer be avoided. If the European Community is to go forward beyond the Treaty of Rome, it will entail a conscious act of political will. Whether, and when, that step will be taken is unforeseeable.

My own guess, for what it is worth, is that the European Community *will* move forward towards greater integration, but that it will do so on a piecemeal, functional basis, reacting to the pressures of outside events rather than taking a deliberate political initiative towards a United States of Europe. The areas in which this further, functional integration are most likely to take place are financial-fiscal-monetary coordination, defence coordination, and technological integration involving coordination of governmental policies for R. & D. and joint ventures. If this functional integration proceeds as I anticipate, at some indefinable point perhaps around the end of the decade, Western Europe will discover that the focal point of decision-making, the fulcrum of political power, has moved imperceptibly from the national to the supra-national level.

Postscript

Since this paper was written, in the summer of 1970, there has been a major and extremely encouraging development in the European arena — the treaty between the Soviet Union and West Germany, which is being followed by similar rapprochements between West Germany and other East European countries. Already there is evidence that the establishment of political links is being followed up energetically by business links, in both the commercial and investment fields. If she wishes to, West Germany is now in a very strong position to establish herself as the West's major trading partner and source of credits for the Eastern European bloc. Traditionally Germany has looked in this direction for a considerable part of her overseas trade and investment outlets, and this traditional pattern may now be in part restored. One can see the advantages for both Western Germany and the Soviet Union and the other Eastern European states of such a development and also for the U. S., since it is now in the interests of both super-powers

to achieve a lowering of tension in Europe. What is entirely unclear — probably also to the West Germans themselves — is how this will affect Germany's attitude towards, and relations with, her Western European allies. Will her interest in Western European integration weaken? Will her payments surplus with the West diminish as her economy becomes more oriented to the East? Or will the effect be marginal? It is much too early to say. What is, however, clear is that, more than anywhere else the key to the future trend of European integration lies at the present time in Bonn.

ЭКОНОМИЧЕСКАЯ ИНТЕГРАЦИЯ ЗАПАДНОЙ ЕВРОПЫ ПОСЛЕ 1945 Г.

М. ШЕНКС

Автор в своем докладе анализирует общие и конкретно-практические вопросы развития интеграции западно-европейских стран после второй мировой войны. Рассматривая основные движущие силы интеграции, он отмечает, что первоначально интеграционные стремления проистекали главным образом из военно-политических соображений, начиная же с пятидесятых годов основным мотивом становится преодоление технико-экономического отставания от США.

Автор анализирует развитие Европейского Экономического Сообщества, указывает на большой прогресс, достигнутый в разрывании торговли между странами-участницами, ликвидации таможенных барьеров и углублении специализации промышленного производства. Однако достичь основной цели — создания экономического союза — странам «Общего рынка» не удалось из-за обострения внутренних проблем. Автор рассматривает важнейшие из них: проблемы общей аграрной политики, гармонизации политики в области инфраструктуры (энергетики, транспорта, фабричного и социального законодательства и т. д.), гармонизации бюджетно-финансовой политики и проблемы политической интеграции.

В заключение автор прослеживает изменение позиции Англии в ее отношении к ЕЭС, рассматривает причины, побуждающие ее к вступлению в ЕЭС. По его мнению, переговоры между Великобританией и ЕЭС имеют большие шансы на успех, в результате чего перед расширившимся западно-европейским экономическим сообществом во второй половине семидесятых годов во весь рост встанет вопрос о создании политической структуры, обеспечивающей ведение единой финансовой и промышленной политики, результатом которой должно явиться создание общей европейской валюты и европейского технологического сообщества. Последнее означает концентрацию и частично перераспределение ресурсов научно-технического развития и промышленного прогресса. Автор считает неизбежным поэтому и создание наднациональных органов, принимающих политические решения, хотя ход этой эволюции и будет весьма медленным и постепенным.

B. J. BARD

THE TRANSFER OF TECHNOLOGY

The author examines the role in economic development of the transfer of technology among countries, particularly of the trade in licences and of licence policy. The problems related to the transfer of technology between Western and Eastern European countries are analysed in detail; particular emphasis is laid in this framework on the scientific and technological co-operation between the United Kingdom and Hungary, its present state and the possibilities of expansion.

The importance of encouraging the flow of technology between countries is generally recognized. It is evident that every country in the world, particularly those who wish to develop their industries and agriculture, has an interest in receiving as much information about new applied science and technology as possible. Access to such knowledge and experience is essential to accelerate economic development of a country.

This takes place to a considerable extent informally through the movement of skilled people from place to place, and through the proceedings and publications of scientific and technical institutions and learned societies. In other words, through the written and spoken word and direct face-to-face contacts.

One of the most direct and mundane ways in which technology is transferred is by the actual manufacture and purchase of goods, materials and equipment containing the new technology e. g. by export.

The chief concern of this meeting in relation to technology transfer is, however, what is termed "invisible exports" i.e. the organisation of local production and marketing based on external technology, or innovation, or other advances under a business arrangement which normally includes some form of licence. Such business arrangements include the establishment of a subsidiary company, a joint venture with a local organization, a "package deal" in respect of all the manufacturing and other facilities required, and a cross licence as well as a direct one.

"Licensing" therefore represents a convenient means whereby industrial enterprises can exploit their technology etc. as contrasted with selling their products — in other countries where they cannot normally expect to be able to set up their own manufacturing operations, and so may be reluctant or unable to invest money in the exploitation.

For any country concerned with its balance of payments, and which today is not, foreign exchange is in fact generally spent far more sensibly in royalty payments than on direct imports. Quite apart from this there are many situations where freight costs, customs and import duties, either separate-

ly or in combination, make direct overseas selling uncompetitive. Furthermore, local taste or environmental conditions may necessitate special modifications to otherwise standard designs.

Although industrial property (or as it is sometimes called "intellectual property") is based primarily on patents and trade marks, these alone will not turn factory wheels nor enable chemical processes to be operated successfully without the provision of what is termed "know-how", i.e. technological reports and data, drawings, specifications, market analyses and frequently the provision on loan of expert people. One has to distinguish between what may be termed "a bare patent licence" i.e. the use of granted patents in return for a payment of some kind and a "technical assistance agreement" which covers in addition all the "know-how" as just described, and represents a form of industrial collaboration between the parties. The relative value of the "intellectual property" and of the confidential "knowhow" vary from one situation and one industry to another.

New proprietary technology must be recognized as falling into various divisions of significance, in which the willingness of the owners to "licence" or otherwise transfer may vary with the business opportunity, time and other factors. These may approximately be analysed as follows:

Category I Basically new major advance. Normally the owner will not licence if he can utilize for his own purposes. He requires "lead time" over actual or possible competitors and secures patents etc. to give him this protection.

Category II Important and new in the proposed receiving territory. The owner may prefer to invest direct in the transfer and to set up his own subsidiary, or associated enterprise through a joint venture, rather than just be content with royalty income — a form of turnover commission. Alternatively, he may be willing to trade for a cross licence for another item of comparable value. Items in *Category I* above often fall into *Category II* after a period of a few years.

Category III Significant but already becoming disseminated in some way in various countries. The owner may agree to license for royalties or even sell the legal rights 100% within a package deal.

Category IV Miscellaneous and marginal. May be licensed separately, or a number of such items may be licensed together or included to make up a packet of technology to bring it within *Category III*. It may even be published in a journal for publicity or prestige reasons.

There is an important variation within the above categories according to the degree to which the transfer may potentially affect the transferer's own markets or commercial activities. On the contrary, there is greater willingness to transfer in the public or utility or ecological or social areas (the infra-structure) rather than in capital or consumer goods.

Licensing therefore provides a convenient mechanism for Western and Eastern European countries to use each other's technology. It is not perhaps sufficiently recognized by Western businessmen that industrial property protection can be secured in Eastern European countries by similar means to those already familiar to them in the West. Patents based on inventions may be obtained on a comparable basis and a system of registration also exists to enable trade mark to be legally recognized; though in Eastern Europe this is normally regarded as a customer protection device rather than the means whereby the producer or distributor identifies himself with his own products. Equally, the recognition and enforcement in Eastern European countries of industrial property rights is comparable, as all these countries are now members of the "Paris Convention for the Protection of Industrial Property" and are also members of the 1958 New York Convention for the Recognition and Enforcement of Foreign Arbitral Awards. In fact, however, British firms have filed patent protection for their advanced products and processes on a limited scale in Eastern Europe so that frequently they have little to offer by way of legal rights other than unpublished "know-how", though this may be of real value in itself.

Difficulties have been experienced on both the Western and Eastern European sides in the organisation and arrangement of technical assistance and other similar agreements, over and above the normal difficulties which are experienced generally in international licensing. These latter i.e. normal difficulties have been defined as:

(1) Technological problems relating to the acquisition, interpretation, and optimization of the licensed product or process for such items as the conditions of feedstock and operation generally, labour, local standards and specifications relating to the new licensee's location.

(2) Practical problems of governmental control, language barriers, local procurement, climatic conditions, and the like; also those associated with travel (which may be frequent and often at short notice).

(3) Commercial problems including finance, marketing, royalty payments, guarantees, start-up assistance, and operator training.

In order to facilitate co-operation in the fields of applied science and technology between the U. K. and the Government of the Hungarian People's Republic an agreement was entered into on 9th August, 1967; relevant extracts of which are as follows:

"I. The Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Hungarian People's Republic shall encourage and develop co-operation in the fields of applied science and technology between their two countries on a basis of mutual benefit, and shall use their best endeavours to this end within the terms of this Agreement.

II. The Contracting Governments shall encourage on a mutual basis:

(a) Meetings of working groups to examine the possibilities of co-operation in different fields;

(b) Visits of experts and technicians for studies, training, consultations and exchange of views in the scientific and technological fields;

(c) Facilities for study and research and opportunities to gain experience in industrial research institutes and industrial enterprises;

(d) Exchange between industrial enterprises in the two countries of industrial knowledge and technology, including arrangements in the field of licences;

(e) Organization of technical and scientific conferences and seminars of interest to both sides;

(f) Facilities for exchange of technological and scientific information and documentation including books and films.

IV. The Contracting Governments shall, additionally, encourage the establishment of direct contacts between the competent United Kingdom and Hungarian organizations and firms and, as may be appropriate, the conclusion of separate agreements or contracts, including possibilities for industrial co-operation."

This agreement was to remain in force for a period of five years i.e. until the 9th August, 1972, and thereafter would continue in force for a further period of five years, unless either party gave six months' notice of termination.

To provide some indication of the extent to which "technology transfer" is becoming big business in Western countries the following figures in relation to the year 1967/68 may be of interest:

Country	Royalty etc. Receipts \$ m	Royalty etc. Payments \$ m	Balance \$ m
U. K.	250	210	+40
Western Germany	100	220	-120
France	70	140	-70
Belgium	70	106	-30
Netherlands	65	65	—
Japan	30	230	-200

Total royalty returns to the U.S.A. are now of the order of around \$ 1000m year including \$ 670m from Europe, only going from U.S.A. being of the order of \$ 175m.

It will be appreciated that the average royalty in relation to the above transactions would be about 4%, so that the total amount of business created in terms of sales would represent 25 times the above amounts. Nevertheless, these figures must be treated with caution. They certainly understate the

position, as they do not include cross licences, joint ventures or (probably) arrangements between parent and subsidiary companies.

One aspect of the above is that some countries, notably Japan, have particularly used the licensing technique as a means of expanding their economy on the basis that it is cheaper to pay royalties than to spend research and development money on "re-inventing".

On the balance of royalties the U.K. is a net earner in respect of the pharmaceutical, chemical and petrochemical, electrical and electronic and engineering industries, but is in debit over the general range of mechanical engineering where it "licenses in" far more extensively than it "licenses out".

Quite apart from this of course there are always "specialties" across the whole range of capital and consumer requirements which can be of value and interest without regard to the general strength of the relevant industry.

Another factor which must be taken into account, and is particularly relevant to the consideration of the U.K. and Hungary, is the relative disparity of the size and range of the industries and research and development efforts of the two countries, with the inevitable consequence, in theory at any rate, that one country could have more to offer than the other. In relation, however, to the relevant populations of the two countries they are quite comparable.

The following figures are indicative:

Hungary*		
(1966)	Number of research institutes	127
	Number of workers therein	22,523
	Number of scientific researchers	6,289
	Expenditure in year	1,524 million Forints (= £ 54 m approx).

United Kingdom

(a) Cost of scientific research and development in 1967/68

	£ m
By Government establishments	239
By universities and further education establishments	75
By research associations, public corporations and others	78
By private industry	569
Total	961

(b) Technologists and scientists engaged in R & D in 1968

Industry	55,000
Government and public bodies	12,500
Universities etc.	12,500
Total	69,000

* These figures exclude R & D work in industry, which in 1969 was stated to be 4,400 million Forints = £ 150 m approximately.

Under the arrangement of the afore-mentioned Treaty, and also by various forms of direct bi-partite negotiations between the two countries, there have been a number of attempts initiated to organize licensing transactions between the two countries in such areas as electronics, machine tools, metallurgy, materials handling, scientific instruments, and electrical and mechanical engineering generally.

A point to be emphasised is that as previously mentioned, technological transfer through licensing is generally taken to include the "joint venture" which in particular circumstances can be the most convenient and practical business means of achieving this objective. It should be noted that some of the Eastern European countries are now beginning to enter into such arrangements with Western partners in third party countries. Providing each of the partners has something of value to contribute there is much to be said for the extension of such schemes on a broader basis, e. g. the joint company or consortium, to maximise the total market of the participants. In principle such ventures could be comprehensive and include the home territories as well. Partnerships of this character, broadly between equals have much to offer both sides.

The following paragraphs attempt to analyse some of the *special* difficulties which have been encountered on either side. It should be emphasized nevertheless that the general experience of those directly involved in these matters is on the whole an encouraging one, and it is believed that some progress is being achieved and will continue to be made in the future. In particular some arrangements have already been effected and others are under discussion.

From Eastern and Western viewpoints the main problems and difficulties, to supplement those previously mentioned, appear to be:

(a) Complications of language, distance and psychological approach, particularly as to priorities and form of the provision of information both technological and market. This includes difficulties in interpreting costing and market information as between Eastern European and Western environments.

(b) Shortage of Western currencies leading to a request for some form of counter-part trading e. g. products or components manufactured under the licence.

(c) Licensing arrangements may have to be conducted through an official governmental organisation rather than on a direct party to party basis. (Though it is understood that in Hungary this seldom occurs.)

(d) Such arrangements are often required to take the form of a "once and for all" transaction in which the "industrial property" is transferred in return for one single financial payment. Such arrangements may form part of a larger contract under which a totally integrated plant e. g. a chemical factory, or some substantial section of a factory e. g. an automated line for the manufacture of components, is involved.

(e) Problems over CMEA's allocation of lines of specialisation, with the result that only limited markets may be available to the Eastern European licensee for the product in question.

(f) In the preparation of agreements there may be conflicts as between the British and Continental legal systems often necessitating long and complex documents. Special problems here include:

(i) Which law to apply — third country e. g. Swiss or Swedish is sometimes used.

(ii) How far one should attempt to legislate in the agreement for every possible contingency.

(iii) Interpretation, both as regards translations and the precise legal significance of various specialised phrases.

(g) Lack of adequate professionalism concerning the negotiation of licences. Licensing is a complex business involving an interrelationship of manufacturing, commercial, legal, technical and marketing aspects.

In order to improve the flow and transfer of technology as between the U.K. and Hungary what are chiefly required are:

(i) Realistic understanding of what is involved, particularly so that the time of valuable people is not expended on vain efforts.

(ii) Increased opportunities for skilled people to move around and meet others at their various institutions, and at worthwhile conferences and other meetings.

(iii) Better prospects for Anglo-Hungarian joint ventures on a bi-partite basis between the interested parties where this would seem appropriate, not only for third party countries but also within the U.K. and Hungary.

(iv) Better identification of technological "areas of lead" and "areas of need" in each country through information interchange and dialogues between informed people, at both official and unofficial levels.

(v) Recognition of the professionalism of the licensing exercise.

(vi) Fuller publicity and information about successful arrangements between Eastern and Western countries.

It is submitted that the procedures on both sides for the implementation of the Treaty need to be improved and that more attention be given to practical follow-up by the use of progressing systems.

ПЕРЕДАЧА ТЕХНОЛОГИИ

Б. БАРД

Общезвестно значение передачи и принятия научно-технических знаний и опыта для экономического развития любой страны. Автор детально рассматривает роль такой формы передачи научно-технических достижений, как покупка лицензий на применение технических патентов, сопровождаемое передачей имеющегося эксплуатационного опыта, навыков, сведений об использовании данного патента («знать как»). Последнее обычно требует заключения договора о техническом сотрудничестве. Автор анализирует возможные виды и формы такого сотрудничества.

Переходя к проблемам передачи научно-технических достижений между странами Западной и Восточной Европы, автор указывает на трудности такого сотрудничества, имеющиеся как с западной (неосведомленность западных деловых людей о патентном законодательстве и юридической практике восточных стран), так и с восточной стороны. Среди последних автор указывает на языковые, психологические преграды и недостатки рыночной информации; на нехватку конвертируемых валют, порождающую стремление к увязке передачи лицензий с компенсационными товарными поставками; на межправительственный уровень переговоров о покупке лицензий; на одновременный характер передачи и платежа за научно-техническое достижение; на специализацию производства между странами СЭВ; на различия правовых систем и т. д.

Автор отдельно останавливается на научно-техническом сотрудничестве между Великобританией и Венгерской Народной Республикой, в частности, на договоре, заключенном между ними в 1967 году, и положительно расценивает возможности расширения этого сотрудничества.

G.Y. VARGA

SOME QUESTIONS OF TECHNOLOGICAL DEVELOPMENT IN HUNGARIAN ENTERPRISES*

Technological progress breaks through the barriers of micro-economy and enters more and more the world of macro-economy. In Hungary, a quicker pace of technological progress was hindered not only by the scarcity of resources but much more by the lack of stimulus for an efficient or a more efficient use of the means available. The present system of planned economy has made technological development into an integral part of economic processes. Long-term interest in development is related mainly to competitive conditions. There is no objective basis for establishing any priority between short-term and long-term interests. From the point of view of technological development the alternatives of a pioneer or a follow-up strategy or, rather, a proper combination of these strategies should be considered. In order to accelerate technological progress an active licence policy is needed, including management and organizational know-how.

Economic growth relies on the development of the forces of production. In our age which we are justified to call the age of a new technological revolution, every "statement" on the importance and the role of technological development and progress may sound hackneyed. They have disappeared from the headlines and the front pages of periodicals, and new inventions, patents and discoveries seem to have become well-known features of everyday life. There are, however, greater worries today: what to do with the immense amount of information available to mankind, and how to make use of contemporary technology and highly developed forces of production? These are the social and human aspects of the problem. But there is another side of the question: what economic-organizational problems are to be solved in order to make the forces of production, including the technical factors, grow at the desired rate? Most countries can increase their wealth and social welfare mainly in direct proportion to the resources made available by the level of national production. These and their products are assessed, in one way or another, on the markets. The achievements of small countries are evaluated, in the first place, by internationally valid standards. Hence the keen competition between the countries in developing the forces of production, since the relative level of development, indicated by productivity, is a decisive part of comparative relationships and competitiveness.

Among the factors of economic growth, the relative role of capital investments (the so-called physical investments) decreases, whereas that of scientific research and of technological development is on the upturn.

* Although the aim of the present paper is to examine technological development in enterprises, it seems to be useful to discuss some macro-economic aspects of technological development as well.

In some countries this factor makes a contribution of some 40 to 50 per cent to the growth of the gross national product.

These data reveal a new quality in the part played by technological development: a narrow market assessment of profitability cannot be regarded as the only foundation or the exclusive limitation of this activity. Technological development breaks through the barriers of micro-economy and penetrates deeper and deeper into the world of macro-economy. Beside the traditional markets, a specific market of scientific achievements and technological information is coming into being and acquiring added importance. There is keen competition also in those fields where mass production or rather the magnitude of mass production has a growing significance. To judge by international experience, results are more or less directly proportional to inputs, and the minimum value of inputs indispensable for keeping pace is rapidly increasing. Hence the large countries develop "science factories" laying thereby the foundations for "Big Science". This, however, is within reach of only a few industrial powers rich in capital. As to its inputs and outputs, technological development involves social and economic requirements which make the participation of the state inevitable. Therefore, technological development, that is, the marking out of its directions, the allocation of development resources and of the ways and means of their exploitation, are becoming, in our days, integral parts of the economic policy pursued by the state.

In countries with a planned economy it is the task of the central government

- a) to determine the perspectives of technological development and scientific research;
- b) to define the rate of development and the magnitude of inputs;
- c) to take decisions on establishing new institutions which serve the interests of the national economy;
- d) to choose among the possible alternatives of technological development;
- e) to determine the direction and methods of international scientific and technological co-operation.

On account of

- a) relatively high inputs (costs) and of
- b) factors of scale playing a role of increasing importance in scientific research and development, the formulation of a rational development policy in small countries is particularly complicated.

Industrialization that followed the Second World War in Hungary was also a large-scale programme of technological development. The great changes that took place in the sectoral, the product and the utilization structure of industry and also in the pattern of exports and consumption testified to this technological development.

Yet, various analyses have shown that the growth of productivity and the factors promoting it — technological development, in the first place — have played a smaller part in economic progress in Hungary than in economically more developed countries. This is supported also by the fact that 45 per cent of the growth in industrial production was due to increasing employment in the period between 1965 and 1970.

Hence development in the last two decades has been more extensive than in many other countries. We shall briefly survey its causes, some of which are justified while others are open to criticism.

The main carrier of technological standard is the productive man. The number, composition and education of the employed labour force exert a significant influence on the rate of development. The rapid growth of employment — in industry, in the first place — over the past 15 to 20 years has not had a beneficial effect on technological development because those newly engaged (including some of the managers) did not have much experience in production and management, and this resulted in slowing down technological development.

In recent years, however, the employment of skilled labour has been stabilized, and skill has also increased — thanks to accumulating experience; the number of those employed in industry is not likely to grow in the future. All this creates more favourable conditions for the human aspect of technological development.

The number of school years per inhabitant was 5 to 6 in the 1930s in our country, and 7 to 8 in Western Europe. This figure is expected to exceed 8 in Hungary and to go up to about 9 to 10 in Western Europe in the early seventies. Since the general schooling period of the age group below 30 is now 10.3 years, we may reckon that our backwardness in this field will considerably diminish within some 15 to 20 years.

Since 1960 the fixed assets in industry have shown an average annual rise of 9 per cent by value. Some 10 to 15 per cent of the value of our fixed assets have been spent on purchasing new equipment. The expansion rate of fixed assets have been sufficiently rapid, since about 45 per cent of the machine stock in the engineering industry is younger than ten years, a very favourable age pattern even by international standards. But the rate of scrapping, amounting to an annual 1 to 2 per cent of the value of the machine stock, is not satisfactory. The low scrapping rate also reduces the efficiency-boosting effect of new investments. This problem brings us to the deficiencies of the former investment system: to fragmentation of invested capital, to insufficient interest in making efficient investments and, in a sense to the preference for maintaining unchanged capacities.

Scientific research and development play an important role in technological development. The proportion of those employed in research and development (related to the level of per capita national income) as well as the

growth rate of research inputs in Hungary are similar to those in countries well advanced in these fields. Yet, research has not been sufficiently concentrated, the lead times have been long, and ill-interpreted national pride ("not invented here") has been heavily telling especially on this field.

Mention should also be made of the size of the factories and plants because in certain branches they may turn out to be decisive factors in the efficient utilization of new technology. It is a fact, for instance, that the size of our plants in metallurgy, heavy chemical industry, and in the paper industry, are short of the optimum.

Hence, what has hampered the accelerated growth rate of technological development was not so much the scarcity of resources, the objective and material conditions but rather the inefficient utilization of the available means and/or the lack of incentives for their more efficient use. This seems to be confirmed, in the first place, by the fact that the share of the R and D input in the national income has shown an annual growth rate in

1960:	1.20 per cent
1965:	1.65 per cent
1969:	1.92 per cent
and the annual forecast for	
1971 to 1975:	2.4 per cent.

But let us examine one more factor belonging to the sphere of economic policy taken in the narrower sense of the term. Ever since the beginning of industrialization there has been an overheated investment market in Hungary: demand for investment goods has almost chronically exceeded supply. This has put producers in a very comfortable position but has created an awkward situation for users. As a result, the domestic market has become unassuming, and failed (or has been unable) to exert a stimulating effect on the producers inducing them to improve quality, to up-date the standard of their products and to become more competitive. International experience shows that export markets cannot make up for the inefficiencies, in this sense, in the functioning of the domestic market.

Reform and central funds

The aim of the new economic control and management system introduced in 1968 is to promote a more balanced and more efficient development of our national economy. Efficiency, as the principal criterion of economic actions, requires a fundamentally new economic environment and a social atmosphere that implicitly stimulates rational actions. "Implicit" is the word to be emphasized. The wish and intention to accelerate the rate of technological progress

existed in the former system of economic management as well, but the latter lacked the very elements that could have exerted an objective impact in this direction. Thus, having realized the importance of technological advance, the government started to influence the enterprises "from without" and often experimented with constructions alien to the management system which were unable to achieve the desired results. In other words, technological development was often treated as a technical problem and was not submitted to economic analysis and to considerations of profitability.

The present system of planned economy, however, has institutionalized incentives for more efficient economic actions and has organically incorporated technological development into the economic processes.

Complex development programmes play a considerable part in implementing the major objectives of technological development. They usually have a heavy impact also on the direction of the shifts in the economic structure. Such development programmes are included, for instance, in the 4th Five Year Plan for 1971–1975. Let me quote the summary of two of these six major programmes:

— Continued updating of the energy structure, the completion of the natural-gas project, a rapid diffusion of the use of hydrocarbons which will contribute to a considerable improvement in the productivity of power production, to an efficient use of energy in other branches of the national economy and to attaining a higher level of civilized living conditions.

— The application and production of devices of calculation technology, which is a precondition of a high-standard organization and management of production and marketing in various fields of the national economy and will result in the development of a new production culture in the engineering industry, indispensable for international competitiveness.

The 4th Five Year Plan — the first medium-term plan drafted in the economic management system introduced in 1968 — endeavours to achieve an intensive concentration of resources when determining centrally the relatively small number of development programmes which are of paramount importance for the structural transformation planned.

Together with the objectives, the development programmes clearly state also the modes of implementation, the organization(s) controlling implementation, the necessary state funds (investments) and measures.

The Central Fund for Technological Development is an important instrument of central management. This is resorted to by supervisory bodies when the comparatively short-term enterprise interest proves insufficient as an incentive because the development is expected to yield delayed results, or else presents considerable risks. The Central Fund for Technological Development is fed by contributions from enterprises. The extent of the contributions is determined by the supervisory ministry and by the State Office for

Technological Development (SOTD). Some 25 per cent of the central funds is administered centrally by the SOTD.

This fund goes to finance:

- research commissioned by state authorities,
- investments, experimental plants, instruments for experiments necessary for the implementation of research commissions,
- the acquisition of scientific knowledge exceeding the sphere of interest of any one enterprise (licences, know-how, patents etc.),
- fees to experts, prizes in competitions (tenders), technical organization, market research etc.

Financing takes the shape of contracts concluded between the relevant state authority and the enterprise assuming the obligation.

The scientific research institutes operate within the budgetary system, and most of them are engaged in fundamental research. Beside fundamental research requiring budgetary financing, the scope of activity of the budgetary research institutes has extended to applied and development research in the past years. Apart from fulfilling their basic tasks, these institutes have been permitted to conclude contracts — with bodies of research management, with enterprises and other institutions — for studying scientific topics within their research field and for offering research services.

For contractual research, the commissioning body is to pay a price according to the official tariff or — failing such — a price as agreed.

Half of the difference between the income derived from contractual work and the expenses can be used for personal incentives and the other half for the development targets of the institute, chiefly for buying fixed assets and for financing self-initiated research.

The system of contractual research and the interest relations involved have so far had a beneficial influence on the research institutes prompting them to the better utilization of their capacities and to the strengthening of their ties with the supervisory authorities and the customer enterprises. A clear sign of this development is the increasing income of the research institutes of the Hungarian Academy of Sciences, derived from commissioned research, amounting to 19 million forints in 1967, to 50 in 1968 and reaching 130 million forints in 1969.

A general phenomenon accompanying the growing number of contractual work has been the utilization in practice of a relatively small part of fundamental research topics completed, mainly because financial interest has not been attached to a prompt and efficient implementation of the results of such research. In the recent past it has been made possible for a certain part of the income from the utilization of results to remain with the research institute. But since the basic activity of the budgetary research institutes relies on state subsidy, it is justified if a comparatively large part of the income derived

from utilization goes to the central budget. Hence 70 per cent of the difference between such income and the costs incurred is paid into the budget. Thirty per cent remains with the institute, half of which can be used for personal incentives and the other half for development, just as in the case of contractual works.

The new law not only stimulates the utilization of research but also widens the system of financial incentives of the research institutes, permitting a wider range than before for personal incentives: instead of 15 per cent of the wage fund, the upper limit for financial rewards is 25 per cent, which coincides with the maximum share payable by enterprises to their workers.

Beside intensive interest in contractual work, a more efficient utilization of the budgetary funds should also be stimulated. It would, therefore, be expedient to finance research institutes according to the tasks imposed on them, instead of giving them general development grants.

Financing according to tasks should be understood as follows: the supervisory authorities controlling research determine the tasks of the institutes by giving them long-term state commissions and determine, at the same time, the approximate allocations necessary for the solution of each task. In this way, once the research completed, the financial means used for implementation can be collected in each individual case, and the efficiency of the input can be evaluated. This will reveal whether or not it is worth-while to carry out research in the topic in question. The implementation of state commissions should be linked with a system of incentives promoting the solution of the task in compliance with the commission and the thrifty use of the financial means earmarked for its implementation.

Financing according to tasks would be beneficial for the managing authorities as well as for the economic administration of the research institutes. State commissions would not only acquaint the institutes with their tasks in long-term fundamental research but would also inform them about the scope of the financial means to be allocated to them. These would be transferred to them at the rate of progress in fulfilling the tasks imposed, and thus the research institutes would be aware of the financial resources they could count upon for certain over an extended period of time.

The ultimate aim with technological research institutes operating as enterprises is to make them self-reliant. This endeavour has resulted in favourable changes in their activities over the past one or two years and in increased attempts at achieving marketable development results.

But since exaggerated profits may jeopardize technological development, the extent of profit extraction from research institutes differs from what enterprises are required to pay. Therefore certain preferences are introduced in the system of profit taxation and fund building of research institutes.

Practice shows that the R and D activities of research institutes have become more animated. As early as in 1968, the institutes offered a wide choice of products on the market, all resulting from institute development. Formerly the marketing of such products took as much as two to three years.

In order to promote scientific research and technological development activities, instruments imported (machines, implements, spare parts etc.) have enjoyed a complete exemption from customs duty since November 1969. The purchase of foreign licences and know-how also receives preferential treatment which extends in certain cases to the import of machines associated with the purchase of licence and know-how as well.

The guiding principle of the economic reform in the field of technological development is to establish closer link between R and D, on the one hand, and productive activity, on the other.

But some experience shows that the large majority of R and D contracts are short-term contracts concluded for one or two years. There is a definite preference for commissions on product development which involve lower risks, lower input and promise quicker returns. On the other hand, the share of works undertaken for the development of technology, for laying foundations for the further future of the enterprises, is all too restricted.

The tasks associated with the central management of research are contained in the guidelines for science policy. The plan of long-term scientific research* and its relations and co-ordination with the national-economic plan (economic policy) will certainly promote the efficient management of technological development. If on this basis significant scientific results are achieved in certain fields — e. g. in those listed above, — and if the enterprises are acquainted with them in time and have access to them under favourable conditions, then the state will be able to influence the development activities of enterprises efficiently.

Technological development in enterprises

The entire system of economic regulators exerts an influence on the technological development of the enterprises. The regulators will promote technological development if they create an economic environment for the enterprises in which

a) development is assessed in identical (or almost identical) terms by the enterprises and by the national economy alike;

b) the employees and managers of an enterprise are interested in its permanent development because development is a precondition of competitive survival;

* A new long-term scientific research plan is now being drafted for 1971 — 1985. It is going to be a document of the long-range strategy in science policy.

c) the enterprise has access to material means (credit etc.) necessary for its development.

The principal economic regulators of technological development are the regulations of profits and of the price system. The enterprises, their leaders and employees are best stimulated by coupling their interest to the profits. At present this incentive prevails in two directions:

a) directly, — through the wages and wage-type grants (like profit sharing, bonuses etc.) due to the employees of the enterprise from the profit;

b) indirectly, — through the financial resources that can be allocated to the development of the enterprise from profits.

These two kinds of effects prevail jointly today: increased profits (or the growth of profits) automatically yield the amounts that can be used for either of these two purposes. Experience of the past three years has shown that we are essentially on the right track: enterprising spirit has grown and development activities of enterprises have intensified.

The principal financial source of technological development activities in the enterprise is its technological-development fund, which is formed from specific percentage rates included in the prices of the products. This fund is tax-free. Expenditure on technological development should be regarded as part of production costs. These accountable costs cannot be prescribed for the enterprises. Their size is determined by criteria of economic efficiency and of profitability.

What we were worried about was rather the possibility that some enterprises — mainly in the first years of the reform — would neglect technological development in exchange for achieving higher profits. That is why the enterprises are bound, for the time being, to include a share of 0.1 to 25 per cent for technological development in their prices and create a technological development fund therefrom. The rates have been differentiated with due regard to the requirements of the perspective development in the given industry, on the basis of the expected demand on the market. Consequently, the prescribed rate of technological development expresses the development demands in the given group of products. There are forty different rates in force now.

The prescribed technological development fund does not represent the maximum expenditure that can be devoted to technological development. Inputs above the compulsory minimum can be accounted for as costs. This prompts the enterprises to make such investments for this purpose as are sooner or later recovered from price revenue and increased profits.

In 1969 the enterprises formed technological development funds amounting to a total of 4,400 million forints, exceeding the 1968 figure by 8 per cent. Together with the initial stock transferred from the previous year and with other resources, the amount available for purposes of technological development was about 6,000 million forints, that is, 23 per cent higher than in 1968.

In industry this fund made up about 1.1 to 1.2 per cent of the gross income on the average, but 2.7 per cent in the engineering industry and 1.9 in the chemical industry.

Development work has become livelier, economic efficiency has improved during the past three years; as against a 3 per cent rise in global industrial production, the contribution of industry to the national income has gone up to 6 per cent. According to the survey of the Central Statistical Office, the share in production of transmission-technical equipment, representing an up-to-date product structure in the telecommunication industry grew, for instance, from 3.8 to 5 per cent in one year (1968) and the share in production of micro-wave equipment from 2.9 to 4.3 per cent. In precision engineering, the share in production of electronic measuring instruments rose from 11.7 to 15.4 per cent and that of special instruments, from 17.4 to 19.5 per cent.

It is very instructive to examine the use of resources devoted to technological development by the purpose of utilization.

Table 1
*Percentage distribution of technological development inputs
according to their utilization*

Allocated from total for	1967	1968	1969
Basic research	—	0.8	0.8
Product development	32.5	46.6	49.4
Development of processes	29.5	20.5	22.5
General development	20.1	10.8	10.8
Other R and D costs	17.9	21.3	16.5
	100.0	100.0	100.0

Source:
Ministry of Finance

The data clearly reflect the tendency towards product development: 1968 brought an explosion-like change (which goes to support the statements in the survey of the Central Statistical Office, see Table 1). On the other hand, the share of development of processes — which is low at any rate — continued to decrease. Although its share is around 30 per cent in branches requiring complex technology (e. g. the chemical industry, metallurgy, and the building industry), there still is a case for saying that the enterprises will be unable to utilize the achievements of product development properly precisely on account of the relatively backward technological methods. The considerable fall in 1968, and later the stagnation of the share of expenditure for development of a general nature should be assigned to the same category. The

point is that the costs of development of processes and expenditure for development of a general nature are closely linked because these include all costs of technological nature, e.g. planning, of designing, the analysis fees, payments for licences etc.

Short-term and long-term incentive

The changes occurring in the pattern of technological development activities seem to indicate that, answering market impulses, the enterprises are inclined to look upon the widening of product assortment, that is, on enlarging and diversifying the product pattern, as the main objective of technological development.

Another conclusion that can be drawn from the above trend in technological development is that the enterprises (i.e. their managers) are mainly interested, for the time being, in short-term tasks, and that the present system of profit sharing has not yet generated long-term motivation. This seems to be confirmed by a representative sample survey of the Hungarian Investment Bank, covering 139 enterprises (including 122 industrial companies). This shows that the share of development investment devoted to increasing capacity rose from 57 per cent in 1968 to 61 in 1970, whereas the share devoted to raising technological standards fell from 19 to 12 per cent.

It is well worth noting that the share of investments for maintaining the production level is extremely low (2.2 per cent) compared with the operating fixed assets; it suggests an average replacement cycle of 44 years. And this is one more proof of the fact that the present system of profit sharing produces short-term impulses.

I have no knowledge of any approved motivation system, tested by practice that would make the managers and employees of an enterprise interested in long-term development. Not even the system of allocating shares to employees serves this aim adequately.

Interest in long-term development is linked, perhaps, not so much with stimuli aiming at profit maximization but rather with competitive conditions, that is, with the imposition of market conditions under which the existence of the enterprise might be at stake, conditions in which development is an indispensable precondition of survival. This recognition is an integral part of our economic reform. Yet, in the present transitional period — precisely on account of the unbalanced market conditions — the unfolding of economic competition must be limited. But the conditions must be created gradually, by ensuring the dynamic equilibrium in the major fields of the national economy, by introducing appropriate organizational changes (by dissolving the economically unreasonable monopolistic organizations), by establishing more intensive contacts with external markets, and by increasing import competition.

It seems to me that the quickening pace of economic competition (without exaggerating its significance) is gradually engendering an enterprise attitude that focuses the interest of management on problems of survival, that is, on the development policies of the enterprise.

Nevertheless, I would not venture as far as confronting short-term and long-term motivation or suggesting any kind of priority between them. I do not think such attempt could be justified either theoretically or in practice. We are faced here with an intricate, interdependent contradiction: the rapid pace of technological progress, the lack of stability on the market of products involve the necessity of working out long-term development targets, and of thinking (by the managers) in terms of long-range interests. On the other hand, the level of the necessary R and D inputs, the degree of uncertainty etc. increase the risks involved by development to an extent that makes the enterprises prefer the short-term development targets which they can better manage. This is an objective contradiction in economic life which can hardly be solved by a preferential classification of interests. It seems to be more expedient to try to attain an appropriate equilibrium of interests (that is, between short-range and long-range development concepts). (Government preferences or the varying participation of the state in financing R and D objectives may, for instance, act as such balancing factors.)

I do not think it is a mistake to let the attitude of Hungarian enterprises be imbued with the wish of rapidly adapting themselves to market conditions at present, in the transitional period following the introduction of the new management system. Now this is indeed a condition of achieving an internal economic equilibrium and of procuring resources that enable us to draw up and implement technological development programmes involving greater risks and yielding slower returns.

The superior authorities of enterprises — e. g. ministries — size up now the activities of the managers not only on the basis of the annual profits but also with due regard to their long-term development policies and to their plans for the future. This is one more factor laying stress on long-term development interests. These are also strengthened by supervisory committees appointed to major enterprises to report (to the owners i.e. the State) on the activities of the enterprise managers, with an eye on the long-term development, business policies, and the future.

Let us now examine the role of amortization which serves the replacement of fixed assets used. In industry amortization amounted to 4.8 per cent of the gross value of fixed assets engaged in 1968. According to the laws in force, an average of 40 per cent of amortization allowances is due to the state and 60 per cent remain with the enterprises. The basic principle is amortization directly proportional to time during precalculated physical — sometimes technical — depreciation. Although the regulations are not absolutely strict

about the rates in force and about the mode of amortization, practice leaves little scope for deviations. True enough, the part of amortization left with the enterprises usually meets replacement demand, but in many cases it does not. If and where it does not, the enterprises feel exempted from the obligation of maintaining the standard. For the time being the enterprises have no other choice of amortization. The existing regulations do not permit accelerated amortization of equipment becoming rapidly obsolete even in the dynamic branches. (There are several arguments against accelerated amortization; one of them is that this method may increase capital costs, thereby potentially driving up prices and reducing the competitiveness of the enterprise etc.) At the same time a preferential application of this method is thought to be possible.

Technological development is linked, in most cases, with the general development of the enterprise. The enterprises finance their investments from their profits and from their share of amortization. Investment activities have been considerably decentralized, and development brought within the scope of interest of the enterprises. About half of the total volume of investments comes under the competence of the enterprise today. The beneficial effect of this change upon efficiency and upon improved returns need not be emphasised.

It is, however, interesting to note that the present system of income regulation allows every enterprise more or less the same scope for forming development funds; whether they are meant to develop slowly or not at all, to meet social demands, or are expected to make a rapid headway in expanding production.

Development needs are known to be extremely varied. In enterprises meeting stagnant demand the funds are needed only to maintain simple reproduction which can be financed from amortization and prime costs, and those producing goods for which there is a decreasing demand may need even less. Yet our system regulating enterprise incomes obliges every economic unit to create amortization funds — of proportional size — and, again on the strength of identical rules, to transfer the major part of profits into the development fund.

In branches and enterprises where no development is necessary to meet current demand, or where a slower than average development would be sufficient, our system of income regulation institutionally creates an abundance of funds.

These funds withhold development sources from other sectors of our economy where they would be needed primarily: from enterprises meant to meet rapidly growing social needs. For meeting these rapidly growing demand the relevant enterprises would have to be developed at a quicker pace than the average.

With a view to promoting and stimulating the mobility of social capital new regulations have recently been introduced permitting the reallocation of capital owned by enterprises. Instead of investments that seem redundant or promise low efficiency, the enterprises are allowed to regroup their development resources by transferring them to other enterprises or co-operatives. One of the possible forms of capital regroupment is association, when two or more enterprises (co-operatives) join forces in order to achieve an economic objective and thereby attain results which are better than what they could achieve separately.

It is also possible to found joint enterprises in case of large-scale, intensive and lasting co-operation, mainly in the field of production. The founders of a joint enterprise share the profit in predetermined proportions.

In connection with the mobility of social capital let me point out the possible advantages of a wider utilization of the leasing system. For the diffusion of new technology it seems favourable for the state to take part in promoting up-to-date technology involving great risks; the state could purchase new equipment, prototypes or systems of technology and lease them — under favourable conditions — to enterprises ready to adopt the new equipment or method.

The principle, according to which development is necessary for expanded reproduction, and not for simple reproduction, has not yet sufficiently asserted itself in our system of income regulation: development funds can be formed both from the amortization of the existing fixed assets and from the amortization of newly acquired fixed assets in the same way, that is, from simply reproduced profit and from the profit increment alike.

This uniform treatment, in fact, conceals the bearing of uneven burdens. The burdens on capital once acquired by an enterprise and exempt from obligations of amortization are comparatively small:

- there is charge of 5 per cent on the original value to be paid in principle, which is 3.7 per cent in practice on account of exemptions;
- amortization for depreciation, at different rates, of fixed assets.

The burdens on newly acquired assets are much heavier. In addition to the charge on assets engaged and to amortization, the enterprises are meant

- to raise money for acquisitions, i.e. for paying off credits;
- to pay taxes on the development fund; and
- to pay interests on credits.

The high taxes on the part of profit going to development and the large share of amortization due to the state make it practically impossible to pay off credit from the profit and amortization derived from the investment financed by the credit.

It follows that certain less efficient investments may, in competition, push into the background investments promising higher efficiency if the funds

derived from initial (basic) profits and from amortization have a larger share in their financing. Hence, self-financing capacity is still a strong factor in acquiring development possibilities. (This is an understandable aftermath of an earlier situation that prevailed for a long time, when the development of enterprises was largely financed by the state.)

It might be a correct assessment of the present situation to say that too much of the amortization formed after untaxed assets and of the initial profit remains with the enterprises as per today. Compared to this, the centralization of amortization in the wake of new investments and of the profit seems to be exaggerated and the burdens of these are overwhelming. Consequently, the point is not that the total investment capacity (purchasing power) remaining with the enterprises is low, but that it is not expeditiously coupled with development. (This is treated at length in Dr. Tamás Bácskai's study, see pp. 79–110)

Personal interest, that is, the interest of creators and developers, plays an important part in the technological development of enterprises. Considerable efforts have been made in the last years to widen the range of incomes, but the results achieved are not yet sufficient. A case in point is the average income of those employed in metallurgy and the engineering industry:

Table 2

Average income of the technical staff = 100, in 1968

Job description	Gross salary index
Enterprise management	197
Economic planning	109
General development	103
Product development	89
Production development	95
Production management	103

Source: Ministry of Finance

The wage level of those employed in production development and particularly in product development is still lagging well behind the wage level of those engaged in production management. If we take into account that — owing to the nature of the work — the share of the employees with higher or secondary school qualification is substantially higher in technological development than in production management, the disproportion of incomes becomes even more conspicuous. Nevertheless, it is a fact that the salary level of those engaged in development rose at a higher rate than the average in both 1968 and 1969.

Pioneer and follow-up strategy

Directions of technological development constitute the most important part of enterprise strategy. When laying the foundation of strategic considerations, the most expedient development resources and tasks, ensuring the competitiveness of the enterprises in the long run, should be determined with due circumspection. The choice of a correct development conception is especially difficult in a small country with an open economy. Strange as it may seem,

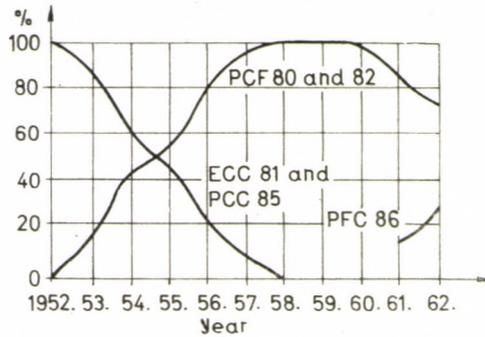


Fig. 1. Durability curves of receiving tubes

it often happens that enterprises make tremendous efforts to manufacture products that require highly sophisticated technologies for which they do not command the necessary resources, instead of endeavouring to specialize in products in compliance with the resources they can rationally develop and to exploit the corresponding market possibilities. This happens chiefly to enterprises whose product development — owing to the insufficiency of their resources — is lagging at least one phase behind the internationally leading enterprises and which therefore find themselves compelled to adopt the so-called follow-up strategy.

It is often reasonable to resort to the follow-up strategy because demand for products and services representing an earlier technological standard usually persists even after the rivals pioneering in technological progress start to use their resources, or most of them, to develop products and services in the front rank of technological progress. The machines, equipment, means of telecommunication, household appliances and so on, once put into operation, go on functioning as long as modernization becomes profitable. The enterprises following the pioneer strategy are ready to withdraw after a time from markets becoming "traditional" for them, because the precondition of their competitiveness and survival is their engagement in pioneer technology.

Let us take the production of electric tubes as an example. Topping the market of these products are such firms as Philips, Osram and Siemens. Characteristic of the development policy of these firms are the durability curves of the electronic tubes. (See Fig. 1. p. 60)

The percentage division along the vertical axis in the figure shows the frequency of occurrence of the types in different years in the total market for tubes.

The abrupt fall in the production of earlier tube types, the discontinuation of their manufacture and their replacement with new and better types can clearly be traced in the figure which also shows that the pioneer firms start marketing the improved products when demand for the previous types is culminating. They do not wait for the earlier types to saturate the market but, in a sense, they themselves create competition for their own earlier products. This is one of the conditions for maintaining their competitiveness.

There is a period, therefore, when the new product does not entirely oust the old product. This may offer favourable market possibilities for enterprises choosing the follow-up strategy.

This is actually what the Tungram United Incandescent Lamp and Electrical Co. is trying to exploit. Relying on the above strategic model, the enterprise caters for demand which the top-ranking firms are no longer concerned with. Thus the enterprises can acquire a growing share in the receding market of traditional electronic tubes.

Such a strategy can, evidently, be endorsed only in cases when it is not meant to disguise the backwardness of production and product development. It should be kept in mind that the share of the enterprise grows in a dwindling market of the product in question, and if the enterprise fails to keep pace with the international trends in production and product development, it might find itself ousted from the market. The enterprises employing the follow-up strategy should not only realize that they are selling on a shrinking market but should also be aware of what market price curve the durability curve of the product is coupled with. Another important thing to watch is whether any sharp drop in prices may be expected after the culmination of demand for the old types. This would make the exploitation of the subsequent market possibilities extremely unprofitable as a result of the withdrawal of the pioneering enterprises. Owing to the danger of being ousted from a shrinking market and to the deteriorating profitability of marketing, it is questionable whether the follow-up strategy is less risky than undertakings of a pioneering character.

Thus, keeping in step with the pioneering enterprises is an important requirement of follow-up strategy. Let us examine the above durability curves; they suggest interesting conclusions concerning the intensity of development.

In the first year of their appearance the PCF 80 and 82 type tubes accounted for 17 to 18 per cent of total utilization, whereas the utilization frequency of the PCF 86 type tubes put on the market nine years later reached almost 25 per cent — again in the first year of their appearance. This means that the intensity, the rate of development is increasing in enterprises employing pioneer strategy. This fact must not be neglected by the enterprises employing follow-up strategy. The Tungfram Co. for instance, cannot bridge the growing technological gap on the market of these products unless it evolves an optimal product spectrum (it has indeed narrowed its earlier all too wide assortment), unless it buys licences, know-how on a larger scale, that is, takes part in international co-operation in production. The standard of the R and D investments of the corporation and their share in the volume of production is lagging well behind the investments of the top-ranking companies in this field. Though somewhat belatedly, yet at an accelerated pace, Tungfram has made considerable efforts in the last years to make use of advantages offered by licences and patents. (Some 1 to 1.8 per cent of R and D input was used for buying inventions and licences between 1963 and 1966; this figure rose to 5.6 per cent in 1967 and is likely to reach the 10 per cent mark in the near future.)

As can be seen from the above considerations, “follow-up” must not be restricted to simple reproduction of earlier products and services of those ahead of us. Reproduction should be carried out on a higher level, because adaptable and applicable technologies, production and utilization experiences are at our disposal (or at the disposal of earlier producers and users). This higher level of reproduction is required by the mere fact that the new type, embodying pioneering technology, is already on the market. What is more, in branches where the growth rate of technological development is particularly high, “following-up” does not mean that the followers should pass through all the development stages that the predecessors could not avoid. It is both justified and necessary to skip some of these stages and to adopt, as soon as possible, the manufacture of more advanced, more up-to-date products and technologies.

Licences

Search for possibilities of international co-operation should play a more important part in laying the foundation of an expedient development strategy for the enterprises, and a particularly keen eye should be kept on the market of licences, for this reflects with the greatest dynamism the international division of labour. Although the purchase of licences and know-how has been

going on with growing intensity in the past years in Hungary, the survival of old, conservative views cannot be denied. The share of R and D inputs in our national income, or their size computed for one employee in industry is at least as high as in the economically advanced countries, yet, the amount used for purchasing licences and know-how is about one-tenth of that in these countries. For years we have used 0.2 to 0.3 per cent of the R and D expenditures for buying scientific and technical results achieved abroad. This has lately jumped to 1.5—1.7 per cent. The share of products made under licence is the highest in the industries manufacturing electrotechnical appliances (close to 7 per cent) and vehicles (5 per cent). An examination of their share in the various groups of products reveals that more than 50 per cent of the thermal equipment of power plants and almost half of the high-voltage electric devices are licensed products. Their share is 20 to 30 per cent in the manufacture of internal combustion engines, railway traction vehicles, transformers, electronic tubes as well as of grinding and surface-polishing machines.

It should be remembered that adopted scientific results obviously yield slower returns and these are presumably embodied in the entire reproduction process. However, foreign experience shows (for instance, in the case of Japan) that licences and know-how are important factors of economic growth in our days. It may be conceived that some transaction has a negative effect upon the equilibrium of the balance of payments, yet secures comparative advantages for the country. It hardly needs proving that whereas the import of materials and semi-finished goods is only one of the material preconditions of economic growth, the purchase of up-to-date means of production and of development technologies is equivalent to buying immediate growth factors.

It is therefore worth giving a thorough consideration to the framing of a purposeful and efficient licence policy both at the level of policy makers in industry and also at the enterprise level. The industrial ministries would, therefore, do well if they availed themselves more actively and boldly of this possibility, encouraging and stimulating thereby the initiatives in industrial enterprises.

The purchase of licences requires not only a very careful analysis of the market but also very circumspect adoption activities with regard to both personnel and material conditions.

The conditions for the adoption of foreign scientific and technological achievements usually do not prevail in countries before they reach a stage of development in which the per capita national income is somewhere between \$ 500 and 800.)

Certain R and D institutes may be afraid of being left without a means of living as a result of licence purchases encouraged by the government. What experience shows is that they may lose not their livelihood, but their monopoly. And this is no drawback. A larger turnover in licences usually

acts as a stimulus to domestic research and development. We could quote more than one example to show that licences bought abroad have been developed, improved and amended by domestic enterprises and research institutes, so much so that their marketing has become possible abroad. (It is advisable to concentrate licence purchases to fields in which we have favourable domestic experience in adoption and development.) The adoption faculty of Hungary is good in general. We have, therefore, no reason for applying foreign scientific results with reluctance.

As a consequence of growing economic competition, enterprises are more and more jealously guarding their trade secrets. There are countries and firms rather reluctant to conclude licence agreements with their potential rivals or to sell licences for their products at all. This has given birth to a new kind of licence trade referred to as cross-licencing, when enterprises, ready to cooperate mutually place at one another's disposal certain technological procedures. Purchases seem to be conditioned more and more by having to offer licences as exchange "commodities". (An important prerequisite of such a trade is the development of licence marketing, raising special requirements in many respects. For instance, the achievements of Hungarian technological and scientific work are hardly known abroad.)

That is why the follow-up strategy does not preclude but presupposes that enterprises employing this strategy should endeavour to *come out on top in certain* production functions or to find some function enabling them to create new demand and reveal new markets. A purposeful follow-up strategy with respect to some products may, in a sense, stabilize the enterprise, enabling it to advance to the front rank on markets of other products and to start licence-marketing itself. *Tungsram Co.* for instance, by making use of the stability provided by follow-up, endeavours to preserve its market positions based on innovation (say, in the production of electric bulbs and vacuum-technical machines).

One more point to discuss is the possibility and the necessity of transferring methods of *control* and *organizational patterns*. We have experienced already that certain imported or licensed technologies could not be used efficiently at the enterprises because the existing control system and organizational pattern do not match the new technology. I am aware that there are certain limitations on the transferring of control methods and organizational patterns, yet it is worth to take this into consideration while working on a licensing agreement. As far as I know, enterprises in the engineering industry are at present negotiating the acquisition of licences and know-how in more than one hundred cases. I have had an opportunity to talk with some of the managers of these enterprises: they would prefer a package deal to an agreement which contains the technical assistance in its narrow sense only.

International co-operation

One very promising form of technological and scientific co-operation is collaboration with foreign enterprises. Co-operation in this sense should mean lasting relations in production, development and marketing, based on the division of labour and on the common interests of legally independent enterprises. I do not wish to dwell on the mutual advantages of co-operation; they will become clear in the following. All I want to do is to point out the rapid development of this form of operation. Whereas between 1964 and 1968 Hungarian enterprises concluded not more than altogether 27 co-operation agreements, the number of these was 26 in 1968, 42 in 1969 and 32 in the first three months of 1970. Most of these agreements have been signed by firms in the engineering and chemical industries. After the Federal Republic of Germany and Austria, Great Britain ranks third on the list. It is important to remember that the Hungarian government gives preference to contracts qualified as co-operation agreements, — on the basis of reciprocity. The preference should be understood to include such factors as favourable credit conditions, the granting of import and export permits irrespective of quotas, reduced customs duties, exemption from deposit payments etc.

A promising example of industrial co-operation is the contract signed in December 1969 between the British Scientific Instrument Manufacturers' Association (SIMA) and the Hungarian Association for Precision Engineering (MME).

This is a kind of skeleton agreement providing a framework for direct contracts between enterprises rallied in these two organizations. One of the fundamental targets of the agreement is to boost the export to Great Britain of Hungarian precision instruments and the import of British products in Hungary, to encourage the conclusion of direct co-operation contracts between the enterprises, and to organize mutual information in the respective fields.

An outstanding feature of Hungarian-British co-operation in precision instrument trade is the collaboration between the Central Research Laboratory for Measuring Technology (MKKL) and Electronic Flow-Meters (EFM). Among the preliminaries let us mention that the Hungarian Institute decided to develop and manufacture turbine-driven flow-meter equipment as early as in 1962 (mainly for measuring the volume of liquids). Yet the subsequent three to four years brought no satisfactory results either in product development or in marketing. It became necessary to look for other solutions, and the enterprise started to examine the possibilities of buying know-how and licences. In 1967 these endeavours resulted the signing of a bilateral co-operation agreement with the firm Electronic Flow-Meters, under which the MKKL obtained from the British partner the design, construction and technology

of the turbine-driven flow-measuring instruments, the information and methods necessary for their manufacture and for quality control. Making use also of the results of earlier domestic research, the Institute solved — within one year — the problem of developing and manufacturing the Turbo-Quant turbine-driven flow-measuring instruments; a sudden rise in sales followed. The costs of signing and implementing the co-operation contract amounted to about 2.5 million forints, which were fully recovered within the first two years of the contract.

Some of the finished goods of EFM are manufactured from pieces produced in Hungary. A small but characteristic example of the advantages of co-operation is the following: the precision casting of a spare part formerly lasted 14 hours in the Hungarian factory as against 2 hours and 10 minutes in Great Britain, but by utilizing the experience and more advanced manufacturing techniques of EFM the Hungarian factory could also reduce the production time to 2 hours and 10 minutes.

Thanks to co-operation, the income of MKKL derived from selling turbine-driven flow-meters rose from one million forints in 1968 to five million in 1969. After one year of marketing MKKL could acquire the GDR, Soviet, Czechoslovak, Polish, Rumanian, Bulgarian and Yugoslav markets for its Turbo-Quant turbine-driven flow-measuring instruments, ensuring its export to these countries by long-term bilateral, foreign-trade and service-to-customers contracts. The launching of Western export is in the offing.

The prospects of realization are further improved by extending co-operation to the marketing. The annual 100 million instrument import of Great Britain shows that, given appropriate technological standard, Hungarian precision instruments could find their way to the British market. But even more important is co-operation on external, third markets. When the contract was signed, it was realized that new markets could not be reached or lasting results achieved without a co-operation agreement. The great demand of socialist countries, especially of the Soviet Union, for instance, for flow-measuring instruments represent new marketing possibilities for British firms. Through the co-operation agreement the increase in the income of MKKL is advantageous for them as well, the products enhancing the reputation of British industry and opening up new markets for further deliveries. Owing to its favourable geographical position, the Hungarian partner can economically provide a valid guarantee and cater for the servicing of the equipments.

Another promising large market for co-operation is the Middle East where the automation of oil fields, the building of pipelines (for instance, the Soviet-Iranian oil pipe) opens up large vistas for selling turbine-driven flow-measuring instruments.

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In conclusion I wish to refer again to the domestic and international experience according to which certain processes cannot be trusted to the automatism of the economic regulators. Technological development is one of the activities where, beside the automation effects of a regulated market, the conscious — and partly direct — guidance by state authorities cannot be dispensed with.

НЕКОТОРЫЕ ВОПРОСЫ ТЕХНИЧЕСКОГО ПРОГРЕССА В ВЕНГЕРСКИХ ПРЕДПРИЯТИЯХ

Д. ВАРГА

Автор на основе международных трендов технического прогресса устанавливает, что даваемая рынком узкая стоимостная оценка или рентабельность не могут составлять ни основы, ни предела деятельности в области технического прогресса. Технический прогресс выходит за пределы микроэкономической сферы и во все большей мере проникает в область макроэкономики. В нашу эпоху наряду с традиционными товарными рынками находится в стадии образования и приобретает постоянно возрастающую роль специфический товарный рынок научных достижений и технических знаний.

Исходя из данных за истекшие годы, автор приходит к выводу, что в Венгрии более быстрому темпу технического прогресса мешала не столько, или по крайней мере не в первую очередь узость материальной базы, сколько отсутствие эффективного использования средств и, соответственно, стимулирования к их эффективному использованию. Цель введенной в 1968 году новой системы управления народным хозяйством заключается в оказании содействия более уравновешенному и более эффективному развитию народного хозяйства. Нынешняя система планового хозяйства превратила технический прогресс в органическую часть хозяйственных процессов.

Автор подробно останавливается на нынешних инструментах и методах центрального, планомерного государственного руководства техническим прогрессом, на деятельности научно-исследовательских институтов и происшедших в ней изменениях.

В связи с техническим прогрессом предприятий автор отмечает, что система экономического регулирования может содействовать развертыванию технического прогресса в том случае, если она обеспечивает такие экономические условия, при которых технический прогресс получает примерно одинаковую оценку как на уровне предприятий, так и народного хозяйства, если работники и руководители предприятия становятся заинтересованными в постоянном развитии и росте, если предприятие имеет возможность заполучить нужные для своего развития материальные средства. Важнейшим финансовым источником деятельности предприятия в области технического прогресса является его фонд технического развития, который образуется на основании норм, определенных в процентах к ценам товаров. Тенденции деятельности предприятий в области технического прогресса в течение истекших трех лет свидетельствуют о значительном росте доли деятельности по совершенствованию продукции, следовательно, предприятия в порядке реакции на сигналы рынка, усматривают главное направление технического прогресса в первую очередь в расширении ассортимента и преобразовании структуры выпускаемой продукции. В этом играет роль также и то обстоятельство, что заинтересованность предприятий пока не является долгосрочной. Автор полагает, что долгосрочная заинтересованность в техническом прогрессе первоочередно связана не со стремлением к воздействию на оптимизацию прибыли, а в гораздо большей мере с условиями конкуренции, то есть с созданием таких рыночных условий, при которых может стать под вопрос само существование предприятия, при которых технический прогресс становится необходимым условием существования предприятия.

Автор вступает в дискуссию со взглядами, которые противопоставляют краткосрочную и долгосрочную заинтересованность или же стремятся к установлению между ними какой-то примарности. В ходе критики нынешней системы регулирования доходов предприятий автор отмечает, что она всем предприятиям предоставляет примерно равные возможности для образования фондов технического развития: как тем предприятиям, которые и без дальнейшего развития или при небыстрых темпах его способны удовлетвор-

ять общественные потребности, так и тем предприятиям, которым для этого следовало бы расширить свое производство. В целях стимулирования подвижности общественного капитала в венгерской системе управления народным хозяйством в недавнем прошлом был введен новый инструмент, обеспечивающий возможность перегруппировки находящихся в собственности предприятия фондов (капиталов) в другое предприятие.

С точки зрения технического прогресса следует рассмотреть альтернативу т. н. пионерской или приемной стратегии и, соответственно, возможность их рационального сочетания.

Заключение о необходимости международного разделения труда и о важности сотрудничества автор делает, исходя из стратегических соображений, указывая при этом на возможности, заключающиеся в покупке технических лицензий и знаний (know-how). Он обращает внимание на то обстоятельство, что на рынке лицензий во все большей мере распространяется взаимное предоставление лицензий, что вызывает надобность в разработке руководящими хозяйственными органами и предприятиями активной политики лицензий и ее практическом применении. Автор придает большое значение адаптации способов управления и организации.

E. N. EDEN

INVESTMENT CRITERIA IN PUBLIC ENTERPRISES. A CASE STUDY OF AN INVESTMENT CHOICE IN ELECTRICITY SUPPLY*

The paper is in two parts: the first part deals with the way an electricity supply industry would set about choosing its new power stations in a large interconnected system; the second part deals with the treatment of the wider social and economic aspects that a central Government may introduce. The paper opens with a short description of the CEGB system** and a comparison with the Hungarian system. There follow sections describing the operation of the CEGB system, how power stations are loaded and then a description of the principles behind, and method of choosing a new power station. The part of the paper dealing with the wider considerations will cover the effect of the type of power station chosen on mining unemployment, on the use of resources, and on the Exchequer. There will also treatment in simpler form of various intangible items such as the cost of air pollution, the costs of accidents and incapacity in coal miners and benefits of technological advances from the development of nuclear reactors.

The CEGB system

At the time of writing the CEGB has an installed generating capacity of about 50 000 MW interconnected by an extensive transmission system, the main framework of which operates at 400 kV. Because the population density and the electricity consumption per head are both relatively high there is a high demand density in England and Wales — about 3kW/ha. It is not the purpose of this paper to go into some of the difficulties that result from having such a large high density interconnected system; an obvious one is the high short-circuit power than can flow under fault conditions.

On the system there are thermal power stations, mainly fired by coal but also by oil, and in the near future some fired by natural gas, a steadily increasing amount of nuclear plant, and a small amount of hydro-electric plant. In addition, there are gas turbine generators that are used during

* *Acknowledgement*: Thanks are due to the author's colleagues for valuable comments and to Sir Ronald Edwards and the CEGB for permission to quote from their publications. The opinions and conclusions in the paper are the author's own and are not necessarily those of the Ministry of Technology.

** In the paper all references are to the electricity supply system in England and Wales that is operated by the Central Electricity Generating Board (CEGB). There are two smaller systems in Scotland which though interconnected with England are operated under separate control. There is also a 160 MW DC link to France.

periods of peak demand* and one pumped storage station with an output capacity of 360 MW.

The following table shows the plant capacities at the end of March 1970:

	MW	%
Coal	39 750	80
Oil	4 400	9
Natural Gas/Coal	50	—
Nuclear	3 650	7
Gas Turbines	1 650	3
Hydro** and other	500	1
	<hr/> 50 000	<hr/> 100

The similarities between the CEGB system and the system in Hungary are that both rely heavily on fossil fuels for generating their electricity and both have very little hydro-electric power: also both are interconnected systems via high voltage transmission lines and both use, or plan to use in the near future, gas turbines for helping to deal with system peaks. The main difference is obviously in the capacity and load density of the two systems and for these reasons it might be that the method of choosing power stations used by the CEGB is inappropriate for the Hungarian system. Another difference is that the system in Hungary is connected to the supply systems of three other countries so that there would appear to be more scope for the interchange of power than is the case in Britain.

Before dealing with the method of choosing new power stations it is necessary to note briefly the method by which the existing, interconnected power stations are operated. Because of the CEGB's extensive transmission system it is, within limits, possible to transfer large quantities of power from one end of the country to the other. For this reason it is possible at times of low demand to shut down the older stations, which are less efficient, and stations which have a high delivered cost for their fuel, and hence cost more to operate. For example, during the night it is mainly the nuclear (which have low running costs) and the coal and oil stations with the cheapest running costs that are generating. But as demand builds up during the early morning it is necessary to connect more and more power stations to the system. These power stations will have higher running costs than those already supplying the electricity. The order in which the power stations are connected is known as the "merit order".

* And also to increase the security of auxiliary supplies at all large modern stations.

** Including pumped storage.

Choosing a power station

In all countries of the world and for as far as can be seen ahead, the problem facing electricity supply authorities is to provide for an increasing demand; the CEGB, and probably most authorities, try to meet this demand at minimum total cost. We are concerned in this paper with the demand forecasts for the sixth, seventh and eighth winters ahead, since these are the important ones for settling the amount and type of plant to be installed, because of the length of time needed to build large power stations.

Estimation of demand

Although "demand" is sometimes used as an expression for the consumption of electricity (measured in kWh), what is meant here is the instantaneous load on the electricity system (measured in kW). It is common to talk about "simultaneous maximum demand" on the system which is usually somewhat smaller than the arithmetic total of the maximum demands of different parts of the system — because the maximum demands may not all occur at the same time (diversity). It is the "simultaneous maximum demand" that is mainly used for planning.

Each year three sets of estimates are produced. First, each Area Electricity Board* makes a forecast of electricity demand and consumption for its own Area. In this way local knowledge such as housing programmes is brought to bear. The main difficulty for Area Boards was that local developments likely to affect electricity planning were normally not known with any degree of certainty for more than one to three years in advance. However, with the expansion of regional policy, more guidelines are available about local developments.

The second set of forecasts is made by the Headquarters of the Electricity Council** and these seek to integrate not merely the whole of the data and market research of the electricity supply industry itself, but also information and views obtained from the Government and large industrial groups and Federations. The factors that are taken into account are the gross domestic product and its sub-division into industrial and other sectors; industrial production and its sub-division into main industrial groups; commercial activity and its sub-division into shops, offices, etc.; and growth in population, households, and of the rate of introduction of domestic appliances. The results of market surveys are also fed in and the forecasts are grouped into classes — industrial, domestic and commercial — and these are then turned into a total

* Area Boards, of which there are twelve in England and Wales, are responsible for the distribution of electricity to consumers.

** The Electricity Council formulates general policy for the industry and, in particular, takes the final decisions about demand forecasts.

estimate of sales, nationally, which is then converted into a forecast of maximum demand based on a forecast of system load factor.*

The third method is to explore the trends in simultaneous maximum demand and in consumption. There are many mathematical expressions which adequately fit the past data but which can give widely varying forecasts for demand in the future: the electricity supply industry chose an exponential growth criterion.

When all three estimates for simultaneous maximum demand and the units to be produced are made for the seven years ahead, the Electricity Council formally adopts forecasts for a series of simultaneous maximum demands, and for units generated, for all years from the time of the adoption up to (and including) the seventh year ahead; these forecasts are used by the supply industry for all purposes. Having adopted these forecasts, one can immediately say that they will be wrong, like all forecasts no matter who makes them.** There are many reasons why forecasts can go wrong, though extremes of weather do not introduce errors because the adopted forecasts are for what is known as "average cold spell conditions", that is that the demand will be expected to be equalled or exceeded in fifty winters out of one hundred. Some of the reasons in the past have been unique events like the discovery of large quantities of natural gas in the North Sea. Others have been Government actions like putting a tax on heavy fuel oil*** or putting forward growth targets for the economy that were not achieved. Unfortunately, because of the length of time needed to build power stations, the orders had to be placed for them before it was clear that the targets would not be met. There are also psychological factors like the tendency to over-compensate after a period of underestimating such as occurred in the middle 1950's.

The margin of generating plant needed

Because it is inevitable that at all times of the year some generating plant may not be working because unexpected breakdowns have occurred, it is necessary in determining the amount of plant that will be needed in the future to increase the simultaneous maximum demand by a certain percentage. By examining the performance of generating plant in past winters, by predicting its future performance and also the performance of the new plants that have yet to be added to the system, one can arrive at an estimate for the overall availability for all commissioned plant when the peak demand occurs. At the moment this is taken as 90 per cent, which means that 11 per cent must be added to the forecast simultaneous maximum demand to allow for the unavail-

* The average hourly demand for electricity during the year expressed as a percentage of the simultaneous maximum demand.

** How wrong it is possible to be can be seen from Table I.

*** Currently at 2.4 pence per Imperial gallon — or roughly £ 2.4/long ton.

Table 1
Comparisons of demand forecasts and actual demand

Date of estimate	Demand in winter	Demand forecast (GW)	Actual demand ^(a) (GW)	Error	
				(GW)	(%)
June 1955	1960/61	22.4	25.0	-2.6	-10
Sept. 1956	1961/62	24.6	27.2	-2.6	-10
July 1957	1962/63	26.2	29.4	-3.2	-11
Nov. 1958	1963/64	27.9	30.75	-2.85	-9
Oct. 1959	1964/65	30.6	32.35	-1.75	-6
May 1960	1965/66	33.1	34.3	-1.2	-3
Apr. 1961	1966/67	38.0	35.3	+2.7	+8
May 1962	1967/68	43.0	35.6	+7.4	+21
May 1963	1968/69	50.0	37.3	+12.7	+34
May 1964	1969/70	53.0	39.3	+13.7	+35
			Latest estimate of demand ^(b)	Apparent error	
May 1965	1970/71	54.0	41.1	+12.9	+31
Jan. 1966	1971/72	55.0	43.5	+11.5	+26
March 1967	1972/73	54.0	45.9	+8.1	+18
March 1968	1973/74	54.0	48.2	+5.8	+12
March 1969	1974/75	53.0	50.9	+2.1	+4
March 1970	1975/76	54.0	54.0	—	—

a) Adjusted to average cold-spell conditions.

b) These are estimates made in March 1970.

ability of plant. Apart from the uncertainty about the availability of plant in winter time there are other uncertainties that must be taken into account: among the more obvious are that the forecast may be wrong; that the weather in the winter for which you are planning may turn out to be warmer or cooler than average cold spell conditions; and that the availability that you have used will be too high or too low. It is also necessary to allow for the fact that stations already being built may not be commissioned on time.

But first one must make a judgement on the degree of risk that one can accept. The industry commonly expresses this as the number of winters in a hundred that a supply from the main transmission grid can be expected to be interrupted coupled with the number of winters in a hundred that one can expect some reductions in voltage. Currently the figures are 3 and 24 respectively. To keep the risk down to this level, 6 per cent of the average cold spell maximum demand must be added to allow for the uncertainties other than availability; this, with the 11 per cent allowance for unavailability gives a

total plant margin of 17 per cent. There is at present discussion on whether this is big enough. Finally, an allowance is added for the possibility that power stations may be commissioned behind schedule.

Choice of power station type

As mentioned earlier, most supply authorities plan to provide for extra capacity at a minimum cost. If the decision before the supply authority is one in which the alternatives will operate at the same load factor throughout their life, then the assessment is very simple. All that is needed is a total of their annual capital and operating costs converted into cost per unit generated; the station giving the lowest cost is the one chosen. However, as systems become more complicated with many power stations connected by a network of transmission lines, this method can lead to misleading results; for example, in the case where a coal-fired plant might be compared with a nuclear plant at the high load factor at which the latter operates, the use of this simple method would unduly favour the nuclear plant. For the more complex situation described, what is needed is a method that will compare projects as diverse as peak lopping gas turbines (run for only a few hours in a year) and nuclear stations, which may run at a 75 per cent load factor for a considerable period of their lives. There are several techniques, used on a world-wide scale, for making this comparison: they use basically the same method — adding together the costs of operating the whole system year by year taking account of the fact that the newer plant being installed will generally* have higher thermal efficiencies than those of the stations already on the system and thus be generating at a lower cost. They will therefore have a higher load factor and will reduce the load factor on all the other plant, producing a saving in operating costs. The savings are discounted to a base year to convert each year's savings into a "present value". The costs of operating the new plant on the system are subtracted from the present value of the savings to give "net system operating savings". These net savings are then subtracted from the present value of the capital cost of the new plant to give what is known as the "net effective cost" of the new plant.

So far, we have covered only the cost of meeting the increment in demand by installing new plant; there remains the cost of meeting the increment of energy (units generated). The cost can be taken as that of producing the units from plants that are operating in the years under consideration. The last step in the sequence is to add the cost of meeting this increment of energy to the net effective cost of the new plant, together with the cost of any transmission projects associated with the new station; the result is known as the "standardised system cost". This procedure is gone through for each alternative

* Except in the case of peak load gas turbines.

plant considered for connection to the system. There is a minor problem because certain plants have lives different from others; for example, nuclear plants are assumed for the purposes of comparison to have a life of 25 years whereas coal-fired stations and oil-fired stations are assumed to have lives of 30 years. One should really discount to 150 years to take account of the fact that the lives are different, but in practice what is done is to turn all the present values into annuities which are then expressed as £/kW per year. This strictly is not correct but it is near enough for the CEBG's purposes.

Table 2 shows a comparison between five different sorts of plant that might be installed on the CEBG's system but in interpreting it one should recognize that the figures are purely illustrative. Nevertheless it is clear, by looking at line 20, that the nuclear station is cheaper than any other station in meeting the new demand. But this conclusion can only be drawn on the assumptions going into the table. For example, all the discounting has been done at a rate of 8 per cent per year because that was the rate ruling at the time the table was constructed. The rate is now 10 per cent, which would mean that all the figures in line 20 would be changed — to the disadvantage of nuclear stations. Also, relative fuel prices may change which will alter the comparison between coal- and oil-fired power stations. It is important that the table should not be used blindly for specifying the plant that is to be added to the system. If this caution were ignored the CEBG system in perhaps 20 years time might contain mainly nuclear plant. This might not be an optimum situation (see below).

An analysis can also be made of the return on the incremental capital above that of the plant that is the cheapest to buy — normally gas turbines. This method is helpful if for any reason there is a need to reduce demand for capital.

In making the above analysis it will be remembered that the operating savings on the system are calculated for many years ahead. In order to do this it is first necessary to postulate what the system will look like that many years ahead; will it contain the present percentages of coal, oil, nuclear and hydro plant? The answer is almost certainly not, because it is likely that more nuclear and oil stations will be built in the future than will coal. Ideally, the difference in total cost of alternative complete programmes for introducing generating plant should be calculated, keeping as a variable, the timing of the introduction of a particular type of plant. A computer programme to perform this task has been written but there are a number of simpler approaches that are used by the CEBG. The approach to system planning described in this paragraph and the standardised system cost calculations described earlier are in fact complementary.

The above description of the method used by the CEBG for choosing its plant is necessarily in a very simplified form; many of the steps have

Table 2

Example of lifetime economic assessment of various generating projects
(Abstracted from P. W. Cash's paper to Latin America Electrical Energy Seminar (1967))

Denomination	Nuclear AGR	Pumped storage	Oil-fired (with tax)	Gas turbines	Coal-fired
1 Inclusive heat cost d/therm	1.4	—	3.8	5.9	4.1
2 Thermal efficiency %	39.5	72	36.5	25.0	37.0
3 Fuel cost of generation d/kWh	0.122	—	0.357	0.788	0.378
4 Economic life years	20	55	30	30	30
<i>Capital Costs £ kW</i>					
5 Generating station construction cost	71	40	45	35	47
6 Interest during construction	12	7	8	4	8
7 Initial fuel loading	10	—	—	—	—
8 Total generation capital cost (5+6+7)	93	47	53	39	55
9 Transmission construction cost	23	23	25	17	25
10 Interest during construction	2	2	2	1	2
11 Total Transmission capital cost (9+10)	25	25	27	18	27
<i>Annual cost £ kW pa (expressed as annuities)</i>					
12 Interest and depreciation	9.4	3.8	4.7	3.4	4.9
13 Management, insurance, fixed other works costs	1.0	0.5	0.6	0.3	0.6
14 Total generation fixed costs (12+13)	10.4	4.3	5.3	3.7	5.5
15 Net system operating savings	9.0	1.8*	2.9	0.1	2.5
16 Effective cost of plant (14—15)	1.4	2.5	2.4	3.6	3.0
17 Cost of system energy increment	7.7	7.7	7.7	7.7	7.7
18 Net cost of power and energy growth per kW of plant (16+17)	9.1	10.2	10.1	11.3	10.7
19 Transmission charges	2.5	2.5	2.7	1.8	2.7
20 Standardised cost of meeting system power and energy increment (18+19)	11.6	12.7	12.8	13.1	13.4
21 Estimated average lifetime load factor %	75	14	53	2	46

* Includes an allowance for improved availability at peak

Note: The figures shown above for gas turbines relate to separate stations containing 50/70 MW gas turbine units. Six such stations have been constructed, and more are planned. These stations should be distinguished from the 17½—35 MW gas turbine units which are being installed with each 500 or 660 MW generator; there are primarily intended to provide emergency standby for station auxiliary supplies, but are also available for meeting system peak demands. The effect of these gas turbines is allowed for in the figures shown for oil, coal and nuclear stations.

been left out. For example, little has been said about the sources and prices of fuel that may be needed in the future or about possible future changes in the transmission system leading perhaps to problems of system security (that is whether the system will be capable of transmitting load under fault conditions) or about whether suitable sites will be available for the stations to be built. Neither is there mention of the important question of when to scrap plant — a problem of some complexity. However, all these items are described in the many excellent papers on the subject (see references). Indeed, there is nothing new in what has been written so far in the paper; the electricity supply authorities in Hungary clearly use similar methods to those of the CEGB.

Factors the government may wish to assess

The assessment, covering the “wider accounting, social and economic aspects”, uses a range of techniques like “cost benefit analysis”, “resource cost analysis”, and “cost effectiveness”, mixed together in varying proportions. More simply, what is being done is the estimation, in as much detail as seems necessary and sensible, of the “value to the nation”. It is necessary before we discuss the subject in more detail to bear in mind:

(i) That what follows describes the procedure used for recent decisions on new power stations,

(ii) that “nation” means the United Kingdom and the effects of power station decisions considered in the paper stop at the boundary of the nation,

(iii) that the dividing line between accounting and social costs is blurred, though social costs are more likely to be intangible.

Taking the three aspects in turn we have first.

Wider accounting aspects

This is best illustrated by an example. Suppose that the CEGB approaches the Ministry of Technology and asks for consent to build an oil-fired power station at a site: the alternative might be to build a coal-fired station somewhere else. If, say, a 2000 MW oil-fired station were operating, the Treasury would be receiving in a full year’s operation about £ 7 million.* Hence, if a coal-fired station were built instead of the oil-fired station the Treasury would lose this revenue. But on the other hand if the coal-fired station were built,

* From the tax on fuel oil (£ 2.4/ton) which is paid on the 3 million tons of oil burned.

certain coal mines would stay open and the Treasury would need to pay out less money under the Redundancy Scheme for miners and various other Government assisted schemes for helping miners who may be put out of work by closing a mine. Also, the Treasury would be receiving income tax from the miners if they were still working, and extra income tax from the shops, etc. where they spent their money, it being assumed that if the miners were unemployed because an oil-fired station had been built instead, then their purchases at the shops would be less. Not all these sums of money are large and for a first approximation, in view of all the uncertainties that in any case exist in an investment decision which relates to something which will start working seven years ahead, the secondary effects such as those on shops can be ignored. Both positive and negative cash flows as seen by the Treasury which can result from a decision to build a particular power station, are then discounted to the same base-year as that used by the CEGB and a net cost or benefit is determined.

Apart from the effects of the choice of a power station on the fuel producing industries and on the people who work in them, there is also an effect on the manufacturing industries that build the stations. This is not as great as it might seem at first sight because large power stations of whatever type have in common many major pieces of equipment — the turbo-alternators, the condensers, the cooling water system, and transmission equipment are some of them. Nevertheless, the differences in capital costs shown in line 8 in Table 2 give some measure of the difference in the amount of work that will be placed on the manufacturing industry by a choice of a particular type of power station. The level of activity in the industry when the order is placed will to some extent determine the size of the effects. For example, if the industry were already working at full capacity an additional order might mean that a new factory to make, say, alternators had to be built.

Probably of far more importance than the effect of a single decision on the type of power station, is a change in the rate of growth of electricity demand. Reference to Table 1 will show that there can be some quite large errors in the estimates of future electricity demand and hence on the rate of ordering power stations. Even quite a small error continued for a few years can make a major difference to the amount of plant to be ordered from manufacturers in any one year. If there has been a period of over-ordering then the manufacturing industry will have installed plant and equipment to build at the rate requested by the electricity supply authority. If the rate of ordering slows, these manufacturers then have excess capacity which, unless it can be filled by obtaining more export orders, will put up the costs of the manufacturing industry and may lead to unemployment. To help the industry plan the best use of their resources the Government are giving them advice about the likely rate of ordering for power stations during the next few years.

Wider economic aspects

The 1967 Fuel Policy White Paper* states in paragraph 4:

“The Government’s aim is to see that our growing energy requirements are supplied in the way which yields the greatest benefit to the country. Policy for the fuel sector must therefore have regard to economic and social policy in other fields. In particular, the Government must ensure, through fuel policy, that national considerations which individual consumers do not take into account in choosing between competing fuels are given their due weight among the factors determining the pattern of fuel supply and demand. Such national considerations include security of supply, the efficient use of resources, the balance of payments and the economic, social and human consequences of changes in the supply pattern.”

The problem of dealing with the wider economic aspects, and to a lesser extent the wider social aspects, can be eased by the use of resource cost analysis. By “resource cost” is meant the value of alternative goods and services which could have been produced with the same resources that are used for example in building and operating a power station. In general, and over the long run, it may be that the prices of goods and services will reflect their resource cost in this sense. For this to be so, firstly prices generally would have to reflect marginal accounting costs,** and secondly accounting costs would have to reflect resource costs. But in the short run at least they cannot be expected to do so where significant market imperfections are found, as is usually the case. Resource costing attempts to approximate a pattern of resource usage that would occur if the economy could be made more perfectly competitive than it is, seeking to do this by substituting shadow costs and prices for accounting costs and prices.

Resource costs may diverge from accounting costs for the following reasons:

(i) Accounting costs may include elements which are transfer payments and involve no use of resources. The payment of tax or royalties to the Treasury will, for example, affect the price of a product but represent no consumption of resources (or at least only the quantity of resources, usually small, used in collecting the tax).

(ii) Accounting costs may include some unavoidable costs — that is costs which have to be met whether or not the goods or services in question are provided, and which are not therefore properly attributable to providing them.

(iii) Accounting costs may include a charge for the use of resources which would in fact remain unused if the goods or services in question were not

* Produced by the previous Government.

** The costs incurred by an enterprise in increasing its output.

provided. Nothing is therefore foregone by employing that resource, so no resource cost is incurred.

(iv) Accounting costs do not allow for any effects on the balance of payments of alternative projects — a decision to build a coal-fired station would have no effect, whereas deciding to build an oil-fired station would have an effect; and so, to a much smaller extent would nuclear fuel.

The essence of resource cost analysis is that it does not take at face value the accounting prices and accounting costs involved in major decisions. The technique has its parallel in private companies where manpower and capital budgeting frequently suggest that the figures derived from the accounts are misleading and where there are quite clearly attempts to make accounts more meaningful by departmental accounting, and by planned programme budgeting.

An example where resource costing is used in decisions on power station investment concerns the fuels used. Turning first to coal, one needs to determine the resource cost of the coal at the mine. This is derived from the accounting cost (made up of capital costs, labour and other operating costs). If there were no unemployment in the country, a miner, who would not be wanted for mining coal if an oil-fired station were built, would immediately move to another job and would be producing goods and services for the nation without interruption. In practice, however, there is always some unemployment in the country — people take time in moving from job to job — and the amount varies from region to region. It is possible to estimate, for each region of the country, a factor by which the accounting cost of miners' labour should be reduced to give the resource cost of this labour. The adjustment is not straightforward as note has to be taken of the age structure of the men who would be made unemployed if, say, an oil-fired station were built, because a man of 55 would have more difficulty in finding employment again than a man who was made unemployed when he was 40. The adjustment can change for different years, largely because the unemployment situation is itself changing as a result of Government action to improve conditions in those regions where, at the moment, unemployment is high. When the resource cost of the miners' labour has been determined it becomes possible to calculate the resource cost of the coal at the pithead. It is important to be clear that what we are talking about here is not the resource cost of the coal that would actually be burned in a coal-fired power station if one were built. We are talking about the resource cost of the extra coal, wherever mined, that the coal industry would need to produce if a coal-fired station were built instead of an oil-fired or nuclear station. The quantity will be more than the quantity actually burned in a coal-fired station.

For completeness one must compare the cost of transporting and handling this coal with the cost of transporting and handling the fuel for the alter-

native stations — oil-fired (transport cost is small) and nuclear (transport cost is negligible). Coal is mainly moved by railway and by coastal ships. In Great Britain there is already an extensive railway system and if a coal-fired station were built it would probably only be necessary to lay a short amount of new track, at a low resource cost, to connect the coal-sidings at the power station to the main line. Modern coal-fired stations are supplied by special trains called “merry-go-round trains” which normally operate only between the station and the mines supplying it. These trains cannot be used elsewhere on the railway system and their manufacture is a real use of resources. Resources are also used in the fuel consumed by the trains carrying the coal to the power station and in the increase that running the trains makes to the cost of maintenance of the track and of other items. There are also of course the labour costs of the engine driver and of other railway staff dealing with the trains. These are all calculated to give a resource cost of transport. In the case of shipping, the resource cost of the transport is assumed to be equal to the accounting cost as the ships could be used on alternative routes. When the resource costs of land and sea transport have been calculated they are added to the pithead resource cost to give the delivered cost of the fuel.

Coal after delivery has to be stocked, conveyed to pulverizing machines, and the ash remaining after combustion has to be removed and disposed of. The costs of doing these operations are grouped together as “handling costs” and the resource costs are assumed to be equal to the accounting costs.

If the comparison is between a coal-fired and an oil-fired station one needs to know the marginal resource cost of fuel oil. As mentioned previously, fuel oil burnt in Britain carries a tax of 2.4d per Imperial gallon included in the price that the consumer pays. But in resource terms the tax must be ignored because it is a transfer payment and absorbs no resources. Quite properly, in the comparison of the various investment alternatives in generating plant the CEBG in doing its calculations uses the price of the oil with tax included; this will be seen from line 1 of Table 2. It must be admitted that discussion is still going on among economists in the fuel and power field in Britain about the method that should be used to arrive at a resource cost for fuel oil. But it is felt that a reasonable approximation to the long run marginal cost is the price of fuel oil as it leaves the refinery, but excluding the tax on the fuel oil.* There is another adjustment which may need to be made at times of balance of payments difficulties to reflect the fact that most of Britain's oil needs to be imported. It is important, however, that the adjustment is made only to that part of the resource cost of the fuel oil that has a foreign exchange content. For example, it would not be applied to any

* There is a further complication, not examined here, because fuel oil is just one of many products produced from crude oil in a refinery.

oil produced in Great Britain (there are a few small wells in this country) and owned by a British company because the company would not be sending profits on the operation out of the country to another nation. The resource cost of fuel oil is then compared with the resource cost of the coal that it might displace to see which offers the smaller use of national resources.

Wider social aspects

The contraction of the coal industry from 224 million tons in 1957 to 150 million tons last year has caused social and regional problems since many of the mines which had to be closed were in areas of relatively high unemployment. Some weight is given to this fact in the resource cost analysis just discussed because the resource cost of miners' labour in areas of high unemployment is lower than that of miners' labour in the rest of the country. Therefore coal coming from the area of high unemployment has a better chance of competing in resource cost terms with alternative fuels. The section on the wider accounting aspects of the problem mentioned some of the Government's policies for alleviating, by money payments, the effects of closing mines. But welcome though those payments are they do not prevent the lowering of the standard of living of miners and their families, nor do they completely compensate for the unpleasantness of being unemployed. There may even be a collapse of local communities which as well as being a loss of social capital, may be a cultural loss. No accepted way of putting numbers to these costs has yet been found though the social effects are one of the factors that the Government takes into account when they have to reach a decision in a case where the choice lies between a coal-fired power station and, say, a nuclear or oil-fired power station.

Another cost that is difficult, if not impossible, to quantify is the distress caused by accidents, and in some cases death, in the mines. Naturally some of the deaths and accidents would be avoided if an oil or nuclear station were built. Apart from the emotional content of the problem of putting a value on a human life, it has been argued that as the coal industry pays compensation to miners injured or killed, the cost of this is already included in the price of the coal, and that to make a special allowance for it would be counting it twice. This is true as far as compensation is concerned but there are other costs, such as the cost of treating an injured miner, that are borne by the nation and should appear in the "wider accounting cost" analysis. There remains, however, the cost of the pain and suffering, but as, happily, the number of men killed and injured is small and falling, the sums of money are very small compared with major expenditures on fuel and capital of power stations.

Especially as this is Conservation Year in Europe, it is appropriate to talk about the environmental aspects of fuel policy, dealing first with pollu-

tion and then with visual amenity. Burning coal and fuel oil in power stations produces sulphur dioxide which on contacting moisture turns into an acid which can corrode brickwork and iron. This leads to earlier renewal of buildings and increased maintenance costs and this effect should be capable of measurement by resource costs. The wider social cost which no way has yet been found of measuring is the cost of the unpleasantness of breathing fume-laden air. But because the CEGB has a policy of building very high chimneys (800 feet) on its new power stations, the pollution at ground level is almost non-existent. Therefore there is no social cost to the nation. But the Scandinavian countries allege that they are receiving sulphur dioxide from countries to the west of them and would presumably argue that they have a social cost from the activities of, among others, the CEGB. Even if the allegation were true then the social cost would only enter the calculation if the definition of "nation" (above-mentioned) were amended to "family of nations". In any case the quantity of sulphur dioxide emitted to the air in Britain is falling, and is likely to go on falling.

The amount of radio-activity released to the atmosphere from nuclear power stations is very small — far too small to cause pollution. Although radio-active gases are produced in nuclear reactors and during the production and processing of nuclear fuels the installations are subject to stringent design, construction and operational specifications and procedures, aimed at preventing the escape of radio-active material to the air in any quantities harmful to the environment. As the costs of prevention of escape are included in the fuel cost they need not be dealt with separately. Similarly, stringent precautions, at additional cost, control the discharge of radio-active waste into the sea.

The risk of water pollution provides an argument that is sometimes used against the increasing use of oil for power stations. It is undoubtedly true that there have been serious accidents (like the Torrey Canyon) and, on a smaller scale, in the Thames in July. But it is wrong to assign all the physical and social costs to an oil-fired power station. Crude oil is imported into the country for refining into products other than fuel oil. Therefore only a part of the cost of pollution should be debited to an oil-fired power station.

One must not forget visual amenities — the electricity supply industry is bound by an Act of Parliament to take into account the effect which their proposals will have on the beauty of the countryside. But not everyone has the same idea of beauty so that although some people admire the sweep of a transmission line crossing open country others find it repellent, and to them it represents a social cost. One might think that power lines are needed no matter what power station is chosen but this is not the case, because if a gas turbine were used to meet an increment of demand, it is likely that it would be sited nearer to a load than any other type of station and would therefore

not need to use as much of the transmission system. This fact is reflected in the lower transmission costs for gas turbines shown in line 9 in Table 2. But any saving in visual amenity by having a gas turbine is not reflected in the lower transmission costs used in its assessment, which only covers the accounting and resource cost of the choice. The estimation of the social costs of amenity are being closely studied by the Commission on London's Third Airport but so far most of the suggested methods have produced angry reactions from some section of the community: perhaps there will never be an accepted method of costing. But another way in which social aspects can be introduced into the choice is through the public planning enquiry that usually is held before the site for a new station is approved. At the enquiry interested members of the public and organisations can give evidence which is weighed by the man in charge of the enquiry when reporting his conclusions to the appropriate Minister.

Technological advances from the development of nuclear power

The development of nuclear power has indoubtedly produced advances in technology from which the rest of British industry has benefited. Examples are the increasing use of radio-active isotopes, improvements in welding and high-vacuum techniques, improved materials, instrumentation and computer design and programming. There is also an intangible factor in the spread of new information. But it would seem reasonable to assign the value in these advances to the nuclear research and development programme rather than to one of a series of nuclear power stations. In other words, the time for including their effect was when the nation decided to develop nuclear technology.

Summary and conclusions

In looking at the problems of investment in the electricity supply industry we are dealing with a large proportion of all investment in Great Britain. Over the five years 1967/68 to 1971/72 it is possible that capital investment by the electricity industry will be about £ 2500 million, though not all of this will be in power stations as it covers distribution as well as transmission and generation. This is 6 per cent of the nation's expected investment in capital resources. But no matter what the size of the electricity system being considered the problem is essentially one of providing for an increase in demand at the minimum cost. The brief description of the way that the CEBG plans its investment shows that against assumptions made about the future shape of the industry — its size and the proportions of the different sorts of generating plant that might exist in the future — the CEBG chooses its stations by

calculating the cost of a small addition by each of the plants under consideration.

The paper then dealt with the wider accounting, economic and social aspects of the problem. Dealing with the wider accounting problem is simple in concept but difficult in practice because many of the sums of money involved are diffusely spread throughout the economy and are difficult to measure. The differences between resource costs and accounting costs arise mainly from the opportunity cost of miners' labour and the fact that a considerable portion of the price of fuel oil is tax, which represents a transfer payment and not a cost in resources. Discussion of the social side shows that many of the costs, though important, cannot yet be quantified, but weight is given to them at public planning enquiries for particular stations and by central government when giving consent to the station's construction.

Despite this paper's emphasis on quantification — and it does seem right to quantify as much as seems sensible, realising the many uncertainties that must be inherent in any look into the future — in the end the choice of a power station is a compromise between economic, technical and political considerations.

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**КРИТЕРИИ КАПИТАЛОВЛОЖЕНИЙ НА ГОСУДАРСТВЕННЫХ ПРЕДПРИЯТИЯХ.
ОЧЕРК ВЫБОРА КАПИТАЛОВЛОЖЕНИЙ В ЭЛЕКТРОЭНЕРГЕТИКЕ**

И. ИДЕН

В первой части работы рассматриваются возможные методы принятия решения в энергетической промышленности о создании новой электростанции. Во второй части рассматриваются социально-экономические аспекты, которые могут учитывать центральный правительственный орган при принятии такого решения. В начале статьи автор дает краткое описание центральной системы энергоснабжения Англии и Уэльса в сопоставлении с венгерской системой. Далее автор детально анализирует функционирование британской системы и принципы выбора новой электростанции. Рассматривая более широкие аспекты этого решения, автор останавливается на проблеме занятости в угольной промышленности, использовании природных ресурсов и интересах государственного бюджета. В частности, автор анализирует такие вопросы, как расчет издержек, связанных с загрязнением воздуха, несчастными случаями и увечьями на угольных шахтах, и выгод от технического развития, вызванного применением ядерных реакторов.

F. PIKLER

OPTIMIZATION OF DECISIONS CONCERNING LONG-TERM ENERGY SUPPLY*

To meet the long-term demand for energy of a country requires decisions to be taken in due time and involving considerable material and financial consequences. With circumspect programming the optimization of the structure of long-term supply as well as the allocation of sources of energy among consumers can be solved.

The study reviews the results to be attained with the aid of such programming, as well as the difficulties and uncertainties connected with the calculations.

One of the basic conditions for the development of any country is an adequate satisfaction of the continuously growing energy requirements.

To meet this one of the highly important infrastructural conditions considerable investment and current expenditure are necessary. In Hungary, for example, the total value of energy supply amounts to more than 10 per cent of total national income (at current prices). Annual capital requirements needed for the production, conversion and utilization of energy are coming near to 15-20 per cent of total investments into the country's economy. Preparations to provide for a safe energy supply, to locate pits, to construct large systems for energy transport and to build power stations, take considerable time. The energy supply, therefore, has to be planned well in advance and work has to start well ahead of medium-term economic planning.

The vast expenditure involved by a country's energy economy is accompanied by efforts directed at an efficient economy, i.e. at optimization. Energy demands, indispensable for maintaining the blood circulation of economic life, ought to be satisfied at any price and at any time. It follows that the optimization of supply may be linked rather loosely to the manifold problems of the efficiency of the economy as a whole. In other words: long-term energy supply can be dealt with as a comparatively closed unit in itself; it can be optimized without having to be closely connected with the programming of the whole economy. Different alternatives of energy supply are competing with each other, but are in no competition with any other economic sector as far as development or annual costs are concerned.

Long-term energy economy has two main questions.

When energy supply is forecast in any country, especially in a country which, for its scarcity in energy resources, is compelled to import even today almost as much as 50 per cent of its energy supply, the following principal questions have to be urgently answered:

* The energy optimization method treated in this paper has been worked out by a team of experts of the State Office for Technical Development headed by Dr. E. Sóváry and the author.

— Assuming that demand for energy at some future point is given, what are the energy sources with which this demand could be satisfied in an optimum way, most economically for the country's economy? How much coal, coke, oil, natural gas, electric power, or other energy sources have to be produced at home and how much of them should be imported?

— Assuming that total energy demand and all energy sources and forms available to satisfy the whole demand at some perspective date are known, how could the structure of consumption be designed, i.e. the available energy sources utilized in an optimum way, to prove economical from the point of view of the country's economy? How should available coal types, oil products, natural gas and other energy types be distributed among consumers in order to achieve the greatest effectiveness? What kind of energy sources should be utilized by large conversion and consumer installations, power stations, chemical plants, cement factories etc. that are to be established according to long-term plans?

What, after all, can be considered as the country's economic goal, or target in the above context? I think, the pattern of energy structure, both in socialist and capitalist countries, can be called optimum if total expenditure involved in the production and importation of energy sources, in the construction of conversion and consumer plants, and in operating costs during utilization is the lowest, regardless of where expenditure arises: in the state-owned sector, state-owned companies, private companies, the supply industry or the population. In all our calculations it is the optimum of these total expenses which is being sought.

Once the optimum has been worked out and practical realization can be considered as feasible, another question arises, i.e. at what rates should the savings achieved by the optimum for the country's economy be shared by the treasury, the companies and the population by means of the energy tariffs fixed by the state and the market prices of operating installations. In the first stage only the economic optimum rate is being investigated, and problems of commercial policy, concerning the way of sharing, will be shortly referred to later.

In Hungary the investigations directed at an optimum pattern of long-term energy supply began about 10 years ago and their results can be summarized as follows:

— At present there are fairly reliable concepts available for 8, 10, 12 years ahead concerning the types and quantities of energy sources which should be preferably produced or imported;

— It has been made clear which consumers should be expediently supplied with what form of energy by means of regulating and influencing the energy market;

— We have obtained numerical data for the optimum structure of

energy supply and consumption. These are suitable to determine quantitatively the additional costs caused by deviations from the optimum rate, not only in respect of the most important proportions but also of further details:

— Programming has helped us to display details of an efficient energy distribution, including details which escaped even the attention of the most experienced specialists while they were dealing with questions of energy economy at various institutions;

— Finally, the so-called “shadow-prices” of energy sources which have appeared as by-products of programming and the entire method altogether, have provided us with means which are today indispensable whenever a high-quality planning work is performed in energy economy. Accordingly, when e.g. power stations are designed, coal-pits, hydrocarbon wells located, marginal costs for Hungary’s coal production determined, price-dependent economic quantities of imported oil and natural gas selected, quantities of energy sources to be stored for seasonal or safety reasons specified, or technological projects for the chemical industry and other large industrial consumers prepared, the energy sources are not selected in an isolated way, but they are chosen by taking into account the additional effects of the increment of the selected energy source on the energy economy as a whole. The method can be described in brief as follows:

This short, step-by-step description of the method will be concentrated on its algorithm, while leaving numerical data, mathematical formulas and technical details aside. However, short mention will be made of some problems, difficulties and uncertainties met during the different steps and also connected in a general way with the whole method.

Starting from an optimization of the distribution of energy sources the optimization method of the energy structure can be essentially summarized in the following steps:

1. The various industrial, public and private *consumers* are grouped by *categories* according to identical or similar, so-called homogeneous, techniques of utilization.

2. *The probable annual energy demand of these consumer categories* is assessed or estimated at various periods of the long-term plan, in million calories.

3. Sources of energy and their final forms that have to be distinguished from each other from the point of view of the consumers, are specified.

4. The probable demand of consumers’ categories in terms of calories is further broken down into “*invariable*” and “*variable*” items; invariable are those demands and/or consumers whose energy sources are technically predetermined and cannot be changed; variable are those demands which can be satisfied by alternative sources. An optimization of distribution is restricted to this latter field.

5. Detailed evaluation is carried out in order to determine the efficiency or the value of specific heat consumption at which the various energy sources can be utilized by consumers; moreover, the rate of investment, maintenance, transport and wage expenses and also costs of waste etc. are also assessed for every consumer category where alternative energy sources could be chosen. Since these cost data can be used by the consumers to classify and appraise energy sources from their own points of view, the summary and the systematization of data concerning efficiency and costs are usually called the "*calculation of preferential values*".

6. Tables are prepared the horizontal line of which are assigned to each individual consumer's category, the vertical columns to each form of energy. The table indicates at its intersection points the preferential value connected with the different energy forms and the homogeneous consumer's categories. Allocation of energy sources is optimum if the total of allocated energy quantities multiplied by the associated preferential values is the highest.

7. Optimization calculation is performed by means of linear programming. The distribution alternative that results in the lowest costs charging the country's economy is considered the most economical. (The mathematical model applied here — being a special case of linear programming — is usually called "distribution model" "general transport model" or " λ model" (according to a recent practice followed by the U. S. S. R. in power engineering planning).

8. Taking into consideration the main sources that will probably be available to satisfy the increasing demands for energy, and based on the future real level of the prime costs of different forms of energy, the level of their shadow-price proportions is determined.

9. The above procedure is reiterated for a number of realistic structural alternatives of energy sources on the input side, and

10. the savings or surplus costs of these alternatives, appearing on national economic level are calculated.

This process of calculation is given above in an abridged and schematic form. The method of optimization of distribution and structure has, of course, a number of details and complexities at every stage, which are listed shortly below.

ad 1. Homogeneous consumer categories

The demand of different homogeneous consumer groups of the distribution model is in general only approximately given in the program since statistical data concerning the past do not contain breakdowns of the required character and detail. The usual consumer statistics developed for organizational reasons and detailed in most countries by industrial sectors, are not

suitable for carrying out the task envisaged by us. Therefore, statistical data should be broken down in a greater depth and separated more sharply than usual, in a way that homogeneous consumer categories could be brought about.

In the initial stage of the work the following consumer categories have been distinguished which could be considered as technologically homogeneous groups.

- Ore dressing
- Blast furnace
- Smelting furnace
- Open-hearth furnace
- Rolling mill furnace
- Cement-plant furnace
- Brick-yard kiln
- Lime-kiln
- Glass-works furnace
- Alumina-factory furnace
- Baking oven
- Annealing furnace
- Manually operated stationary boiler
- Boilers under 6 t/h
- Boilers above 6 t/h
- Conventional power station
- Heat supplying power station
- Industrial heating
- Cooking
- Water heating
- Individual heating
- Central heating
- Transport
- Agriculture
- Chemical conversion
- Miscellaneous
- Losses
- Imported electrical energy, hydro-power, nuclear power.

The 28 categories of homogeneous consumers listed above have been further broken down to existing consumers and to new equipment and also with respect to geographical location. Altogether about 50 homogeneous consumer categories are distinguished at present in our main matrix.

ad 2. Assessment of long-term energy demands

Long-term energy demands have been determined by means of the usual mathematical-statistical methods, trend-calculations or by using analytical methods based on the knowledge of development plans for each larger consumer

category. The basic condition of the program requires us to have at our disposal highly detailed calculations of energy demands. However, serious difficulties cannot be avoided at preparatory stages when calculations of energy demands are broken down to homogeneous consumer groups.

It is also known, of course, that because of uncertainties in estimating the most important items of long-term demand and especially in breaking down demands to homogeneous consumer categories, long-term demands cannot actually be planned but only forecast within a certain range of probability.

Nevertheless, investigations carried out so far have shown that results of optimum studies are fairly stable and that numerically expressed economic differences between individually possible decisions are decisively greater than could have been expected from uncertainties of long-term estimation of demands. Thus, the conclusions and the results of optimization carried out within the probability range of demands are fairly independent of uncertainties in estimating energy requirements and hence they may become cardinal points for the establishment of future energy policy.

It should be stressed in particular that fluctuations in demand due to changing average winter temperature need not be included in optimum studies and demands may be forecast based on the mean winter temperature. Fluctuations in consumption which may arise must be offset, of course, by means of stocks and capacity reserves and other various measures within the particular year.

ad 3. Specification of energy sources

Energy appears in various forms within the energy supply of a country. If we intend to determine the quantities of primary and secondary energy sources to be used for meeting the country's total energy requirements at a particular date may be in several ways assessed and allocated in a detailed balance sheet, without creating overlappings, may be performed, of course, in many ways. In Hungary it is done by taking into account coals of different sorts and grades, cokes, briquettes, wood; oil products; gaseous energy sources, — among which natural gas is distinguished whether it is used in summer or in winter —; hydro-power, nuclear power and electric power, and finally some other energy sources of smaller volume; some 22—25 forms of energy are specified within the algorithm. This variety of energy forms is obtained in general from home-produced or imported primary energy sources by means of processing: grading, refining and conversion. Energy conversion, however, does not always yield the same results. E.g.

by a suitable control of oil refining the ratios of light and heavy oil distillates can be varied within certain limits, etc. In the course of investigating the optimum distribution such possibilities are taken into account.

ad 4. Variable and invariable consumer requirements

The method of calculation does not require that all kinds of energy needs of consumer demand should be included in calculating the optimum distribution of energy sources. Non-interchangeable consumer demands will be left unconsidered. Those new demands will be equally left out of calculation the selection of which is fairly definite and which cannot be replaced, e.g. petrol required for cars, etc. The main criterion of the variability of energy forms is the possibility of choice by the consumer and also the precondition that the consumer's decision could be really implemented in time, i.e. could be put into effect within the span of time under review. Thus:

— If a type of energy is required by the character of technology of some consumer or if this type of energy is economically determined by the consumer's technological character, its inclusion in the calculations would cause unnecessary surplus labour. Thus a portion of blast-furnace coke, the majority of the consumption of private cars, navigation, aviation, a considerable quantity of chemical conversion, cooking and water-heating needs can be qualified as invariable.

The above consumers could, of course, be treated also as variables from a formal point of view. However, their invariability cannot be considered as a narrowing down of the calculations.

— Similarly to those listed above the expedient energy source for some consumers is in many cases easy to decide at the very beginning if their installations have been actually built for the use of a specific fuel and a change-over to the use of another one — though possible in principle — would require such an excess in investments that it would obviously become uneconomical. Typical examples are oil-fired boilers or heat supplying power stations, heating by gas for the population, certain energy demands of the chemical industry, existing alumina calcinating and other furnaces, etc. Invariability of these consumers is not equivalent to a narrowing down of calculations.

— If there is a consumer group where homogeneity cannot be sufficiently ensured and, consequently, an alignment with a single sequence of preferential values is out of question, special investigation is necessary to specify energy sources for these consumers. The varied and inhomogeneous character may be an outcome of differences in territorial location, like in the case of bakery ovens or heating furnaces, or of other additional complex reasons. E.g.

requirements of existing conventional power stations — much as they have been located individually on a certain energy source — can be interpreted only jointly since load distribution between power stations largely modifies requirements of each power plant. The exclusion of these consumers from the calculation algorithm of linear programming has led rather to a higher accuracy and not to a narrowing down of calculations.

— Those consumers for which no preferential values have been available should also be considered as invariable. Energy sources for these consumers have been allocated by relying on known perspective concepts. One of such consumers are the railways for which the economy realizable through the introduction of Diesel engines or through electrification has already been analyzed separately. To this group belong some possible consumers of petrol, such as the chemical industry, vehicles, or any exports qualified as a sort of consumption with no fixed quantities, etc.

ad 5. Preferential values

The most important criteria for a reliable algorithm are: an accurate calculation of preferential values, a correct knowledge of the technical characteristics, and of the technological processes of various consumer categories and of their cost factors.

The essence of evaluations involved in preferential values can be summed up as follows:

Production costs for each consumer are calculated; cost for the energy source — as a component of total cost — is calculated at a rate of Forints/million kcal of the alternative energy sources. Calculation of production prime cost for the same consumer will be once more carried out, envisaging another energy source for use and also assessing changes in investment, storing, possible automation, efficiency and other operating circumstances; the alternative energy source will be put into this calculation with a value expressed in Forints/million kcal by which production prime cost of the consumer in question can be brought up to the same value as obtained in the former case. This value in Forints/million kcal of the second (alternative) energy source is called the preferential value for the consumer in question, related to the first energy source.

These preferential values are, in essence, expressions for the maximum expenditure that each consumer may lay out for various interchangeable energy sources without increasing their prime production cost, duly taking into account all circumstances.

Computation of preferential values requires an enormous amount of labour, as they have to be calculated not only for the alternatives of possible forms of energy for additional new consumers, but one also has to take into

account the costs of conversion and reconstruction of equipment, if already existing consumers change over to another form of energy. A highly diversified and labour-intensive area is e.g. that of medium- and large-sized industrial boilers to be changed over from the use of coal to that of hydrocarbons. Preferential values will be here necessarily different, depending on boiler sizes, number of boilers at the same location, annual utilization hours, rates of reserves to be installed and also whether existing buildings can be kept in the course of a probable reconstruction, etc.

ad 6. and 7.

While leaving aside details of linear programming, I would like to draw attention here to the following problem: An economical distribution of energy sources consists basically in determining the most optimum allocation of a given quantity of energy among certain consumers. However, efficiency is different by consumers and by energy types and total consumption depends on the structure of sources and on distribution; consequently the total amount of energy sources consumed shows a deviation of about 2–3% for each version. Therefore, a definite type of energy, or several types of quantitatively correlated energy must be chosen, the quantity of which may vary depending on the structure and distribution. As savings in calories (or surplus consumption) arising from optimization are embodied in this energy type, the difference of total costs for two versions of distribution depends on the price of this energy source. Evaluations have shown that the optimum distribution remains in most instances unchanged provided the modification of the price of the complementary energy type is kept within limits of ± 10 per cent. This means that some uncertainty in the price of this complementary energy type does not affect the results of optimization.

In our calculations natural gas has been chosen for practical reasons as complementary energy source with a price of 110 Forints/ 10^6 kcal, valid for gas used during summer. On the other hand, this heat price determines the level of the resulting shadow-prices for energy sources as well.

ad 8.

The system of *shadow-prices* arrived at during the analysis can be applied for the following purposes:

- marking out an economical energy source for a consumer;
- correct statement of the real value of energy sources at the level of the country's economy, as a component of production costs, whenever the economy of new manufacturing establishments is assessed (special investment proposals, investment programs);

- economic assessment of investments of certain consumers connected with energy consumption in a larger way;
- to set up a price-system by which the consumer will find some form of energy profitable or non-profitable for himself as appraised on the level of the country's economy;
- decision concerning purchase or production of minor volumes of energy sources.

ad 9. Structure of energy sources

If total quantities of energy available on the resources side at the date under review exceed total energy demand, i.e. free choice is possible, the structure of energy sources can be optimized in one stage taking into account the constraints introduced into the algorithm. In our analyses, however, we have chosen the method of assuming a fairly high number of various real, possible alternatives for the pattern of the resources side, based on iteration and starting each time from optimum distribution; the corresponding allocation pattern and the relevant expenditure have been evaluated in each case. This was, in part, an outcome of an attempt followed initially to arrive at the optimum allocation, i.e. the optimum outlay of the consumption structure.

This method has the disadvantage of requiring more labour, but it has the advantage of a simpler computer program, of obtaining simultaneously the distribution pattern of various alternatives and the differences in contents between possible ones. We hold this method more reliable, because a consideration in the course of optimization of the forms of energy broken down by different aspects (as referred to under ad 3) would be highly difficult within a single step and would lead to an additional distortion of results. The same applies, to an increased extent, to the incremental costs of energy sources which, by our method, have to be taken into account at the end only, when total costs of each alternative are evaluated.

ad 10. Evaluation of total costs emerging at the level of the country's economy

A change in structure for a fixed total demand means that the amount of some energy source on the input side can be reduced or increased at the expense of another energy type only. As to the effect of this quantitative change the incremental cost or marginal cost of the energy sources concerned has to be considered.

The working out of marginal costs has a number of difficulties, particularly with Hungarian coal mines and hydrocarbon extraction due to their different conditions and yields, but with import purchases the same difficulty emerges.

Fortunately, as shown by analyses, differences between the economies of alternative decisions are also here much larger than numerical differences due to uncertainties in estimating incremental costs for as far as 8–12 years ahead.

At any rate, this problem should be studied carefully and comprehensively before computer calculations are made.

* * *

In order to show the character of the results and the help that may be expected from the method outlined in the foregoing, when used for taking decisions concerning long-term energy supply aiming at an optimum structure of energy sources, in particular, at the optimum shares of coal, oil and gas utilization, some main conclusions drawn from calculations made in Hungary for 1980 are listed in the following.

– From an economic point of view there is no upper limit to the increased use of natural gas in Hungary. This increased use would be profitable even if the price of imported natural gas became higher than envisaged; consequently, account must be taken of such limits as are given by the construction of distributing system, the change-over of consumers to the use of natural gas and other difficulties likely to emerge in this field in future. Investment demand itself does not handicap an increased use of natural gas because the necessary investment estimates (required for pipelines, transformation of consumers' installations, etc.) are not higher than in the case of other energy types (consumers' installations conditioned by fuel used by the population, industrial boilers, power stations, etc.);

– If total natural gas utilization is laid down on the basis of appropriately realistic considerations calculations as to the proportion between domestic coal production and importation of oil result in a definite optimum;

– A further increase in natural gas quantities will reduce the economic level of Hungarian coal production by a smaller, while that of imported oil by a larger amount;

– The optimum proportion between coal and oil depends largely on the price of imported oil. The price of imported oil has been estimated at a rather safe higher rate; if the price falls, the proportion between coal and oil may further shift to the detriment of coal and in favour of oil;

– Within the range of optimum coal production of the country, economic considerations are no more decisive, like in all cases when one is near to the optimum rates; a change of 1–2 million tons in coal production does not mean more than a few 10 million Forints per year in savings or deficit, which is surely within the error limits of the calculation;

– The level of Hungary's coal production in 1980 should be set lower than it is at present. In order to alleviate social liabilities connected

with this reduction, and also in accordance with other aspects of economic policy this slowing down of coal production should be carried out gradually, at a continuous rate.

For the above reason — though the economically desirable level of domestic coal production has turned out to be lower for 1975 than for 1980 — correction must be applied meaning that from among economically equivalent coal production variants that of higher value must be chosen for 1975;

— A further increase of electric power import would be unquestionably unprofitable.

A more detailed information could still be given on the character of individual decisions and suggestions to be derived from the algorithm. Accordingly, an account will be given on some conclusions that may be drawn from the economical allocations made for 1980, first from the aspect of the consumers and then from that of energy sources:

As to the structures of energy sources under review, the types of energy allocated to each consumer category will vary more or less depending on available quantities of each energy type. Valuable experience can be gained by analysing the consumer categories where the variations envisaged in the structure of energy input will cause a change in the type of energy to be used; by this analysis also those consumer categories can be found, where the type of energy is predictable regardless of possible variations on the input side.

— *Furnaces* (kilns, ovens) are supplied with hydrocarbons for any structure analysed; however, the ratio between fuel oil and natural gas utilized in furnaces may change for every alternative. In general, larger gas quantities on the sources side result in larger quantities to be utilized in furnaces. Taking natural gas quantities for unchanged, furnaces may receive again more natural gas if coal production is extensive and nuclear power plants exist in a greater number, or more electric power is imported. This latter influence is due to the fact that, in case of an increase in the energy sources mentioned, the amount of oil in the total balance will be reduced and no fuel oil will be allotted to furnaces.

— *New industrial boilers* are to be designed in every case for the use of hydrocarbons, mostly for fuel oil. Even so, industrial boilers can be also provided with considerable quantities of domestic fuel oil (liquid also when cold), depending on the total amount of crude oil. Among such boilers are preferably those belonging to small consumers where relatively greater savings in costs will be achieved owing to the absence of oil draining and preheating. Natural gas is also allotted to industrial boilers provided that gas quantities are not small and coal production is ample. Large amounts of coal produced have actually the result that power stations must utilize coal, leaving only insufficient demand for buffer consumption of gas during summer. For this

reason optimum distribution allots gas to consumers which, though at a reduced rate, need a certain quantity of gas even in summer. Gas is reasonably given in such cases to industrial boilers which are located at short distances from natural gas pipelines and the consumption of which is not fluctuating during summer and winter.

— *Older industrial boilers, built originally for coal* have to continue by using coal even it is produced at quite a low level. The most suitable kind of coal is to be made available for them in all instances.

— *Individual and central heating systems* are to be changed over to the use of hydrocarbons in their majority. The newly built systems should be reasonably located on hydrocarbons in any case; some of the earlier built systems should continue to use solid fuels, taking into account limits imposed by time for reorganization and adherence to the accustomed ways of operation. These are to be supplied — representing a minimum share — partly with coal and partly with briquettes both allotted as invariables. Those existing individual heating systems which are considered suitable for conversion are to be changed over wholly in the majority of alternatives except in the case of a very large coal production, when power stations are no more able to use up the home-produced coal and then coal is also used in heating as the next most economical coal consumer. Within the group of hydrocarbons the economical repartition between domestic fuel oil and gas is different for almost each alternative, showing a fairly high fluctuation depending on structure. The question of natural gas quantities to be allocated for individual heating systems is basically a stop-gap problem, i.e. it depends on the possibility to find a consumer who is willing to use gas in summer and another fuel in winter. Such consumers may be newly built power stations using fuel oil in winter and gas in summer. Such power stations can, however, be built only if coal production is not large and nuclear power capacity is small or imports of electric power are low. Therefore gas quantities for individual heating systems depend primarily on coal production; the larger the coal production the smaller will be the gas allocation.

— *New power stations* are the main consumers of home-produced coal, new power station capacities to be located on coal are therefore almost exclusively the function of coal production. The necessary capacities are to be built generally in the form of power stations using fuel oil in winter, and natural gas in summer.

Some conclusions can be made from the point of view of *energy sources* for as far as 1980.

Considerable volume of Hungarian coal is strictly connected to some consumer branches. Accordingly, the following demands have to be met by mines:

— Cokeable coal, in quantities required for supplying coking plants and gas plants with basic material;

- Existing briquette works, specified as invariable;
- Demand for high-grade coal of individual and central heating systems to be maintained as coal consumers in all circumstances;
- Existing coal-fired power stations;
- Industrial boilers based on coal and being in adequate condition.
- The rest of coal production has to be allocated to new conventional power stations. In case of a large coal production (above $100 \cdot 10^{12}$ kcal/year) coal consumption by individual heating systems will be increasing too.

— In respect of the three main groups, i.e. hard coal, brown coal and lignite the following can be stated:

— Special consumers of hard coal (coking, briquette making) can be satisfied even at the lowest production volume included in the analysis. If coal production is growing, the bulk of surplus production will be given to power stations, but coal sorts of better quality which have to be reasonably used by others than power stations. By-products of hard coal have adverse qualities, therefore hard coal in a power station represents a relatively smaller value than brown coal, in spite of its higher calorific value.

— High-quality brown lump-coal is to be given to households while screenings of good quality can be used to satisfy the requirements of briquette plants in all alternatives; moreover, industrial boilers going on to use coal will be able to select sorts most favourable for them. The rest may be entirely allocated to existing new power stations.

— Lignite is solely utilized by power stations. Because of its poor quality its preferential value amounts to only about 80% of the average brown coal.

— Crude oil is fractionated to three main products; fuel oil, gas oil and petrol. Fuel oil is used by furnaces, industrial boilers and power stations. Fuel oil consumers should be operated by natural gas in summer unless excessive investment costs or complicated measures are thereby involved. Domestic fuel oil (gas oil) is consumed by railways, navigation, agriculture, transport and in individual heating systems. In general, some quantities of heating oil will be left in excess of those demands, which should be given to small industrial boilers. The invariable consumer of petrol is transport. A major part of further available quantities of petrol should be used by the chemical industry; a smaller part to produce town gas.

Based on the foregoing, the technology of crude oil refining for energy purposes has to be governed by the following view-points.

— Extraction of petrol has to be kept at a minimum level. The portion that could be processed to engine propellant at too high a cost only, should be transferred to the chemical industry.

— No special techniques in refining technology to increase domestic fuel oil volumes have to be envisaged in 1980 for reasons of energetics, because it

will be available in quantities exceeding the requirements of the above-mentioned basic consumers; in case of industrial boilers, the difference between values of fuel oil and domestic fuel oil is not so great that it could make surpluses in domestic fuel oil acceptable at considerable costs.

— It follows from the foregoing that fuel oil should be a residue of atmospheric distillation, while a continued vacuum distillation accompanied by a further production of heavy fuel oil — though economical in the period 1965—1970 — is no more expedient from view-points of energetics.

— Household and individual heating systems are two characteristic consumers of *natural gas*. For heating purposes natural gas can only be envisaged in a quantity for which buffer consumers can be found in summer. Some furnace types may be found among summer consumers, but they are mostly power stations.

— According to what has been said above, however, possible buffer consumption by power stations is a function of coal production, i.e. quantities of coal production have an impact on the gas supply for individual heating.

Anyway, a significant part of natural gas will be given to the so-called “high-priority” consumers, among them the chemical industry ranking as the first (in excess of industrial petrol surpluses) and also different types of furnaces.

— In case of large gas quantities consumption is also shared by a part of industrial boilers.

Some problems involved by the energy optimization program

Accuracy of basic data

Similarly to any other program, a basic condition is the accuracy and sufficiently detailed character of input data. The generally accepted statement is also here valid, that no more can be expected from the computer than has been fed into it.

Accordingly, it is of outstanding necessity that the following data should be reliably available:

— forecasts for long-term energy demand, broken down to homogeneous consumer categories and further differentiated by different regions of the country;

— calculated preferential values for practically all possible energy sources used in each consumer group;

— calculations or estimations on incremental costs for all forms of energy both home produced and imported included in the algorithm,

— various preliminary studies on regional variations of energy demands, holding of stocks, different kinds of storing energy, transport costs and losses.

Though there has been recently a rapid progress in the accuracy and the specification of input data, it can be stated that method of our optimum investigations have so far outmatched the quality of input data.

The length of the period for which optimization calculations have to be carried out causes hard trouble in every case.

Development of energy demands for a shorter term and also the rest of the input data just referred to are generally known accurately and in detail, but the short time at disposal imposes significant restriction on the implementation of investments and other measures required to establish an optimum distribution. In the case of longer terms, on the other hand, there is sufficient time at disposal to implement decisions required for the optimum measure, but accuracy and specification of the input data are far from being sufficient.

In general, two terms are being investigated simultaneously; one for 7–8 years and the other for 12–13 years ahead.

As a matter of fact, the optimum analysis of energy supply presupposes the existence of consistent long-term economic plans, including a fairly precise knowledge of demand for energy. Neither the estimation of the demand, nor long-term economic plans or their harmonization can be replaced, of course, by an optimum analysis.

Restriction on investments

Objections raised against the conclusions of the program are usually put in the following form: changes envisaged to achieve the optimum impose investment liabilities on the country's economy to an extent that surpasses possibilities available from the country's resources for this purpose.

Investment liabilities have been included in the calculations at a capital interest of 12.5%. According to our view, a separate analysis of these investment liabilities would be unreasonable, particularly if a solution proposed has proved more profitable than another alternative with a period of return of 2–3 years, i.e. shorter than a five-year period. In fact, even in cases of longer return periods, profitability is expressed in a complex way by the annual costs, in which also total capital expenditure for investments have been taken into account. Against this the objection could be made that, because of the limited character of resources, capital expenses should be calculated at an even higher rate of interest. Since, however, our investigations have shown that in the case of economic solutions the rate of return is surprisingly high, owing to savings achieved, (and recovery period corresponding short), it seems obvious that, in this field, solutions implying lower investment and proving uneconomical should not reasonably be chosen. To tell the truth, we have not always succeeded in asserting this view of ours.

The price problem

Let us suppose that, in accordance with the foregoing, the optimum structure of sources and consumers for the long-term energy supply of the country on the level of the country's economy is at our disposal in a reliable form, with the full knowledge of necessary decisions and measures. It is highly questionable whether it could be made sure — by setting energy prices and prices and tariffs officially, and using the market of consumer installations and, last but not least, the complexity of economic regulators and impulses affecting industrial and household consumers in a most varied way — that the optimum rate for the country's economy should coincide with the interests of the consumers. How, actually, could be ensured that the latter should not handicap but, on the contrary, stimulate events in the direction in which the pattern of an optimum distribution for the country's long-term energy supply desirably develop.

It seems that the first thing to be done would be to declare the corresponding shadow-price relations as official prices. However, this idea would not have the desired results, because official prices based on shadow-prices would have the only consequence that they would not make consumers feel more at a disadvantage in choosing the energy sources allocated to them according to the optimum distribution. What then should be this price system like and what kind of incentives, assistance and preferences from the State would be necessary in order to make both industrial and household consumers, and even energy production, conversion and supply industries economically interested in bringing about an optimum pattern for the country's economy?

Until recently, unfortunately no satisfactory solution of this problem has been found by us, engineers dealing with energy economy, nor could we get adequate assistance from the economists, in spite of several efforts,

So the only course open to us is to try *empirical ways* to establishing a system of prices and incentives as well; also by keeping the development of market conditions under close observation, attempts will be made to modify this system in a way which allows concepts formed during optimum calculations to materialize in the end.

Improvements of the method

From the foregoing it appears fairly evident, without going into details, that methods of optimum calculations may be expanded in the first place by improving basic data, accompanied by a continued hope that more satisfactory solutions will be found to make companies and the population more interested in the economics of consumption.

Another way of developing the program is to expand the calculation model in certain partial areas. Accordingly, the general model has been used

in recent years to make an analysis in coal production. With a view to regional differences, the relevant matrix contains a total of 20 consumer categories aggregated in about 400 consumer rows, 10 coal mining areas, a total of about 170 coal types in the form of a matrix of 400×170 : beside the development of consumers' demands it takes into account transport costs, production costs, extraction rates of products leaving the mine, classified by grades and types, and also incremental costs.

A similarly detailed model is being planned for optimizing extraction rates of crude oil products, and finally, another optimization model is used to find the optimum layout for the location and supply with energy sources of the country's large power stations.

I feel, it should be noted that, much as this method has been brought into existence by needs in Hungary's economy, and the model represents a complex simulation of interests involved with energy consumption and production with the aim of supporting planned economy, still this sequence of thought and model may give a significant assistance even in case of a market economy. In fact, a market is developing mostly under the influence of present effects and an analysis of statistical data of the past period is by far not sufficient to foresee the tendency of probable variations. Here again it is necessary to account for forces likely to give things their future shape and the model described may render useful service in this venture.

* * *

In the preceding I have tried to intimate the work performed with a view to carrying out a long-term optimization of energy supply and paving the way for adequate decisions, and also some problems associated with this work.

Finally, I should like to emphasize a problem which is one of the main results so far and also presents an outstanding problem for many a highly developed industrial country, namely the determination of a reasonable optimum level for our country's coal production. To say that, as a result of this optimization, coal production has to be reduced to an extent allowed by existing social conditions is only part of the story since we have succeeded in elaborating a realistic production level which can be accepted for the country's economy, and also in determining the optimum distribution of coal thus produced among consumers who are in a position to utilize it economically even in the long run.

ОПТИМИЗАЦИЯ ДОЛГОСРОЧНЫХ РЕШЕНИЙ В СНАБЖЕНИИ
ЭЛЕКТРОЭНЕРГИЕЙ

Ф. ПИКЛЕР

Одной из основных предпосылок развития каждой страны является надлежащее удовлетворение постоянно возрастающих потребностей в электроэнергии.

Удовлетворение перспективных потребностей в энергии требует своевременного вынесения решений, сопряженных со значительными материальными затратами. Естественным стремлением является оптимизация этих решений. Путем тщательного программирования представляется возможным решить проблему образования и оптимизации структуры перспективного снабжения со стороны ресурсов и экономичного распределения энергоносителей среди потребителей.

Эскизное изображение оптимизации распределения энергоносителей и затем осуществления на этой основе оптимизации структуры энергоносителей со стороны ресурсов можно дать следующим образом:

- зачисляем различных потребителей в т. н. гомогенные категории;
- производим перспективную оценку потребностей в энергии у различных групп потребителей;
- производим соответствующую классификацию возможных различных энергоносителей;
- осуществляем дальнейшее деление перспективных потребностей на константную и вариабильную части и в программу включаем количества второй названной части;
- производим расчеты относительно того, каким образом отдельные категории потребителей оценивают реально используемые ими энергоносители;
- составляем таблицу, горизонтальные строки которой включают отдельных потребителей, а вертикальные столбцы — отдельные энергоносители. В перекрестки строк и столбцов мы записываем те величины, которые показывают, какую оценку потребитель дает данному энергоносителю;
- осуществляем линейное программирование, в ходе которого распределение энергоносителей является оптимальным в том случае, если произведение распределенных количеств энергоносителей и соответствующих коэффициентов является максимальным;
- с учетом перспективного роста потребностей в энергоносителях и возможностей их удовлетворения на стороне источников, определяем уровень соотношений теневых цен на энергоносители;
- повторяем упомянутый выше процесс в отношении ряда различных возможных вариантов структуры энергоносителей и
- исчисляем на народнохозяйственном уровне экономию средств или добавочные издержки по отдельным вариантам.

На основе вышеизложенного можно выносить решения относительно мероприятий, которые следует осуществить в интересах получения оптимальной структуры как на стороне ресурсов, так и на стороне потребления.

Программа дает практически хорошие результаты в ходе вынесения перспективных решений, несмотря на наличие факторов неопределенности в следующих областях:

- перспективные оценки потребностей в энергии и их разбивка на различные категории потребителей;
- производимые в связи с оценкой расчеты;
- расчеты перспективного роста издержек на энергоносители;
- оценки транспортных издержек, изменяющихся из-за региональных аспектов.

Далее автор знакомит читателя с результатами, достигнутыми в Венгрии в этой области, и указывает среди них в первую очередь на определение оптимального уровня перспективного отечественного производства угля.

T. BÁCSKAI

NEW DEVELOPMENTS IN STATE ENTERPRISE TAXATION IN HUNGARY

The author inquires into the nature of taxes on enterprises as means devised to influence decision-making. A system of taxation is, in the inverse sense, a system determining the income left at the disposal of the enterprises. To what extent and how can taxation be used in order to reconcile profit-incentives and equilibrium requirements, influence the choice among factors of production and markets, etc., are the main topics dealt with in the article.

I. The interrelation between the increased autonomy of the enterprises and the new developments in their taxation

The new developments in the taxation of enterprises are in a strong positive correlation with the extent to which decision-making is delegated to the enterprises in the socialist countries.

This fact does not require a lot of explanation. The considerable increase of enterprise autonomy and the wider power given to enterprise executives have necessarily led to a new division of funds between the central (budgetary) authorities and the enterprises. Enterprise-level decision-making presupposes that the decision-maker has at his disposal — fully or partly — the means required to carry out the decisions. This is the explanation for the *quantitative* changes in taxation. The development of the economic mechanism has, indeed, brought about rather important changes in the structure of the budget. As a result the share of net social income withdrawn for central purposes was reduced, since the state-owned enterprises and the cooperatives retain now for their own purposes almost 40% of all profits realized as against 15% in 1967.

There are also obvious reasons for the *qualitative* changes which took place in the very *system* of taxation. In our economy it is mainly the task of the economic regulators to channel enterprise activities towards targets laid down in the national economic plan. These economic regulators are mainly — though not entirely — of a financial and monetary character. With the aid of financial (fiscal) and monetary regulators determined by the state we intend to bring about a harmony between plan and market, as well as between the national economy (macro-economic) and enterprise (micro-economic) interests. Enterprise taxation — in the broad sense, including customs tariffs — is playing an outstanding part within the system of regulators.

We call our system of enterprise taxation the *system of income-withdrawal*; in the inverse sense it is also a *system of retained income*, i.e. income left with the enterprise. This system influences enterprise decisions by leav-

ing a certain part of profits with the enterprises of certain industries, with a differentiated tax burden arising from different ratios of the increase in constant and variable capital, and with progressive taxation, with the differentiation of customs tariffs. Thus, it is an element of guidance for the enterprise in deciding what to produce and for which (domestic or foreign) market, where to purchase, how to increase production (utilizing more labour or organizing better existing labour facilities), how to divide its profits between development targets (investment and increase in stockpiling), and personal incomes, etc. Through these channels taxation has an influence on both the demand and supply sides of the market (of consumer goods, of means of production especially investment goods, and the labour market), on the branch structure of the economy as well as on the allocation of resources.

Let me now dwell on questions of principle of the actual Hungarian system of income-withdrawal from the enterprises.

II. Principles of and conditions for the income-withdrawal from the enterprises

In a socialist state, the bulk of the national income is produced by the state sector; the lion's share of the net social income is realized by the state enterprises, too. A certain part of the latter is collected by the state into the central fund for redistribution. The principal and legal basis for that is constituted by the state ownership of the means of production. Another part of the net social income realized by the state enterprises is left with the enterprises. These two parts may vary in their proportions by industry, and also from time to time. *The extent and the forms of income-withdrawal or income decentralisation depend on deliberations of both economic policy and economic organization.* The measure of centralization resp. decentralization depends on the deliberations of a given socialist state in a certain phase of its development, whether it considers it more rational to carry out a large number of tasks on the basis of central decisions and from central resources, using obligatory plan indicators, or to decentralize a large portion of decision-making, influencing the latter through various economic and administrative regulators. The objective foundations for such deliberations may be various. In a phase, when vast investments are necessary, which exceed the capacity of the individual enterprise a high degree of centralisation is a *conditio sine qua non* of a rapid change. Another reason for centralization is constituted by high central burdens of a country in the fields of defence, social and cultural policy, etc. On the other hand, a precondition for decentralized decision-making is a satisfactory supply of managers capable of taking correct decisions. In the absence of the latter, experts, decision-making and financial means have to be centralized.

A correct income-regulation policy has to be aimed at a harmonization of *enterprise interests* (those of managing personnel and the collective) with the *interests of the society as a whole*, expressed in terms of government economic policy.

Enterprise interests are embodied in profits. The latter have been chosen as the indicator of enterprise interest because they are the most complex of all indicators characterizing enterprise management. The new system of incentives builds upon the whole mass of profits, not on their increment as was the case earlier. By total profits we mean the part of sales revenue which remains after deduction of the elements of net income conforming to minimum efficiency requirements (the charge on assets and wages, as explained later). It is in the increase of this sum that the enterprise is economically interested. In other terms, profits are the part of sales receipts above costs; the minimum efficiency requirements and the wages are also considered as costs. From the technical point of view, profits are the part of sales receipts remaining after deduction of depreciation allowance, and material, transport costs, wages and other costs as well as of the income expressing the minimum requirements of efficiency.

When choosing the main indicator, we had to decide between the amount of profits (as defined above) and the amount of gross income (being the sum total of profits and wages). Prolonged debates had taken place about the merits and disadvantages of these two indicators. It has been found that the indicator of gross income would orientate enterprises one-sidedly on the saving of embodied labour and would fail to promote the optimum utilization of live labour. This would lead to an exaggerated increase of personal incomes at the cost of economic growth. Nor would this indicator secure for the state budget its proper share of the increment of enterprise incomes. A consistent application of this indicator would make wages entirely depend on gross income, without the guarantee of a minimum wage, although the individual worker is not responsible for the entire activity of the enterprise as a whole, nor for its gross income. Hence, we have the amount of profits as defined above chosen as the main indicator.

Government economic policy is embodied in the national economic plan. The latter's provisions for growth of different sectors do not in all cases coincide with profits realized in the same sectors therefore an adjustment through various, mainly fiscal regulators, is required as well as a certain intersectoral flow of funds.

The harmonization of macro- and micro-economic interests charges the economic regulators in general, and the system of income regulation in particular with the solution of a dual task: first securing the revenues of the state budget and thereby the central funds for financing the common social objectives and, secondly, making available to enterprises the financial means neces-

sary to fulfil the tasks relegated to the scope of their own decisions. In doing so, it has also to influence the enterprises to act in two directions: the provision of economic incentive for their workers in the sense of a continuous increase of profits, and the promotion of maximum development of the enterprise from its own resources. An analysis of the problem has led us to the conclusion that these tasks require a differential taxation of the parts of profits destined for personal incentives and for accumulation, respectively.

Having given a brief summary of the guidelines for the new income regulation system, we also have to give a brief outline of the earlier system since the new one developed from the old.

III. Main features of the previous system of income regulation

In the past, mainly those forms of income withdrawal prevailed in socialist economies, which were closely linked to the product (receipts from the sale of products), primarily the turnover tax. This form of income regulation corresponded to a specific price system, which had to be changed too, in order to introduce the new mechanism in general and the new system of income regulation in particular.

In this earlier period there was a two-tied price system, more precisely a set of isolated systems of producer and consumer prices, the latter containing only — if with some exceptions — the turnover tax in excess of the producer price. The consumer price policy of the past has made itself independent of the producer prices, and the two prices tended to move separately. In such a price system there is a possibility for the state to value the same commodity differently in production and in consumption. Under such a price system the enterprise takes it for granted that it must obtain a price for its products that covers its production costs and secures some profit, even if such a price is considered too high from the point of view of the consumer. If the enterprise introduces some new, up-to-date or better product, it wishes to obtain for it a price at least as much higher as to cover the cost difference between the new and the old product. For the enterprise, the question does not even emerge whether the consumer will find the new price justified by superior usefulness.

Thus, the isolated systems of producer and consumer prices have established, in the final analysis, a double value-judgement. When establishing proportions between the prices of related articles, our price policy was guided by the production costs in the field of producer prices, and by the use-values in the field of consumer prices. The system of turnover taxes made it possible for the two kinds of value-judgement to assert themselves simultaneously. If a price system develops this way it is unavoidable that the turnover tax should be differentiated by products; it is even possible that within a given group of

commodities there are sorts whose prices comprise high turnover tax rates while others are perhaps subsidized by the state. In the price system before 1968, the producer and consumer prices were joined with the aid of more than 2500 turnover tax rates and several tens of thousand differential tax items bridging over the difference between the two types of prices. (The "differential tax items" mean that the tax to be levied was fixed as a difference between the consumer price and producer price, rather than as a percentage.) The movements of the two prices were *independent* of each other. In some cases producer prices were raised and consumer prices reduced simultaneously. Even more often, changes in one kind of prices were made that did not affect the other kind. The general industrial price revisions were restricted, as a rule, only to producer prices; they affected consumer prices only exceptionally, and to an extent determined in advance. All this was possible because the producer prices of industrial products affected almost exclusively the state-owned enterprises only. In this field, under the conditions of obligatory plan targets, the price did not regulate production and, since most of the enterprise incomes had to be paid into the state budget anyway, in principle all price changes were finally levelled out by the latter. Consumer prices, however, did in fact regulate the consumption of commodities. Accordingly, quite different criteria have developed for the formation of producer and of consumer prices. Revisions of producer prices took place when input relations have considerably changed. Consumer prices, however, were changed only when equilibrium requirements made it unavoidable.

Since a flexible price mechanism assumes the existence of an organic relationship between producer prices and consumer prices, and their more or less parallel movement; since it is an objectively necessary condition for activating the market mechanism that the commodities should be valued by the market; since decisions taken in the sphere of distribution must find their justification within the sphere of distribution, the dichotomy of value judgements due to the old system of turnover taxes had to stop.

Another means of income withdrawal was the *payment of enterprise profits* to the state budget. This form of income withdrawal, unlike the turnover tax, was connected with the product, and was tied to the results of the economic activities of the enterprise. It would be a mistake to consider these payments a taxation of the profits. The enterprise had to present an account of its profits to the Ministry of Finance. On the basis of this account, the part of profits left with the enterprise was determined. In most socialist countries the main channels of income withdrawal were the turnover tax and the payment of profits. (In fact, there have been other channels too: the social insurance contribution, the withdrawal of excess earnings from differences between foreign trade prices and home prices, etc.) This was the so-called *two or double channel* system. The advantages of that system were the following:

It made a harmonization of state and enterprise interests possible; the enterprise knew in advance its tax liabilities arising from its products (turnover tax) and, at the same time, it provided a certain material incentive to increase profits (through the part of profits left with the enterprises after paid of profits to the budget); it enabled the authorities to apply uniform linear taxes as well as to take into consideration — in the case of payments of profits — both enterprise profits and their deviations.

As regards the ratio of turnover taxes to the sum of profits collected, our centralized control of the economy imparted a leading role to the turnover tax. The ratio of turnover tax to profit payment differed widely in the various sectors of the national economy in most socialist countries. In industries producing consumer goods the turnover tax was dominating, whereas in industries manufacturing means of production profit payments predominated. But the profit payments could hardly be called a proper channel, as minimum profits calculated in the prices did not exceed 5 per cent.

This system excluded any significant self-financing by the enterprises themselves, or any form of capital flow other than that going through the budget. It played a positive part in the execution of a large and swift industrialization program that demanded enormous, centrally-guided investments aiming at great structural changes. It seemed to play a positive role as long as the quantitative increase of production stood in the forefront, with the application of extensive methods of development. When, however, the qualitative aspects of production and intensive methods of development have started to prevail, the two-tied price system and the two channel system of income withdrawal had become insufficient means for the solution of our economic problems.

Since the late fifties, socialist financial literature has appraised in a highly critical way the double channel system as well as the double level price system, searching for better solutions. In Hungary, experiments were carried out on the basis of the theoretical considerations in economic literature. Thus, for instance, among industrial and building enterprises, we introduced by 1964 new forms of income withdrawal like charges on their fixed and liquid assets which became, later on, parts of the new system of control. This has been done without liquidating the former system of income withdrawal. Hence, the new instruments did not become organic components either of the old, or of a new system; they did not form a part of the price system. Simply, a part of the profit payments started to be centralized in this new manner. We hoped that the introduction of this charge would induce a more thrifty use of the assets. A similar consideration led us, already in 1959, to make labour more expensive by the application of a wage tax in industry which was made a part of the costs.

IV. The new system of income-withdrawal

The new system of income withdrawal was introduced in 1968. It is an organic component of the new system of control, and conforming to the system of the formation of enterprise funds.

Formally, the new system of income withdrawal is characterized by the fact that *a smaller part of the enterprise income is now centralized through separate taxes*. Among the latter, turnover tax lost its preponderance; at the same time, the charge on assets as well as the wage tax gained a substantial weight. A significantly higher proportion than earlier of enterprise profits remains with in the enterprises for the purpose of building up funds, and the centralized part of profits is no more paid into the budget on a basis of accounts, but in the form of profit taxation.

As to the *contents* of the new system, our starting point has been to link the material interest of the *more autonomous* enterprises to the profit: we aimed at the creation of a situation where the possibilities for development of the enterprise depend on the profit and, at the same time, profit should *substantially influence the personal incomes of the collective* working in the enterprise.

In order to enhance the autonomy of the enterprises, it seemed proper to determine in advance for a longer period the extent of the income withdrawal linked to the utilization of both *labour and assets* (wages tax, social security contribution, charge on assets). The *turnover tax* remained one of the categories of income withdrawal: it covers almost exclusively the field of consumer goods and is paid generally by the distributive trade. *Profit tax* is aimed primarily at regulating the division of profits between the enterprise and the budget, while serving other targets of economic policy, too.

A. Charge on assets

This is a levy paid by the enterprises in the form of an annual 5 per cent on the gross value of their fixed assets and on the value of all their liquid assets (credit-financed stocks included). As mentioned already, the charge on assets was introduced four years earlier than the new system of control; it is, however, in harmony with the latter as an economic incentive acting towards a better utilization of all assets employed by the enterprise, and also with the new principles of pricing.

The charge on assets is, indeed, a *minimum requirement of profitability* set by the state as the owner of the means of production, on the aggregate of assets used by the state enterprises. This requirement, at the same time, stimulates a better utilization of the assets as well as the optimization of the capital-output ratio.

In the first year of the new mechanism, the charge on assets was paid only on the assets owned by the enterprise. Yet, as by this fact credit has been made very cheap — because only the difference between the interest rate and the charge on assets represented an extra-burden for the enterprise — we extended the charge on assets to all assets.

This has been the more necessary, as stockpiling went on rather heavily in 1968. The enterprises showed a clear preference for stockpiling — even accepting financial burdens —, a phenomenon explained by the former psychosis of a shortage of important materials. Thus, the security of production clearly dominated over a rational stock policy. These new stocks became an added layer over stocks previously accumulated and which were difficult to mobilize. Last but not least, profits were so high in 1968 that they made it possible to finance the burden of high inventories.

Charge on assets is an element of the new prices. Thus, the prices of the products express the volume of assets used for their production, too.

The charge on assets has to be paid on the gross value of fixed assets. As a consequence,

- the charge expressing a minimum efficiency increases in relative terms (in comparison to the net value of fixed assets) as fixed assets are being written off (depreciated), because the charge has to be paid always on the original (gross) value;

- whereas the charge makes a relatively small claim in case of the replacement of fixed assets (as it changes only in accordance with the difference between the values of the new and the old equipment);

- there is an unjustified measure of net income centralization, if we take into consideration that the enterprise invests annually its depreciation allowances (from the point of view of the charge, the reproduction of the original value of assets represents value added);

- throughout the depreciation of fixed assets production costs of the enterprise are increasing; this is not covered by a diminishing value of the charge.

Hence, it is probable, that after some lapse of time, we shall switch to the charge being paid on the net value of fixed assets.

Another problem is created by the fact that a more equal financial burden on the utilization of manpower and of equipment is required in order to promote labour-saving investments and technological progress in general and to improve the equilibrium on the labour-market. This would require a change in the proportion between the charge on assets and income withdrawal linked with labour. The implementation of this change has been postponed as it would necessarily lead to marked price changes whereas price stability is considered an important goal in the next years. Hence, this change will materialize when a general revision of prices and incomes will be on the agenda.

B. Income withdrawal linked with labour

The 8 per cent wage tax and the 17 per cent social insurance contribution — neither of which can be deducted from wages — are motivated by the fact that wages paid for production, more exactly the wage costs appearing in price calculations, do not fully express all social costs connected with labour. Thus, the utilization of labour is less expensive for the enterprise than it is for society.

The proportion between wage costs and other costs as well as the system of average wages did not stimulate the economic employment of labour. The average wage system means that the annual sum of wages and salaries paid by an enterprise divided by the average number of its workers and other employees, can be increased in a certain manner. Formerly, rigid prescriptions forbade an unplanned rise of the average wage level. With the introduction of the new system, these gave place to economic regulators acting against an excessive rise. Among the latter, the most important one consisted in the rule that the increment of wage expenditure caused by a rise of the average wage level as compared with that of 1967 must be deducted from the sharing fund (see later) of the enterprise. This meant that such an increment had to be paid from net profits (after taxation). (For a transitional period, a restriction of an absolute nature has also prevailed, namely, that the average wage level of an enterprise in 1968 could not exceed that of 1967 by more than 4 per cent.)

Thus, an enterprise wishing to differentiate among wages and salaries, in order to raise certain wages, had to employ additional cheap labour to preserve the previous average wage level. Hence, this regulation disturbed the labour market, led to a fluctuation of the labour force, and to an undue increase of wage-costs. Therefore, we are gradually shifting the burden of wage increments from the sharing fund to the costs, differentiating between increment stemming from additional employment and to that due to higher productivity.

The 25 per cent (tax insurance) contribution are increasing the labour costs of the enterprise without raising wages; thus, they represent a certain — rather moderate — incentive for a thrifty employment of labour.

C. Profit tax

Profit tax is one of the most important elements among the financial regulators of the new economic mechanism. It plays a decisive role in determining the division of profits between the state and its enterprises, as well as the division of profits after taxation between development and personal income purposes within the enterprise.

We cannot explain the profit tax without having explained the system of enterprise funds.

The economic interest of the enterprise as a whole and of its individual workers is connected with profits in such a way that the net profits (i.e. gross profit less the withdrawal, by means of taxes, of the part due to the state budget) remain at the disposal of the enterprise. This the enterprise allocates to its special funds of development, profit-sharing and reserves. These funds formed from retained profits serve the *development of the enterprise as a whole and the increase of the personal incomes of its staff*. Thus, profitable operation is the precondition for both the enterprises' development and the increase of individual incomes of their employees. Moreover, the possible extent of development and increase of incomes depends on the possibilities ensured by the corresponding funds. (In the case of investments carried out on the basis of central decisions the state may grant partly loans liable to repayment, and partly subsidies from the budget. In the case of loans granted by the banking system, the actual and the expected size of the development funds plays a decisive role in the decision of the banks.)

In the new system enterprises have to run certain reasonable risks; therefore they have to create their *own reserve funds*. Into these funds they have to transfer 10 per cent of the net profits (after taxation) allocated to the development and sharing funds, until the reserve funds will equal the combined sum of 8 per cent of the annual wage costs and 1.5 per cent of the actual gross value of fixed and liquid assets. Reserve funds serve the safety of management. They may be used to compensate for losses and eventually to complement the development and sharing funds (in case when the former would not be sufficient to cover the current repayment of investment credits or when the latter amounts to less than in the previous year). Amounts withdrawn from the reserve funds must be returned within three years from the net profits retained by the enterprise. In certain sectors where risks are high, the enterprise may be permitted, in contrast to the general usage, to charge the formation of reserve funds against its costs.

Enterprise profits liable to taxation must be divided into parts to be used to complement personal incomes (i.e., to provide for the *sharing fund*) and to add to enterprise assets (i.e., the *development fund*). In principle, this division should rest on the proportion of the wage bill to the value of (fixed and liquid) assets constantly employed by the enterprise. The direct implementation of this proportion would, however, result in too low a share of income-complementing, in comparison to the share destined to development. Therefore, before calculating proportions, the wage bill is multiplied by a factor varying by industries, and profits are divided according to the proportion between the "weighted" wage bill and the value of assets. At present, a multiplier

of two is generally applied, but higher multipliers are employed in industries where the proportion of fixed and circulating assets considerably deviates from the average. Thus e. g., wage expenditure in ferrous metallurgy, in the aluminium and paper industries have to be multiplied by 4; in coal mining and forestry the multiplier is 6.

After having divided profits into two parts, each part is taxed differently. The part of profits serving to aliment the sharing fund is taxed progressively, at rates extending from 0 to 70 per cent (above the tax-free part, the lowest tax rate is 20 per cent and this rate increases, by grades of 10 per cent, up to 70 per cent according to the proportion existing between the amount of profits destined for this purpose and the amount of the wage bill). With the starting of the Fourth Five-Year Plan (1971), the multipliers are going to be raised in order to increase the weight of labour when dividing profits into sharing fund and development fund. We shall, however, decrease the progressivity of the tax on the sharing fund, to enable a larger differentiation of wages. At the same time, we are going to abolish the tax-free part. A progressive wage-increment tax has to be paid from the sharing fund on the increment of the wage bill. The progressivity of the tax depends from the ratio of the increase in enterprise-income (wages plus profits) per wage-earner to the increase of the wage level. The part of profits serving the development fund is taxed, as a rule, at a linear rate of 60 per cent but the tax rate of certain branches is different (e. g., it amounts to 70 per cent in trade and to 45 per cent in agriculture).

The sharing fund, destined to complement the incomes of the workers and employees of the enterprise is divided into three parts, serving (a) payments in money, (b) benefits in kind, and (c) a reserve for the next year.

The actual formulae of the division of profits into the two funds and their respective taxation are assessed in accordance with equilibrium requirements of both the market of consumer goods and that of the means of production, especially of investment goods.

The development fund is formed not only out of a part of profits of the enterprise. The part of depreciation allowances left with the enterprise is also transferred to this fund. Fixed assets of the enterprises have been revalued at 1968 prices; at the same time, depreciation rates have also been revised. The new rates allow, in addition to physical wear and tear, for replacements made necessary by obsolescence (i. e. "technical" replacements) as well.

At present about 60 per cent of the depreciation allowance, accounted for as costs, may be retained on the average by the enterprise; the shares vary in a manner that in the case of recently purchased equipment a lower percentage can be retained than for older and more obsolete ones. For the time being, withdrawal of a part of the depreciation allowance is necessary because

the growth rate of fixed assets must be controlled according to the available supply of investment goods, in order to avoid an excessive demand on the market of the latter. Moreover, it is desirable that the increase of the development funds of the enterprises depend, at least in part, on the amount of profits earned by them.

Relying on their development funds, enterprises may replace their scrapped equipment, or carry out investments aiming at the modernization and even extension of their productive capacity. The necessary increase of the liquid assets must be also covered from the development fund. In principle, any extension of productive capacity involves the obligation for the enterprise to ensure also the means for proportionately increasing the stock of liquid assets. The intention of this principle was to favour sound inventory policies: Enterprises whose stocks do not exceed a reasonable level can invest more. At the same time, the inconvenience of separately financing the continuous increase of stocks is thereby to some extent reduced.

Most of the income of the development fund, however, is used for replacement, substitution and the increase of liquid assets; the rest is likely to allow but for minor investments serving capacity expansion. Therefore, enterprises desiring to make major investments may contract medium-term or long-term credits for investment purposes and medium-term credits for the connected increase of liquid assets and repay them from the future incomes of their development fund.

In determining the formulae deciding the size of the development funds as well as in setting the limits for medium-term and long-term credits, we are starting from the equilibrium requirements of the market for investment goods, with special view to the size of centrally decided investments. The proportion of enterprise level investment decisions rose in 1968 to 40 per cent of all productive investment, grew in 1969 to more than 50 per cent and will keep growing in the future.

Profit taxation also serves the purpose of differentiating between the enterprises. It is a constant percentage in taxing development funds in order to avoid that highly profitable enterprises lose a part of their profits after taxation with a higher tax and be hampered in their development. Here I must mention again that high profits are not always created in branches or enterprises with the largest growth expectations, hence the necessary flow of funds and their best forms represent a problem to be solved.

It has been our intention to have some differentiation in the sharing funds, too. Yet, here we had to exclude differences arising from better technical equipment, etc. It would be unjustified, too, if workers in the same categories earned vastly differing wages depending on the factory where they worked. These purposes are not only served by the progressive taxation of the sharing fund.

It is the *production tax* which serves these ends, withdrawing extra incomes stemming from sources not depending on the enterprise (special natural advantages, better equipment, advantages provided by the price system).

The system of profit taxation briefly sketched above contains an inner contradiction. The very fact that profits are the most dynamically increasing elements of the net social income necessitates from the point of view of equilibrium, i.e. the central funds, a progressive taxation. At the same time, the very progressiveness of taxation weakens the incentive provided by profits. To illustrate this with an example: 1 million Forint profit leaves after taxation and allocation to the other funds — only 60 thousand Forint for the sharing fund. Thus, the enterprises have to make disproportionate efforts to raise their sharing funds.

This contradiction is a specific manifestation of the general contradiction between economic equilibrium and incentives. It depends on the actual economic situation, which element of the contradiction should be given preference. Hence, it has been right and necessary to orientate at the beginning of the reform at equilibrium and to introduce a less stimulating system. First, it could be foreseen that enterprises will have much higher profits in the first year than before, as the enterprises created vast reserves of a material character (stocks, improvement of organization, etc.) At the same time, we had only a limited supply of consumer goods, hence in a system of linear taxation we would have faced wages issued without the backing of proper commodity supplies.

D. *Turnover tax*

We have already explained the justified criticism raised against the former system of turnover tax. This is why the system of turnover tax also had to be changed in the framework of the reform of economic control. *The following requirements had to be raised against the system of turnover taxes:*

— It had to be secured that producer prices and consumer prices should be in harmony and move together. Therefore, the taxation depending on price differences had to be abolished and a system of *fixed tax rates* introduced;

— It had to be made possible that the prices of new industrial products could be determined without official intervention. Therefore, a turnover tax system had to be introduced that gives unequivocal answer to the question of how much tax will have to be paid or how much of state subsidy can be claimed in the case of a new product;

— Tax collection had to be transferred from the producing enterprise to the wholesale trade (thus, nearer to the place of final sale). Therefore, the tax rates to be applied could not be so numerous as before.

As a result of the turnover tax reform of 1968, about one thousand tax rates link the producer prices to the consumer prices. This still is a very differentiated tax system, but, as a first step, it was desirable to avoid excessive changes. The tax reform had been worked out with a view to the present consumer price relations. Thus, the earlier price differences within a group of commodities remained essentially the same.

The fact that now value judgements depend on the market and are uniform, does not preclude the assertion of the main principles characterizing our consumer price policy. In a longer perspective, the turnover tax system will develop in the direction of further simplification. The present number of tax rates (amounting to about 1000) will be later reduced to 300–400. But even in its present form, the system is progressive since it induces the enterprises to take their economic decisions in consideration of consumer preferences and to shape the production process in the organic context of the realization process.

E. Customs tariff

The customs tariff, too, belongs to the tools used in the control of the national economy and especially of foreign trade. In 1968 a new, three-column customs tariff was introduced, containing three kinds of customs duties: (a) the autonomous tariff, (b) customs duties applied on the basis of the most-favoured-nation clause, and (c) preferential duties. In international relations, i.e., in negotiations with capitalist countries or with international organizations consisting wholly or mainly of such countries (EEC or GATT), customs policy may serve as a means for attaining reduction in foreign customs duties or other advantages. The preferential tariff is applied to developing countries. In addition, the customs duties may also serve to protect the home producer when it would not be expedient to expose him to the full impact of international competition (e. g. when a new product is introduced or a new "infant" industry is created).

V. Some conclusions

The following conclusions may be proposed:

- The Hungarian system of enterprise taxation is, as an organic part of the new system of control, a more rational and a more flexible system than the former one was;
- it is a system geared to the combination of profit incentives with equilibrium requirements;
- it cannot be seen as a fully developed system of taxation and it will have to be modified in view of the experience gained in its application;

— while more rational than the previous system, the bulk of taxes remain price-taxes, i.e. taxes not taking into consideration the tax-paying capacity of their eventual payers;

— hence, in order to arrive at a fairer division of tax burden, the increase of direct (income and property) taxes is desirable;

— in order to raise productivity and improve the quality of management it is desirable to increase the present rather low degree of income differentiation to a higher level; however, a switch to a wider scope of direct taxation will have to be postponed until greater income variations are attained.

НОВЫЕ ЯВЛЕНИЯ В НАЛОГООБЛОЖЕНИИ ПРЕДПРИЯТИЙ В ВЕНГРИИ

Т. БАЧКАИ

В первой части статьи автор рассматривает взаимосвязь между расширением компетенций предприятий, с одной стороны, и новым соотношением между денежными средствами, оставляемыми в распоряжении последних и вносимыми ими в бюджет — с другой. В силу того, что право вынесения целого ряда важных решений, в том числе и касающихся расширения основных и оборотных фондов действующего предприятия, перешло в компетенцию директора, тот должен иметь необходимые для реализации этих решений денежные средства в своем распоряжении. Этим объясняются количественные изменения в налогообложении государственных предприятий, в результате которых последние задерживают в среднем около 40 процентов их реализованной прибыли.

В то же время произошли также и качественные изменения в самой системе налогов, ставших составной частью экономических рычагов, направленных на осуществление государственного плана, и оказывающих всестороннее влияние на решения предприятий. Налоги стимулируют предприятия к более эффективному использованию своих основных и оборотных фондов; оказывает на них воздействие, когда встает вопрос о выборе между новой техникой и расширением применения рабочей силы в интересах роста производства; ориентируют их при выборе рынков, покупок и т. д. Таким образом, налоги влияют на спрос и на предложение потребительских товаров, средств производства, а также на движение рабочей силы.

Во второй части дается краткий обзор принципов налогообложения предприятий. Налоговая политика в Венгрии направлена на согласование интересов предприятий с интересами всего общества, получающими свое выражение в форме государственной экономической политики. Интересы предприятий в самой общей форме связаны с ростом прибыли, за счет которых формируются фонды развития и фонды личного поощрения трудящихся предприятий.

Интересы общества в целом сформулированы в народнохозяйственном плане, цели которого не всегда заключаются в развитии тех отраслей, в которых, благодаря их прибылям, можно было бы достигнуть более быстрых темпов роста. Этим и объясняется дифференцированное налогообложение предприятий.

Третья часть занимается описанием основных отличительных черт системы налогов до 1968 года.

Четвертая часть подробно описывает действующую в настоящее время систему налогов с предприятий: плату за фонды, регулирование личных доходов трудящихся предприятий; налог с прибыли, его влияние на формирование фондов предприятия (фонд развития, фонд личного поощрения трудящихся предприятий, резервный фонд); отчисления от амортизации в бюджет; производственный налог, направленный на изъятие сверхприбылей, накопленных независимо от деятельности предприятия; налог с оборота и таможенные пошлины. В этой части проводится также тщательный анализ процесса формирования и использования фондов предприятия.

В заключительной части подчеркивается, что налоги с предприятий в Венгрии являются составной частью системы планового руководства народным хозяйством, направленном на сочетание стимулирования роста экономики с требованиями ее равновесия.

REVIEWS

T. PALÁNKAI—M. SIMAI

THE SECOND BRITISH-HUNGARIAN ECONOMIC COLLOQUIUM

In recent years the international relations of Hungarian economic science have considerably expanded. Bilateral scientific meetings with various countries — colloquiums — are an indication of this tendency.

The British-Hungarian economic colloquium, held between 11-13 September 1970 in Balatonfüred and in Budapest, was the second of the professional meetings between economists of the two countries.

The first colloquium, organized in England in November 1969, dealt mainly with rather general problems characteristic of the development of the two countries, while the second colloquium in Hungary put on its agenda theoretical and practical problems important for the further development of mutual relations. Efforts were made to provide a sound background for the solution of the diversified problems that emerge in the economic relations between the two countries.

The second British-Hungarian economic colloquium discussed five questions:

1. Problems of the international transfer of modern technology between countries belonging to different socio-economic systems.
2. International integration and East-West trade, with particular attention to bilateral relations.
3. Topical problems of the capitalist international financial system.
4. Criteria for investment decisions in energy projects of high importance.
5. The role of taxes in economic policy.

Hosts to the Colloquium were the *Hungarian Economic Association*, the *Hungarian Institute for Cultural Relations* as well as the *Great Britain/East Europe Centre*. Fifteen British and sixteen Hungarian economists, playing a leading role in scientific life, in government economic leadership, as well as in business, participated at the meeting. Leader of the British delegation and co-chairman of the Colloquium was Sir Ronald *Edwards*, lecturer at the London School of Economics, leader of the Hungarian delegation and co-chairman of the Colloquium was József *Bognár*, Corresponding member of the Hungarian Academy of Sciences, Chairman of the Scientific Council for World Economy.*

* Members of the British delegation: AUSTEN ALBU, Member of Parliament (Labour), Vice-Chairman of the Governing Body of the Great Britain/East Europe Centre; Dr. BASIL BARD, member of the Board of National Research Development Corporation; Dr. E. N. EDEN, Senior Official in the Ministry of Technology; C. JOHNSON, Managing Editor of "the Financial Times"; MICHAEL KASER, Lecturer at the University of Oxford; W. J. LUXTON, Director of the London Chamber of Commerce; W. G. PETLEY, Financial Director of the Beecham Group; GEORGE RAY, Senior Research Fellow at the

From among the problems on the agenda of the Colloquium, the first and the second subjects were discussed together. The studies by J. BOGNÁR, B. BARD, M. SHANKS and GY. VARGA served as a basis for discussion. The study by J. Bognár dealt with the theoretical problems of international economic cooperation, particularly of East-West trade. The subject of the study by B. Bard was the international transfer of technology, while M. Shanks analyzed mainly the motive forces of European integration, treating its theoretical and practical problems as well. Gy. Varga analyzed technological development as it affects Hungarian enterprises. (The full texts of these studies may be found in the present issue of our periodical.)

The first to contribute to the discussion on problems of transfer of technology was G. RAY. He analyzed the close connections between technological progress, economic growth and the development of living standards. He suggested that the problems of Hungary and Great Britain were similar in several respects in so far as evaluations on foreign markets are determined to an increasing extent by the technical level of their products. From this point of view the non-price factors are growing in importance. Among these he mentioned the technology applied, planning and design, the servicing network, etc. He illustrated the licence selling practices of the big international corporations with the examples of IBM, ESSO and CIBA. Even these corporations carry on extremely broad, diversified policies, in some cases their policies regarding the transfer of technology are liberal, sometimes they also give know-how with licences, in other cases, however, they insist on a share in capital or direct participation in production. He drew the conclusion that the transfer of technological knowledge is most successful in the framework of international corporations. He added, however, that in East-West relations special problems arise as to the applicability of this form. His contribution dealt with the analysis of the Hungarian technical-scientific potential from the point of view of the British partner. In his opinion, Hungary possesses a good research basis. The research staff is capable of solving very complicated problems. He quoted

National Institute of Economic and Social Research; MICHAEL SHANKS, Director, Marketing Services and Economic Planning, of the British Leyland Motor Corporation; ANDREW SHONFIELD, Chairman of the Social Science Research Council; JOHN WHITEHORN, Deputy Director General of the Confederation of British Ind.; DAVID WORSWICK, Director, National Institute of Economic and Social Research; JOHN GORDON, Second Secretary, British Embassy, Budapest; and PAUL HARE, economist.

Members of the Hungarian delegation: Dr. TAMÁS BÁCSKAI, Head of Department, National Bank of Hungary; Dr. SÁNDOR CZEITLER, Deputy Minister of Foreign Trade;

Dr. JÁNOS FEKETE, Deputy-President, National Bank of Hungary; Dr. JÁNOS HOÓS, economist, Central Committee, Hungarian Socialist Workers' Party; ÖDÖN KALLÓS, Chairman of the Hungarian Chamber of Commerce; Dr. JÓZSEF NYILAS, Dean of the General Economic Department, Karl Marx University of Economics; FERENC PIKLER, Head of Department, National Office for Technological Development; TIBOR PALÁNKAI, Assistant professor, Karl Marx University of Economics; Dr. MIHÁLY SIMAI, Vice-President of the Hungarian Economic Association; Dr. JÁNOS SZITA, Head of Secretariat for International Economic Relations; Dr. GYÖRGY VARGA, Editor-in-chief of the periodical *Gazdaság*; ISTVÁN VÁGI, economist, Central Committee, Hungarian Socialist Workers' Party; Dr. JÚLIA ZALA, Director of the Economic Research Institute; Dr. KÁLMÁN PÉCSI, Head of Section, Institute for Economic Planning, National Planning Office; and JÁNOS GÉMES, Secretary of the British Section, Hungarian Chamber of Commerce.

many examples about the foreign, particularly British, experiences in connection with Hungarian patents. From all that he drew the conclusion that there exists a very good possibility to further develop the existing bilateral scientific and development relations as well as the trade in licences between Hungary and the United Kingdom.

The contribution of Sir RONALD EDWARDS evaluated the experience of the big British corporations, mainly those of the Beecham Group in organizing international transactions in technological information. He stressed the particular problems created by competition, when the big corporations transfer technology internationally. He said that in the western world the main sources of modern technology, and particularly of the most advanced technical and production experience, were the international corporations. In connection with the East–West implications of this problem he emphasized that the market of each single socialist country was too narrow for the big corporations to establish cooperative venture. Nor do they believe it would be expedient to establish parallel cooperation with several socialist countries in the same industry. It is thus of decisive importance for them to know to what extent a cooperation agreement concluded with some socialist country opens up markets also in the other socialist countries. Also Mr. PETLEY, Financial Director of the Beecham Group, analyzed the licence policies of big international corporations and their particular interests related to the transfer of modern technology. He and others too, pointed out that the buying of licences was today no longer satisfactory as a channel for importing the most up-to-date technology. The international corporations do not want to create new competitors for themselves and thus hand over in this framework only second- and third-rate technology at most. J. WHITEHORN also mentioned the role of international corporations and their marketing problems. Mr. KASER treated the impediments to transferring technological-scientific knowledge other than tariff barriers, as e.g. the different systems of standards in various countries, which present a problem not only in East–West relations.

Also several of the Hungarian economists challenged some of the statements of Dr. BARD. They called attention to the fact that in recent years our practice regarding the purchase of patents has undergone substantial changes. E.g. Ö. KALLÓS stressed that, as opposed to the study of Dr. Bard, the Foreign Trading Company “Licencia” has no longer (since 1958) a monopoly in its field. About 120 companies have concluded, or may conclude, such agreements independently. Also GY. VARGA mentioned that the statements by Dr. Bard reflect situations that prevailed some 3 or 4 years ago. M. SIMAI challenged the data of the study and expressed his doubts about their usability in international comparisons.

Prompted by the contribution of Sir RONALD EDWARDS, Dr. J. SZITA quoted several of Hungary’s international cooperation agreements which were concluded expressly with the aim that the products should be made available through the socialist international cooperation not only to Hungary but to other countries as well. In certain cases it is precisely the Hungarian needs that should be satisfied. In connection with further developing East–West relations, he felt that the prospects of further developing socialist integration were highly important.

Dr. K. PÉCSI made proposals for promoting industrial cooperation. These proposals included the conclusion of long-term agreements between

enterprises, acceptable and reasonable terms of credit, the creation of banking pools to finance industrial cooperation agreements, etc.

Dr. J. NYILAS emphasized in his contribution new forms of international trade in technical knowledge, and made several concrete proposals for cooperation in scientific research.

A very lively discussion also developed among the participants in connection with the questions of European integration. A. SHONFIELD challenged the statements by M. SHANKS regarding the necessity of strengthening supra-nationalism. In his opinion, the point was only that decisions, which had previously been taken by individual states, are now being taken in certain fields by common agreement. He emphasized that the development of collective machinery has slowed down also in the Common Market. It would be a mistake to see European integration as a renouncing to their sovereignty by the separate governments. In his opinion, the European policy of the United States favoured further development of European integration. The American troops' leaving Europe — should this occur — raises also the need to create a collective European military system. According to M. SIMAI the desire to strengthen supra-nationalism has diminished in the Common Market in recent years. Several countries of the Common Market do not wish to make substantial further progress, as stipulated in the Rome treaty. He thought that the stand taken by M. SHANKS was rather surprising and, in his opinion, it differed from that of the majority of British economists and from official British policy.

W. J. LUXTON put a concrete question to the Hungarian delegation regarding the attitude of the latter towards the Soviet–West German agreement signed in Moscow. In his answer Dr. J. BOGNÁR pointed to the economic and political factors which guided the Soviet Union in this field. He considered the problem of European security of fundamental importance. Analyzing the economic factors, Prof. Bognár emphasized that the GFR was a highly developed industrial country. Her possibilities for the transfer of technology are in several respects much better than those of other advanced capitalist countries. In certain fields she has also proved to be more flexible than her Western partners. Dr. M. SIMAI stressed that the Soviet–West German treaty was a common coordinated move by the socialist countries, and called attention to the fact that the situation now developed may substantially influence the future direction of East–West trade, and this can certainly not be without interest for the partners of the GFR, inside or outside the EEC.

S. CZETTLER raised the problems of West-European integration from the point of view of East–West relations and British–Hungarian cooperation. The Common Market had a negative, retarding effect on Hungarian foreign trade. Particularly the Common Agricultural Policy presented a problem. But the situation was also similar for our metal and textile exports. On the other hand, EFTA has been less discriminatory and the share of the EFTA countries in Hungarian foreign trade has slowly increased. In recent years the share of the EFTA countries in Hungary's foreign trade has essentially reached that of the Common Market.

In his opinion, British–Hungarian relations have generally lagged behind our cooperation with several other countries of Western Europe. This relates to foreign trade as well as to industrial cooperation. The reasons are not political. They may be partly explained by the slower economic growth in Britain.

On the other hand, British foreign trade has not paid sufficient attention to the Hungarian structural problems. The British liberalization applied to socialist countries affected only 45 per cent of Hungarian exports, while with other socialist countries this proportion reaches as much as 70–80 per cent. Further, British firms are often less flexible than West-German ones in respect of co-operation. Since 1968 Hungary has concluded several cooperation agreements with West-European firms, but only two of these were made with British companies. Also, Hungary has submitted 19 cooperation proposals to the British Ministry of Technology but only four of these have been answered as yet and detailed discussions even about these have not yet begun.

In the course of the debate on integration, the contribution by J. SZITA dealt with the interrelations between political and economic factors. He called attention to the fact that specialists are frequently inclined to neglect the economic causes of political problems. In his view, the level of economic research work dealing with the international division of labour and with integration was still rather low today. Many a problem that seem to be political today would be easier to solve if the economic questions looming in the background were better analysed and more deliberate efforts made at their solution. This is of particular importance in East–West trade, where the weight of political factors is anyway great.

As a matter of fact, the discussion of the situation within the capitalist financial system was once again on the agenda, following the debate that had taken place at the first colloquium held in England. On behalf of the Hungarian team, J. FEKETE expressed his deep concern regarding the latest developments in the capitalist international financial system. He stressed that the economic development of the advanced capitalist countries of today more and more contradicts traditional economic theory. For example, according to the latter, a stagnation of the growth of production should be accompanied by a stable price level. Similarly, whenever the balance of payments shows a deficit, restrictive measures of economic policy should mitigate the rise in prices. But in recent years the American economy has contradicted these interrelations. Production has developed moderately, monetary restrictions have been applied owing to the huge deficit in the balance of payments and yet prices have continued to rise. It seems that all the measures, prescribed in the Bretton Woods agreement for countries with balance-of-payments deficits, have been applied in the USA without any success. These developments have created an abnormal situation within the capitalist international financial system. If it is considered that — in defence of gold reserves — the official exchange of gold has been restricted and the Western world has essentially adopted in full the dollar standard, then we can see that these new phenomena have created in the international financial system essentially an “*ex lex*” situation.

The unsuccessful attempts at abolishing the deficit in the balance of payments may also be illustrated statistically. The US deficit has risen from 3 billion to 7 billion dollars in the last year. It seems that the US are utterly incapable of controlling the situation and, as a consequence, the West-European banks are compelled to accumulate, in ever growing quantities, dollar reserves subject to inflation. In recent years the USA have become the main exporters of inflation.

A situation has developed where, as a matter of fact, the whole capitalist financial system basically depends on the political and economic decisions of

Washington. J. Fekete, and also other Hungarian contributors stressed that this abnormal situation could not be maintained for long and a reform was urgently needed.

Later J. Fekete suggested two possibilities for solution: on the one hand, the creation of a Europe-based financial system which would develop some new trading currency to replace the dollar. This would enable Western Europe to pursue an independent monetary policy, undisturbed by the internal problems of the dollar. On the other hand, Western Europe should compel the United States to take more effective measures in order to stabilize her currency. Hungary thought the first solution would be more expedient.

This concern for the latest developments in the capitalist financial system was underlined also by J. SZITA. He mentioned four possibilities for reforming the capitalist international financial system: devaluation of the dollar against gold; revaluation of the European currencies; some common action to be taken by the European countries and, finally, the unchanged continuation of the present system.

From among the members of the British team it was mainly D. WORSWICK who challenged the arguments of J. Fekete. In his view, after the Second World War the policy of full employment created new conditions for the control of the economies of capitalist countries. Already during the war many people expressed their doubts whether, under such conditions, the full equilibrium of the economy could be maintained. For, under conditions of full employment, there is a definite tendency for nominal wages to grow quicker than productivity and this leads to a general rise in prices. As regards the United States, as long as unemployment was rising — up to the end of the fifties — there was no particular trouble with inflation. However, under the Kennedy administration — as a result of budgetary policy measures — a lasting boom started in the American economy and soon also prices began to rise. But the US inflation could be stopped by reducing total real demand. He suggested that inflation was, nevertheless, better than if the US were shaken by a series of crises. In his opinion, the dangers related to the American inflation were overexaggerated.

D. Worswick also stressed that the growing weight of Europe in world production considerably reduced the effect of the American economic fluctuation on Western Europe. He felt that the huge American capital investments in Western Europe would not permit a European financial union to be viable against the dollar for very long. Finally, he thought that occasional change in the rates of exchange was a satisfactory means to solve the problems arising from the diminishing purchasing power of the dollar.

Beyond the general problems of international economic co-operation and those concrete questions which affect British-Hungarian relations, one of the problems (on the agenda of the colloquium) important for the internal development of both Great Britain and Hungary, was the examination of investment decision criteria, as illustrated by a specific sector. The discussion tried to clarify what particular problems emerge in the energy sector — important for both countries — in two countries belonging to different socio-economic systems.

The discussion was based on the studies by F. PIKLER: Optimization of decisions concerning long-term energy supply and E. N. EDEN: Investment criteria in public enterprises. (Both studies may be read in full on pp. 87—105, 69—86 of this issue.)

The discussion centered not so much on technical details, but rather on problems of economic policy of general character valid outside the energy sector. In connection with cost factors e. g. the problems of coal mining, of the use of natural gas and oil, the structural changes in the energy sector came to the fore. Discussing the interrelations of prices and investment decisions, G. RAY, M. KASER, J. ZALA, J. BOGNÁR and T. BÁCSKAI dealt in detail with British and Hungarian experience. A full discussion took place about the role of prices in planning investments in the energy sector, about shadow prices and about the applicability of shadow prices in economic planning in general. Sir Ronald EDWARDS surveyed the experiences of the British energy sector and particularly those gained in the nationalized electricity industry. He spoke about his experiences as Chairman of the Electricity Council in the calculation of long-term changes, and about the interrelations of national economic planning and energy planning. Mr. EDEN, author of the British study, also dwelt on the role of the risk factor in the long-term planning of energy supply. J. BOGNÁR and J. SZITA stressed in their contributions the problems of all-European energy cooperation. They pointed out the high importance of joining the European power-grid systems.

Another problem discussed was questions of taxation and of income collection from enterprises in general, on the basis of a study by T. BÁCSKAI (the full text of which is also included in this volume), analyzing Hungarian practice and experience.

The discussion of the system of income collection extended to several other important elements of the regulatory system, to their relations to each other and to the system of income collection itself. It was particularly instructive to hear a British opinion about the efficiency of the income regulation policy developed by the Hungarian government.

A multi-purpose budgetary policy — namely one intended to affect, beyond securing budgetary income, the proportions in which factors of production are combined, regional development, etc. — requires complicated economic regulators. In this connection, Mr. PETLEY mentioned the Selective Employment Tax. The purpose of the tax was to promote redistribution of labour among various industrial branches. In fact, however, only a rise in tax revenues has been attained, and the main aim was not achieved. Businessmen were too much engaged in development and market problems to study the effects of such a complicated system and adapt their decisions accordingly. Thus, although the tax accounted for roughly half of the profits, the mechanism — misunderstood because of complications — did not really influence decisions.

A detailed discussion developed among the British and Hungarian participants about the importance of personal income differentiation between enterprises and industries from the point of view of structural policy and economic incentives. The point was made that the system of income collection does not, in general, allow for substantial differences in the personal incomes to be paid by enterprises and thus the use of the latter as incentives is restricted. In his contribution Mr. JOHNSON suggested that, after the initial efforts of the new economic mechanism towards greater income differentiation, a tendency working towards the equalization of incomes has appeared again. This counteracts the incentives and, therefore, it may be desirable to leave a greater part of incomes with the enterprises.

In the discussion of the problem, both T. Bácskai and J. Szita emphasized that income differentiation was not only an economic but a delicate political and social problem as well. J. SZITA mentioned, e. g., three highly problematic directions of income differentiation. The first is increasing the range of incomes between workers and managers. At present one of the major problems is that the income of the latter is relatively low which has negative consequences for efficiency. Another problem is to differentiate among work of different qualities. This is not always popular. Thirdly, incomes should also be differentiated among various branches and enterprises. From this point of view the present situation is not satisfactory. On the other hand, as was emphasized also by several British participants, according to British experience it was neither possible nor desirable to develop large differences in personal incomes between different enterprises or branches within the same trade. Everyone agreed that short-term interest in profits did not in itself determine the direction for structural policy, nor was wage differentiation a primary tool of structural policy.

As regards the tying of total wage costs to changes in the efficiency of social labour, the participants of the colloquium were of the opinion that the proper organization of the wage system, that is, an adequate combination of piece and time wages, was of primary importance. Great interest was shown in the compensation paid for labour mobility in Hungary, that is, paid to workers who have to change their working and family environment. It was stressed that a distinction is made between socially desirable mobility (e. g. mobility connected with the changes in the structure of energy utilization) and non-desirable labour migration; only the first is compensated for. Even in such cases efforts are made to reduce the social and psychological burden of mobility and, where it is economically possible, alternative location of industry is used to solve the problem.

It was considered strange by the British participants that the charge on assets was paid on the gross value. The criticism was made that this rule hindered technical development and favoured labour intensive development and even distorted competition by favouring such new enterprises where the book value and the actual value of fixed assets came close to each other. The Hungarian party informed their British colleagues that the disadvantages of the Hungarian system were known and the problem would be solved at some later date.

Discussions at the colloquium were affected from the beginning by the fact that the representatives of the two countries belonged to different socio-economic systems and were members of different military alliances. At the same time, both parties made efforts to find such fields where common interests provide a basis for cooperation.

Relatively smaller attention was paid by the colloquium to concrete problems of British-Hungarian economic cooperation. Nor was this an immediate aim. Scientific meetings of such character serve a better understanding of and acquaintance with, each others' problems. In this respect the colloquium not only attained its purpose but opened the road for further scientific cooperation which could already be helpful in the joint solution of some concrete and mutually important questions.

BOOK REVIEWS

Korunk világgazdasága. I. (Contemporary world economy. Part I.) Budapest, 1969. Közgazdasági és Jogi Könyvkiadó. 754 p.

With the publication of this book the co-workers in the Faculty of World Economics of the Karl Marx University of Economic Sciences took on a job which is a new and difficult one, even in Marxist professional literature. The novelty of the book stems primarily from the fact that the authors analyze the main processes of world economy, its driving forces and phenomena for the whole of world economy, for all three groups of countries. This has lent a theoretical character to most of the chapters in the book.

In the first and second parts of the book the authors analyze the concept of world economy and world market, the process under which it develops and its driving forces, and the special features of international economic relations. Here the reader is given a summary of the present situation of world economy, its components and their reciprocal relations, as well as of the major trends in their development.

The novelty of analysis is the reason why the first part, entitled "*World economy and its most important factors*" is one deserving close attention. The author, Professor József NYILAS tries to provide answers in it to many questions so far not sufficiently cleared up by Marxist economic science. One of the foremost of these questions is the concept of world economy and its major laws. *Nyilas* emphasizes that even the classics of

Marxism interpreted world economy as a separate unit, as an economic system of world dimensions. He agrees with the concept of Hungarian professional literature which treats world economy as a separate unit, where the forces of production and the production relations of different countries are connected into a world-wide unit by particular international production relations based on the international division of labour. This assumes the existence, in his opinion, of special laws of world economy. Based on this assumption, the author arrives at the conclusion that "from the very existence of the special laws and problems of world economy it follows that to expose them and the forms in which they assert themselves, along with their consequences on world economy and the different units of world economy is the object of a special scientific discipline, of world economics" (p. 21).

Having thus defined the subject of world economics, the author sketches out the most important factors related to world economy, the production relations of world economy. He distinguishes two fundamental types of international socio-economic relations which developed historically, along with three transitional conglomerations. The author treats the ruling international relations of the socialist and capitalist country groups, valid within these systems, as the fundamental types. The transitional categories include relations between the two systems, and those with the developing countries.

He provides a separate analysis of the major world economic laws. Professor Nyilas concludes that "at present we have but very little systematized information on the laws valid for world economy" (p. 46), and that "until now no special attention has been paid to a study of the laws valid for world economy" (p. 47). This truly plays a role in the fact that there is a debate even on such fundamental issues as: "are there in fact any general, specific world economic laws, which effect the whole of the almost completely divided world economy". However, it is still open to argument whether there are any autonomous, specific world economic laws, in the capitalist and socialist world economies taken separately, or is it rather that certain socio-economic laws — existing within the countries forming these two groups of countries — have special, international effects, validity and consequences" (p. 47). The author — without particularly justifying his statement — considers the latter to be most likely. At the same time, he is of the opinion that there are certain autonomous socio-economic laws which can only be valid in the capitalist, and others in the socialist world economy. Within this framework the author discusses certain laws which appear in the whole of world economy, though in different forms, depending on the character of the various groups of countries, and which also exist within individual countries. Along with the theory of value, he lists among these the accelerating trend in the growth of the forces of production and in productivity.

This systematization of the world economic laws is, in my opinion, acceptable in its main outlines. Further research may more completely expose the laws ruling world economy. However, certain parts of the book provide a more comprehensive study of the assertion of the most important laws appearing in contemporary world economy, which are rather roughly sketched out as examples in the first part of the book.

In the third and fourth parts the authors sketch out the major trends in the development of the forces of production with particular respect to the new phenomenon of our age of high importance, the scientific-technological revolution.

The patterns of production and consumption are rapidly changing throughout the world as a result of the development of the forces of production. This fact bears tremendous practical importance. So we can only approve of the close attention given by the authors to an analysis of the main directions, reasons behind and special features of these changes.

The fifth part of the book is a study of the international economic integration taking place in world economy, while the next, sixth part is a description of the economic development-regulation and international economic tasks of governments. In the latter they discuss state monopoly capitalism, as well as the development and foreign economy roles of the socialist state. This is why, in my opinion, it would have been more logical to analyze integration following this part, since the author of the fifth part studies capitalist integration as an international offspring of state monopoly capitalism. The method of discussion I propose would have made it possible to avoid certain unnecessary repetition. For instance, it would not have been necessary to study the advance of state monopoly capitalism after the Second World War. Despite all this, however, the part analyzing international economic integration is one of the highest level parts of the book. Discussion of the theory of international economic integration is worthy of particular attention. The author, Dr. Tibor *Palánkai*, gives a review of the interpretation of international economic integration in Marxist economic literature and criticizes the different bourgeois economic concepts in this respect.

The vast majority of Marxist economists trace back integration to the social division of labour. With that, as the

author writes, we have taken a substantial step forward to determining the content of integration. "However, we indicate the essential relations of the social division of labour if we grasp it as the development production relations... In this way the content of economic integration can be determined as one aspect of the development of production relations. This time we do not study production relations as social forms (primitive communism, slavery, etc.) but from the aspect of the development of economic units" (p. 454). *Palánkai* emphasizes that international economic integration provides, being in contents the process of development in the structure of social production and in production relations, a suitable form of motion under given circumstances for the development of the forces of production. In the final analysis, the process of integration expresses how the requirements raised by the development of the forces of production burst the economic structure constituted by national economies.

The author distinguishes the form of integration, the superficial economic forms in which the integration is realized, from its content. In this way, the European Economic Community, as an international economic institution, is one of the economic forms of international state monopoly regulation. He summarizes his conclusions on this in the following way: "By general definition, from a formal aspect international economic integration is a *gradual development of national economies as macro-economic fundamental units, into international economic units*. International economic integration is on the one hand, the internationalization of national economic institutions, that is, their assuming international functions, and the connection of international economic mechanisms to given institutions, and, on the other hand, the development of international, or supra-national institutions and systems of mechanism... Through this the national frameworks of the economy gradually expand into a framework of international econ-

omy. In the undetermined, distant future the process may evolve into the development of a unified, integrated world economic system. This, however, is well beyond the development possibilities of the capitalist world economy" (p. 459).

Finally, the author's discussion of the theoretical interpretation of macro- and micro-integration is quite interesting. However, I do miss the fact that he did not pay enough attention to clearing up theoretical and practical questions related to socialist international economic cooperation. The question is treated in the second part of the book, but the analysis is too sketchy, and does not reach down to the roots of the problems.

The sixth part of the book discusses, as I mentioned, the economic development regulating and international economic tasks of the state. This part of the book is quite different from the others, with very little analysis and theoretical generalization. Aside from this, the one-hundred-page study is devoted in more than half its scope to the economic activities of the capitalist state, and deals with the development and foreign economic role of the socialist state in not quite fifteen pages. The author gives more space than this to even the economic activities of the developing countries. In my opinion, these ratios are objectionable in any case.

The whole of this part of the book contains new features in its detailed exposure of facts, but in theoretical level it remains below the conclusions of Marxist economic literature on this topic. This refers equally to outlining the reasons behind the development of state monopoly capitalism, and to the analysis of the effects of economic intervention with the process of capitalist reproduction. For instance, in discussing state monopoly capitalism, the author's description does not, for the most part, go beyond organizational forms. We also have more fundamental knowledge of the effects of budgetary policy on the development of the economy. For instance, he has only to say

as much on deficit financing: "An exaggerated increase of the budget deficit has inflationary effects" (p. 528). Nor does he go into a deeper analysis of the effects of the tax system. In connection with progressive income taxes, he concludes, that it has an effect on the redistribution and equalization of incomes (p. 529) but he does not speak of how this appears. His discussion of the so-called built-in stabilizers is also superficial. The same holds for his description of planning in the capitalist countries. Finally, I object to the fact that the author studies state monopoly capitalism simply as economic policy carried on by the state, and does not take into consideration the changes in monopolistic production relations.

In the seventh part, Professor József *Bognár* provides a high-level description of economic policies in the three country groups of world economy. It is, however, a target for criticism that there is a good deal of repetition in the sixth and seventh parts.

The author of the last chapter, Dr. Ferenc *Kozma*, discusses one of the most topical questions for us, the theoretical problems of economic cooperation between developed capitalist and socialist countries, in a manner completely new in Marxist economic literature.

In the first part, the author studies the changed conditions of economic cooperation between East European and West European countries. He concludes that the backwardness in the level of development of the socialist countries' forces of production in comparison to the developed capitalist countries can be eliminated. To do this, it is necessary for the socialist countries among other things, to take over "the achievements of the developed capitalist countries' technologies, to make use of them and to create the foundation for their spread and further development" (p. 718).

In studying the critical situation of the West European economies, the author emphasizes that the decisive proportion

of the research and development capacity of the capitalist world is today grouped in the United States, and for this reason we may call the United States the "research and development laboratory of the capitalist world". The developed capitalist world has become stratified and this is expected to last for a long time to come. On one side we have the United States, and on the other we have the West European capitalist countries (we can include Japan here). The technological level of the latter is steadily lagging behind that of the United States. "A special symbiosis is developing between the dominant American economy and the second-rate European centres. American capital is making use of the difference in levels to make its position even stronger against Western Europe" (p. 722).

The author draws two conclusions from the lagging behind on the part of Western Europe, which has been increasing even in recent years: 1. Unequal economic development has different perspectives under the power relations existing today, than it had at the beginning of the century. At that time the difference in size and in the qualitative level of applied technologies between the country to be "reached" and those trying to catch up with was not so great that the goal of "catching up and leaving behind" would have been unrealistic. Today "the size of the United States is in accordance with the development of today's forces of production, while the size of its West European partners, despite their lively foreign trade orientation, is dwarfed by the technology they would have to implement and economically operate" (p. 724). Aside from this, the difference in technological level between the United States and the other capitalist countries is much too great to be bridged over in any short time. 2. From what we have said, we can conclude that Western Europe must create the opportunities to develop the new technology, and to apply it on mass scale. Not even integration is a solution for

Europe. "The only realistic alternative for Western Europe" the author writes, "is to build up close relations of industrial division of labour (specialization and cooperation) with the European socialist countries" (p. 725). Kozma emphasizes that the alternative is realistic since the European socialist countries are interested in massive imports of modern technology. Interests meet on this point. So the fundamental equation is simple: Western Europe has a market problem and Eastern Europe has a demand for modern industrial technology. If Western Europe supplies Eastern Europe with technology, both sides will be satisfied.

However, the fundamental equation must be adapted to the very complex relations of concrete reality. Analysis has shown that there are many unknown factors to be determined in the equation. "What shall we pay with for the modern technology purchased? Can our national economies produce what Western Europe needs, and at what cost? Formulated from the other aspects, does Western Europe need what our countries presently produce for export, and if so, at what price? The other question: do we need the technology which Western Europe can give us (or is willing to give us) and how can we be sure that we get the technology we really need? Isn't there a danger that in the course of cooperation we find ourselves stabilized on a third level of technological development, as the recipients of a technology of 'the day before yesterday'?" (p. 727.) It is to these questions that the author tries to seek answers through high-level analysis in the last part of the book.

A. SIPOS

25 év. Ipar, mezőgazdaság, életszínvonal, kultúra. (25 years. Industry, agriculture, living standards, culture.) Budapest, 1970. Kossuth Könyvkiadó. 316 p.

In general we feel certain prejudice against books appearing on the occasion of anniversaries: has not the anniversary

enticed the author into ceremoniousness at the expense of realism? Our worries are even stronger in the case of an anthology by more than one author, and this is not entirely unfounded for they frequently lack a unified concept, and even more important, they lack the original personality of an author, which can compensate for so much else. But in the present case, even though the work was published for an anniversary, it can be called anything but ceremoniousness in the degrading sense of the term. It contains no platitudes, no pathos, but simply the facts of reality, collected and evaluated in strict orderliness. It provides the reader with an almost complete cross-section of 25 years of socio-economic development, not only of achievements, but at least as much of the difficulties in progress, and of the complex process of development.

The first study, written by Mrs. V. Nyitrai, discusses the 25 year development of Hungarian industry, primarily through a comparison of the situations in 1938, 1949–50, and at present. She studies the structural changes in industry, changes in efficiency and productivity and the international situation. In this connection she reviews the production and productivity levels of the Hungarian and Austrian industries, and many interesting results of a comparison between the Bulgarian and Hungarian industries. (I would mention, simply as an example that, according to the study, the productivity of Austrian industry is 36–38 per cent higher than that of Hungary. The greatest difference in Austria's favour is in engineering and electric energy production. In contrast with this, productivity in the industry and light industry is higher in Hungary. An obviously very important factor in the difference in productivity levels is the fact that Austrian electric energy consumption per worker is roughly 2.3 times as high as in Hungary, and this indicates a much higher level of mechanization. However, Hungarian industry is much more highly concentrated than the

Austrian one. In comparison to Bulgarian industry, Hungary's productivity is higher than that of Bulgaria, primarily in mining, but the productivity level of electric production and the food industry is also higher.)

The study also sketches out expected trends in the further development of Hungarian industry. The author does this with the true *thoroughness of the statistician*, supporting what she has to say with series of figures, and applying modern methods of analysis. For example, along with traditional productivity indices she also shows the *changes in national economic level productivity*, with the aid of input-output methods in a simple and clear form.

The study by Ferenc *Erdei* and Béla *Fazekas* deals with 25 years of Hungarian agriculture. The authors review the development of agriculture primarily in connection with the food industry, as a part of a unified food economy. They also analyze the development of the agricultural population and its income relations, changes in land area and utilization, supply with agricultural fixed and circulating assets, and the problems related to the mechanization and chemization of agriculture. Finally, they draw up separate studies of the major branches of agriculture: of the development of horticulture, fruit and vegetable production, and animal husbandry.

In the past 25 years Hungarian agriculture has undergone a tremendous social change and large-scale technological development. (Hauling power increased by 25 per cent, within this the number of tractors by tenfold, and total agricultural fixed assets by about 150 per cent.) However, the annual rate of production increase did not particularly change in comparison with the period prior to it; in this respect, on the international level, we are lagging behind the achievements of the developed and the less developed countries alike. The authors point out one of the most characteristic features of Hungary's post-

war agricultural development when they call attention to the fact that in this period a substantial proportion of the forces of production were exchanged. The majority of the means of production newly taken into use by agriculture were simply substitutes for the forces of production which had dropped out; for instance, for labour power which left agricultural production for other fields, primarily for industry, and for agricultural areas which dropped out of production (arable land was reduced by 10 per cent between 1938 and 1968) or replaced small farm buildings, tools of work and cart animals deemed unnecessary owing to the socialist reorganization of agriculture. This is one of the reasons for the fact that, in viewing the 25 years as a whole, agriculture only developed at a moderate rate. But, at the same time, it gives rise to the hope that, once this period of development is over, *growth can accelerate substantially*.

The study by Mrs. A. *Mól* analyzes questions regarding the trends in *living standards*, fortunately welding together the strictly economic, statistical, and sociological aspects. Along with the study of general foundations for changes in living standards, as ownership relations and trends in employment and cultural level, she carefully examines the economic foundations of the living standards, the growth in the national income, consumption by the population, housing conditions, wage relations, social benefits and the problem of income differences. She proves convincingly that in pre-1945 Hungarian society, as a result of heavy feudal vestiges, birth and fortune more strongly determined the position and future of the individual than in the developed capitalist countries. Following the Liberation, however, these "still waters" began to flow rapidly, and a social restratification of tremendous proportions took place. Vast masses of the population came into motion, changing classes, trades, occupations, and achieving a much higher cultural level than their parents. But she also calls attention to

the fact that today this upward trend in social movement has greatly slowed down in pace in comparison to what it was one or two decades ago, even between generations. Differences in popular income are showing a strongly levelling trend. There are many positive elements in this, for the strongest factor influencing this levelling is, according to the author, a decrease in the differences between Budapest and the rural areas; and, due to different social policy measures, the disadvantageous position of large families in contrast to small ones has become somewhat less marked. But income differences between those carrying out tasks requiring the lowest and the highest qualifications have also diminished to no small extent, and this can by no means be considered a favourable phenomenon.

János Molnár's study, which surveys the 25 years of *cultural policy*, is perhaps the most readable one in the volume. His almost person-by-person evaluation of the leading figures in cultural policy, his reliving the history of cultural policy with its moments barely known or already forgotten by the public, along with its characteristic events embedded in a unified process, is not only extremely interesting, but highly instructive as well.

The preface to the book was written by Rezső Nyers. He emphasizes in it the importance of an analysis of the past on an objective, scientific basis, from the point of view of building the future, and warmly welcomes the achievements of the book in this direction.

The volume fills the useful function of handbook, for it gives a comprehensive picture of the widely diversified problems of twenty-five years development, containing the most important, fundamental figures in systematized form.

MRS. K. FALUS-SZIKRA

VARGA, Gy.: *Az amerikai business. Vállalati stratégia és management.* (American business — corporate strategy and manage-

ment.) Budapest, 1970. Közgazdasági és Jogi Könyvkiadó. 437 p.

The book contains nine chapters and an epilogue. The most important of them, from the aspect of volume and interest alike, are the ones dealing with the corporation, its strategy and planning. Chapters on risk, interest, marketing, management, etc. provide excellent additional material, throwing light on the essence and complexity of big business from a number of angles.

The first (and three following) chapters show how big business is the result of large-scale enterprise. It comprises the whole business production spectrum, from the raw material base to the finished product market. Big business endeavours are completed by different companies, working in corporation with one another through the close coordination of interests. The entire enterprise is tied, organized and completed by one "prime contractor" the corporation. This latter is the general form of movement for today's modern enterprise organization.

Leadership within the corporation is strict, yet cooperation between the companies remains flexible. It coordinates company efforts to a maximum, while at the same time it also strives for the greatest attainable decentralization, and ensures local autonomy. Tremendous attention is paid to public relations, human relations, and to increasing interests and incentives. Different forms of performance evaluation and inter-company accounting are worked out, subordinate to the former points of view. Some factors deserving special attention include inter-company fixed price accounting (the Du Pont system), the period costs and absorption costing systems of accounting, along with different supplementary devices the modifying shares based on the ratio of capital according to the risks taken, etc. In this respect the corporation is a more developed form than the trust, concern etc., and this is why it became the ruling form of partnership and cooperation in the United States.

Though the author does not go into detail on Hungarian conditions in each chapter (only as a conclusion in the epilogue), it seems that for individual Hungarian companies they multiply greater efficiency which can be achieved through the different forms of cooperation and common interests (including accounting between factories, an internal price system, etc.) may serve as an example. But after reading the part on amortization (pp. 91–92), we do feel that something is missing, since we find out very little about the different concepts behind the amortization and replacement policies of big business, which no doubt play more than a negligible role.

The fifth chapter gives us a very palpable review of the business policies and strategies of the corporation. As can be seen from the book, while it has not become a general policy in the United States, there is a rapidly increasing recognition of the fact that whenever the environment changes dynamically, big business cannot operate successfully through a policy of "today only" and simply a "good sense of business". It is becoming increasingly indispensable to mark out long-range goals, and to determine activity to mobilize and, if necessary, to increase and modernize power resources in subordination to this goal.

A correct setting of strategic goals depends on how accurately they ascertain their own capabilities, and on the expected and actual changes in their objective environment. Anyone who does not know — or does not sufficiently know — changes in environment and the expected actions of competitors in this connection, will not be capable of working out correct actions (or series of actions), of preparing and actually executing them.

An increasing role among these objective changes in environment is being played by government intervention, in order to reach the goals which the monopoly capitalist state (the government, the interested group of capitalists, etc.) wishes

to reach through economic coercion and financial incentives. The corporation or company which does not adjust itself to these guidelines suitably and in time, will find itself at a tremendous disadvantage in comparison to the others.

The corporation's position, sphere of activities, the direction of its enterprises, and its aims are determined on the basis of detailed knowledge of external and internal conditions. This task is in the centre of strategy. Continuous observation and correct analysis of the following four "critical spheres" is the condition for working it out properly: *growth*, by which they do not mean simply the company, but that of the enterprise itself; *flexibility*, which at least means keeping in step with technological progress and changes in income or an even higher degree of flexibility: stimulation of the consumer market in order to create demand, and stimulation of the "technological market" (pp. 293–310) to carry out technological research with a concretely determined goal; *stability*, by which they mean a defensive-equalizing system suitable for eliminating relapsing and anti-equilibrium; *return of investments* by which they mean the "critical" problems we too know.

If the changes or position of these "spheres" become critical from the point of view of the corporation, they re-examine, and re-formulate the role, and tasks of the corporation, and re-work the strategy. The method used here is the "competitive approach procedure" by which they mean regrouping forces in order to better adjust to the changes.

In order to warn against certain illusions, the author emphasizes that big business is the corporation, and this corporation strategy is a particular American "product". Pre-conditions for it are a highly developed level of the forces of production, market saturation, and over-supply. Under these circumstances, capitalist companies fight a difficult struggle to create their own demand with their products. A presentation by the author

of the strategy of a corporation producing cables and leads is an interesting example. Readers like us, who are perhaps less used to the struggle of enterprise than would be desired, and perhaps much more used to calm production than would be desirable, may find this struggle frightening. But there is no doubt that it also mobilizes enthusiasm and forces. For this reason — in our opinion — it would be useful for the Hungarian companies to formulate 10–15 year perspective strategic goals, and subordinate themselves to them in working out their development, production, wage, purchase, etc. concepts. And it would be most useful if companies did so because of their own internal needs, instead of on orders coming from outside.

Chapter six deals with corporation planning. Corporation planning does not have long-standing traditions either and, in fact, goes back only to a decade or two. Still, the necessity of planning is no longer questioned. Today the centre of debate is rather on how plans and planning can be correctly coordinated with free enterprise. Reasons behind planning include dynamically changing environment accelerating technological progress, improvement in the means needed for planning (such as increasing opportunities), and last, but not least, the favourable experiences gained by the socialist countries in planning. Increasing intervention on the part of the government also provides an incentive for planning, since the correct application of guidelines would be impossible without plans.

Plans are prepared in two dimensions and in two ways. The present and the past is extrapolated in a time dimension. Then the work is “decomposed” discounted to a distant goal. In the dimension of the management hierarchy, plans running top-down, and bottom-up, are prepared. The dual starting-off point is used as a method of control. The top-down and bottom-up systems are applied so that those on the bottom should not put the blame for

mistakes made on those at the top and vice versa.

First of all, a plan is made on strategy. In this respect, the plan is the final numerical expression of strategy. But a strategic plan is made for a period no longer than five years. Plans are also compiled for different activities and functions. In this field the most important job of planning is strict ensurance of consistency between various chapters of the plan.

Development, diversification, and marketing too, are planned. Development is intended to fill in gaps existing between company “calling” the strategy adjusting to this, and the actually existing opportunities and conditions. In this sense the development plan plays a subordinate, executive and tactical role to the strategic goals. On the other side, the development plan contains all that is new. From this aspect it is of prime importance, and not simply technical in character. It contains everything in connection with the reasons behind, the size and effects of change.

According to the lessons of the book, diversification is a broad term including extension of enterprise, conquering newer markets, manufacture of new products, and extension of activities. This is why the growth of the corporation and its security depend to a great extent on carefully worked out diversification policy and plans in this respect. Diversification, on the other hand, is pointed out by marketing, in full knowledge of market conditions. There are two types of interest connected to diversification. One is that the majority of new products and new activities be realized through better and more diversified use of given physical and intellectual power sources. External and internal diversification are distinguished in planning. The external one is brought about through mergers and partnerships. The internal one stems from extension of their own production activities. Diversification is not always profitable but it always increases security, competitiveness and flexibility.

Marketing is an independent, consistent component of the plan. From the point of view of the plan, marketing "thinks" in products, families of products, and the first, second and so on generations of families. The greater the prediction for generations and the greater the security, the greater the efficiency of planning and marketing activity. This chapter introduces us to many interesting and important questions of detail, and method (product ranking, old and new products, price policy, advertising, etc.).

Many aspects of American company corporation planning are known to the Hungarian reader. But several factors which are new to us deserve special attention. One of these is the concept and method under which marketing groups product. This concept can be of advantage to us for it creates opportunities to coordinate and synchronize the structure of supply and demand. Based on families of products and generations, production too can be better adapted in the direction of demand, etc.

A *sensible* diversification of production would not hurt us either. We do not mean that it be done through the external method of mixed mergers, but through internal development. This when the ship building factory produces ships and the shoe factory continues to manufacture shoes, while at the same time the scale of products becomes diversified (e.g. through use of waste products and free capacities), while the products themselves are supplemented with the services belonging to them (for instance, the food industry procures equipment for packaging, so that selling in self-service shops may be less complicated and more efficient, etc.). Naturally, this still requires a more fundamental period of study. The marketability and competitiveness of highly developed companies can provide useful guidelines in this respect.

In his epilogue, the author deals with the problems of adaptation. The explanations highlighting the differences between

big business and Hungarian enterprise, and American and Hungarian conditions are valid.

Despite tremendous deviations, and of course, after careful study, there are several ideas deserving attention from the point of view of use in Hungary. We have already referred to them in the individual chapters where they were mentioned. We should now like to supplement this with the final thoughts of the epilogue and the book: the problematics of efficiency, which we too consider a central problem. But here we must add that under Hungarian conditions our most important job is to raise the level of efficiency and the pace of operations in social and company work since we do not make sufficient use of our conditions and the opportunities granted by the reform. This is why it is extremely important that every suitable method for this be adapted to Hungarian conditions and used. György Varga's book has "given food for thought" to researchers and experimenters, and has supplied valid, useful guidelines for their work.

T. KÉRI

GERGELY, I.: *A tőkés vállalatok üzletpolitikája és piaci döntései.* (Business policy and market decision in capitalist enterprises.) Budapest, 1969. Közgazdasági és Jogi Könyvkiadó. 390 p.

This book was eagerly awaited by economists specializing in business economics. The publications by the author in the past three years, dealing with company decision, expected company behaviour and economic information, indicated his deep-rooted interest in the methodological questions of management, given particular topicality by the reform in the system of economic control and management. István Gergely's activity in autumn 1967, to survey with the inclusion of a great many experts, how the companies had prepared themselves for the new economic mechanism is also well known. As we find

out from the introduction, the survey of Hungarian industry was based on the second chapter in his book. What then, was the author's intention with this book, and what can the reader expect to receive?

The intention of the author, as can be concluded from the introduction, was clear and unequivocal. His primary aim was to provide a comprehensive study of business policy relations and the main characteristics of company decision in a manner saving the reader from the danger of getting lost in technical detail, while providing him at the same time with ideas and support. It would be sufficient to review the wide variety of capitalist company management methods to serve as a thought-raiser. But our author gives us more than this for better information: he describes the modern, highly efficient methods, and also those which are just beginning to spread. We can safely state that he completely realized his intentions, and did so by presenting the methods of different countries, applied in companies in different positions, which are often fundamentally different, and by discussing them in a unified train of thought, and logical structure. It's clear that it was no easy job to collect and systematize his rich factual data (which he collected not only from western business literature, but through visits to about 40 capitalist companies as well).

This book pays part of the debt of our business economists for not having a comprehensive view of capitalist company management methods, the internal operation of capitalist companies, and their market relations. These are all indispensable conditions for a Marxist criticism of modern capitalist business economics.

In the first part of the book the author examines the nature and content of information needed for founding efficient business policy and company decision. In doing this, he first sketches out the reciprocal ties between the capitalist state and the capitalist company. On the

one hand, he points out the information stemming from the capitalist state, while on the other he depicts the interview methods based on representative survey, which serve to predict developments in economic life. Foundation of these methods is provided by an exposure of the concepts and intentions of the capitalist companies, and of the opinion which has been formed there regarding the market situation. In the concluding chapter of the first part, he discusses questions of the company's market information: expected turnover, products turned out, consumers and competitors. He gives us a well-formed picture of the fact that, together with information gained from market research, the role of information stemming from exchanges between competitors, and company information regarding prosperity has increased.

The way the author reviews company behaviour regarding participation in working out government prognoses and programs is highly instructive. British, French and Dutch practices equally show that in the beginning the companies' behaviour was one of reservation. They feared that the advantages they had gained in professional-market information would be expropriated by their competitors. They feared that the state would use their information against them, for instance in taxation policies. This concept changed after some time. The capitalist companies discovered that the fundamental principle of modern capitalism was limited free competition built on company initiative, and the state considers this initiative an indispensable pre-condition for development, and will support the activities of the capitalist company in many respects and not restrict them since the economic policy concepts of the developed capitalist countries do not aim at changing the existing social system, but to make it a permanent one.

Participation in preparing government prognoses and programs is advantageous for capitalist companies from several points of view. It may reduce the companies' risks,

since it allows them to gain better perspective insight into the general direction of economic development, they may glance into connections important for the company, the government statistical system is at their disposal, they may obtain information about the ideas of their competitors, etc.

The *second part* reviews the business policies of the capitalist companies. This part discusses four spheres of topics: 1. the capitalist companies' market policies, 2. the price mechanism of the capitalist market, company price policies, 3. company development policies, 4. financial policies of the capitalist companies.

In discussing the ways of realization, the author convincingly characterizes the structure of the market, from the aspects of both supply and demand, depending on whether there is only a single actor, or a few, or many actors are involved. This is followed by a review of market relations, and the ways in which commercial methods and forms change.

In the chapter entitled *Investment policy* he makes a combined study of technological development and investment. First he analyzes the main questions of research policy: the characteristics and stages of research, and the organization of company research. This is followed by a study of investment policy, and in this connection questions like substitution and modernization, extension and strategic investments are discussed. He closes the chapter with a discussion of the market conditions of development. He describes the market of development achievements, presents a number of clever economic calculation methods and sketches out the connections between development and risk-taking.

In the chapter on the financial policies of capitalist companies he throws light on questions as important as liquidity and financial equilibrium, the company's supply with money (within this, he discusses how the state supports self-financing of the capitalist company), interest and

the company's profit rate and the critique the banks exercise on the occasion of granting credit.

The *third part* of the book deals with company decisions. It studies the goals for realizing company interests and how they are formed, and the short and long term directives which determine things to be done.

The most important themes are: how are company decisions formed, what are the important stages of preparation and execution, and how are decisions linked to company goals? What are the connections between the size of the company and the management methods which may be applied? What are the organizational solutions with the aid of which capitalist big business tries to raise the standards of management, and to increase the efficiency of decision and the entire business economy. What are the methods by which capitalist big business develops its long-range concepts and directives? What are the directives which aid in realizing decision on production, product development, and investment? What are the methods for developing annual goals extending to the whole economy of the capitalist company?

Let us now have a closer look into two chapters in the second part: the ones dealing with decisions on product development and annual targets.

The author discusses decisions related to product development in two parts. First he investigates the method of decision on realizing research achievements and development concepts: the fundamental principles for decision, the collection of proposals and opinions and, finally, the process of making the decision. Then he reviews the development-investment plans aimed at realizing the decision taken. He shows the internal connections of such plans and uses a numerical example to illustrate the technique for preparing such plans, and shows how a development-investment plan can be used as a tool for management and control.

In the chapter on *Decision and annual plans* we find a review getting down to the essence of the budgeting system, and to the lines for approaching the development of annual plans. Three such directions are spreading: 1. projections to the future based on facts of the past periods, 2. coordination of management demands with the opportunities of units within the company, and 3. economic directives determined on the basis of a closed and interconnected system of detail-budgets. Industrial managers might find it instructive to know the way in which the plans of company management and of the production units are approached. The author gives a detailed description of the train of thought leading to two-level plans

and the emergence of coordinated plans through contribution-calculations.

He provides a thorough and detailed description of the methods used in drawing plans (even showing copies of sheets to be filled in), including organization. It seems almost natural that we can read separately about preparing cost estimates, cost control, and incentives.

The bibliography which concludes the book is different from the ones we are used to. It does not simply list the titles of the books on many different subjects in alphabetical order, but groups them by topics so that interested readers might approach the different works more easily.

A. MÁRIÁS

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OBITUARY
SÁNDOR CZEITLER

On 12 November, 1970 in age 40 suddenly died Deputy Minister of Foreign Trade *Sándor Czeitler*. He graduated at the University of Economics, Budapest in 1952 and immediately joined Government service in the Ministry of Foreign Trade. He became Deputy Minister in 1969. Mr. Czeitler had been a highly appreciated foreign trade expert and beside his practical activities he was a fervent author of articles in newspapers, economic weeklies as well as of scientific journals. His last book "Hungary and the Capitalist World Market" had been published already as a posthumous work few days after his passing.

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CONTENTS

A. CSERNOK: Economic Policy Goals in the Use of the National Income	149
É. EHRLICH: Economic Development and Personal Consumption Levels: an International Comparison	167
E. GÁCS—Zs. MAGYAR: Changes in the Living Conditions of the Population from 1971 to 1975	185
Á. KISS —J. TIMÁR: The Supply of Qualified Manpower — Labour Force-Structure — Education	201
M. AUGUSTINOVICS: A Series of Models for Long-Term Planning	219
A. NAGY: The Role of Consistent Trade-Network Models in Foreign Trade Planning and Projection of the Socialist Countries	239

REVIEWS

Ш. АУШ: Характер и проблемы рынка СЭВ	255
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BOOK REVIEWS

Economic Development and Planning (T. FÖLDI)	265
A. BRÓDY: Proportions, Prices and Planning (J. VÁRI)	268
A. BURGER: Economic Problems of Consumers' Services (ГҮ. ХАЈДУ)	269
J. MÁRTON: The New Structure of the Food Economy (ГҮ. МÓДОС)	269

BOOKS RECEIVED

272

A. CSERNOK

ECONOMIC POLICY GOALS IN THE USE OF THE NATIONAL INCOME

The author states that the generally accepted proportion between consumption and accumulation cannot be used for estimating decisions in economic policy and suggests other notions instead. Analysing the last two decades on the basis of the suggested connections he points to the stabilization of economic processes: the main proportions of consumption have remained unchanged, and this fact means considerable unexplored reserves in economic efficiency.

We are not likely to be far from truth by stating that distribution is one of the elements determining economic policy and its most important field of operation. The frequently mentioned “iron rule” of economic policy, namely, that we cannot distribute more than what we produce, is connected with this conclusion. (Aid and foreign loans may be exceptions to this rule but, in general, a society cannot rely permanently on foreign sources for its socio-economic development.)

We can hardly dispute the truth of the “rule”. Taking any longer or shorter period, we cannot allocate greater funds to the consumption by the population, to investments directly or indirectly improving living conditions, to increasing and modernizing the capacities of industry, the building industry and agriculture, and to the common needs of society (administration, defence), all taken together, than the national income — created in the form of goods and services suitable for consumption and investments. The standard of living and fixed assets can, in general, only be raised from one year to the next, to the extent made possible by the increase in the national income.

It is quite true that, in the final analysis, we cannot distribute more than what society creates in the form of goods suitable for final use, but this is only the quantitative aspect of the problem. Economic development has other, qualitative characteristics of decisive importance as well. The question cannot simply be “*how much*” — relating to the size of the national income we distribute: an issue of at least equal importance is “*how*” — i.e. the purposes for which we distribute the national income.

On the ratio between consumption and accumulation

In seeking replies to the two questions raised above, it should be pretty clear that “how much we produce” is the problem of production policy, and “how we use it” belongs to the sphere of distribution policy, as a function of the fundamental principles guiding the various phases of distribution and

re-distribution. As a result, *at first sight* it looks as if the qualitative side of the question were decided in the phase of distribution of the national income, when — as a result of many-sided considerations the ratio between consumption and accumulation evolves during the process of utilization.

Indeed, the ratio between consumption and accumulation is one of the fundamental categories of economic policy, of economic analysis, and every one of our decisions — either directly or indirectly, through transmissions — forms and influences this ratio. In this connection, *the optimal ratio* between consumption and accumulation appears as a fundamental qualitative criterion of development, constituting a framework within which economic policy ensures the joint growth of the standard of living and of fixed assets, in the most efficient combination. In certain cases, overestimation of this optimum was caused by the fact that many people interpreted disturbances and tensions in economic equilibrium as consequences of some larger deviation from the optimum mentioned.

However, in contrast with this interpretation which seems much too abstract, there are innumerable signs indicating that we cannot speak of any optimal consumption/accumulation ratio that would assert itself, independently of time and space, and could be generalized and unequivocally justified by theory. This ratio — and its optimum — is dependent on a whole host of factors. Above all, it depends on the country's level of economic development, its natural and economic-geographical endowments, the technological level of the processing industry, in general, on the technological equipment of labour and on many other things not listed here. The trend of this ratio is influenced by the rate of development over a longer previous period, to be precise, by the growth rates and levels attained separately in the earlier periods of development in these two fields of utilizing national income. This indicates that trying to quantify the optimal consumption/accumulation ratio, with even approximate accuracy would be an undertaking of rather uncertain outcome.

What we can certainly establish in this connection is known: it is not desirable that the proportion of accumulation should grow more rapidly over some longer period than national income; consequences are unfavourable if living standards lag behind economic growth for a longer period; an exaggerated increase in accumulation results in the deterioration of efficiency [1].

It is usual to calm the storm that breaks out at times in connection with the ratio of consumption/accumulation when decisions on economic policy are taken, by saying that we have to deal here with a particular contradiction between the present and the future, which can hardly be solved.

An etymological approach to the concept of "accumulation" would seem to prove the opinion quoted, since in a physical sense it is truly a question of accumulation, of amassing reserves, and investing material goods

now to meet demand which arises in the future. On this basis it really does look as though the two concepts of consumption and accumulation were two counter-poles of the use of the national income, behind which there looms the conflict of interest between living standards and economic development, or — since the future rise in living standards depends on *sacrifices made in the present* — between the present and the future.

So we are *apparently* faced with the complex question of the necessary and possible degree of sacrificing living standards in a given period in the interests of development and thereby providing a basis for consumption in some later period.

A more intensive study will shake this conviction. The concept of “consumption” means not only meeting the demand of the population, but also the consumption of public bodies (which serves completely different purposes). Furthermore it is highly questionable whether the concept of “*accumulation*” is at all capable of playing the role we have given it in economic analysis and economic policy. The essence of this latter contradiction is that while the concept of accumulation fundamentally indicates a process favourable to the national economy, a considerable part of its contents cannot be considered desirable at all. It is well known that in practice so far, the concept of accumulation includes, apart from the increase of fixed assets, the increase of inventories and the stock of investments in process, together with other non-productive expenses (although the majority of the latter do not serve the purposes of the future development of the economy, and thus they obviously do not conform to the requirements generally raised against accumulation). From the economic point of view this is mostly a “leakage” of economic resources from the process of reproduction, which slows down the rate of growth, and impairs the efficiency and balance of the national economy.

The contradiction between form and content is even greater if we study the question not simply from the etymological aspect, but in the light of political-economic viewpoints as well. Obviously, it would be desirable if in respect of all questions of outstanding importance, such as the use of the national income, plans and economic analyses were to reflect the direction and structure of the major goals of economic policy. In contrast to this, the synthesizing grouping for the evaluation of the use of the national income — the consumption accumulation division — tells us very little about the structure of the system of objectives of economic policy.

The macrostructure of the system of objectives of economic policy

In any given period, a society has many goals, and accordingly, economic policy is also facing several tasks, touching on or comprising broader particular sectors of socio-economic life.

In preparing for the future, production capacities must be extended, the technological level must be raised, and within the framework of strictly calculated realistic possibilities, care must be taken that the country should not lag behind the level of global scientific and technological progress. Furthermore, the means for government functions (administration, defence, financial affairs etc.) must be ensured. And prior to all these, the final goal and meaning of all socially organized activity must be cared for continually in order to satisfy the growing needs of the population. These tasks in fact constitute the *macrostructure* of the *system of objectives* of economic policy and the result of total social work. The national income and the related processes should be grouped and studied in accordance with this.

Social and economic policy decisions cannot be evaluated in the projection of consumption/accumulation because the task never appears in the form of "increasing consumption" or "increasing accumulation". Living standards of the population must be raised, production capacities extended, and these are real tasks. But since "living standards" and "production potentials" are *not synonymous* with the concepts of consumption accumulation, in order to provide a more purposeful grouping of the use of the national income, for a genuine economic policy orientation and analysis we must introduce other concepts to replace consumption and accumulation, concepts which better express the unity between form and content.

For this purpose the following grouping, which clearly separates major goals and processes of deviating character, and is homogeneous in its details, would seem suitable:

1. *Consumption* by the population (present content, that is: consumption of goods and the material cost of the services used by the population);
2. *Infrastructure* (increasing the fixed assets of transportation, trade, the health service, cultural and communal institutions and housing);
3. *Economic development* (increasing fixed assets in industry, agriculture, building and construction);
4. *Government* (consumption and investments by public bodies);
5. *Working assets* (the change in inventories and in the stock of unfinished investments).

The use of this grouping instead of the consumption/accumulation division used so far is preferable not because of its greater detail but for its homogeneity of concepts, and clearer orientation. (Of course, an increase in the number of major aggregates from two to five does not make unnecessary or replace possible further study in the individual group.)

These groups are homogeneous from the point of view of their own laws of motion and are subject to substantially different laws when taken separately. It is obvious that economic development (in the above sense) takes place under different influences and laws than, for example, government

tasks or infrastructure. In connection with working assets, we can speak of realizing an economic policy "goal" — only insofar as it accompanies productive investments — and to a great extent negative consequences of economic processes of doubtful necessity "precipitate" in this category.

The proposed classification gives a truer picture of the real use of the national income, it *demonstrates the different functions of the state and of society*, giving more valuable information for economic policy than earlier methods.

Another factor in favour of the new proposal, as opposed to the oversimplification of the consumption accumulation approach is, in my opinion, that in the first stage of distributing total social labour the *macrostructure of the system of objectives* is the major principle for ordering. At the summit of the political hierarchy of economic control it is the ratio among the different major goals of society that must be decided upon. Only a few levels lower — chronologically, after decision has been taken on the first group of questions — can the internal structure of the different goals, and of their needs, the problems of the *microstructure of the system of objectives*, come in to the forefront. The problem to be solved on lower levels of decision is that the consumer and investment goods and services needed by the different major goals (functions) should be supplied in suitable choice and composition.

The proposed new approach to the complex problems of growth makes the issue more differentiated and, at the same time, one of increased value as regards its merits in actual use. The *true* political, social and economic goals come to the forefront: demand of the population, which, by its nature, usually would increase more rapidly than realistic possibilities; the country's production potential which, owing to its insatiableness, lays as it were, the role of a modern "Moloch"; the state, whose functions society cannot do without, but whose share in the goods must be determined separately and only after careful consideration and, finally, the infrastructure, the "step child" pushed undeservingly into the background for so long, which perhaps most markedly unites in itself portions of the strivings of the population, the economy, and the state.

Have we gained or lost by this new grouping of concepts? It is not difficult to decide that we have gained. While with the increase in the "cast" and in their relations, the problem in one sense has become more complex, there can be no doubt that it has become simplified at the same time, insofar as matters appear in their reality, purified of disturbing features. This clear-sightedness is not an end in itself: it serves socio-economic development.

The moral of two decades

If we study the use of the national income in the past two decades according to the traditional two major aggregates, we may conclude that there has been a decrease in the ratio of consumption and an increase in that

of accumulation. In the years 1951–1968* the shares of consumption to accumulation developed as follows:

Use of the national income
(at 1959 prices)

Period	Consumption	Accumulation
	in percentage of domestic use	
1950–1954	74	26**
1958–1960	79	21
1961–1965	73	27
1966–1968	72	28

Thus, the rate of accumulation shows a rising trend during this period; in both the period of the second five-year plan and in the years from 1966–1968 it was above the level developed in the period of the first five-year plan. This phenomenon should be thought provoking for the rise in the rate of accumulation took place in comparison to a period in which the proportion of the realized rate of accumulation was found — as is well known — to have been quite high by economic analysis and also by life itself.

However, the rate of total accumulation is, as we have seen, far too global a concept, and too far-reaching conclusions should be drawn from it.

Analysis according to the proposed new viewpoint approaches the question in a more differentiated manner and, according to my calculations, *it developed as follows in the proposed structure:*

Use of the national income
(at 1959 prices)

	1950–54	1958–60	1961–65	1966–68
	In percentage of national income			
Consumption of the population	69	75	70	69
Infrastructure	4	7	7	8
Economic development (fixed investment)	9	8	10	10
Government tasks	9	5	7	5
Increase in working assets	9	5	6	8
National income, total	100	100	100	100

Comment: In the years under investigations the balance of use abroad was negligible.

* The last year of the calculation is 1968 because the study refers to the time prior to the reform in economic control and management. While 1968 was the first year of the reform, nonetheless the majority of economic processes developed under the effect of the earlier control mechanism.

** The Central Statistical Office shows a 22 per cent accumulation for 1950–1954 but, in my opinion, this cannot be compared as regards its contents with data for the 1960's and therefore I am using my own estimations instead.

The first thing worth noting is the surprising *stability* of the shares of major components reflect. (The deviating figures for 1958–60 do not, in my opinion, contradict this conclusion, because of the special “reconstruction” nature of the period.)

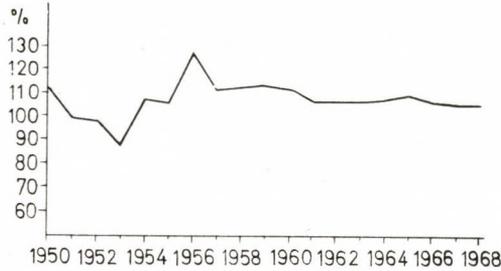


Fig. 1. Growth of consumption by the population compared with the growth rate of the national income. (Average of 1950–1954 = 100)

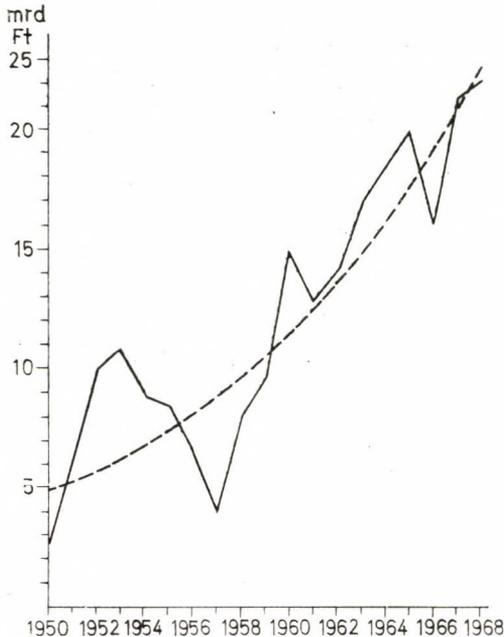


Fig. 2. The share of the national income devoted to economic development ———— share of the national income used for economic development; - - - - - exponential trend, $y = 10.5 \cdot 1.089^x$

There is a strong stability, above all in *the consumption* by the population. The fact that within the use of the national income it represented 69–70 per cent both in the first half of the 1950's and in the years from 1961–1968 speaks for itself. Another point of interest is how the rate of growth of

consumption by the population compared to the growth rate of the national income in the past twenty years. Apart from several "irregular" years, which to a certain extent reciprocally compensate each other (1950, 1953–1954, 1956–1959) this correlation also reflects the stability mentioned.

Beside private consumption, the slightly increasing ratio of *economic development* was also comparatively even.

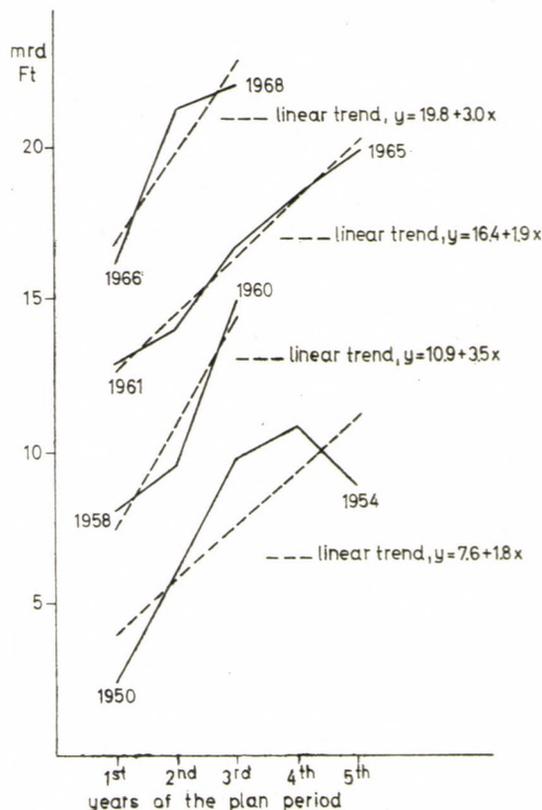


Fig. 3. The share of the national income used for economic development in the individual plan periods

The portion of the national income allocated to increasing fixed productive assets in the narrow sense of the term, to economic development proper, shows a trend which is an interesting reflection of the cyclical nature of investment activities. It can be clearly established that the increase in fixed assets reaches a peak in the final years of the plan periods, followed by a substantial drop in the first year of the next plan period, and then the process starts all over again. If we plot the four plan periods of the past twenty years (the first five-year plan, the second five-year plan, the second three-year

plan, the first three years of the third five-year plan) the similarity of the development processes becomes obvious. There is a certain stability in this trend as well.

From the point of view of economic policy decisions it deserves attention that the share of economic development in the national income and the growth rate of the national income show no functional relationship (the value of the correlation coefficient is -0.29). From this we may conclude that a possible *stagnation* in the proportion of productive fixed assets, or even a small drop, does not in itself endanger growth, and that an effort at accelerating the growth rate does not justify in itself an increase in this proportion, since other factors — sometimes of greater importance — also operate in the economy. (For example, with the same volume of fixed assets a substantially higher production value or national income can be produced if the product pattern is better adjusted to demand.) Investigation of the problem from this angle would seem most topical, particularly in connection with the problems of investment efficiency.

In studying relations between economic development and investment, several economists have concluded that investment is a necessary, but insufficient condition for rapid growth [2].

It is noteworthy that the share of the national income devoted to economic development in 1961—1968 exceeded that in the previous five-year plan, though the latter was indeed considered quite high already. It may be assumed that the efficiency problems mentioned were caused in part by this comparatively high rate of productive investment. In any case, analysis of many interrelations and experience indicate that those who feel that the Hungarian national economy — at least with its present structure — has reached the *upper limit of its ability to absorb investments*, are right. A further increase of the rate of productive investment at least for the time being, is unlikely to escape the danger of a further deterioration in the efficiency of the productive fixed assets and further losses to the national economy [3].

An essential, and let us immediately add: unequivocally favourable, change in proportion has taken place in two fields: the share of government tasks in the national income *has dropped* and, at the same time, that of the *infrastructure has increased*. A closer look at the issue, however, may in these cases too reveal a certain type of stability.

From the viewpoint of material-technical background, the building capacity released by the drop in the proportion of building in productive investments has been used to improve the infrastructure, and replaced in productive investments by rapidly increasing machinery production. From the financial side this means that the savings achieved in government tasks have been used to increase the share of infrastructure. (In this context, infrastructure means only the so-called “non-productive” infrastructure, i.e. bud-

get financial health, cultural and communal services as well as housing.) This shows a strong relationship with consumption by the population insofar as it is intended to serve improvement in living conditions, but is also, in view of its character, quite close to government tasks, and is in many respects itself a "state task". The combined shares of these two "related" areas have also changed very little in the period under discussion (13, 11, 12, 14, 13 per cent).

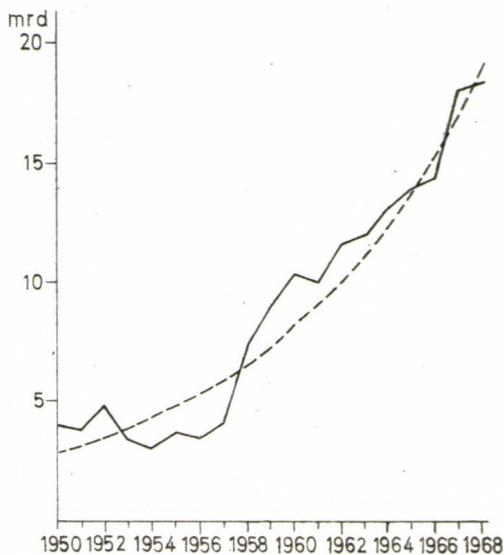


Fig. 4. Trends in the share of standing on infrastructure in the national income. — the share of national income allocated to the infrastructure; - - - exponential trend, $y = 7.4 \cdot 1.111^*$

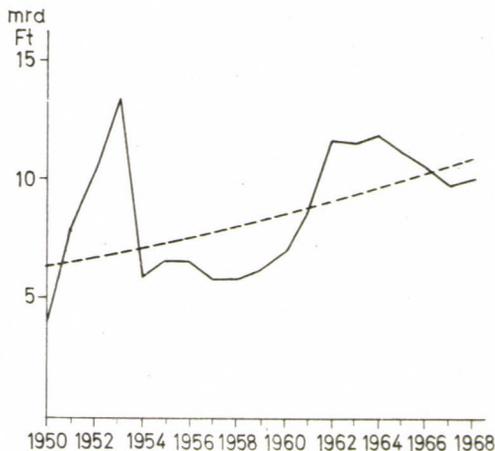


Fig. 5. Trends in the share of the national income allocated to government tasks. — the share of the national income going to government tasks; - - - exponential trend, $y = 8.3 \cdot 1.031^*$

A certain drop in the share of national income devoted to government tasks is most likely to be a necessary concomitant of economic growth. Nevertheless, it seems that in the fulfilment of different state functions we were substantially more moderate and economizing as compared with the period of the first five-year plan, taking our possibilities more into consideration. This is a favourable feature in our development.

In my opinion, this trend is an important one and provides an opportunity for drawing conclusions which go beyond its own sphere of validity. It proves that in fields where the character of the processes allowed, once social interests had been recognized, correct and effective measures were taken to exert substantial influence on development. And once we have recognized social interest in individual fields, there is no reason to assume

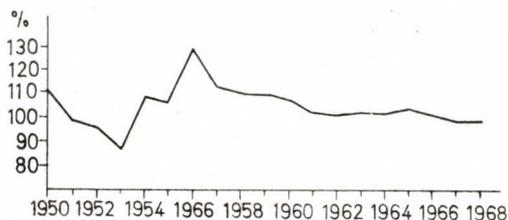


Fig. 6. Growth of the share of national income serving to improve living conditions, as compared with the increase in the national income. (Average of 1950–1954 = 100)

that the case is not different in other fields of society or of the economy. If in certain fields a change which suits to social interests has not yet taken place, this allows us to conclude on two factors connected to one another. One is that the driving force of the processes opposed to social interests are very deep-seated in economic policy (including now the mechanism of economic control and management); and, at the same time, this is the very reason why, because of the character of the processes, we cannot have a direct influence on them with administrative measures.

While we may treat the increasing share of the infrastructure as a favourable feature, we must also emphasize that there still is much to be done in this field. If we combine the investments in infrastructure with consumption by the population and try to characterize trends in the share of the national income allocated to the improvement of living conditions in a complex way — comparing this growth with the increase in the national income — the following picture will arise.

The increase in working assets, a certain “leakage” in the national income continues to be high even by the end of the plan period, though its share has dropped to some extent against the period of the first five-year plan. Apart from the problems of investment efficiency, it also indicates that

the national economy is not operating efficiently enough, with a greater "friction loss", than should be permitted.

It is worth noting that from among the components of the traditional accumulation found, it is the increase in working assets which is in the closest connection with the growth rate of the national income (the correlation coefficient is $+0.58$). In the present economic (production) structure — acceleration of our growth rate has been to a great extent "realized" by an increase in the proportion of "leakage".

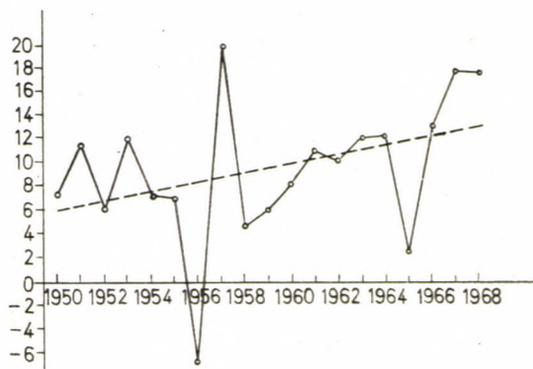


Fig. 7. Trends in the increase in working assets, ——— Share of the national income used for increasing circulating assets; - - - - - linear trend, $y = 9.5 + 0.4x$

There is also a noticeable "stability" in the internal structure of growth in working assets: stocks increase at a rate of 5–6 per cent, incomplete investments at about 3 per cent. (Concerning the latter, the period between 1961–1965 is an exception for in those years the growth in incomplete investments was not more than one per cent of the national income.)

It is logically obvious that stock accumulation is an unavoidable concomitant of economic development; however, international comparisons show that the part which can be qualified as unavoidable is at most one third to one half of the amount which is accumulated in Hungary year after year. A study by László Meixner [4] contains an international comparison according to which in the economically developed capitalist countries the average stock accumulation in the years 1959–1964 was between 0.2–1.5 per cent of the gross national product. Even in the one or two countries with the highest ratio this was still below 3 per cent. In the same period the ratio in Hungary was 4.4 per cent.

In this study the author concludes that "based on international comparison... no functional relationship can be established between economic growth and changes in stocks, at least not in a period covering a few years.

Balanced economic growth . . . generally took place together with relatively small increases in stocks, but it can also take place while stocks stagnate, and in some cases even drop . . ." Continuing his conclusions: ". . . a comparatively high rate of stock accumulation generally indicates some disturbing factor in economic life or in management" [5].

A comparison of the extent of stock accumulation with that in the developed capitalist countries is rather difficult. It may be justified to raise the idea, or the objection, that our disadvantageous position regarding stock accumulation stems from the fact that these countries are more developed than we are and operate with highly developed technology, labour organization, and management techniques, including stock control, etc. In other

Table 1

Per capita national income and stock increases in some capitalist countries

Per capita national income (\$) ^a	Country	Stock increases in percentage of gross national product ^b
250—300	Portugal	0.8
	Greece	1.4
500—700	Ireland	0.6
	Italy	1.1
	Austria	2.8
900—1100	Belgium	0.2
	Norway	0.7
	United Kingdom	1.2
	France	1.5
	Denmark	1.6
	German Federal Republic	1.7
	Holland	2.3
	Switzerland	2.3
1500	Sweden	0.9
2000	USA	0.8

^a 1960 data. Source: Éva EHRlich: Nemzeti jövedelmek dinamikus nemzetközi összehasonlítása természetes mutatókkal. (Dynamic international comparison of Hungary's national income with the aid of physical indices.) Közgazdasági Szemle. February, 1968. pp. 210—211.

^b Meixner's 1959—1964 data, with the exception of Denmark, Greece, Ireland and Portugal. These latter are my own figures for 1950—1961. Source: Statistics of National Accounts 1950—1961. Organization for Economic Cooperation and Development. Paris. 1964.

Table 2

Per capita national income (\$) ^a	Country	Stock increases in percentage of gross national product ^b
270	Portugal	0.6—0.8
600	Ireland	
970	Norway	
2000	USA	

^{a, b} see footnotes to previous table.

words, the comparatively high level of stock accumulation in Hungary stems from the general backwardness of our economic development.

Comparisons with capitalist countries on different levels of development disproves these views. It may be observed that extremely deviating stock accumulation figures can be found in countries on the same level of development.

Moreover a roughly similar rate of stock increase has been realized in countries on substantially different levels of economic development.

Another noteworthy factor is that Greece and Portugal, with lower levels of development than Hungary have stock increase rather similar to those in the developed capitalist countries.

In my opinion, these interrelations clearly prove that there is no connection between the extent of stock increase and the general level of economic development, the development of stocks is a more complex problem of production, distribution and utilization processes.

About 60 per cent of the growth in stocks in the years 1958—1967 consisted of materials. This indicates that the phenomenon we have to face cannot be reduced to the simplified statement that the structure of production lags behind needs, and a part of production simply settles down as stocks. This may be perfectly true and there are indications showing that in certain respects the industrial structure is not completely suited to the general technical-economic level of the country; but this certainly is not the whole truth.

Beside the interrelations mentioned, it seems rather obvious that this exaggerated "leakage" cannot be traced back only to the structural problems of the national economy alone and, as a consequence, it cannot be liquidated merely by structural transformation. The extremely high volume of working assets tied down is no doubt connected with enterprise cooperation, labour organization and a number of other factors too (for example, the security of material supply, the rhythm of deliveries, meeting deadlines, as pre-conditions for cooperation; and furthermore, programming and, in general, the

conditions for modern organization etc.). In this field we can find many unexploited reserves and possibilities for measures to be taken which promise tangible results in a short time.

At the moment there are but assumptions for the most part in this field; research and analyses in many directions are needed before any well-founded stand can be taken. In advance, we would like to mention two interrelations worth attention. According to the calculations of the Research Group for Industrial Economics, and to other calculations as well, the share of the engineering (metal-working) industry in Hungary's industrial production is the same as, or higher than in the Common Market countries. This comparison indicates a certain disproportion in the structure of industrial production which might have made its effect felt also in the structure and development of stock increases. In the past ten years almost half of the industrial stock increase (45–50 per cent) was due to the growth in the engineering industry stocks (including materials, semi-finished and finished products).

The continuous large-scale increase in the stock of incomplete investments is even less acceptable and points to certain shortcomings in management, to the "dissipation" of investment resources, insufficiency of building capacities, and the regular delays in construction industry.

Comparing the above statements with the relative size and increase of working assets we may draw the conclusion that at least about 4–5 per cent of the national income has, for years now, been unnecessarily tied down where it cannot be used for social development. (This is about the sum needed to improve the situation of the low income groups; or it would be able to solve the socio-political problems related to the part of the population not yet or no longer able to work; alternatively, it could improve the system of the family allowances and pensions in a *satisfactory* way.)

These are not new facts, and perhaps there is no other field in economic policy which has been dealt with so intensively in the past decade and a half as that of economic efficiency, investment efficiency and the well-known problems of stocks and unfinished investments. We must repeatedly discuss these problems which have been recognized long ago in order to ensure a healthy development of the plan period which is about to begin. These problems of national economic efficiency may impair the possibilities for increasing living standards, and thereby individual and social "atmosphere". Unless these unfavourable phenomena are ended we shall barely be capable of solving the tasks facing us in the process of socio-economic development.

Studying the structure of the use of the national income from the angle of our economic policy goals directs the attention to several essential factors:

— the share used for economic development is higher today than it was in the period of the first five-year plan, and its efficiency has been problematic during the whole period;

- the share for increasing working assets is still high;
- there has been a certain stability in the economic processes of the past two decades: the major ratios of utilization remained unchanged;
- this stability offers, beside its many favourable features and its substantial achievements in economic development, considerable unexploited reserves — primarily as regards the increase in production fixed assets and in working assets.

Therefore, the major lesson of the past twenty years is that our economy has substantial reserves, which can no doubt be mobilized to meet our political, social and economic goals: to improve living conditions, to raise the cultural level, and to accelerate economic development. Our medium and long term plans must, first of all, find the expedient methods by which these goals will be realized.

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ЦЕЛИ ЭКОНОМИЧЕСКОЙ ПОЛИТИКИ В ИСПОЛЬЗОВАНИИ НАЦИОНАЛЬНОГО ДОХОДА

А. ЧЕРНОК

В первом разделе статьи автор оспаривает возможность применения показателя пропорции потребления и накопления, при принятии решений в экономической политике. Он развивает мысль о том, что нет такого соотношения потребления и накопления, которое было бы независимо от пространства и времени общедействительным и теоретически безоговорочно оправданным. Это соотношение зависит от бесчисленных факторов, и квантификация его было бы довольно безнадежным предприятием.

Автор спорит с взглядом, согласно которому соотношение потребления и накопления является воплощением противоречия между интересами настоящего и будущего, и приходит к выводу, что как потребление, так и накопление имеют неоднородное содержание и, таким образом не могут служить мерилем решений, принимаемых в экономической политике. Потребление, кроме потребления населения, включает и — значительно отличающееся по своему назначению — потребление учреждений, а накопление, наряду с ростом основных фондов производственных отраслей, содержит и рост основных фондов непроизводственной инфраструктуры, прирост незавершенных капиталовложений, и запасов.

Во второй части статьи автор излагает свою позицию относительно того, что макроструктуру системы целей экономической политики лучше отражает следующая группировка использования национального дохода: потребление населения (вместе с потреблением материалов сферой обслуживания населения); инфраструктура (рост основных

фондов непроизводственной инфраструктуры и торговли); развитие экономики (рост основных и оборотных фондов промышленности, строительства и сельского хозяйства); государственные задачи (рост основных и оборотных фондов учреждений); рост оборотных фондов (рост запасов и незавершенных капиталовложений). Автор при принятии решений в экономической политике, предлагает вместо соотношения потребления и накопления учитывать эту группировку.

В третьей части статьи автор анализирует некоторые уроки прошедших двух десятилетий, рассматривая использование национального дохода в предлагаемой группировке. Он констатирует, что в экономических процессах в этот период проявлялась определенная стабильность: наблюдалось воспроизводство соотношения использования национального дохода. Эта стабильность, по мнению автора, — наряду с положительными явлениями и результатами развития — с точки зрения экономического роста таит в некоторых областях значительные резервы, которые, по всей вероятности, могут быть мобилизованы.

É. EHRlich

ECONOMIC DEVELOPMENT AND PERSONAL CONSUMPTION LEVELS: AN INTERNATIONAL COMPARISON

This article deals first with the causes of problems arising in connection with the international comparison of synthetic value indicators used in various relations. Then the values of economic development level in various countries will be presented as derived from the calculations; also the method will be reviewed with the aid of which the values of per capita personal consumption have been established in terms of 1960 dollars of international purchasing power; the results of the calculations will be shown and some related conclusions drawn. Finally, attention will be called to experience which may be useful in planning the pattern of personal consumption.

It is well known that various studies are being prepared in different fields and on different levels with the aim of drawing up a long-term plan for the development of the Hungarian economy. As a part of this undertaking, a long-term plan for the standard of living is being worked out. The calculations to be reviewed in this study are related to the latter.*

The calculations provided also experience of a different nature which enabled us to try to answer some more general questions related to international comparisons.

On the causes of “anarchy” in the international comparison of synthetic value indicators

International comparisons are of great importance for assessing both our results and our tasks. It is thus understandable that economic lectures, articles and studies abound in comparative international data, including comprehensive value indicators. Unfortunately, the data quoted at different places show deviations to an extent that will justly suggest the idea of anarchy or at least justly raise suspicion. I am going to try to answer the justified question about the causes of this anarchy: what are the most frequent sources of the deviations?

The purpose of international comparisons performed on the basis of synthetic indicators is generally a two-sided or many-sided, static or dynamic comparison of development levels, living standards, and personal consumption in individual countries.

* The calculations of per capita personal consumption have been performed by the Working Panel for International Comparisons of the Long-term Planning Committee for Labour and Living Standards. The data for 1965 were collected and part of the calculations performed by F. Káposztás, aided by Miss G. Kenesi and Mrs. D. Németh.

For this purpose the following synthetic indicators (or their components) have been used — in a wider scope since World War II:

a) based on the Standardized System of National Accounts (SNA), the gross national product (GNP), the gross domestic product (GDP) and the national income are computed generally for capitalist countries;

b) based on the Material Product System (MPS), the synthetic indicator of national income (net material product) is calculated generally for socialist countries.

These synthetic indicators may essentially differ from one another in four aspects:

- in their contents (the scope of accounting)
- in the prices taken into account on national level,
- in the year of reference and the purchasing power of the common currency used for converting the different national currencies and,
- in the method of international comparison (conversion to common currency).

National incomes calculated on the basis of the SNA comprise the value of both material and non-material services, while those calculated on the basis of the MPS exclude non-material services. The gross national product includes national income, as defined in the SNA, plus the depreciation of fixed assets and net income from abroad. By subtracting the latter from the GNP, the gross domestic product is obtained.

These synthetic indicators may differ also in quantitative terms owing to the difference in their scope. E.g. the difference between gross domestic product and national income (in the SNA concept), that is, the amortization of fixed assets, fluctuates between 17 and 23 per cent in capitalist countries on the average, of course, in favour of the former.

The differences are not smaller in respect of the national *prices* taken into account. The indicators of the gross national and the gross domestic products are usually calculated only at market prices, while national income is worked out in capitalist countries mostly at factor costs and only in a few countries also at market prices. The difference between the two is that the market price values include indirect taxes (turnover taxes, customs duties, etc.); whereas the national income calculated at factor cost excludes these. In capitalist countries the national income calculated at market prices is about 12–15 per cent higher on average than the one calculated at factor cost. In socialist countries the national income is worked out at market prices alone.

Finally, a difference may be caused by conversion to the *common currency*. It is very frequent to take the dollar for basis. It is well known that the dollar as world money and the dollar as the domestic currency of the United States essentially differ. According to some estimates, the domestic purchasing power of a US dollar was by 15–20 per cent lower in 1960 than

its international value. It is likely that by 1965 the difference increased by a few per cent since the decline in purchasing power of the dollar was quicker within the US than on the international markets. Thus, the frequently quoted American saying: "Earn money in America and spend it in Europe" is not meaningless. Because of this "devaluation", also the dollars of different years are of different value. Therefore, if some synthetic indicator is converted to a common currency, say, to dollars, the kind of a dollar (of what year, of domestic or of international purchasing power) used to express the synthetic indicator of different countries should be specified. E.g., the per capita national income of the United States in 1965 (according to SNA) may be expressed as \$ 2900 and also as \$ 2420. Both values are correct, only the former is valued at the domestic purchasing power of a dollar in 1965 and the latter at the world market purchasing power of a dollar in the same year.

These many kinds of deviations of varying direction explain why we come across different figures e.g. for the gross domestic product or the per capita national income of Hungary.

Unfortunately, it frequently occurs that authors and lecturers, using some synthetic indicator of Hungary in dollar terms for purposes of illustration, fail to specify the contents of the indicator, or the year and the purchasing power of the currency used for conversion. No wonder that figures relating seemingly to the same thing differ sometimes by as much as 40—50 per cent.

The question may be justly asked: which is the true figure? Each of them may be "true", only the contents of the indicators is different, or the price level taken for basis may differ, or the common currency value related to a different date. It thus may happen, e.g. that Hungary's per capita national income is (in the SNA system) \$ 600 in one of kind of calculation and \$ 900 in another one. Of course, the two values may indicate the same rank in a world list if all data are calculated in the same manner. A chaos will ensue only if data of such type are published without closer specification. Since this problem affects an ever growing sphere, it is particularly important that everyone in every publication should specify the contents of the indicators used and the mode in which they are valued.

It should be emphasized that — particularly if countries with different social systems are subject to many-sided international comparison — we cannot speak of "exact" results even if the system deemed most perfect is employed. Unfortunately, we must realize that in such comparisons an error of ± 10 per cent may qualify as acceptable, however great this may seem.

Each of the results obtained with different methods is only an approximate indicator of the differences really existing among the countries. What we can say for certain is that whenever we get the same or closely resembling results with different methods, we cannot be far from truth.

Two types of international comparative methods

Let us also remember that, depending on the method of international comparison used, different results of varying degrees of accuracy will be arrived at, particularly in the case of many-sided international comparisons. From this point of view two basic types (directions) of international comparative methods may be distinguished in connection with conversion into a common currency:

1. One basic direction of international comparisons is a detailed, sometimes item-by-item, conversion to some common currency of the synthetic indicators to be compared (GDP, GNP, national income, consumption).

A comparison of this type relies on a large amount of data. It yields comparatively accurate results and enables a detailed international investigation of the major aggregates subject to comparison. This procedure is called the "re-pricing method".

The synthetic indicator to be compared may be re-priced in varying depth, beginning with re-pricing by articles to a conversion of only the major aggregates. The greater the detail, the more exact the calculation, but the greater the costs and the time involved. Therefore, very detailed comparisons relying on item-by-item re-pricing are undertaken rather infrequently. This is an important reason why research workers have started to look for other methods to compare the economic development levels of different countries.

2. The other main direction of international comparisons is represented by the so-called simplified, short-cut methods. With their aid the questions put may be answered in a relatively short time and with a small apparatus.

Simplified methods may rely e.g. on allotting weights to physical indicators; the conversion with the aid of official rates of exchange may also be considered as such a method.

Another type of simplified methods is when correlation is sought between some synthetic value indicator and certain physical indicators. This group includes also the short-cut method worked out by Ferenc Jánosy [1]. By correlating 16 physical consumption (utilization) indicators and the per capita national income Jánosy established the per capita national income levels (in the SNA concept) of 47 capitalist countries and Hungary for 1955 in terms of 1955 dollars of international purchasing power.*

By using the Jánosy-method, on the basis of 36 physical consumption indicators and their correlation with per capita GDP at market prices, I have calculated the per capita GDP values of 29 capitalist and 8 socialist countries for 1960, in terms of 1960 dollars of international purchasing power.**

* I have used myself the Jánosy method in calculations for per capita national income (SNA) in 1937 and 1960 covering 24 capitalist and 6 socialist countries with the aid of 26 physical indicators. See [2].

** For a full description of the method, see: [3].

Although the main purpose of this article is to present the results obtained from an international comparison of personal consumption, the per capita GDP values of 25 capitalist and 7 socialist countries will also be presented for 1965 (see Fig. 1). The values for 1965 have been obtained by extra-

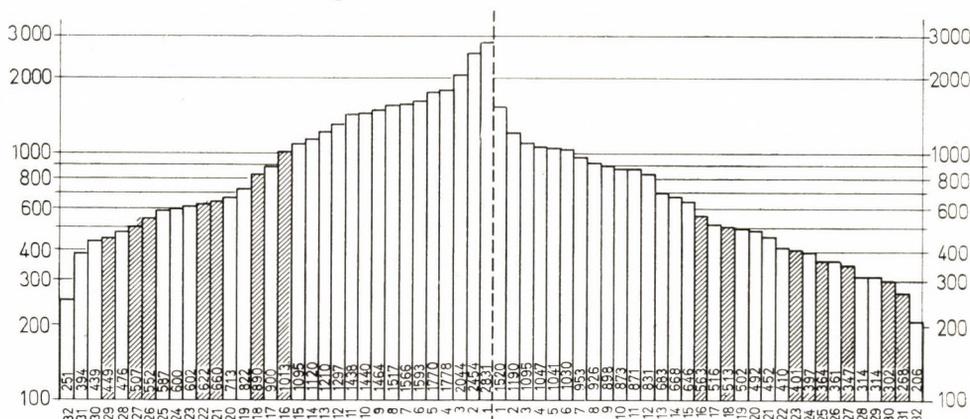


Fig. 1. Results of the international comparison (in terms of 1960 dollars of international purchasing power)

Per capita GDP in 1965

Per capita personal consumption in 1965

- 32 Turkey (251)
- 31 Mexico (394)
- 30 Portugal (439)
- 29 Yugoslavia (449)
- 28 Greece (476)
- 27 Romania (507)
- 26 Bulgaria (552)
- 25 Rep. of South Africa. (587)
- 24 Spain (600)
- 23 Argentina (602)
- 22 Hungary (622)
- 21 Poland (660)
- 20 Italy (713)
- 19 Israel (822)
- 18 Czechoslovakia (890)
- 17 Japan (900)
- 16 German Dem. Rep. (1013)
- 15 Austria (1095)
- 14 Finland (1120)
- 13 France (1210)
- 12 The Netherlands (1297)
- 11 Belgium and Luxemburg (1438)
- 10 Norway (1440)
- 9 German Fed. Rep. (1464)
- 8 Denmark (1517)
- 7 Switzerland (1566)
- 6 United Kingdom (1593)
- 5 Australia (1770)
- 4 New Zealand (1778)
- 3 Sweden (2044)
- 2 Canada (2454)
- 1 USA (2831)

- 1 USA (1520)
- 2 Canada (1190)
- 3 Sweden (1095)
- 4 United Kingdom (1047)
- 5 Australia (1041)
- 6 New Zealand (1030)
- 7 Switzerland (953)
- 8 Denmark (926)
- 9 The Netherlands (898)
- 10 Fed. Rep. of Germany (873)
- 11 Belgium and Luxemburg (871)
- 12 Norway (831)
- 13 France (683)
- 14 Finland (668)
- 15 Austria (646)
- 16 German Dem. Rep. (563)
- 17 Japan (516)
- 18 Czechoslovakia (513)
- 19 Israel (502)
- 20 Italy (492)
- 21 Argentina (452)
- 22 Spain (410)
- 23 Hungary (401)
- 24 Rep. of South Africa (397)
- 25 Poland (364)
- 26 Portugal (361)
- 27 Bulgaria (347)
- 28 Mexico (314)
- 29 Greece (314)
- 30 Yugoslavia (302)
- 31 Romania (268)
- 32 Turkey (206)

polating the 1960 values relying on detailed calculations. The calculation for the capitalist countries was carried out by correcting the 1960 values of per capita GDP, as worked out by myself, with the official growth index number of the countries between 1960 and 1965.

Since in socialist countries the growth index of national income is computed only according to the MPS system, this indicator was used as the basis of extrapolation. The corrected per capita GDP values relating to 1965 are thus expressed in 1960 dollars of international purchasing power for both the capitalist and the socialist countries.

The short-cut method of computing personal consumption and the results obtained

As has been mentioned, the results of an international comparison of GDP values are published in this article rather for purposes of illustration, the main subject being the new results of an international comparison of personal consumption. A few words about its method will, therefore, be appropriate.

The per capita personal consumption in 1965 of 25 capitalist and 7 socialist countries has been compared.

The value of per capita consumption in capitalist countries has been established with the following method: first the percentage share of personal consumption in 1965 in the "official" (statistically stated) gross domestic product of the given country was computed in national currency. Secondly, this ratio was applied to the corrected per capita GDP values that had been calculated in terms of 1960 dollars, the 1965 values of per capita personal consumption also appear in 1960 dollars of international purchasing power.

Thirdly, in order to develop the short-cut method, an attempt was made to find interrelations between certain physical indicators and the indicators of per capita personal consumption. Therefore, some physical indicators of consumption and stocks were selected which showed close correlation in the capitalist countries with the magnitude of personal consumption expressed in dollars.

The *physical indicators selected* and the related data of consumption are contained in Table 1.

Next, for each indicator their interrelation with the starting values of per capita personal consumption in individual countries was established, according to their own statistics, and the regression lines expressing the relation were worked out for each of the indicators. The regression lines yielded the "fictitious value" of per capita personal consumption for each indicator and each country. The dollar value of "calculated per capita personal consumption" was worked out as a geometrical mean from these fictitious values

for each country and according to 17 indicators of per capita personal consumption in dollar terms.

The establishing of the different regression lines by 17 indicators was repeated for each country as in an iteration procedure, until the connection between the physical indicators chosen and personal consumption showed the closest interrelation: that is, until the values of calculated per capita personal consumption, worked out as geometrical means from the fictitious personal consumption for each country in dollar terms according to the regression lines, no longer affected — even after repeated plotting — the dispersion of the diagrams, and the size of the calculated personal consumption.

This procedure enables us — by eliminating prices — to establish the value of per capita personal consumption also for countries where the value of per capita personal consumption in dollar terms and its share in GDP is unknown — as is the case of socialist countries — yet the statistical data for the physical indicators are available. Thus, knowing the physical indicators and relying on the regression lines determined by the data of the capitalist countries, it has become possible to establish, for seven socialist countries, the personal consumption in dollar terms and its share in GDP, by “fitting in” the relevant physical data.

Thus, the short-cut method for establishing the dollar value of per capita personal consumption is similar to the Jánossy-method in so far as it is based on the correlation of physical indicators and some synthetic indicator. But in Jánossy's calculations the independent variable is national income, while in this one, it is personal consumption.

The results of the international comparison of per capita personal consumption are presented in Fig. 1, together with the data on per capita GDP.

In this context I should like to note first of all that, while the size of per capita GDP in a particular country at some date may be considered a more or less adequate expression of the economic development level of the country, the quantitative indicator of personal consumption cannot — in a static approach — be considered as representing the living standard, living level, living circumstances etc. — which are not fully clarified terms themselves. This should be stressed also because we are of the opinion that the living standard is a much more complex notion than the personal consumption examined. Our calculations relating to personal consumption cover, as a matter of fact, only the numerically measurable part of consumption, but do not reflect the entire range of the living standard, and particularly not its qualitative aspects related to the way of living and to living circumstances.*

* Personal consumption comprises the consumption covered by the population from its personal money income; moreover, the value of agricultural products consumed by the peasantry from its own production; the amortization and maintenance of personally owned dwellings; finally, the services used in budgetary institutions, but only to the extent of the value paid for.

Table 1
Indicators of physical

Country	Cereal	Animal protein	Sugar	Coffee, cocoa, tea	Traditional textiles	Synthetic textiles	Rooms
United Kingdom	77.7	53	48	6.79	11.9	2.2	0.68 ^a
Austria	99.3	49	36	4.23	8.9	1.2	0.91 ^a
Belgium and Luxemburg	84.7	50	37	8.61	10.8	1.7	0.62 ^a
Denmark	72.3	60	48	11.7	10.7	2.0	0.69
Finland	89.4	57	39	19.5	7.9	0.9	1.31
France	90.5	61	30	5.77	8.6	1.8	1.01 ^b
Greece	145.0	37	15	1.66	7.8	0.1	1.45
The Netherlands	71.2	51	43	16.68	11.4	2.2	0.76
Ireland	101.0	54	49	—	—	—	—
German Fed. Rep.	73.4	51	32	7.91	11.0	1.9	0.88
Norway	73.6	50	40	9.3	7.9	2.2	0.77
Italy	131.0	33	25	1.03	6.8	1.2	1.14 ^a
Portugal	132.0	30	20	1.92	6.3	0.8	1.11
Spain	105.0	28	19	2.22	5.4	0.7	0.93
Switzerland	86.7	52	42	13.1	11.0	1.2	0.69
Sweden	69.6	54	39	8.85	10.7	2.1	0.83
India	148.0	5	21.3	0.42	2.5	0.01	—
Israel	102.0	40	39.5	2.89	—	—	—
Japan	144.0	25	23.5	1.22	9.8	3.2	1.2 ^c
Turkey	223.0	16	14.7	0.55	—	—	—
Rep. of South Africa	167.0	32	37.3	1.7	—	—	—
Argentina	134	51	—	—	—	—	—
Chile	128.0	27	—	1.9	—	—	—
Canada	67.5	63	46	6.62	11.6	1.7	0.7 ^a
Mexico	125.0	24	34	0.53	—	—	—
USA	66.4	66	40	8.56	14.4	3.0	0.66
Australia	85.0	61	51.5	4.81	9.8	1.5	—
New Zealand	86.0	75	45.5	4.93	10.2	1.7	—
Bulgaria	190 ^e	27.4	22.3	—	10.6	—	—
Czechoslovakia	133	43	39	1.81	12.7	0.6	1.30 ^a
Yugoslavia	196.3	24	20	1.65	5.6	0.3	1.59
Poland	149.0 ^f	38	30	1.22	7.4	0.5	1.66
Hungary	139	38	30	2.69	8.8	—	1.42 ^a
German Dem. Rep.	101 ^e	47	30	3.31	14.2	1.0	1.2
Romania	190	27.7	14	0.34	5.8	0.2	—

^a 1961; ^b 1962; ^c 1963; ^d 1964; ^e 1960—1962; ^f 1962—1963.

Explanation of the indicators:

Cereal: Annual consumption of cereals converted to flour, kg/head

Animal protein: daily consumption of animal proteins, g/head

Sugar: Annual consumption of sugar, kg/head

Coffee, cocoa, tea: Annual combined consumption, kg/head

Traditional textiles: Annual consumption of cotton, wool and rayon fibres, kg/head

Synthetic textiles: Annual consumption of synthetic fibres, kg/head

Rooms: Number of persons per room

Congested flats: Share of flats with more than 3 persons in the total number of flats,

Bath rooms: Share of flats with bath rooms in the total number of flats, per cent¹

Household kWh: Annual consumption of electric energy by households, kWh/heap

Cars: Number of registered passenger cars, pieces/1000 heads

consumption in 1965

Congested flats	Bath-rooms	Household kWh	Cars	Tele-phones	Radio and TV	Hospital beds	Newspaper	Letters	Trade
0.9 ^a	77.4 ^a	1051	166	194.5	545	10.5	25.3	196.5	—
2.7 ^a	30.0 ^a	390	109	137.5	395	9.5	9.6	114	19.7
0.1 ^a	23.6	417	143	167.0	490	8.0	14.0	233	17.3
—	48.3	—	157	288.0	561	8.4	25.8	126	25.3
8.2	14.6 ^b	265	98.8	181.5	503	9.3	24.5	84.3	19.4
4.8 ^b	28.7	257	187	125.0	446	10.0	11.1	147.5	18.8
16.1 ^a	10.5 ^a	128	12.2	59.7	104	5.55	6.2	30.3	32.2
—	—	401	104	191.5	424	7.5	18.8	195	18.2
—	—	—	97.7	76.0	325	—	14.8	92.7	17.4
0.2	64.3	405	158	155.0	633	9.7	12.4	151.5	14.9
1.0	45.2	3169	125	244.0	424	9.5	16.7	116.5	19.9
7.6 ^a	28.9 ^c	218	106	116.0	325	9.2	6.6	101	18.6
10.3	18.6	81	—	59.5	148	5.88	3.5	40.3	33.8
5.1	23.4	97	24.9	87.7	199	4.34	4.0	76.5	22.4
—	68.7	—	154.5	379.0	382	12.4	20.4	246	17.2
—	72.9	739	232	438.0	652	14.3	30.7	172	17.6
—	—	—	0.89	1.72	11	0.45	0.3	12.9	63.2
—	—	—	30.0	100.5	296	6.7	7.3	72.3	23.3
5.2 ^c	59.1 ^c	—	43.8	142.8	392	10.0	11.8	95.3	10.2
—	—	—	2.75	10.95	78.05	1.75	1.3	10.2	79.2
—	—	—	62.5	67.0	146	6.25	9.5	52.2	39.0
—	—	—	41.5	67.0	367	6.25	10.0	35.3	24.7
—	—	—	11.4	33.5	—	—	4.7	—	38.0
0.5 ^a	80.3 ^a	—	269	380	731	11.0	—	193.5	13.5
—	—	—	18.6	20.1	243	1.7	—	19.85	38.8
0.3	88.1	1316	385	483	1595	9.1	—	362	12.8
—	—	—	254	247.5	394	12.5	33.3	195.5	13.7
0.4 ^a	—	—	271	388.0	400	11.1	31.6	203	16.2
—	—	—	—	34.1	273	7.14	2.8	—	40.3
5.4 ^a	33.3 ^a	175	12.0	105.6	412	10.1	3.0	—	25.9
15.2 ^a	13.9	146	9.63	21.3	184	4.6	3.1	53	—
9.8	22.5	82	7.78	41.2	245	6.9	1.9	—	35.8
8.1	17.4	98	9.8	56.1	327	7.69 ^d	3.6	55.5	30.8
—	22.1 ^a	305	38.7	97.0	524	12.1	4.5	74.5	18.8
—	—	54	—	24.9	173	7.69 ^d	2.6	—	49.4

Telephones: Number of telephones installed per 1000 heads

Radio and TV: Number of radio and TV receiver sets per 1000 heads

Hospital beds: Number of beds in health institutions per 1000 heads

Newspaper: Annual consumption of newspaper, kg/head

Letters: Annual volume of letters sent or received (domestic) pieces/head

Trade: Number of inhabitants per trade employee

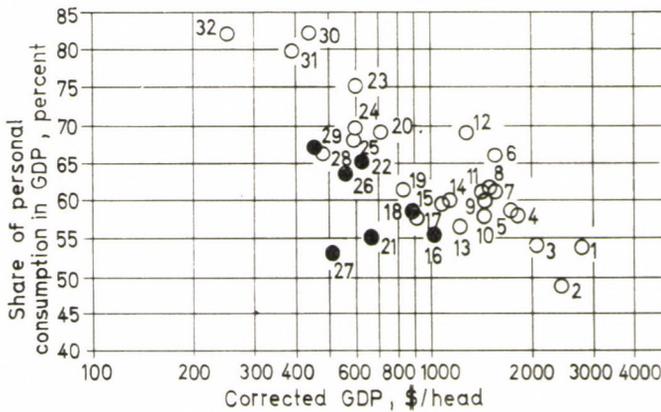
¹ For details see: A lakás és kommunális ellátás távlati terve (Long-term plan of housing and communal supply) Interim report of the Long-term Planning Committee for Labour and Living Standards. Part III. International Data. Prep. by Dr. Z. Benkő, ifj. B. Horváth Szabó, Z. Zoltán.

² This indicator has been worked out under the direction of Dr. M. Zafir. Head of Dept., Hungarian Central Statistical Office

Interrelation between economic development level and the share of personal consumption

The data in Fig. 1 seem to indicate that the *difference between the values of the two indicators is generally greater in the economically more advanced countries than in the less developed ones.*

A closer inspection will show that there exists a correlation between the share of personal consumption in GDP and the level of economic development. This is presented in Figure 2.



In terms of 1960 dollars of international purchasing power

Fig. 2. Interrelation between the share of personal consumption in GDP and the level of economic development in 1965

- | | |
|---------------------------|--------------------------|
| 1. USA | 17. Japan |
| 2. Canada | 18. Czechoslovakia |
| 3. Sweden | 19. Israel |
| 4. New-Zealand | 20. Italy |
| 5. Australia | 21. Poland |
| 6. United Kingdom | 22. Hungary |
| 7. Switzerland | 23. Argentina |
| 8. Denmark | 24. Spain |
| 9. German Fed. Rep. | 25. Rep. of South Africa |
| 10. Norway | 26. Bulgaria |
| 11. Belgium and Luxemburg | 27. Romania |
| 12. The Netherlands | 28. Greece |
| 13. France | 29. Yugoslavia |
| 14. Finland | 30. Portugal |
| 15. Austria | 31. Mexico |
| 16. German Dem. Rep. | 32. Turkey |

The data allow the conclusion that the population of an economically more advanced country consumes a smaller part of GDP as personal consumption than the population in less developed ones. The major reasons may be found in the following:

It is a general phenomenon that the more developed an economy, the greater the costs of *public consumption* (maintenance of roads and bridges, costs of flood protection and water economy, consumption of government and other organizations and institutions, vocational training, education, expenses of the health service, etc.). Also the share of these outlays grows as a function of the development level.

The difference between the two indicators stems mainly from the different magnitude of the *ratio of replacement and accumulation*. In a part of the socialist countries — as well as in other countries of similar development level — the building of the infrastructure is still in process (urbanization, residential construction, building of roads, sewage, etc.), and a substantial part of the amounts spent on accumulation serves these objectives. This also contributes to the fact that in these countries the share of accumulation is greater, and less remains for the personal consumption of the population.

The deviation between the levels of personal consumption and gross domestic product is further affected by the size and utilization of foreign loans or aids. Where the foreign loan and aid or part of these is used for personal consumption, the share of personal consumption in the GDP will be greater.

The volume of tourism also affects the level of personal consumption in various countries. If in some country the tourist traffic is important (e.g. in Switzerland, Italy or Austria), the level of personal consumption seems to be higher since the consumption by foreigners is obviously included in the physical indicators.

This results in *the generally observable tendency that the differences between countries are much smaller in personal consumption — in respect of both the capitalist and the socialist countries — than in economic development level*. A fuller investigation of the causes of this tendency deserves and requires further and diversified research. The economic interpenetration evolving on a world-wide scale — by regions and between regions —, the economic integration of countries and the migration of labour are certainly among the causes.

This definite tendency is proved by the following facts. E.g., while the difference of per capita GDP between the USA and Turkey is 11.3:1, in personal consumption this ratio falls to 7.4:1. The difference between the economically most developed country of the Common Market, the GFR and the least developed one, Italy, is 2.05:1 in GDP, and 1.77:1 in personal consumption. The corresponding figures for the GFR and the USA are 1:1.92 and 1:1.17; for Italy and the USA 1:3.95 and 1:2.94, respectively, and so on.

In the socialist countries examined a similar phenomenon may be observed. As regards the per capita GDP, the difference between the GDR

and Yugoslavia — which occupies the last place — is 2.3:1, while in respect of personal consumption it is 2.1:1 between the GDR and Romania which is on lowest level on this list.

With her 400 \$/head value Hungary occupies the third place among the socialist countries in respect of personal consumption, behind the GDR (\$ 563) and Czechoslovakia (\$ 513), followed by Poland (\$ 364), Bulgaria (\$ 347), Yugoslavia (\$ 302) and Romania (\$ 268).

The difference between Hungary and the most developed capitalist country, the USA, is also smaller in personal consumption than in respect of per capita GDP, in the former the ratio being 1:3.8, in the latter 1:4.5. While the ratio of Hungary to Sweden is 1:2.7 in personal consumption and to the GFR it is 1:2.2, the corresponding figures for GDP are 1:3.3 for Sweden and 1:2.4 for the GFR.

According to the general tendency, the *differences between Hungary and the developed capitalist countries are smaller in personal consumption than in respect of economic development level.*

If the planned level for 1975 of per capita personal consumption in Hungary is taken for basis, the \$ 650 level would mean that we shall have attained the 1965 level of Austria, Finland or France.

*

The undeniable interrelation, at a given date, between the level of economic development and the ratio of personal consumption raises the question whether, or not, with the passage of time a similar rate of personal consumption will invariably accompany the same development level, that is, whether this interrelation experienced remains unchanged or varies over time.

This question could only be answered if the interrelation could be examined for more countries and for several and possibly remote years, or if the interrelation between the two factors could be investigated with the aid of long time sequences in individual countries. In the present analysis this could not yet be undertaken.

Comparison with results obtained with other methods

The results arrived at with the aid of the calculation method outlined may be compared for some countries with results obtained by using other methods.*

* The British economist W. Beckerman performed an international comparison with the aid of a "short-cut" method, calculating the relative magnitudes of per capita real personal consumption in various capitalist and socialist countries. His results are not used in the present study merely because they relate to 1960. (See W. Beckerman: International comparison of real income, OECD Development Centre Paris, 1966, as well as W. Beckerman and R. Bacon: International comparison of income levels; a suggested new measure, Economic Journal, Sept. 1966. Vol. LXXVI. No. 303.)

The 1964 personal consumption in Austria has been compared with that in Poland by the statistical offices of the two countries with the aid of the "repricing method" [4]. Accordingly, the per capita consumption in Austria was 66 per cent higher than in Poland. According to our calculations the Austrian excess was 77 per cent, the difference being 11 points only; but the comparisons performed by re-pricing do not include supply with flats, while ours do. It is conceivable that by including flats in the first calculation, the results would come closer.

For the per capita personal consumption in 1963 of the five socialist countries included into our calculations there is a comparison available, calculated with the aid of the re-pricing method and published by the Econ-

Table 2

Comparison of two results obtained with different methods

Countries	Calculation of the Research Institute of Gosplan 1963	Our own calculations 1965
GDR	136.0	141.0
Czechoslovakia	125.0	128.0
Hungary	100.0	100.0
Poland	96.4	91.0
Bulgaria	89.0	86.6

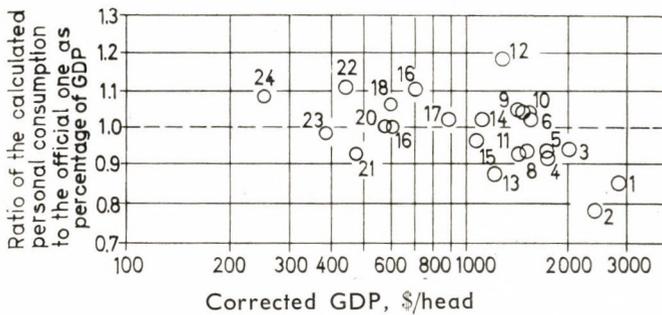


Fig. 3. Comparison of the calculated and the official shares of personal consumption

- | | | |
|-------------------|---------------------------|--------------------------|
| 1. USA | 9. German Fed. Rep. | 17. Japan |
| 2. Canada | 10. Norway | 18. Argentina |
| 3. Sweden | 11. Belgium and Luxemburg | 19. Spain |
| 4. New Zealand | 12. The Netherlands | 20. Rep. of South Africa |
| 5. Australia | 13. France | 21. Greece |
| 6. United Kingdom | 14. Finland | 22. Portugal |
| 7. Switzerland | 15. Austria | 23. Mexico |
| 8. Denmark | 16. Italy | 24. Turkey |

omic Research Institute of the Planning Commission of the Soviet Union [5].* Its results are compared with our own in Table 2.

In view of the permissible margin of error in international comparisons, the difference between the two calculations may be considered negligible.

Also the share in GDP of the personal consumption worked out by us in dollar terms and the one determined by the countries in national currencies may be compared.** This comparison enables us to judge the margins of error in our calculations.

It may be seen from Fig. 3 that in 17 of the 24 countries shown, that is, in more than 70 per cent of them, the deviation remains within the limits of ± 10 per cent, in four within ± 12 per cent and in two ± 20 per cent and there is only one single country where the deviation exceeds 20 per cent.

On this basis the error of our calculations regarding the volume of personal consumption in individual countries and its share in gross domestic product may be estimated as ± 10 per cent.

Some contribution to planning personal consumption

Growth in the level of personal consumption is known to involve changes in the pattern of consumption. The work here described highlights also another essential factor in the change of the pattern of personal consumption. It has, namely, become obvious that, with the passage of time, the pattern of consumption becomes different even on identical levels of consumption. The latter factor of changes in structure has been revealed by examining the consumption in physical terms for 1960 and 1965.

Thus, when planning the growth of personal consumption, the consumption pattern in more developed countries does not yield satisfactory information: the changes (technological progress, changes in consumption habits, etc.) caused by the passage of time even on identical levels of development should also be taken into account.

It is important to know on what levels these changes are significant and where they can be neglected, that is, when to consider and when to disregard the time lag in planning the pattern of personal consumption.

Relying on the physical indicators, we have obtained different regression lines for 1960 and 1965 for the interrelation between the level of personal consumption and the physical indicators. From the differences in the form

* Unfortunately, it does not appear from the publication whether only personal consumption levels or total consumption levels, including public consumption, have been compared.

** Since there are no official data available for the share of personal consumption in GDP in socialist countries, the comparison had to be restricted to capitalist countries.

and place of the regression lines relating to the two dates and in the distance between them conclusions may be drawn for the changes over time in the pattern of consumption.

Experience of research into the physical indicators has revealed four major types of changes over time in the relation between the physical indi-

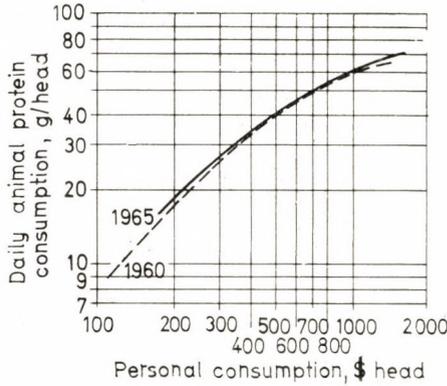


Fig. 4a

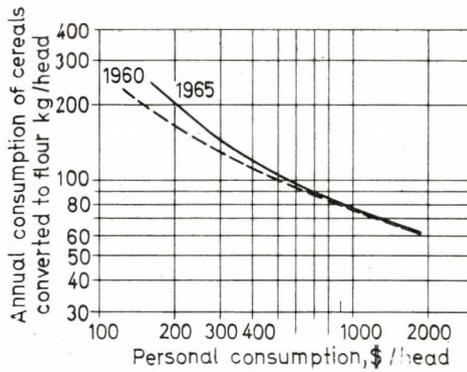


Fig. 4b

cators and the level of personal consumption. (For illustration a graph is shown for each type; see Figures 4/a—4/d.)

1. *The regression lines are unchanged over time, that is, the time factor did not bring about any change in the case of animal proteins, traditional textiles, the telephone supply and the consumption of newsprint (Fig. 4a).*

2. *The regression lines show deviations at a lower level of personal consumption but are identical at higher levels in the case of cereals, sugar, hospital beds and cars (Fig. 4b).*

The 1965 regression line relating to cereal consumption lies above the 1960 line on lower levels of consumption; for 1965 the analysis indicates relatively lower cereal consumption (by about 10–15 per cent) indicating the same absolute level of personal consumption as in 1960.

The 1965 regression line for sugar consumption runs below the 1960 line on lower consumption levels; the same level of personal consumption

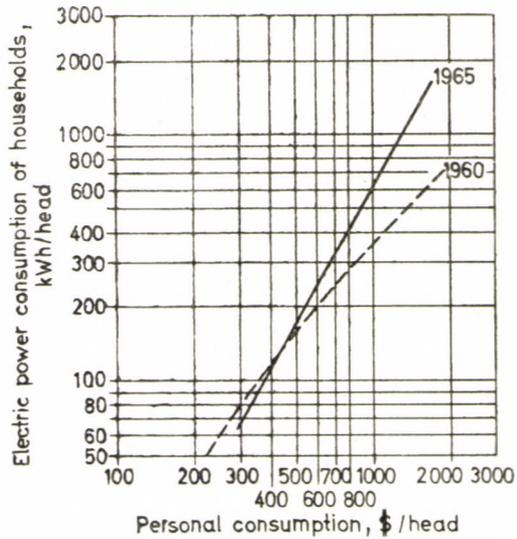


Fig. 4c

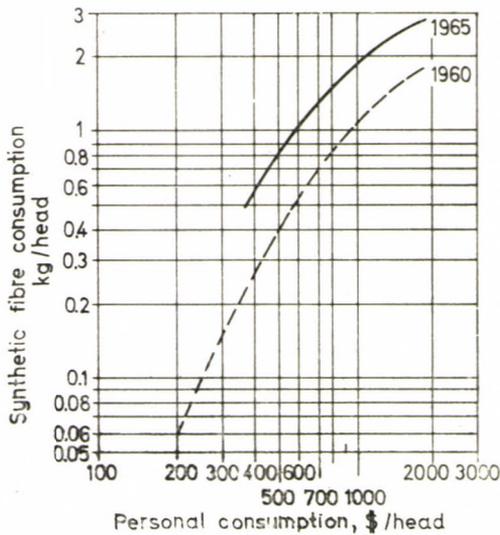


Fig. 4d

would have meant in 1965 a sugar consumption about 10–15 per cent higher than in 1960.

3. *The regression lines are different on higher levels of personal consumption and essentially identical on lower levels in the case of coffee, radio and television and electric power in households (Fig. 4c).*

This means that in 1965 a greater consumption of the given product belonged to a higher level of personal consumption than in 1960.

4. *The regression lines are different along the entire scale of personal consumption in respect of the indicator of synthetic fibre consumption (Fig. 4d).*

The 1960 and 1965 regression lines run almost parallel but the one for 1965 lies significantly higher than the one for 1960. This shows the tendency that in 1965 an essentially higher consumption of synthetic fibres belonged to each level of personal consumption than in 1960 (higher by about 30 per cent).

In our present investigation we have assessed the changes during a single five-year period only. The period is too short to draw any far-reaching conclusion on the future of the consumption pattern. This would necessitate a long-term comparison of further physical indicators with the consumption level. It is, however, believed that the knowledge and the consideration of changes over this short period may also help to plan a more up-to-date consumption pattern.

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УРОВЕНЬ ЭКОНОМИЧЕСКОГО РАЗВИТИЯ И ЛИЧНОГО ПОТРЕБЛЕНИЯ В МЕЖДУНАРОДНОМ СОПОСТАВЛЕНИИ

Э. ЭРЛИХ

Синтетические показатели, отражающие уровень экономического развития отдельных стран — как валовой отечественный продукт в расчете на душу населения или потребление в расчете на душу населения — в различных публикациях и докладах зачастую выражаются совершенно различными величинами. Автор излагает основные направления методики их исчисления, указывая на то обстоятельство, что значительные расхождения объясняются, главным образом, различиями в методах исчисления. К сожалению, в публикациях и докладах авторы не уделяют должного внимания точному указанию специфики исчисления приводимых данных.

Автор публикует в своей статье расчеты по 25 капиталистическим и 7 социалистическим странам, выполненные ею при помощи метода, аналогичного методу Яноши (т. н. «short-cut»). На основании официальных данных потребления 17 видов продукции и услуг в ряде стран и показателя потребления в расчете на душу населения, автором обобщается в форме регрессивной функции взаимозависимость между синтетическими показателями натурального потребления и потребления в расчете на душу населения. Сопоставляя показатели потребления и валового отечественного продукта, автор приходит к выводу, что чем более развитой является страна, тем меньшая доля валового отечественного продукта используется ею для целей потребления. Автор останавливается и на причинах этой тенденции.

В заключение автор на основании выполненных ею анализов констатирует, что структура потребления населения, потребление отдельных натуральных благ изменяются не только в зависимости от уровня экономического развития, но и на том же уровне развития могут происходить со временем изменения с аналогичной тенденцией. Последние вытекают из изменения навыков потребления, связанного, главным образом, с техническими изменениями, и представляют собой важный аспект при планировании.

E. GÁCS—MRS. ZS. MAGYAR

CHANGES IN THE LIVING CONDITIONS OF THE POPULATION FROM 1971 TO 1975

The article reviews the scope and importance of planning living conditions. In this framework it examines the following fields: housing and public utilities; real wages and real incomes; earning and social benefits; the income of enterprises and budget-financed bodies. Commodity supply and consumption; the problem of commodities in short supply; planning of consumer prices. Reducing working hours. The question of the ratio between consumption and accumulation; investment by the population. Finally, the reality of the plan is examined.

Parliament approved the 4th Five-Year Plan for the development of the Hungarian national economy late last year. In its framework the major directives which outline expected changes in the living conditions of the population in the first half of the 1970's have also been adopted.

Previous national economic plans have also contained directives on the living standard. But this was the first occasion that the questions related to the living conditions of the population were studied as an independent, complex subject, and discussed as such by the National Planning Office with the involved state and social bodies. Based on the completed plan, in this article we would like to introduce the major factors, which are — in our opinion — of decisive importance from the point of view of the population.

Planning living standards is a complex job, and it cannot be simply reduced to the problems of distribution. Living standards are in close connection with, and have reciprocal effects on all phases of extended reproduction.

— The rise in living standards is not only a consequence of but a condition for the further development of *production*. While, in the final analysis, economic development determines the means available for raising the standards of living, the policy on living standards will react — through wage incentives, better living and working conditions, mediated by consumer demands — on production and economic growth.

— *Distribution* of incomes stemming from production, preferences ensured through the system of regulators, *redistribution* of incomes taking place through budgetary means, their method and extent have a direct influence on the development of the incomes of the population.

— The *circulation* sphere — meaning for the population mainly home trade — supplies the consumer with the goods produced, and passes on the demands of the population to the producers. The modernness of the commercial network, the level of its services have an influence on living conditions,

even if this influence cannot be expressed numerically. The plan also had to keep it in mind that foreign trade interests should not endanger supply to the population, and that, through imports of consumer goods, the domestic range of goods should be broadened.

— *Consumption*, its volume, pattern and up-to-dateness is a fundamental element in the living standards of the population.

— *Accumulation* is directly related to the living conditions of the population primarily through investments in the non-productive sphere (housing, public utilities, health, cultural fields), but also the investments of the production sphere have an indirect effect on the population, since they create the possibilities for increasing the output of consumer goods and services, and for extending employment.

The possibility for raising living standards is connected to the growth of the national income, and is not a question of arbitrary decision. This means that the rise in living standards is limited by the rate of economic growth, but the rate does not by itself directly determine development of the individual factors in the standard of living. The direct limits are set by the role given to the individual factors within living standard policy. Living standard policy must simultaneously meet political, economic, and social requirements as well. These three requirements do not contradict each other, in fact, they assume one another in the long range, but on short and medium term, they may get into conflict.*

The directives of the 4th Five-Year Plan on living standards can be considered significant both by international comparison, and in the light of our past development as well. Despite this fact, they cannot meet all, otherwise justified, demands and for this reason, in order to increase efficiency, the necessary living standard policy is one which takes resources realistically into account, establishes an order of priority among the goals to be reached, and formulates points of emphasis. The ranking of the factors in the standard of living cannot be arbitrary in the different stages of development. It is necessary to mark out key development goals, which also means that in different stages of development different elements of living conditions of the population may come to the fore.

In the period 1966—1970, we solved the following important tasks: we were able to meet the high demands for employment stemming from the demographic wave,** important social policy measures were taken (raising of pensions and family allowances, introductions of child care aid***). Peasant

* For living standard policy, see I. Huszár's article [1].

** This was the period in which the generation born in the early 1950's, extremely large in number due to administrative measures limiting birth control, appeared on the labour market.

*** Beginning with 1967, a mother who cares for her child at home is entitled to 600 forints a month until the child reaches the age of three.

incomes accelerated partly as an effect of central measures affecting income levels, the peasantry essentially reached the level of the workers, the system of social benefits to cooperative farm peasantry became identical with that of the workers and employees with the exception of sick pay and retirement age. It has been achieved that the transition to the new economic mechanism was smooth in the field of living standards, too. In the past three years — in harmony with enterprise incomes, and within the framework of regulators — the rise in earnings has accelerated to some extent.

Key questions marked out in the plan for 1971—1975 include the *housing problem*, the *growth of real wages* as material incentive, *improvement of supply with commodities* and *reduction* of working hours.

Housing

Improvement of the housing situation is of outstanding importance because our lag in this field is substantial even in comparison to our level of general development attained, and because unsatisfactory housing conditions unfavourably affect the efficiency of advance achieved in other fields.

To characterize the housing situation, it is enough to mention that at present 47 per cent of existing flats have one room only; 24 per cent have modern conveniences; and 55 per cent have drinking water supplies from public works; the number of persons per 100 rooms is 199.

Table 1 reviews the data of the housing construction programme in the 4th Five-Year Plan.

With the construction of these 400 thousand flats, the 1 million new homes announced in the 15-year housing development plan for 1961—1975 will be realized. Despite global fulfilment, the urban housing situation has not improved to any great extent in the past 10 years, since substantially fewer flats were constructed in the cities than had been planned, while at the

Table 1
Major directives in the housing construction programme

Item	1966—70	1971—75 (plan)	Index number 1971—75 1966—70
Total number of flats built (thousands)	317	400	126
Average annual construction of flats per thousand inhabitants (units)	6.2	7.6	123
Average number of rooms per flats constructed	1.9	2.0	105
Number of state-owned flats within total number constructed (thousands)	103.5	180—200	174—193
Ratio of flats built in cities (percentage)	53	65	

same time urban population grew faster than expected. The pulling down of outdated flats also accelerated. This is why it is of particular importance that in the coming five years state housing construction* will almost double, and that about 65 per cent of the new flats will be built in the cities.

This planned housing construction calls for an input of 105–110 thousand million forints, which is roughly 20 per cent of total national investments. Costs of this housing construction programme are about evenly divided between the state and the population.

In the plan period almost 400 thousand families, or about 1.2 million people can move into new homes. On the national average the number of persons per 100 flats will drop from the 322 in 1970 to 303 in 1975. Despite this substantial advance, at the end of the plan period there will still be about 200 thousand families (or parts of families) without flats of their own. Considering that almost half of the existing flats have one room, the shortage of rooms will be substantially greater than this.

Supply with utilities is in organic connection with the improvement of the housing situation. By the end of 1975, 64 per cent of the population will be supplied with drinking water from public works (55 per cent in 1970), while sewage supply will rise from 28 per cent in 1970 to 36 per cent. There will be important advance in accelerating the development of the more backward areas of the country, and the large differences between the levels of supply in the different settlement categories will be reduced. The number of households supplied with gas through central pipelines will rise from the 520 thousand of 1970 to 680 thousand and, taking flats with bottled propane-buthane gas into consideration too, the ratio of flats with gas supplies will go up to 65 per cent.

Real wages — incomes

One of the fundamental directives for the 4th Five-Year Plan is that the growth rate of real wages approach the dynamics of real incomes. In five years the real wages per wage earner will rise by 16–18 per cent, and the per capita real income by 25–27 per cent. This deviates sharply from the practice of the past decade, and can be achieved primarily through a smaller growth in employment, and a more moderate rise in social benefits than earlier. This latter trend was the subject of lively debates in the period of preparing the plan. It is well known in professional circles that differences in family incomes are not determined in Hungary primarily by earnings but by deviations in demographic factors (ratio of wage earners to dependants). This is indicated by the fact that, according to 1967 figures, about 90 per cent of

* Basically these are flats constructed by the local authorities (councils).

worker-employee families with per capita incomes of less than 600 forints monthly, were pensioners and large families. This factor would make it justifiable for the state to increase its contribution to alleviating income differences due to demographic factors, that is, to substantially raise pensions and family allowances. A substantial increase in financial social allowances would, namely, improve the situation of those living on low income levels.

Despite what we have pointed out here, the standpoint was asserted that in the coming period earnings must be increased in the first place to serve as an incentive for greater and more efficient production. When we placed increasing efficiency and economic incentives in the forefront of income policy for the coming period, our aim was to induce more rapid development, so that in perspective we should be able to extend possibilities for meeting justified social demands (raising pensions, family allowances, etc.).

This is why economic regulators influencing enterprise activity were modified so that they should provide better incentives than at present for increasing efficiency, and ensure, at the same time, more dynamic possibilities for increasing earnings within the enterprise sphere. Plan calculations have reckoned with an average 3 per cent annual increase in earnings, as the foundation of wage regulation.

At the moment the relative wages by branches are for the most part satisfactory in the enterprise sphere and for this reason centralized wage policy measures going beyond the general increase in earnings ensured by the regulators themselves are not justified. However, it is necessary that we have a suitable reserve for measures of wage policy since this annual 3 per cent possibility for increasing earnings may get diffused in the different branches of production, and substantial wage disproportions may emerge while, at the same time, labour shortages in some branches may press for larger increases in wages than the average.

There are no scientifically founded, objective criteria for correct wage ratios in Hungary, but as far as we know, no such criteria have been worked out in other countries either. Spontaneity plays a great role in this field everywhere. In our experience, every trade feels that it is lagging behind in relative terms and it can quote arguments which seem objectively to support its claims: international data, complexity of the work, responsibility involved by the work, proportions before the war, etc.

While the relative wages of branches can be considered satisfactory for the most part, this cannot be stated about ratios within the enterprise. In the past ten years the difference in payment for simple and complex work has decreased in a manner unjustified from the socio-economic point of view. Despite recognition of the unhealthy nature of this levelling trend in wages, there has barely been any essential measure taken to overcome this egalitarianism. Therefore, a differentiation in earnings which would better reflect

the complexity of the work, and performance is topical, and is expected to promote desirable socio-economic activity.

The roughly 3 per cent annual increase in earnings, which comes to about 16 per cent in five years, will create the possibilities for a greater differentiation in earnings than the present one. The modification of the central wage tariff system, which will take place in 1971—72 is intended to serve this goal. However, actual differentiation in earnings cannot be centrally prescribed, this depends fundamentally on enterprise behaviour.

Lest new wage disproportions appear, the plan prescribes for bodies financed by the central budget to receive salary increases in proportion with the branches of production (3 per cent annually). Until now this principle has not been enforced consistently, and thus the effect of wage policy measures carried out from time to time in budgetary fields, which improved wage ratios to a certain extent, has become repeatedly weaker. In order to eliminate wage disproportions, specific wage raises must be carried out in certain non-productive job categories (for instance teachers). In the budget-financed fields it would be expedient to link wage corrections with rational measures to reduce staff.

Since by the end of the 1960's the peasant income level reached that of the workers, the plan calculates with identical income rises for these two fundamental categories. Income increases related to work will be realized in agriculture, too, as a result of growing production and the improvement of efficiency.

We must count on the fact that large differences between agricultural cooperatives will continue and hence income dispersion will also be large. With a differentiated extension of employment the cooperatives must achieve conditions under which differences in income stemming from geographical situation and other factors decrease, and workers in cooperatives with unfavourable natural conditions be able to live on at least the income level considered socially justified. For this reason the expansion of the non-agricultural activities of cooperatives must be supported and a more differentiated tax policy pursued as long as the national economy is in need of the agricultural output of the areas in question.

Social benefits

Putting the increase in earnings into the forefront does not and must not mean stagnation in the level of social benefits. There are two major reasons for this:

— it stems from the system of allocations — for demographic etc. reasons — that a substantial automatic increase takes place from year to year, e.g. the number of pensioners grows; as a result of increases in average wages, the annual sum of pensions increases, the average of sick pay rises etc.:

— in order to solve the most burning problems measures must be taken to increase the extent of allocations, and to change conditions for receiving them.

The social measures which will become necessary during the period of the 4th Five-Year Plan are as follows:

Improvement in the situation of large families can be achieved primarily through increasing family allowances. According to calculations, in worker-employee families, the family allowance covers on the average, no more than 15–20 per cent of what families actually spend on their children.

In the debates which served to prepare the plan, the role or roles the family allowance should play arose on a number of occasions. Should it serve demographic or welfare purposes? Another debated issue was whether the family allowance should be determined depending on income, or independently of it (as a fixed sum); should families with one child receive the allowance, and if so, until what age; and should the sum paid per child depend on the number of children in the family or not. Since, in the coming period, we have but meagre possibilities, it would seem correct to carry out a uniform increase per child in the families already entitled to the allowance. However, the questions raised must be studied further, so that we should be able to make correct decision on the perspective development of the system of family allowances.

As regards measures to improve the situation of pensioners, there are three circumstances to be weighed:

a) As a result of the continuous rise in real wages, the situation of pensioners in relation to earners deteriorates in relative terms.

b) There are substantial differences between the different pension categories, depending on the date of retirement, the different regulations and other reasons.

c) As a result of the rising price level, the real value of the pensions is decreasing. This is why measures will be taken in this period to lessen disproportionalities in the distribution of pensions. At the same time, measures have already been taken that beginning with January 1st, 1971, all pensions shall rise by 2 per cent annually.

Commodity supply — consumption

One of the important goals of Hungarian economic policy in the past 10 years has been an ever growing satisfaction of solvent demand through the continuous improvement in the supply of the population with products and services. The balance between supply and demand was maintained globally, but as regards commodity groups, and particularly certain items, demand could not be completely met. Items in short supply have been a permanent phenom-

enon accompanying our development. By their nature, these items can be divided into two large groups, though a rigid line cannot be drawn between them.

The first group includes those permanent shortages (e.g. of meat or building materials), which are direct consequences of tensions and disproportions in the national economy (foreign trade interests, shortage of capacity, etc).

The other group includes periodical shortages (for instance, in women's boots or children's clothing) which stem from poor organization, inaccurate assessment of demand, inappropriate management of stocks and an unsatisfactory system of incentives.

While the population is not interested in the reasons why an item is unavailable, this classification is of outstanding importance from the point of view of solution. Using its own tools (investment allocation, determining foreign trade quotas, thorough price policy, etc.) the national economic plan can partially or completely eliminate the shortages in the first group.

Supply problems which have been unsolved for a long time now, will develop in the following way in the course of the 4th Five-Year Plan.

— In recent years a number of measures have been taken to promote *meat* production. One of the most important of these was the repeated raising of producers' prices. As a result of these measures, an increase in the domestic supply of meat is expected, but existing restrictions can only be gradually eliminated, depending on the improving satisfaction of demand. Per capita annual meat consumption will grow by about 8 kilograms in five years.

— In comparison with the pre-war level, *beer* consumption has grown to over fifteenfold, and yet we have not been able to keep pace with demand. The annual capacity of the beer factory which will be completed by 1972 will enable us to raise per capita beer consumption by 10 liters annually, while at the same time we wish to maintain the high level of imports existing at present.

— Many new *textile* plants will be constructed in the 4th Five-Year Plan period, and large-scale reconstruction will take place in the existing ones. As a result of this development, shortages in clothing items (primarily in synthetic products, household textiles, etc.) will come to an end, and it may even become possible to reduce prices of some products. An above-average increase in consumption, 35–36 per cent, is expected in clothing items.

— In five years the population will purchase about 300 thousand *passenger cars*, 170 per cent more than in the period from 1966 to 1970. With that increase, the Hungarian automobile stock will reach the half a million mark, and every seventh family will have a car. This degree of supply is still well behind other countries on similar levels of development, nevertheless, the condition for eliminating "queues" of buyers exists. We must, however, put up with the fact that the range of the cars imported will not be

completely in harmony with domestic solvent demand. An even more rapid increase in the number of cars is hindered by the fact that the financial and material means for extending the capacities of related investments (highway network, filling stations, servicing shops, etc. which must be increased) are limited.

— The present *car servicing network* can only partially meet demands. The doubling stock of cars will greatly increase demand. Large-scale increases in servicing capacities will make it possible to extend repair and maintenance of cars owned by the population by 130–140 per cent.

— The increasing requirements related to housing and week-end home construction and maintenance create an ever growing demand for *building materials*, and meeting these demands has not been smooth until now either. The “scarcity-economy” asserts itself most strongly in the trade in building materials, customers are poorly served and this causes the population much annoyance. Several new building material factories will be constructed to ease the tension between supply and demand. Most of them will begin production in the latter half of the plan period, and are expected to eliminate the severest shortages. Until these capacities begin to produce, temporary increases of imports will lessen the tension. In total, in 1975 the population will be able to purchase 50 per cent more building materials than in 1970.

— Two new *furniture factories* will be constructed in the 4th Five-Year Plan period, which means that we can hope for a balanced supply by the end of the period. Similar, essentially gradual improvement can be expected in the supply with *metal* mass consumer goods, in accordance with new capacities beginning production.

— In the period of the five year plan the population will receive about 110 thousand new *telephone* extensions. Despite this, the number of unsatisfied claims will be greater than the present one. In this field, Hungary's supply is below that of other countries on similar levels of development. Better satisfaction of demand is primarily limited by the fact that the establishment of new telephone lines is very capital intensive.

— The activities of the dry *cleaning* and laundering industry will grow by 60–70 per cent in five years. The advance will be particularly great in textile laundering, where the per capita quantity of laundering will increase from 1.45 to 3.27 kilograms. Despite the large-scale increase, rapid satisfaction of demand will not be ensured, but by 1975 two thirds of all families will have their own washing machines, and this will, to some extent, ease the tension between demand for and possibilities of laundering.

Coordination of supply and demand by kinds of goods is primarily the task of distributive trade and the productive enterprises. The system of incentives will be gradually changed to make commercial enterprises interest-

ed in increasing turnover. The change in the system of regulators carried out in 1971 takes the specialities of the home trade branch more into consideration.

So we can count on an improving situation in commodity supply in the coming five year period. Development of the commercial network gives us a less favourable picture. The approximately 40 per cent rise in retail trade turnover will be accompanied, according to calculations, by an only 17 per cent increase in the network which means that for every 1 per cent increase in turnover there will be only a 0.42 per cent growth in selling area. Of course, an increase in turnover does not require an increase in network of the same size, but the difference in pace seems to be too great.

According to the plan, consumption by the population will increase by about 30 per cent in five years, and within this, the share of industrial articles, particularly that of durable consumer goods will continue to rise, and that of foodstuffs to drop.

Table 2

Per capita consumption figures and supply with durable consumer goods

Item	Unit of measurement	1970	1975	Index number (1975/1970)
<i>Per capita consumption</i>				
<i>Foodstuffs</i>				
Meat (including fish)	kg	58.9	67.0	114
Cereals	kg	132.0	127.0	96
Sugar	kg	33.5	37.0	110
Milk and dairy products	kg	110.7	134.0	121
Eggs	kg	12.0	14.0	117
Potatoes	kg	84.5	82.0	97
Vegetables	kg	88.3	100.0	113
Fruit	kg	73.6	90.0	122
<i>Articles of clothing</i>				
Cotton and cotton-type fabrics	m ²	17.2	18.5	108
Wool and wool-type fabrics	m ²	2.7	3.5	130
Under and outer knitwear	kg	0.68	1.0	147
Leather shoes	pair	2.08	2.68	129
<i>Supply per thousand of population</i>				
Automobiles	units	21	47	224
Television sets	units	173	240	139
Refrigerators	units	98	208	212
Washing machines	units	170	210	124

Trends in consumption by the population, and supply with individual products can be seen from the data in Table 2.

Planning *consumer prices* covers two spheres of problems: planning the official changes in prices, and making prognoses of changes in market prices. For a long time, Hungarian economists have been debating which consumer price system is the most expedient: and within the system, how broad a sphere of deviations from the general principle should be applied. However, the price measures taken into consideration in the 4th Five-Year Plan only wish to eliminate the crudest disproportions in the present price system.

The supply-demand relations indicated by the interrelations in the plan, and elimination of the most conspicuous disproportions also make price changes through administrative measures necessary. In connection with administrative price changes, it is a requirement that prices not only move upwards, but downwards as well. At the same time, a rise in the prices of basic consumer goods, which affects the broad masses, must be connected with measures to increase nominal incomes (wages, pensions, etc.).

The calculation of prognoses for changes in non-administrative (free and limited) prices was subject to lively discussion in preparing the plan. After studying and weighing deviating opinions, the viewpoint which finally won was that numerically the lower margins of probable market price changes should be taken into consideration (abt. 0.5–1.0 per cent annually) that is, those which are already visible on the basis of plan interrelations and expected supply-demand relations.

Reduction of working hours

In the years 1968 and 1969 manufacturing and the building industries switched over to the 44-hour week, which was generally realized through the introduction of every other Saturday off. The reduction of working hours was a measure which completely coincided with the demands of the population. In the fields mentioned the condition for reducing working hours was that it must be solved entirely with their own resources (without any additions in staffs). The enterprises have not always complied with this requirement.

However, this partial introduction of shortened working hours causes a good deal of tension. A flow of labour from the fields with longer working hours has begun toward those with shorter working hours. This is unfavourable from two points of view; it increases staffs where this is undesirable from the point of view of productivity and, at the same time, it accentuates labour problems in the tertiary branches, where increasing employment would be the national economic goal. It is partly these factors, and partly the principle of equal treatment which demands that transition to the 44 hour work week should be continued in the period of the 4th Five-Year Plan.

In the branches of the national economy outside industry and the building industry the shortening of working hours can only be solved with differentiated measures, since the shortening of working time must not deteriorate the level of services. This is why the necessary conditions can only be created gradually.

The ratio between consumption and accumulation

The "living standard orientation" of a period or an economic policy is generally judged by the ratio of consumption to accumulation within the domestic use of the national income. According to calculations, this ratio will not change in the period of the 4th Five-Year Plan: calculated at comparable prices, in 1970 and 1975 it will be equally about 76:24, which means that the growth rate of consumption essentially coincides with that of the national income.

Under the traditional concept, accumulation (investment) means the development of the economy, the "future", and consumption means living standards, the "present". In our opinion, however, with the exception of extreme cases, these indices should not be attributed exaggerated importance *from the point of view of living standards*:*

— This ratio depends on the currently valid price system in the country. If the price level of consumer goods is comparatively high, and that of capital goods is low, the ratio will be higher than in a value-proportionate price system, and *vice versa*. According to the 1959 national income comparison of the CMEA countries, for example, the ratio of Hungary's accumulation fund was 21 per cent if calculated at Hungarian prices and only 7 per cent at Soviet prices! This kind of distortion can take place not only in international comparisons, but also in those over time, even with the application of unchanged prices because a change in composition in itself can change price relations.

— The method of accounting the national income can also influence this ratio to a great extent. The listing of certain factors (e.g. renewal of dwellings, maintenance of roads) is more or less arbitrary, it frequently deviates from country to country, and even within a country. Consumption of own production (e.g. in agriculture) may be calculated at producers' or consumers' prices. Beginning with 1968 the Central Statistical Office completed a number of regroupings of this nature and, as a combined result, the ratio of consumption in the domestically utilized national income changed from the earlier 75.2 per cent to 76.5 per cent based on 1968 data.

* Here we do not discuss the importance of these ratios from the viewpoint of the development of the whole economy. A. Csernok deals with this question in greater detail [2].

— About 11 per cent of the consumption fund is what we term public consumption, and this has not much to do with the living standards of the population. The growth or decline in the share of this group also modifies the consumption/accumulation ratio.

— On the other hand, a part of accumulation also serves the population directly. These primarily include the non-productive investments: investments in housing, public utilities, in the health service and education and the proportion of these investments will grow substantially in the period of the 4th Five-Year Plan. At the same time, this group also includes those investments which are realized in the producing branches, but the capacities they create improve the living conditions of the population (retail trade network, development of passenger transport, etc.). These must by no means be neglected, and in fact, we might say that at present the most serious problems in the living conditions of the population can be found not so much in the fields involving consumption but in that of investments (housing utilities, hospitals, the crowdedness of urban public transport, etc.). The effects of these investments can then also be felt in the consumption fund in some form or another (housing amortization, consumption in institutions, etc.) but by no means with a weight truly reflecting to their importance.

The idea was raised that, in order to eliminate part of the above contradictions we should show not only the population's share in consumption, but its share in the national income used as well. For this purpose we added the net investment into housing, public utilities, the health and cultural branches to pure consumption by the population, as well as changes in the home trade inventories of consumer goods. The ratio formulated in this way will grow from the 73.4 per cent share in the national income in 1970 to 74.6 per cent by 1975.

While this indicator provides a better reflection of changes in living standards, yet it is not perfect (for here, too, the limits drawn are in part arbitrary), and it cannot exempt us from a many-sided analysis of the different factors which affect living conditions.

Conditions of attaining the targets of the living standard policy

In the plan period the reality of the living standard directives depends primarily on the planned national income. The assumed 5.5–6.0 per cent annual growth rate is in accordance with the average of the past 15–20 years and long-range planning, too, essentially started from this assumption. In the course of the debates in preparing the plan it was raised that development of the management system might lead to an acceleration of the rate of growth. From the production side the higher rate is attainable, but in view of the present structure of the national economy, a higher rate would lead to dis-

proportions, and equilibrium requirements could not be met. In case a quicker growth were accompanied by the stabilization of internal and external equilibrium, by adjustment of production to demand, then over-fulfilment is desirable, and in this case the income and consumption targets may be higher.

The medium-range plan was prepared on the basis of evaluating macro-economic interrelations. Realization of the plan is not to be ensured by compulsory indices, but primarily by means of economic regulation.

The majority of income increases stemming from work is linked to production and profitability directives through the regulating system. Social allocations will continue to be distributed centrally, through the budget. The same can be said for government financed housing construction, health, and cultural investments. The directive for private housing construction is, naturally, an estimate, but it is in accordance with the average of past years, and here too, central regulation is realized through credit conditions and the system of facilities.

In our opinion, realization of central concepts is most difficult to judge in the following fields: the increase in savings, prognoses of changes in market prices, and strata effects.

In planning, we assumed that the population will continue to place 3.0—3.5 per cent of its money incomes in *saving accounts* and the propensity of the population to save will continue along the same lines as before. This means that the volume of savings would grow by about 7 thousand million forints annually and, together with interest, by 1975 it would be more than 75 thousand million forints. This is naturally no more than an estimate. Since savings accounts are secret, we have little information of the distribution of savings and even less on their motivation of and the reasons why the money is being saved. According to some opinions, these accounts include substantial forced savings because of articles in short supply (automobiles, etc.) and improved supply will reduce these. There is no doubt that the savings do have an element of this nature but, in our opinion, the majority of this sum is a natural concomitant to increases in incomes, and the expanding supply of consumers' durables is an incentive to further savings. Nevertheless, if the increase in the stock of savings proved to be substantially smaller than the estimates, a larger supply of commodities than planned would be needed to tie down incomes, while in the opposite case there might be opportunities for additional increases in income.

As we have already mentioned, in the plan we took the lower margin of the probable *increase in market prices* into consideration. Should the price rise substantially exceed this rate, then we will have to study the interrelations between price and income trends in the annual plans and decide how, and in respect of what strata we will have to counter-balance it. In this way, we can achieve the planned trend in real incomes, but still, trends which deviate

from the plan's consumption pattern may take effect. In order to stabilize the price level, we must by all means see to it that the consumer price level should not increase any faster than 2 per cent annually.

There is very little we can say about the *income dispersion* in the coming period. The income and consumption indices described so far express the national averages, and do not characterize the distribution of income among the individual strata. The wage and income regulation system sets a certain framework for the dispersion of average earnings among the branches. However, it does not regulate differentiation within the branches and enterprises, and much less the distribution of incomes. The state will centrally aid those with the lowest incomes, but it cannot effectively influence average or over-average incomes. It is too early and hence difficult to judge how the desirable principle, that endeavours must be made to a differentiation of earnings and a levelling off of incomes, will be realized during the plan period.

We may make, therefore, the global statement that the goals of the 4th Five-Year Plan on the living standards of the population are fundamentally realistic. Their realization depends primarily on an adequate growth in productivity.

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ИЗМЕНЕНИЕ ЖИЗНЕННЫХ УСЛОВИЙ НАСЕЛЕНИЯ В ПЕРИОД 1971—1975 ГГ.

Э. ГАЧ — Ж. МАДЬЯР

Авторы, на основании утвержденного национальным собранием четвертого пятилетнего плана, характеризуют изменения в жизненных условиях населения, ожидаемые до 1975 года, знакомя читателя с дискуссиями, имевшими место по отдельным вопросам в ходе подготовки плана.

В последующем периоде наиболее важное значение с точки зрения улучшения жизненных условий имеет жилищный вопрос, так как отставание страны в этой области весьма значительно, даже по сравнению с общим уровнем ее экономического развития. Кроме того, неудовлетворительные жилищные условия ухудшают эффект развития, достигнутого в других областях жизненного уровня. В период четвертой пятилетки будет построено 400 000 квартир, причем две трети — в городах.

Одной из важнейших характерных черт четвертого пятилетнего плана будет сближение темпов роста реальной заработной платы с динамикой реальных доходов. Это существенно отличается от практики прошлого десятилетия и может быть достигнуто, в первую очередь, посредством более умеренного роста занятости и социальных льгот.

В плане содержится ряд мер по улучшению товарного снабжения населения в интересах обеспечения равновесия спроса и предложения по «традиционным» дефицитным товарам (как например, мясо, пиво, легковые машины, строительные материалы и т. д.). Потребление населения за пять лет возрастает приблизительно на 30%, в том числе ожидается особенно быстрое развитие в области т. н. товаров длительного пользования (машин, холодильников, и т. д.).

В период 1971—1975 гг. продолжится переход на 44 часовую рабочую неделю в отраслях, до сих пор не затронутых сокращением рабочего времени (как транспорт, торговля, здравоохранение и т. д.). Поскольку эти отрасли в основном относятся к сфере услуг, переход на сокращенное рабочее время является более сложным, чем в промышленности и строительстве, в особенности сейчас, когда в этих областях наблюдается нехватка рабочей силы.

Согласно плану, соотношений потребления и накопления в национальном доходе не изменится, однако участие населения в национальном доходе все же повысится, так как в общей сумме накопления повысится доля капиталовложений, непосредственно служащих повышению жизненного уровня.

Á. KISS — J. TIMÁR

THE SUPPLY OF QUALIFIED MANPOWER — LABOUR FORCE STRUCTURE — EDUCATION*

The study provides a summary of the criteria of the industrial revolution and the scientific-technical revolution, including its interrelations with the development of the structure of the labour force and education. It reviews the supply of the Hungarian national economy with qualified labour, the prognoses for future trends in manpower structure, as well as the connected goals and tasks of the perspective development of education.

Supply of qualified labour in the Hungarian national economy

In the last two decades the supply of qualified labour has improved rapidly and substantially in the Hungarian national economy. The number of skilled workers has doubled, that of non-manual workers with secondary education has increased two and a half-fold, while the number of highly qualified labour has more than doubled.

This was the period when today's large-scale industry was brought about, the framework for large-scale agriculture was established, and the socialist national economy emerged. A substantial improvement in the supply of qualified labour, relying on the development of the educational system, played an important role in these achievements.

But the present supply of qualified labour in the national economy cannot be judged by past development alone. Nor does the balance between supply of and demand for labour or its internal contradictions provide a sufficient basis for evaluating the situation of supply. Experience of the past twenty years has shown that demand for qualified labour can fluctuate between extremes, even in a comparatively short period. This is one of the main reasons why the state of supply with qualified labour in the national economy is frequently judged in the most differing ways.

According to some opinions, there are too many engineers today, too many doctors, etc., and, accordingly, they oppose the expansion of educational facilities, particularly regarding higher education, and some even go as far as to pro-

* The article is based on two studies of the authors: Á. KISS—J. TIMÁR: Szakemberellátás és munkaerő-struktúra. (Supply of qualified labour and labour force structure.) *Társadalmi Szemle*, No. 6. 1970. pp. 25–38, and Á. KISS—J. TIMÁR: A munkaerő-struktúra és az oktatás fejlesztése. (Labour force structure and development of the educational system.) *Társadalmi Szemle*, No. 7. 1970. pp. 16–24. This version has been compiled by J. Timár.

pose that they shall be reduced in scope. Others are of quite the opposite opinion, namely, that the present supply of the national economy with qualified labour is insufficient, and that training must be advanced at a far quicker rate than planned. Not infrequently, opinions deviate even within the same profession, depending on the qualification level of the specialists in question.

The motivations of contradictory opinions are different, and features playing a role in developing them include superficial phenomena on the labour market, views on future trends in the division of labour, and at times even personal or prestige interests related to the survival of the present educational system or institutions.

Debates on the supply of qualified labour and the development of education have shown their sharp edge following the drawing up of long-term plans regarding demand for qualified labour and the development of education; this is worth noting also from the point of view of the long range national economic plan now being prepared. Long-range plans tend to work, namely, towards evenly growing satisfaction of needs during a longer period of development, and they may call for such far-reaching changes as are justified by future interests of the national economy, though they sometimes contradict the particular present interests of certain branches, and individual fields of work. Education and professional training plans determined on the basis of long-term demand frequently contradict the fluctuating demand for labour, and often call for changes in the educational and professional training structure developed in the past and still considered by many to be the correct one. This is why the changes are sometimes incomprehensible and unacceptable to those involved, even if they are not tied by some interest in maintaining the present structure.

In view of these debates it is particularly important that we complete a study of the supply of qualified labour to the Hungarian national economy, as reflected by international comparison. Studies, which have been under way for a longer time now, make it possible to draw several essential conclusions though, because of a partial lack and uncertainties of data, it is particularly difficult to make comparisons in this field. The following graph shows a summary comparison of major data regarding the supply of qualified labour in the socialist countries:

Since most of the debates and differences in views relate to the evaluation of the supply with technical personnel, the following is a brief sketch of the major results of Hungarian studies still under way on this subject.

The international comparative studies show — and it might seem surprising at first glance — that the differences in the supply of technical personnel among individual countries are not so significant in either capitalist or socialist relations, as among the economic and technical development levels of the same countries (see Fig. 2).

An accurate and trustworthy exploration of the reasons behind this phenomenon requires further research. But it is certain that the fundamental reasons lie in the differences in the productivity of labour. In the less developed countries we find a lower level of management and control, technical culture, labour organization and work discipline, less concentration, a lower degree of cooperation and specialization and a lower level of the social division of labour, etc. As a result, these countries not only use more material, and more working hours to produce an identical mass of use value, but they also require more engineering and technician etc. hours, without this surplus utilization being reflected proportionately with the additional inputs in the modernness, quality and technical parameters of the products.

The conclusion is that we cannot consider the staff of qualified technical personnel as "too high" or "too low" simply on the basis of the relative supply

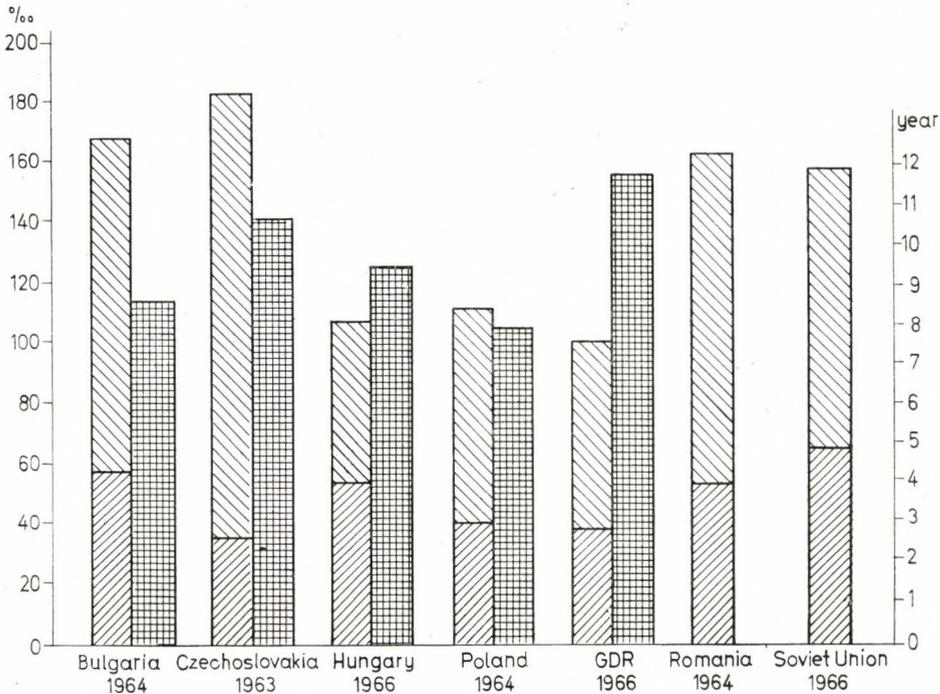
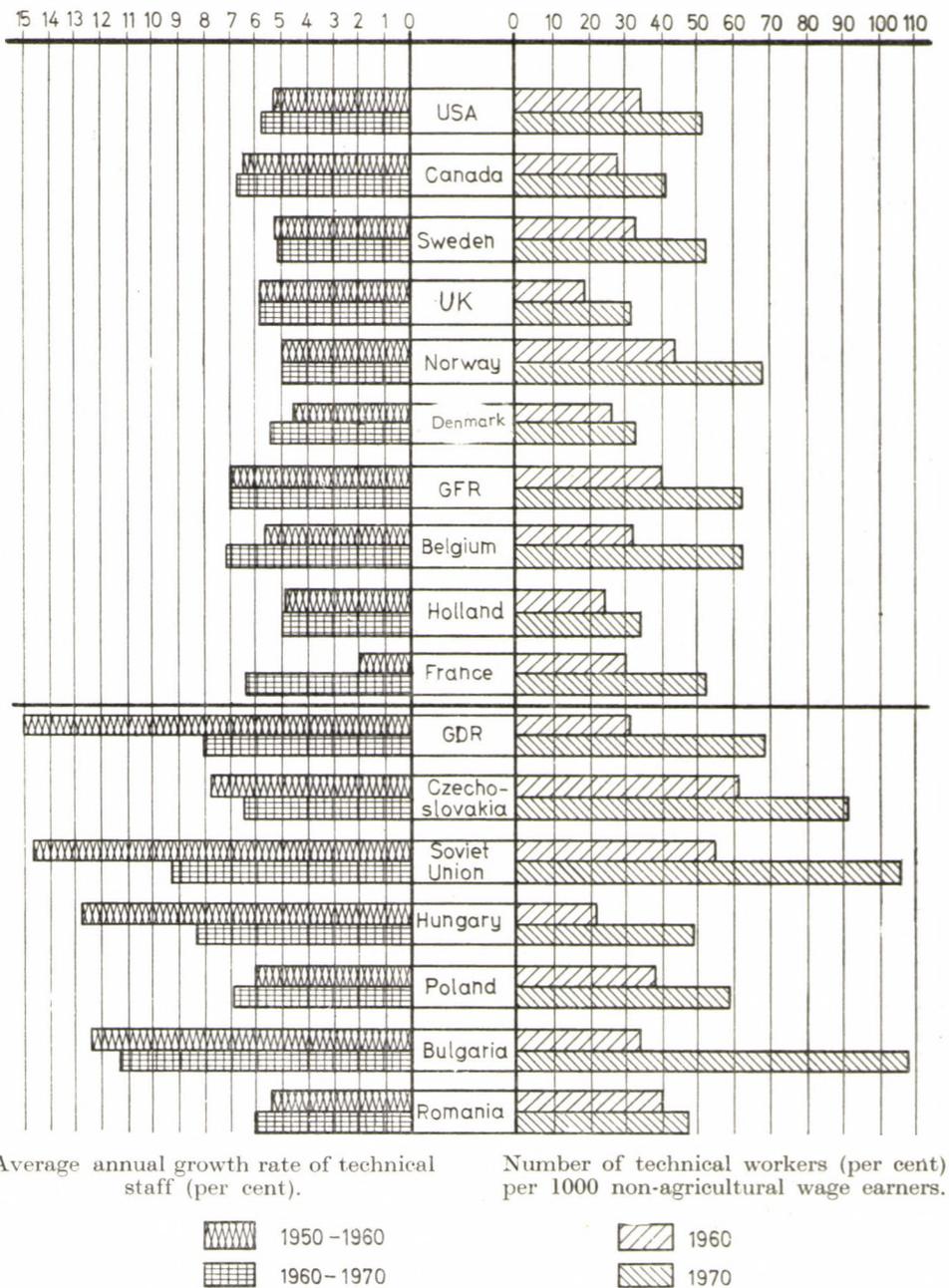


Fig. 1.* Supply of qualified labour with higher and secondary education, and the level of schooling in the socialist countries.

- Ratio of workers with secondary qualifications in comparison with the workers and employees in the socialist sector of the national economy.
- Ratio of workers with higher education compared with the workers and employees in the socialist sector of the national economy (tenths of a per cent)
- Average number of years of schooling for those employed in socialist industry.

* Based on data in a mimeographed material entitled: Studie über Arbeitskräfteentwicklung in sozialistischen Staaten Europas. Berlin, 1967.



Average annual growth rate of technical staff (per cent).

Number of technical workers (per cent) per 1000 non-agricultural wage earners.

1950-1960

1960

1960-1970

1970

Fig. 2.* Level and growth rate of supply with technical personnel in different countries 1950-1970.

* Data based on A. RÉVÉSZ: Az európai szocialista országok műszaki szakember állományának alakulása 1960-1970. (Trends in the technical personnel in the European socialist countries 1950-1970). MTESZ (Association of Technical and Scientific Societies) 5th International Conference on Education, March, 1970 (manuscript).

with qualified labour in the Hungarian national economy as compared to that of other countries.

At any rate, international comparison, and experience in Hungary as well, together with the conclusions which can be drawn from the plans, contradict the anxiety which has recently emerged, namely, that Hungary's present supply of technical personnel is exaggerated as is the extent of training planned for the future. The data, in fact, warn us that serious efforts must be made to raise the quality of education and training and to improve the efficiency of the work of our qualified staff. Hungary's perspective plans on the demand for qualified personnel assume a substantial increase in the efficiency of their work. Should this assumption not materialize, then, in a few years, we might be faced with a shortage of qualified labour when the comparatively fewer students, educated in accordance with the plans on demand for professionals, complete their studies.

Scientific and technological progress — changes in economic structure — prognosis of the manpower structure in the national economy

In the past two or three decades a new era in the development of the forces of production has begun in the technologically leading countries. This new stage of development is taking place in the wake of the scientific and technological revolution, the industrial revolution, and the social and economic relations involved by them. In this article we do not wish to go into a discussion of social and production relations, nor of the specific ways in which the socialist system affects the development of the forces of production and how, in comparison to capitalism, it modifies their social effects. In a summary way, however, we would like to show — relying on the relevant literature — the major stages in the modern development of the forces of production, indicating the major features of the industrial and scientific-technological revolution.

The development stage of Hungary and the other countries on similar levels will be characterized in the coming 15—20 years by the simultaneous appearance in social and economic development of phenomena and factors characterizing the conclusion of the industrial revolution and the beginning of the scientific-technological revolution. To a great extent our progress depends on how rapidly the scientific and technological revolution will gain ground in the economy.

Scientific and technological development is the decisive factor in trends of the demand for qualified labour of the national economy. However, directly quantifiable relations between technological development and the labour force structure can be established only in the individual work processes, the economic micro-sphere. According to the present state of science, on the national

Industrial revolution	Scientific-technological revolution
<i>1. Tools of labour</i>	
Emergence of machine systems. Main direction of technological development: from partial to complex mechanization.	Development of production systems. Main direction of technological development: from partial to complete automation.
<i>2. Man and machine</i>	
The role of man in mechanized production: to handle, guide and regulate the machines. The principal, direct factor in production is man.	The role of man: to design, assemble, and maintain the machines and automats which guide and regulate the system of production. The major field of human labour lies in preparing and supervising production.
<i>3. Science</i>	
Science affects production and technological development in a comparatively narrow field, and for the most part, in an indirect way. The time span from a great scientific discovery to its industrial application is 30—100 years.	Science is a direct and organic part of work in the entire field of social activity: science becomes a direct force of production. The time gap between great scientific discoveries and their application to industry is 5—15 years; changes in product structure accelerate.
<i>4. Energy basis, raw materials</i>	
In essence it does not change. The main source of energy is coal. Nature supplies the raw materials.	It changes in part. The main source of energy is hydrocarbons, followed by nuclear energy. The role of the chemical industry in raw material supplies increases.
<i>5. Working time basis</i>	
Total social labour input, and within this, the labour input in the fundamental branches of production increases.	The growth-rate of total social labour input slows down, and within this, the input in fundamental branches of production first stagnates, then diminishes.
<i>6. The cost of labour and of machines</i>	
The cost of labour increases slowly; the value of machines is comparatively high.	The increase in the cost of labour accelerates, the relative cost of the machines drops.
<i>7. Capital intensity</i>	
Capital intensity of production increases rapidly.	Growth rate of capital intensity of production slows down.
<i>8. The rate and sources of growth</i>	
As a result of exhaustion of the particular socio-economic resources of the industrial revolution, economic growth slows down. The economy develops primarily in an extensive way. Growth of the stock of productive fixed assets, and of employment play an important role in economic growth.	Economic growth accelerates. The economy develops primarily in an intensive way. In economic growth, the role of technological-scientific progress and of qualification of labour plays an increasingly important role.
<i>9. Branch structure</i>	
The proportion of those engaged in agriculture drops; employment in industry and the tertiary branches increases almost proportionately. Dynamically developing branches are: the metal working industries, building industry, railway, transport, postal services, commerce, banks and financial institutions, government administration.	The drop in the proportion of agricultural workers accelerates, the growth rate of industrial workers slows down, their proportion stagnates, then drops; employment in the tertiary branches increases vigorously in both relative and absolute terms. Dynamically developing branches are: the chemical industry, electronics industry, road and air transport, the hotel (catering) industry, education, the health service.

Industrial revolution	Scientific-technological revolution
<i>10. Job structure</i>	
Intellectual and manual labour become sharply separated, the proportion of intellectual work gradually increases. The job structure changes mainly with the change of generations.	The sharp contrasts between intellectual and manual labour gradually diminishes; the proportion of intellectual labour rapidly increases. The change in job structure accelerates; changes within the same generation come to the forefront.
<i>11. Education</i>	
Primary schooling becomes general practice. The structure of the vocational training system stratified by trades and levels develops.	Secondary education becomes general practice. The development of higher education accelerates vigorously.
<i>12. Economic integration</i>	
Economic activity integrates within national frameworks. The major form of international relations is trade. Companies remain generally within national boundaries.	The integration of national economies. The major form of international relations is cooperation and specialization developing within the framework of integrated economic organizations. Growth of multi- and international companies.

economic level the effects of scientific and technological development cannot be quantified in a direct way, but only through the intermediary of the economic and employment structure.

Owing to the development in the forces of production, there will be far-reaching changes in the structure of the economy, and as a result, in the employment structure as well. Essential and interrelated factors in this change will be the modification of the employment structure by branches, work place, and occupations. Hungarian and international studies of this aspect show that the composition of production by products and groups of products will have a comparatively slight effect on the structure of the labour force by such aggregate groups as can be measured by using statistical tools; nor are the changes in which it is necessary and possible to plan within the framework of perspective planning. For this reason the methodological starting point for plans relating to qualified manpower needs in Hungary was the perspective prognosis of the structure of employment by branches. "Sensitivity analyses" completed in the course of planning showed that possible margins of error in the prognoses modify but slightly the needs for qualified labour planned according to the aggregate groups of jobs or occupations.

Working out the details of the long-range plans of qualified manpower needs covering the major groups with secondary and higher education began in Hungary in 1964, and was completed in 1969. It was on the basis of these perspective plans of qualified manpower needs that directive indicators for numbers of students to be admitted to educational institutions were calculated.

However, these plans only run to 1980 and, as time passes, they no longer provide a satisfactory support for developing education from the point of view of qualified manpower. This is why new longer range plans of qualified manpower needs are being prepared within the framework of the perspective national economic plan running to 1985.

Yet, even the plans running to 1980 on qualified labour and the calculations on manual workers which serve as a basis for a prognosis provide a good picture of the likely future trends in the structure of employment in the Hungarian national economy, by levels of education and jobs (trades).

Changes in the structure of employment
by educational levels and jobs (trades) 1965—1980

Professional group	Year	Changes in the structure by level of education					Changes by jobs (occupations) structure	
		Higher education I. (4—5 years)	Higher education II. (3 years)	Sec- ondary	With- out suitable school- ing	Total	1965	1980
		schooling						
Technical jobs	1965 1980	18 22	2 24	37 40	43 14	100 100	4.2	5.9
Agricultural jobs	1965 1980	19 21	4 23	20 33	57 23	100 100	1.5	1.6
Economic and adminis- trative jobs	1965 1980	2 5	1 9	43 60	54 26	100 100	8.4	8.9
Teachers	1965 1980	47 57	51 41	— —	2 2	100 100	2.0	2.2
Health service	1965 1980	28 22	10 8	57 65	5 5	100 100	1.7	3.0
Legal professions	1965 1980	100 100	— —	— —	— —	100 100	0.3	0.4
Total of non-manual workers	1965 1980	24 26	7 15	32 43	37 16	100 100	19.9 ^a	23.8 ^a
							18.7	24.9
							61.4	51.3
							80.1	76.2
							100.0	100.0

^a Inclusive of a 1.8 per cent ratio of professionals not listed by group (art and social sciences).

This means that, owing to scientific and technological progress and to changes in the structure of economy, the following essential changes may be expected in the *structure* of employment by jobs (trades).

— Within the total, the number and ratio of those performing intellectual work for the most part will increase in all groups. The increase in the number of those employed in the health service and technical jobs will be much more rapid than the overall average.

— The ratio of mainly manual workers will decrease. Among them, the number and ratio of skilled workers will rise sharply, while the ratio and absolute number of those performing work not requiring particular training, of semi-skilled and unskilled workers, will drop.

The major features of the changes expected or called for in the *structure of the labour force by levels of qualification* are as follows:

— In contrast to earlier trends, the ratio of specialists with university qualification will increase but slightly, and will even drop in the group of health service workers.

— With the exception of the health service and the legal professions, the proportion of specialists with higher (grades I and II, vocational school) education will increase sharply.

— The ratio of qualified personnel with secondary education will increase strongly in the agricultural, economic and administrative groups, while it will rise only moderately in the other groups.

— The ratio of practical specialists without suitable schooling in the agricultural, technical, economic and administrative groups will drop to one half or one third of the 1965 ratio.

On the whole, the general cultural level and qualification of the labour force will increase substantially. As a result, the number of workers who receive general education and professional training for their vocations within the educational system will increase in the national economy. The changes planned in the structure by levels of qualification will better suit the differentiated and increasingly higher requirements of the social division of labour and this — depending on other factors influencing the efficiency of the labour force — may be an important source for accelerating Hungary's economic growth.

However, this composition is not completely suited to the exaggerated concepts which have developed recently on a broad scale, particularly as a result of the popular literature on the scientific-technological revolution. The truly amazing achievements of science and technology have in many cases given rise to the illusion that the elimination of difficult or simple manual labour will take place in the economies of all countries in the near future, or latest in the coming one or two decades. In reality, while the development of the structure of the labour force by jobs is truly extremely rapid in comparison

with the past, it is only changing gradually, not only in Hungary but in countries on higher levels of industrial development, and is not keeping pace with the flight of desire and illusion.

While the new processes most characteristic of technological development, the elements of automation and cybernetics have appeared in Hungary and other countries on medium levels of economic development, they are only gaining ground gradually, primarily in the large-scale plants concentrating in technological vanguard branches. At the same time we must also consider the fact that the labour force of a country includes 35-40 cohorts. This means that high level training for the young people modifies the structure of the entire labour force to the extent only that the newly trained generations take over work from the generations which have grown old.

In addition, the statistically measurable changes do not show, and the aggregate statistical and planning indices which can be planned for the long run can expose even less, the important qualitative changes behind the indices. With the development of technology, and the changes in working conditions, the content of spheres of jobs and professions which can be called traditional, will also change in the coming decades. This means that while it is true that a comparatively large portion of workers will still be employed in jobs of a "semi-skilled" or "unskilled" nature, it is much more true that with the passing of time an increasingly high general cultural level will be necessary in order to perform this work, and this general modern cultural level will also include knowledge which a generation ago counted as some sort of specialized knowledge.

However, the extent of the expected changes in the Hungarian labour force structure, even according to the most combined plan categories

The structural change in employment in the national economy,
and in demand for new labour
1965-1980

Sphere of activity ^a	Total staff employed				Total demand for labour		
	1965	1970	1975	1980	1965-1970	1970-1975	1975-1980
Intellectual workers	20	21	22	24	20	22	36 ^b
Skilled workers	19	21	23	25	31	39	44
Semi-skilled and unskilled workers	61	58	55	51	49	39	20
Total number of employed	100	100	100	100	100	100	100

^a Including both replacement needs owing to retirement and death, and the increase in staff.

^b The main reason for this substantial rise is the marked growth in replacement requirements because of the irregular age distribution of the labour force.

clearly shows the extent to which the assumed rapid technological-scientific progress and changes in the economic structure will modify the composition of the national economy's labour force, and of the new labour force required for replacement and additions if we put the two side by side.

Perspective development of education

In the final analysis, the prespective demand for labour determined by technological and scientific development, and by the changes in the economic structure, *are embodied in educational development plans*. Government resolutions which also rely on calculations of perspective labour needs and on educational development plans, have modified earlier trends in educational development in many essential ways, and have called for far-reaching *structural changes*. The major changes, the implementation of which has begun already about 1965 are the following:

— There will hardly be any change in the number of students admitted to all the institutions and faculties of *higher education* between 1965 and 1980. This directive represents a fundamental break with the earlier concept of quantitative increase.

— The *structure of secondary schools* by types and trades is changing essentially: the number of general secondary (grammar) schools is decreasing substantially, a feature accompanied by a rise in the number of students in vocational secondary schools. A large-scale new kind of secondary training is developing for the health service and there is also a simultaneous increase in the number of students in industry-oriented vocational secondary schools and a decline in agriculturally oriented ones.

With the qualitative modernization of "*traditional*" *training of skilled workers* (combining trades, "higher level" training — the latter meaning that the time spent in schools of this nature by trainees is recognized by the secondary schools, and should they desire to continue general studies, they need only complete the remaining years — etc.) the *skilled workers' training schools have become an organic part of the system of secondary education*, while at the same time the new type of *specialized vocational secondary school* where students become qualified skilled workers and qualify for university studies at the same time, is playing an increasingly important role in the replacement of skilled workers, particularly in the more complex occupations.

— The number of *day students* in *vocational training institutions* is growing while the ratio of students attending evening and correspondence courses is declining.

These are outstanding tasks, and the most complex one of them is to establish the *new type of unified vocational secondary school*. This means e.g. that the young people completing industrial *vocational secondary schools*

will be able to find employment in *two types of job*. One group can work as technicians, while the other group will work as skilled workers. Depending on the individual branches of industry and on the needs for labour, the majority of the young people completing this type of school will work as skilled workers, e.g. in the trades connected with the engineering industry, while in other trades the majority will work as technicians (e.g. in the textile industry). Accordingly, the curricula must be compiled in a differentiated manner. At the same time, the manner how those completing vocational secondary school may gain technician's certificates must also be regulated.

A question of a more general nature is the rate at which the difference may be reduced between the training levels of some of the technical secondary schools which have been operating for decades and are presently switching over to becoming specialized vocational secondary schools, and the new specialized vocational secondary schools. One difficulty is that the establishment and maintenance of specialized vocational secondary schools require substantial investments, and a budgetary expenditure well over the average, particularly in the industrial trades.

Labour needs and educational development plans show that the *function of evening schools and correspondence courses* is tending to *change* rather quickly. These forms are losing the role which was dominant following the country's liberation in 1945: the education of adults who had been deprived of the opportunity to study by the former social system. It is losing its role in meeting the national economy's demand for specialists, and where it is maintained, the same qualitative demands must be made on those attending evening schools and correspondence courses as in the day courses. At the same time, the importance of its function of training alongside work, in order to promote the socially useful mobility of the labour force, and in meeting demands for self-education, and by doing so, reinforce the open, socialist nature of Hungarian society will grow in the future.

The new demands call for the modernization of "traditional" evening schools and correspondence courses, for the creation of new, purposeful forms of training completed alongside work. Only the very first steps towards realization have been taken so far. The new direction of development is in close connection with the establishment of a modern system of vocational training. The acceleration of scientific and technical progress makes a continuous modernization of information particularly important, together with their further development. The system of organized "brush-up courses" or "refresher courses" for specialists who have completed their studies, has so far been solved on university level only, but here too the existing forms of education must be re-examined and improved. The further training of those completing technical colleges, and, in particular, of those leaving the secondary level technical schools, and specialized vocational secondary schools is still to be

solved. This shortcoming is not alleviated by the fact that specialists who begin on lower levels may continue their studies in institutes on higher level. This is why we must begin to ensure on all levels, for all professional groups of any importance, that specialists shall be further trained, their existing information shall be modernized and extended.

Experience gained so far indicates that, in general, the enterprises want "finished" specialists, and this demand causes repeated narrow specialization within education. In the past this trend prevailed not only at the expense of standards, but it also increased losses stemming from professional mobility (meaning those who leave their learned trade or profession). The narrower the specialization in training, the greater the possibility that young people completing their studies will not be able to find employment in the specialized trade studied. Even greater difficulties may be caused in the future by the acceleration of science and technology since it primarily renders over-specialized knowledge outdated, and specialists trained in this way may have difficulty in adjusting to rapidly changing new demands.

After the 1960 educational reform, important measures were taken to end earlier, unjustified specialization. However, scientific and technological progress continually requires modernization and modification of specialization, and this involves a permanent danger that the changes carried out will not be suited to future demands. This means that the ministries responsible for vocational training, and the institutions of higher education must endeavour to improve the method of planning enrolment in the different schools in detail, to exercise competent control of enterprise (ministry) demands, and to avoid the danger of over-specialization.

According to prognoses, the future education will be able to meet the demands of the national economy for labour as calculated up to 1980, with fewer contradictions than earlier. However, in certain trades, training on college* level will not be able to meet the calculated demands. Yet, the educational plans have not provided for a more rapid development of the colleges, because this would slow down the desirable rise in standards, and, as earlier experience has shown, would only bring about results which are not proportionate with efforts, and which in part, would be no more than formal.

In other fields, undisturbed compliance with planned demands depends on the extent to which we are capable of reducing present unjustified, large-scale losses due to mobility (in the above sense, e.g. in nursing, and in certain skilled worker professions).

A special feature of the present labour situation in Hungary — affecting also education — is in contrast with experience in the developed capitalist coun-

* In this context *college* means the lower degree of higher education, similar to the B. Sc. level in the British — American school systems. The column headed "Higher education II" in the table on p. 208 is of similar contents.

tries, namely, there is no shortage of highly qualified labour, but of physical workers, in a part of the skilled worker trades, but primarily of manual workers where no skilled training is required. This phenomenon, which is one of the general symptoms of a disequilibrium in Hungarian employment, can be traced back to two major causes;

— We have neglected, and even today do not pay sufficient attention to the technological development and modern organization of the auxiliary processes of production. Not only does the well-known backwardness in the mechanization of loading, transport, packaging etc. cause difficulties, but so does technological backwardness in preparatory operations, cleaning (of rooms), and other works of a similar nature. This is why the number of workers in these jobs is unjustifiably high in the national economy and why the shortage of labour in these fields of work is increasing. Unfolding of the economic reform may also lead to a serious shortage of administrative labour, if we do not progress more rapidly in the organization and mechanization of administration.

— The large quantitative rise in secondary and vocational school training draws almost all boys completing primary school (94—95 per cent) and the majority of the girls (66—68 per cent) into education at a level which develops higher social expectations among the young people, than can be satisfied with the present job structure. In this way, the school system accentuates the contradictions in the balance of employment, which are also increased by other social factors (e.g. the prestige of various occupations, relative earnings). (It should be mentioned that in the developed capitalist countries, the manpower situation is fundamentally different from that in Hungary because a part of the simple and difficult manual labour is done by racial and national minorities living in those countries and by masses of immigrants, or “foreign workers”.)

The detailed prognosis on young people entering work after completing studies in day school courses has been worked out on the basis of education. The major, summary data are the following:

Division of young people completing schooling in days courses and entering employment, by major occupational groups

	1966—1970	1971—1975	1976—1980
	percentages		
Non-manual workers			
Skilled workers	29	35	38
Semi-skilled and unskilled workers	32	38	35
	39	27	27
Total (in thousands) = 100	900	750	640

Prognoses of manpower replacement needs of the national economy, and of students completing day, evening and correspondence courses indicate the following:

— As a result of restraining of the quantitative development of higher education and of a substantial drop in general (humanistic) secondary school education, the balance between the supply of labour determined by education, and the demand for intellectual workers will gradually improve.

— Assuming an improvement in productivity and a drop in losses stemming from mobility of the labour force, the demand for skilled workers can be met with no disturbances. If, however, there are no substantial improvements in raising productivity, and in decreasing losses due to the to mobility of the labour force, and should the needs of the national economy for skilled workers increase more rapidly than expected, there may be a shortage of skilled workers by the end of the 1970's.

— The shortage of unskilled workers will most likely not decline to any great extent in coming years. Assuming however, that — in accordance with the prognoses — the proportion of skilled workers increases, and that of unskilled and semi-skilled workers drops to a marked degree, then the balance between the supply of and demand for the manpower in this group will improve towards the end of the decade, though the male labour willing to undertake difficult manual labour will continue to cause difficulties in the future as well, particularly in Budapest and the rural centres.

Social development, technological and scientific progress, and the manpower prognoses related to them will make even greater demands on education. The statistically measurable job structure and which can be planned on the national level for a range of 15–20 years ahead is not identical with the “job structure” in the broad sense of the term, or rather with the “knowledge structure” which includes the general cultural level of the population, the up-to-date level of their specialized knowledge, and their composition by disciplines and function. From the points of view of economic growth and the efficiency of work, the quality of the specialized knowledge structure, in the broad sense of the term, is decisive. This depends on the total social environment and its effects and within this, primarily on the level of school training.

Raising the general cultural and educational level of the population is of primary importance not only from the general social point of view, but from that of the efficiency of labour, too. This is why the improvement of primary school training must be put more in the forefront of the general advance of education than heretofore. This is a dual task. One side is that the standards of primary school education must be raised substantially, with particular endeavours to reduce differences in standards, where they exist, between schools as quickly as possible, and ensure them the necessary financial

means. The other essential task is to improve the living standards and living conditions of the teachers, as well their selection and training, since without well trained, conscientious pedagogues, efforts to improve the system of education cannot give us the desired results.

These measures also effectively serve the special goal of providing greater aid to children living under social and family conditions handicapping them, the majority of whom are children of manual labourers. These enter secondary schools in much smaller proportion than the ratio they represent of the population, and schools of higher education in even smaller proportions.

To change this situation is a very important task from the socio-political and from the economic point of view in the narrow sense of the term as well. The national economy's manpower requirements can only be met in a suitable quality if we reduce the unfavourable effects of family and social surroundings, which either hold back, or aid insufficiently the development of a substantial part of certain young generations. The essential differences which always exist between town and countryside and between intellectual and manual work, go together with the fact that, despite all social effort, we cannot ensure completely equal conditions for the education of *every single* child. However, we already ensure these conditions from the very beginning of schooling, for young people with higher than average talent, who are living under detrimental conditions. For this reason — we feel — we must work out a purposeful system of selecting these young people who are more talented than average, but are living under less favourable conditions. These young people must receive the highest level primary and secondary schooling combined with training in residential halls for student attached to these schools which aid in their education to the greatest possible extent. Within a few short years this system may provide more effective aid than at present to the young people coming from worker-peasant families in their further studies, and enable them to enter into institutes of higher education.

Another plan, running for a longer term and even more complex, is to lengthen the period of primary education, in order to further raise the general cultural level. According to the education-planning specialists participating in long-term planning,* the time is now ripe to lengthen and further develop the primary school of eight forms established twenty-five years ago.

* Hipotézisek a foglalkoztatás és az életszínvonal alakulására Magyarországon 1985-ig. (Hypotheses on trends in employment and living standards in Hungary up to 1985.) *Gazdaság*. 1968. No. 3.; Elgondolások az oktatásfejlesztési hipotézisekre. (Ideas about education development hypotheses.) Munkaerő és Életszínvonal Távlati Tervezési Bizottság Oktatástervezési Munkacsoportja. (Education Planning Work Group of the Manpower and Living Standard Perspective Planning Committee.) May, 1969. Manuscript.

According to education experts, the lengthening of the period of primary school education should take place in two directions. "Downwards" would mean that kindergarten education would become compulsory at the age of five and, as a preparatory class, would become part of primary schooling. "Upwards" means that the present period of secondary education would be divided, and one part would be added to compulsory primary school education.

Lengthening the period of primary school education in this way would not only serve to raise the cultural level of the population but would also substantially mitigate many contradictions which stem from the present system of education. If primary school education were to last nine or ten years, the young people would complete their primary studies at the age of 15–16, and would be able to make more mature decisions on further study, and/or on choosing occupations. Further, young people who decide not to continue their studies, and are more developed physically, would be able to take employment easier as unskilled or semi-skilled workers. However, extension of the period of primary school education is a complex problem, and preparing it for decision requires a long time, while its implementation will need substantial financial resources, which have not yet been sufficiently calculated.

Considering the present position of public education, greatest attention in forthcoming times must be paid to the full development of the primary school, to further raising its standards, and to building up a network of student halls and specialized vocational secondary schools. Meanwhile, specialists will continue their detailed study of the tasks outlined above, on the further development of the system of education, and assessment of the financial and personal conditions needed to implement them, that is, the preparations for the new educational reform.

ПОДГОТОВКА КВАЛИФИЦИРОВАННЫХ КАДРОВ, СТРУКТУРА РАБОЧЕЙ СИЛЫ, ОБРАЗОВАНИЕ

А. КИШШ — Я. ТИМАР

Обеспеченность венгерского народного хозяйства квалифицированной рабочей силой в течение двух истекших десятилетий в значительной мере улучшилась. Однако имеют место различные мнения в отношении оценки нынешнего положения и, соответственно, дальнейшего развития подготовки квалифицированных кадров. В этом играют роль колебания в спросе на рабочую силу и в предложении рабочей силы, различные взгляды на отношение технического прогресса и структуры рабочей силы в будущем, противоречивые данные международных сравнений и т. д.

Консистентный анализ различных явлений позволяет сделать вывод, что в индустриальных государствах различие в обеспеченности квалифицированной рабочей силой между отдельными странами является гораздо меньшим, чем разница между уровнем экономического и технического развития этих стран.

Главным определяющим фактором обеспеченности народного хозяйства квалифицированными кадрами является технический прогресс и связанное с ним изменение экономической структуры. В недавние десятилетия в развитых в техническом отношении странах

наступил новый этап в развитии производительных сил. Авторы в общих чертах изображают важнейшие этапы развития производительных сил в новейшие времена, характерные особенности промышленной и научно-технической революции.

Для предстоящего развития Венгрии и других аналогичных по экономическому уровню стран характерно одновременное появление факторов и явлений, свойственных завершению промышленной революции и началу научно-технической революции. Их воздействие в значительной мере изменяет также и структуру рабочей силы. На основании разработанных в течение истекших лет подробных планов перспективных потребностей в рабочей силе были составлены прогнозы относительно движения вертикальной (степень образования) и горизонтальной (распределение по профессиям) структуры занятых в венгерском народном хозяйстве. Авторы приводят соответствующие сводные данные и излагают важнейшие характерные черты ожидаемых и намеченных перемен. Глубина перемен бросается в глаза в первую очередь в качественном составе включающейся в производство рабочей силы, но она постепенно приводит и к модификации всей структуры списочного состава занятых. Однако реально ожидаемые изменения не во всем соответствуют тем чрезмерным ожиданиям, нередко иллюзиям, которые сложились у многих лиц под влиянием блестящих достижений научно-технической революции. В этом «разочаровании» играет роль также и то обстоятельство, что менее заметное и менее измеримое понимаемой в широком смысле слова измерение «профессиональной структуры», выражающей совокупность знаний и навыков, будет гораздо значительней, чем изменения, которые можно измерять статистическими средствами и выражать плановыми показателями.

Определяемые техническим и научным прогрессом, а также изменением экономической структуры перспективные нужды в рабочей силе предъявляют определенные требования к школьному образованию. Эти требования относятся как к структуре системы школьного образования, так и к содержанию и методам воспитательной работы. Авторы излагают общие принципы структурного изменения венгерской системы школьного образования, останавливаясь при этом отдельно на изменении функции вечернего и заочного обучения, проблеме специализации профессионального образования, а также на связи удовлетворения потребности в не требующей особой квалификации физической рабочей силе с системой школьного образования.

Прогнозы, составленные на основе расчетов, учитывающих перспективное развитие школьного образования, показывают, что в результате начавшихся уже ранее изменений в 1970-ые годы будет постепенно улучшаться соответствие между профессиональной структурой спроса и предложения рабочей силы. Содействием этому процессу в области образования означает двойную задачу: с одной стороны, повышение в рамках складывающейся в настоящее время системы школьного образования качества воспитательной и педагогической работы и укрепление исключительно важного с точки зрения экономического роста начального восьмилетнего образования, с другой стороны, следует приступить к разработке и постепенному внедрению системы воспитания и обучения, удовлетворяющей требования более отдаленного будущего. Исходным пунктом этой программы на длительный период должно явиться продление срока начального общего образования.

M. AUGUSTINOVICS

A SERIES OF MODELS FOR LONG-TERM PLANNING

In the article a linear model series is described which lends itself for use in long-range economy-wide planning.

The author defines the system of economic interrelations reflected in the models, a system that embraces the extended reproduction of material goods and services as well as the relationships which connect this system of production with the society and with the rest of the world (labour and consumption, import and export). This system of interrelations finds its expression — in accordance with the various assumptions concerning the structural situation — in the form of various mathematical models.

Introduction

Long-term planning is necessary because many economic actions of today result in irreversible consequences to be felt for several decades. We should assess these consequences in their future environment, and this environment will be the ensemble of socio-economic conditions of time to come. Hence, a long-term plan cannot be limited to separately elaborated programmes of so-called “decisive” actions with long gestation periods. Even if only in broad outlines, such a plan must take into account the trends of the entire system of interrelations in the national economy as a whole. A long-term plan must be a complex, macro-economic plan.

No mathematical-economic model can be conceived of that would be suitable for solving the quantification task of long-term planning in full: any model is only able to represent a definite sphere of economic processes, with well-defined abstractions. Therefore, what we need is not a single model, but a system of co-ordinated long-term planning models, which partly complement one another, partly check one another's results.

Within this system of models, a central, synthetizing role should be assigned to the family of relatively aggregate macro-economic models which serve central planning work. These should fulfil a threefold function. First, they must be viable in themselves, enabling the planning centre to carry out its own, preliminary calculations in the initial stage of planning. Secondly, these models must be suitable for incorporating — in the later stages of planning — the results of planning work carried out in various partial fields, for checking them and synthetizing them; in this sense they must serve the purpose of organization and methodological co-ordination. Thirdly, it should be possible to link these models with other mathematical models that serve the planning of certain important partial fields, e.g. with the sector models

of various productive branches (energy, water economy, transport, etc.); in this sense they must form the central core of a two- or multi-level system of planning models.

It is not certain whether the same models are best suited for fulfilling these three functions. On the contrary, the first function is likely to require models that differ from those needed by the third function. This is why we speak of a family of central, macro-economic models; this family must be a populous, increasing one. Yet, what is absolutely needed within this family is a system of models that can be — and are — applied to all the three functions. Namely, it is only in this way that continuity and the comparability of results, emerging in the different stages of planning work and from different sources, can be ensured.

In the following I try to outline such a series of models. Other models developed in Hungary for long-term planning (with which this series shows many a kindred feature, and which have inspired their development beside the needs of practical planning) are given in the list or references.

Notations

\otimes	cartesian product: $A \otimes B = \{a_{ij}b_{ij}\}$
$\langle \rangle$	diagonal matrix
$\mathbf{1}$	unit matrix
$\mathbf{0}$	zero matrix
$\mathbf{1}^*$	$[1, 1, \dots, 1]$
$\mathbf{1}$	$[1, 1, \dots, 1]^*$

1. Interrelations to be taken into account

1.1. *Interrelations among the three systems*

The economic system will be considered as a system of the extended reproduction of material goods and services. From this system outputs are flowing towards society and to the rest of the world: goods to be consumed, and exported. The backflowing corresponding inputs are live labour performance, and imports.

Society and the rest of the world are a "black box" in the model: we do not know their internal transformations, we can only perceive their consequences. We do not represent that manifold physiological and social process whose input is the consumption of material goods, and whose output is work performed; but we do take into account that it is not only work that is necessary for consumption, but also that consumption is necessary for work. We do not include (or even know) the reproduction processes of other countries which absorb our exports as input, and release our imports as output; but we do take into account that the world demands exports of a given compo-

sition for certain imports. Just because the internal transformation of society and world economy are unknown, these systems do not actually figure in the model which comprises only the bilateral relations of the economic system with them. On the other hand, the fact that we do take into account the effect of inward flow (work performed and imports) on the volume and composition of outward flow (consumption and exports), renders this model logically more or less closed.

Thus the following activities are figuring in the model:

$$x(t) = [x_1(t), \dots, x_j(t), \dots, x_{n(x)}(t)]^*$$

$$i(t) = [i_1(t), \dots, i_j(t), \dots, i_{n(i)}(t)]^*$$

$$e(t) = [e_1(t), \dots, e_j(t), \dots, e_{n(e)}(t)]^*$$

$$l(t) = [l_1(t), \dots, l_j(t), \dots, l_{n(l)}(t)]^*$$

$$f(t) = [f_1(t), \dots, f_j(t), \dots, f_{n(f)}(t)]^*$$

$x_j(t)$ = production of sector j in year t

$i_j(t)$ = imports of import-group j in year t

$e_j(t)$ = exports of export-group j in year t

$l_j(t)$ = labour output in labour-group j in the year t (e.g., by the labour in trade j , or by the labour with the j degree of qualification)

$f_j(t)$ = consumption of consumer group j in year t (e.g. consumption of families in income category j).

The level of these activities is determined by the following relationships:

$$(1) \quad x(t) = G_0x(t) + G_1x(t+1) + \dots + G_Kx(t+K) - Hi(t) + Ee(t) + Ff(t)$$

$$(2) \quad i(t) = G_0i(t) + \bar{G}_1i(t+1) + \dots + \bar{G}_Ki(t+K) + Ff(t) + \langle u \rangle i(t)$$

$$(3) \quad e(t) = Wi(t) + \langle s \rangle e(t)$$

$$(4) \quad l(t) = Lx(t) + \langle v \rangle l(t)$$

$$(5) \quad f(t) = Dl(t) + \langle z \rangle f(t)$$

$G_k = \{G_{k(m,j)}\}$ products of sector m used by sector j per unit of its production in year $t+k$ ($k=0, \dots, K$); to be defined in (14)

$\bar{G}_k = \{\bar{G}_{k(m,j)}\}$ imports of import-group m used by sector j per unit of its production in year $t+k$ ($k=0, \dots, K$); to be defined similarly to (14)

$E = \{E_{(m,j)}\}$ exports of the products of sector m per unit of exports in export-group j

$F = \{F_{(m,j)}\}$ consumption of products of sector m per unit consumption in consumer-group j

$F = \{F_{(m,j)}\}$ consumption of imports of import-group m per unit consumption in consumer-group j

$H = \{H_{(m,j)}\}$	imports of goods complementary or competitive to products of sector m , per unit of imports in import-group j
$\langle u \rangle = \{u_j\}$	imports in group j substituting domestic products (i.e. not required by constant import-input coefficients), per unit of imports in import-group j
$W = \{W_{(m,j)}\}$	exports of export-group m per unit of imports in import-group j
$\langle s \rangle = \{s_j\}$	payments other than for imports (including net credits, loans, etc.), per unit of export in export-group j
$L = \{L_{(m,j)}\}$	labour performance in labour-group m used by sector j per unit of its production
$\langle v \rangle = \{v_j\}$	autonomous labour requirement (not proportional to production) in group j per its unit output (e.g. for reducing working hours; or, if negative, it may represent productivity increase)
$D = \{D_{(m,j)}\}$	income in consumer group m originating from labour j per unit of labour output j
$\langle z \rangle = \{z_j\}$	net income in consumer group j from sources other than labour, per unit of disposable income in group j

The contents of these relationships are the following:

(1) Production is equal to: product requirement of the reproduction process (this is to be discussed in detail in paragraph 1.2) minus imports plus exports, plus consumption.

(2) Import is equal to: import requirements of the reproduction process (see paragraph 1.2) and of consumption by fixed coefficients.

(3) Export is equal to: the equivalent of imports plus a proportion serving other payments and to increase foreign exchanges reserves. Matrix W represents the effect of transformation taking place in the rest of the world, i.e. that the world demands definite exports for certain imports; $\langle s \rangle$ represents the fact that, besides foreign trade, we are attached to the world by other relations as well, among other things, by credit relations.

(4) Work performance (expressed in man-years or in hours) is equal to: labour input of the reproduction process, plus a proportion independent of it.

(5) Consumption is equal to: consumption proportional to work performed, plus the proportion of consumption which is financed from secondary incomes (e.g. pensions, family allowance, etc.). Matrix D represents the consequences of intra-social transformation, e.g. demographic factors which basically determine the consumption pattern of certain types of families. The effect of the degree of inequality among average earnings also appears here. Finally, matrix $\langle z \rangle$, even if it does not describe it, represents, in the final analysis, the redistributions process of incomes.

1.2. Transformation within the economy

According to relationship (1), the inputs into the economy in a given year depend on the production levels of $K + 1$ consecutive years. These inputs consist of current material input, investments and the increase of inventories.

$$(6) \quad G_0 x(t) + \dots + G_K x(t + K) = a(t) + b(t) + c(t)$$

Let us consider these items one by one.

$$(7) \quad a(t) = Ax(t)$$

$A = \{A_{(m,j)}\}$ current input of products m per unit of output of sector j . We take into account a maximum K years long gestation period of investments:

$$(8) \quad b(t) = \{R_1 \otimes U(t) + R_2 \otimes U(t + 1) + \dots + R_K \otimes U(t + K - 1)\} \mathbf{1}$$

$U = \{U_{(m,j)}(t)\}$ value of fixed capital goods deriving from sector m and to be put into operation in sector j in year t

$R_k = \{R_{k(m,j)}\}$ that proportion of the value of fixed capital goods produced by sector m , to be put into operation in sector j in the year $t + k - 1$, which must be invested in year t .

Hence, investment is equal to: the last proportion to be invested for putting into operation in the year in question, plus the last but one proportion to be invested for putting into operation $K - 1$ years later.

Putting into operation we define as follows:

$$(9) \quad U(t) = B \langle x(t + 1) - x(t) \rangle + S(t)$$

$B = \{B_{(m,j)}\}$ fixed capital goods produced by sector m , per unit production of sector j

$S(t) = \{S_{(m,j)}(t)\}$ fixed capital goods originating from the sector m and disposed in sector j in year t .

Thus, the fixed assets required for production increase in the following year must be put into operation and, in addition, the fixed assets to be disposed from existing stocks must be replaced.

The latter is determined as a percentage of the fixed assets stock of the year in question:

$$(10) \quad S(t) = P \otimes B \langle x(t) \rangle$$

$P = \{P_{(m,j)}\}$ the scrapping rate of capital goods originating from sector m , used in sector j .

Let us substitute (9) and (10) into (8):

$$(11) \quad b(t) = R_1 \otimes \{B \langle x(t+1) \rangle - (B - P \otimes B) \langle x(t) \rangle\} \mathbf{1} + \\ + R_2 \otimes \{B \langle x(t+2) \rangle - (B - P \otimes B) \langle x(t+1) \rangle\} \mathbf{1} + \\ \cdot \\ \cdot \\ + R_K \otimes \{B \langle x(t+K) \rangle - (B - P \otimes B) \langle x(t+K-1) \rangle\} \mathbf{1}$$

Let us rearrange it according to $x(t)$:

$$(12) \quad b(t) = - \{R_1 \otimes (B - P \otimes B)\} x(t) + \\ + \{R_1 \otimes B - R_2 \otimes (B - P \otimes B)\} x(t+1) + \\ + \{R_2 \otimes B - R_3 \otimes (B - P \otimes B)\} x(t+2) + \\ \cdot \\ \cdot \\ + \{R_{K-1} \otimes B - R_K \otimes (B - P \otimes B)\} x(t+K-1) + \\ + \{R_K \otimes B\} x(t+K)$$

In this way we have expressed investment in year t as a function of production in year t and in the following K years.

Finally, the changes in stocks also depend on the increase of production:

$$(13) \quad c(t) = C \{x(t+1) - x(t)\}$$

$C = \{C_{(m,j)}\}$ working assets from the products of sector m , per unit of production of sector j

Now we can define the matrices G_k figuring in relationship (1); these matrices characterize transformation within the economic system:

$$(14) \quad G_0 = A - R_1 \otimes (B - P \otimes B) - C \\ G_1 = R_1 \otimes B - R_2 \otimes (B - P \otimes B) + C \\ G_2 = R_2 \otimes B - R_3 \otimes (B - P \otimes B) \\ \cdot \\ \cdot \\ G_{K-1} = R_{K-1} \otimes B - R_K \otimes (B - P \otimes B) \\ G_K = R_K \otimes B$$

The matrices \bar{G}_k figuring in relationship (2) should be calculated from the corresponding matrices \bar{A} , R_k , $\bar{U}(t)$, $\bar{S}(t)$, \bar{P} , \bar{B} and \bar{C} in altogether identical ways; the dash above indicates that these relate to import utilization. It is exactly because of this complete identity that this demonstration is omitted.

1.3. Summary

The most important properties of the system of relationships described here — distinguishing it from input-output systems stated in the usual form — are that they take into account in an explicit form

- 1) the effect of certain demographic factors, and of income distribution and redistribution on the consumption pattern,
- 2) the interrelations between import structure and export structure,
- 3) the K years long gestation period of investments and the scrapping (replacement) of fixed assets.

Such a formulation of the system of relationships serves the practical purpose of making the model suitable for the quantification of strategic plan variants concerning *living standards policy, technical development, and international economic relations*, and to enable the model to illustrate the most important factors that determine the economic-political contents of these variants.

2. Assumptions about structure: mathematical forms

For the sake of a clear arrangement, let us state the system described by relationships (1) to (5) in the following way:

$$(15) \quad \begin{bmatrix} x(t) \\ i(t) \\ e(t) \\ l(t) \\ f(t) \end{bmatrix} = \begin{bmatrix} G_0 & -H & E & & F \\ \bar{G}_0 & \langle u \rangle & & & \bar{F} \\ & W & \langle s \rangle & & \\ L & & & \langle v \rangle & \\ & & & D & \langle z \rangle \end{bmatrix} \begin{bmatrix} x(t) \\ i(t) \\ e(t) \\ l(t) \\ f(t) \end{bmatrix} + \sum_{k=1}^K \begin{bmatrix} G_k \\ \bar{G}_k \\ \\ \\ \end{bmatrix} [x(t+k)]$$

2.1. Fixed input structure — closed models

We assume that the input structures are given and are unchanged in some neighbourhood of the year t (in the following K years by all means).

(Remark: there is no need to assume that these structures should be unchanged in time for ever. We may, for example, plan the average typical input structure of the 1980s, which may distinctly differ from the structure of the 1960s and 1970s; the conclusions to be drawn from the solution will be characteristic in average of the economy of the 1980s.)

Having made this assumption, let us look for the solution of system (15).

First of all let us look at those activities which figure as variables only with their value for the year t .

$$y(t) = \begin{bmatrix} i(t) \\ e(t) \\ l(t) \\ f(t) \end{bmatrix}$$

$$Z_0^{(1,2)} = [-H, E, \mathbf{0}, F] \quad \text{and} \quad Z_0^{(2,1)} \begin{bmatrix} \bar{G}_0 \\ \mathbf{0} \\ L \\ \mathbf{0} \end{bmatrix}$$

$$Z_0^{(2,2)} = \begin{bmatrix} \langle u \rangle & & & \bar{F} \\ W & \langle s \rangle & & \\ & & \langle v \rangle & \\ & & D & \langle z \rangle \end{bmatrix}$$

$$Z_k^{(2,1)} = \begin{bmatrix} \bar{G}_k \\ \mathbf{0} \\ \mathbf{0} \\ \mathbf{0} \end{bmatrix} \quad k \equiv 1, \dots, K$$

With these notations, system (15) can be stated as follows:

$$(16) \quad x(t) = G_0 x(t) + Z_0^{(1,2)} y(t) + G_1 x(t + 1) + \dots + G_K x(t + K)$$

$$(17) \quad y(t) = Z_0^{(2,1)} x(t) + Z_0^{(2,2)} y(t) + Z_0^{(2,1)} x(t + 1) + \dots + Z_K^{(2,1)} x(t + K)$$

Expressing $y(t)$ from (17):

$$(18) \quad y(t) = (\mathbf{1} - Z_0^{(2,2)})^{-1} \{ Z_0^{(2,1)} x(t) + Z_1^{(2,1)} x(t + 1) + \dots + Z_K^{(2,1)} x(t + K) \}$$

and substituting into (16):

$$(19) \quad x(t) = \{ G_0 + Z_0^{(1,2)} (\mathbf{1} - Z_0^{(2,2)})^{-1} Z_0^{(2,1)} \} x(t) + \\ + \{ G_1 + Z_0^{(1,2)} (\mathbf{1} - Z_0^{(2,2)})^{-1} Z_1^{(2,1)} \} x(t + 1) + \\ \cdot \\ \cdot \\ + \{ G_K + Z_0^{(1,2)} (\mathbf{1} - Z_0^{(2,2)})^{-1} Z_K^{(2,1)} \} x(t + K)$$

Let us, for the sake of simplicity, introduce the notations

$$(20) \quad Q = \{\mathbf{1} - G_0 - Z_0^{(1,2)}(\mathbf{1} - Z_0^{(2,2)})^{-1}Z_0^{(2,1)}\}^{-1} \text{ and}$$

$$(21) \quad M_k = \{G_k + Z_0^{(1,2)}(\mathbf{1} - Z_0^{(2,2)})^{-1}Z_0^{(2,1)}\}$$

after which we can state (19) like this:

$$(22) \quad x(t) = QM_1x(t+1) + \dots + QM_Kx(t+K)$$

Thus, — because only the t th year level of the external relations of the economic system is figuring in the relationships — (15) has been reduced after all to (22).

2.1.1. Fixed activity structure of K years

It appears that if the production level of the $t+1, \dots, t+K$ th year is given, then the production level of the t th year — and, consequently, of the external relations — are determined uniquely. The levels of the $t-1, t-2, \dots$ years follow from this as a matter of course.

The inconvenience of this procedure for the planner is that he has to move backwards in time; he must plan the end of the plan period before he could have planned its beginning. Such a planning situation is not altogether inconceivable either. Anyway, this relationship can be used as a tool of analysis: given a conception — coming from other sources, shaped in another way — for the end of the plan period, it might be useful to compare the way leading there according to the aforesaid conception with the way leading back from there according to (22). Finally, this relationship can also be used for a simple “static” analysis. Namely, we may interpret relationship (22) as a simple, open input-output system whose “net output” is $\{M_1x(t+1) + \dots + M_Kx(t+K)\}\mathbf{1}$, and may make use of the already developed, rich analytical arsenal of the open, static input-output model.

It may be asked whether we can move also forward on this way. A simple rewriting of (22) makes it clear that what we have here is a homogeneous, linear system of difference equations of the K th degree

$$(23) \quad x(t) - QM_1x(t+1) - \dots - QM_Kx(t+K) = \mathbf{0}$$

Whether this system can be solved and how, depends on the particular properties of the coefficient matrices. If QM_K is regular, and we pre-multiply (23) with its inverse, we obtain a unique solution for $x(t+K)$, provided that $x(t), \dots, x(t+K-1)$ are given. Thus, in this case we can determine the activity levels of future years by starting from the production of K past years.

In any case — whether we use (22) or (23) — we must assume something else in addition to assuming a fixed and unchanged input structure: namely, that the activity levels of K consecutive years are given. It is not the input structure alone that determines the development over time of the economic system; it determines them together with the starting or concluding activity structure.

Let us now drop this latter assumption, and replace it by another.

2.1.2. *Even growth*

If each economic sector grew at the same rate every year, i.e., if

$$(24) \quad x(t) = \lambda x(t-1)$$

were valid for every t then relationship (22) would appear as follows:

$$(25) \quad x(t) = QM_1 \lambda x(t) + QM_2 \lambda^2 x(t) + \dots + QM_K \lambda^K x(t)$$

that is

$$(26) \quad (\mathbf{1} - QM_1 \lambda - QM_2 \lambda^2 - \dots - QM_K \lambda^K) x(t) = \mathbf{0}$$

The question now is this: which is the highest possible rate of growth that fulfils this condition, and what is the production structure attached to it?

(25) can also be stated like this:

$$(27) \quad \begin{bmatrix} QM_1 & QM_2 & \dots & QM_K \\ \mathbf{1} & \mathbf{0} & \dots & \mathbf{0} \\ \cdot & & & \\ \cdot & & & \\ \cdot & & & \\ \mathbf{0} & \mathbf{0} & \dots & \mathbf{1} & \mathbf{0} \end{bmatrix} \begin{bmatrix} x(t+1) \\ x(t+2) \\ \cdot \\ \cdot \\ x(t+K) \end{bmatrix} - \begin{bmatrix} x(t) \\ x(t+1) \\ \cdot \\ \cdot \\ x(t+K-1) \end{bmatrix} = \frac{1}{\lambda} \begin{bmatrix} x(t+1) \\ x(t+2) \\ \cdot \\ \cdot \\ x(t+K) \end{bmatrix}$$

and it appears from this that the highest λ^* rate of even growth is the reciprocal of the smallest positive eigenvalue of the matrix figuring in (27). If such one exists, and if it is possible to determine it by some calculation technique, then we have found the highest possible rate of even expansion for the given input structure. And the eigenvector belonging to it yields the production structure that is able to maintain this even expansion permanently.

Thus the assumption of even growth quasi renders the problem “timeless” and makes the question of whether we move forward or backward in time irrelevant. But even in this case the situation is easier, from the point of view of calculation techniques, if QM_K is regular, because then we can study by means of the notations

$$(28) \quad \Delta = (QM_K)^{-1}$$

instead of (27) the form below:

$$(29) \quad \begin{bmatrix} -\Delta QM_{K-1}, & -\Delta QM_{K-2}, & \dots, & \Delta \\ \mathbf{1} & ; & \mathbf{0} & \dots, & \mathbf{0} \\ \cdot \\ \cdot \\ \cdot \\ \mathbf{0} & , & \mathbf{0} & , \dots, & \mathbf{1}, & \mathbf{0} \end{bmatrix} \begin{bmatrix} x(t+K-1) \\ x(t+K-2) \\ \cdot \\ \cdot \\ \cdot \\ x(t) \end{bmatrix} = \\
 = \begin{bmatrix} x(t+K) \\ x(t+K-1) \\ \cdot \\ \cdot \\ \cdot \\ x(t+1) \end{bmatrix} = \lambda \begin{bmatrix} x(t+K-1) \\ x(t+K-2) \\ \cdot \\ \cdot \\ \cdot \\ x(t) \end{bmatrix}$$

So, in this case we must find the greatest positive eigenvalue of a matrix. If this happens to be the dominant eigenvalue at the same time, then the solution of the system (23) of difference equations will converge to the eigenvector belonging to it, and, starting from a discretionary initial state, the economy will spontaneously lead itself on to the path of even growth.

2.2. *Partially free input structure — programming models*

In the following, let us state the (15) system of relationships in this form:

$$(30) \quad \begin{bmatrix} \mathbf{1}-G_0 & H & -E & & -F \\ -\bar{G}_0 & \mathbf{1}-\langle u \rangle & & & -\bar{F} \\ & -W & \mathbf{1}-\langle s \rangle & & \\ -L & & & \mathbf{1}-\langle v \rangle & \\ & & & -D & \mathbf{1}-\langle z \rangle \end{bmatrix} \begin{bmatrix} x(t) \\ i(t) \\ e(t) \\ l(t) \\ f(t) \end{bmatrix} + \\
 + \sum_{k=1}^K \begin{bmatrix} -G_k \\ -\bar{G}_k \\ \cdot \\ \cdot \\ \cdot \end{bmatrix} [x(t+k)] = \mathbf{0}$$

We assume that certain elements of the structure are given, but that other elements can be shaped at discretion within certain limits.

We assume especially that

— one factor in the internal transformation of the economic system, the replacement of fixed assets can be made independent of the level of stocks (and of the level of production thereby); its absolute quantity can be determined freely, i.e. it can be a discretionary proportion of the stock;

— that part of the flows between the economic system, society and the rest of the world which does not depend on the level of production, can be made independent of the level of flows; its absolute quantity can be determined freely, i.e. it can be a discretionary proportion of the flow; moreover, this quantity itself may be discretionary above a given minimum.

2.2.1. *Fixed time-invariant structure*

In accordance with the foregoing assumptions, we substitute the following for the (30) system of relationships:

$$\begin{aligned}
 (31) \quad & \left[\begin{array}{c|ccc} \mathbf{1} - G_0 + \nabla_0 & H & -E & -E \\ \hline -\bar{G}_0 + \bar{\nabla}_0 & \mathbf{1} & & -\bar{F} \\ \hline & -W & \mathbf{1} & \\ \hline -L & & & \mathbf{1} \\ \hline & & & -D & \mathbf{1} \end{array} \right] \left[\begin{array}{c} x(t) \\ i(t) \\ e(t) \\ l(t) \\ f(t) \end{array} \right] + \\
 & + \sum_{k=1}^K \left[\begin{array}{c} -G_k + \nabla_k \\ \hline -\bar{G}_k + \bar{\nabla}_k \\ \hline \\ \hline \\ \hline \end{array} \right] [x(t+k)] = \left[\begin{array}{c} \hat{S}(t) \mathbf{1} \\ \hline \hat{u}(t) + S(t) \mathbf{1} \\ \hline \hat{s}(t) \\ \hline \hat{v}(t) \\ \hline \hat{z}(t) \end{array} \right] \\
 & \qquad \qquad \qquad t = 1, \dots, T \qquad \qquad \qquad \nabla_k = R_k \otimes P \otimes B \\
 & \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \bar{\nabla}_k = \bar{R}_k \otimes \bar{P} \otimes \bar{B}
 \end{aligned}$$

The continuity of the entire process has been interrupted in this way; conditions and requirements arising from past and future must be assessed for the finite $t = 1, \dots, T$ period from “outside”, with additional assumptions. The solution has become indefinite at the same time; this permits us to enforce preference when we select from among possible solutions; one of these we do not give as a condition, but as a function — to be maximized or minimized — of the variables.

Thus we complement system (31) with the following:

$$(32.a) \quad \langle 1^*B \rangle x(1) \leq \hat{d}$$

$$(32.b) \quad \langle 1^*B - 1^*(R_1 + \dots + R_k) \otimes B \rangle \{x(k+1) - x(k)\} \leq \hat{g}(k) \\ k = 1, \dots, K-1$$

$$(32.c) \quad \sum_{t=T+1}^{T+K} 1^*x(t) - \sum_{t=T-K+1}^T \mu 1^*x(t) \geq 0$$

$$(32.d) \quad \sum_{t=1}^T \eta_t 1^* \{e(t) - W i(t)\} \geq \hat{q}$$

$$(32.e) \quad 1^*f(t+1) - \omega 1^*f(t) \geq 0 \\ t = 1, \dots, T-1$$

$$(33) \quad \sum_{t=1}^T \delta_t 1^*f(t) \rightarrow \max!$$

The contents of the conditions are the following:

(32.a) Production of the first year must not exceed what is permitted by the initial stock \hat{d} of the fixed assets.

(32.b) Increase of production in the first K year cannot be higher than permitted by the $\hat{g}(K)$ initial stock of investments intended for putting into operation in the k th ($k = 1, \dots, K-1$) year.

(32.c) The cumulated production of K years following the plan period (for which investments must be started already during the plan period) must not be lower than μ -fold of the cumulated production of the last K years of the plan period.

(32.d) The cumulated foreign exchange balance of the plan period — added accumulated interests η for year T — must not be lower than \hat{q} .

(32.e) Consumption must increase at least at an annual rate of ω .

(33) The total value of consumption during the plan period discounted for the first year must be maximum.

2.2.2. Fixed, time-variant structure

Finally, we assume that the fixed elements of the input structure change during the plan period.

In the initial stage of planning work, when the models figure in their first function mentioned in the Introduction, we cannot possibly have well-founded information, prognosis or plan calculations concerning the direction and extent of these changes, we only have hypotheses. We may consider some direction and extent to be probable in general, or to be desirable, or simply to be worth studying, but cannot quantify them in a differentiated manner.

In this case it may be useful to substitute the following for system (31):

$$(34) \quad \begin{bmatrix} \mathbf{1} - G_0 + Y_0(t) & H & -E & -F \\ -\bar{G}_0 + \bar{Y}_0(t) & \langle \varrho^t \rangle & & -\bar{F} \\ & -W & \langle \delta^t \rangle & \\ -L & & & \langle \pi^t \rangle \\ & & & -D \langle \varphi^t \rangle \end{bmatrix} \begin{bmatrix} x(t) \\ i(t) \\ e(t) \\ l(t) \\ f(t) \end{bmatrix} +$$

$$+ \sum_{k=1}^{\vartheta} \begin{bmatrix} -G_k + Y_k(t) \\ -\bar{G}_k + \bar{Y}_k(t) \\ \\ \\ \end{bmatrix} [x(t+k)] = \begin{bmatrix} \hat{S}(t) \mathbf{1} \\ \hat{u}(t) \\ \hat{s}(t) \\ \hat{v}(t) \\ \hat{z}(t) \end{bmatrix}$$

$$Y_0(t) = \langle \mathbf{1} - \alpha^t \rangle A - (R_1 - \langle \beta^{t+1} \rangle \check{R}_1) \otimes B - \langle \mathbf{1} - \gamma^{t+1} \rangle C + R_1 \otimes P \otimes B$$

$$Y_1(t) = \{ (R_1 - \langle \beta^{t+1} \rangle \check{R}_1) - (R_2 - \langle \beta^{t+2} \rangle \check{R}_2) \} \otimes B + \langle \mathbf{1} - \gamma^{t+1} \rangle C + R_2 \otimes P \otimes B$$

$$Y_k(t) = \{ (R_k - \langle \beta^{t+k} \rangle \check{R}_k) - (R_{k+1} - \langle \beta^{t+k+1} \rangle \check{R}_{k+1}) \} \otimes B + R_{k+1} \otimes P \otimes B$$

$$Y_{\vartheta}(t) = (R_{\vartheta} - \langle \beta^{t+\vartheta} \rangle \check{R}_{\vartheta}) \otimes B$$

$$\check{R}_k = \check{R} + \frac{1}{\vartheta} (R_K + R_{K-1} + \dots + R_{\vartheta+1}) \quad k = 1, \dots, \vartheta$$

Conditions (32.a) and (32.b) must be reformulated accordingly, but we do not state them here.

Thus we are "controlling" our models with the aid of the following parameters, in addition to the constants on the right:

- $\vartheta =$ maximum gestation period of investments, in years
- $\langle \alpha \rangle = \{ \alpha_m \}$ average annual change in input coefficients relating to the m th product;
- $\langle \beta \rangle = \{ \beta_m \}$ average annual change in fixed capital coefficients relating to fixed capital goods produced by sector m ;
- $\langle \gamma \rangle = \{ \gamma_m \}$ average annual change in working capital coefficients relating to capital goods produced by sector m ;
- $\langle \varrho \rangle = \{ \varrho_m \}$ average annual change in the elasticity of the m th import activity;
- $\langle \sigma \rangle = \{ \sigma_j \}$ annual average change in the indicator of foreign exchange returns of the j th export activity;

- $\langle \pi \rangle = \{ \pi_j \}$ average annual growth in the productivity of the j th kind of work performance;
- $\langle \varphi \rangle = \{ \varphi_j \}$ average annual change in the proportion of incomes derived from work in the j th consumer group.

If we change more than one parameter simultaneously, the model has to be solved anew. Hence we speak of “steering” not in the calculation-technical, but in the economic sense: if we choose ϑ , $\langle \alpha \rangle$, $\langle \beta \rangle$, $\langle \sigma \rangle$ and $\langle \pi \rangle$ — together with the $\hat{S}(t)$ -s figuring on the right side — we can express hypotheses and strategies relating to the general direction of technical progress, to the rate of technological development; if we choose $\langle \rho \rangle$ — together with the $\hat{s}(t)$ -s and \hat{q} figuring on the right — we can express conceptions relating to our joining in the international division of labour; if we choose $\langle \varphi \rangle$ — together with the $\hat{v}(t)$ -s and the $\hat{z}(t)$ -s — we can express ideas about living standards policy. As planning work proceeds, and as a result of the work of a broad planning apparatus, better-founded and differentiated information about probable structural changes becomes available — whether from “conventional” planning work, or from the solution of mathematical models — we can replace system (34) by the following:

$$(35) \quad \begin{bmatrix} \mathbf{1} - G_0(t) & H(t) & -E(t) & & -F(t) \\ -\bar{G}_0(t) & \mathbf{1} & & & -\bar{F}(t) \\ & -W(t) & \mathbf{1} & & \\ -L(t) & & & \mathbf{1} & \\ & & & -D(t) & \mathbf{1} \end{bmatrix} \begin{bmatrix} x(t) \\ i(t) \\ e(t) \\ l(t) \\ f(t) \end{bmatrix} + \\
 + \sum_{k=1}^{\vartheta} \begin{bmatrix} -G_k(t) \\ -\bar{G}_k(t) \\ \\ \\ \end{bmatrix} [x(t+k)] = \begin{bmatrix} \hat{S}(t)\mathbf{1} \\ \hat{u}(t) \\ \hat{s}(t) \\ \hat{v}(t) \\ \hat{z}(t) \end{bmatrix} \\
 t = 1, \dots, T$$

This substitution need not take place in a single step; there might be planning stages where we still employ the former, rough method in certain blocks, while planned coefficients figure in others.

When substitution has been completed, it is again the parameters figuring in (32) and (33), representing time preferences, that become the sole carriers of the strategies relating to the whole of the system.

3. Series of calculations

Here I try to present the possibilities, irrespective of how much can be realized of these possibilities in various planning stages with the computers available. The description only takes into account the primal solutions; I do not discuss the possibilities of analysis inherent in dual solutions.

We do not regard any solution of any model as a plan proposal, the calculations are carried out for the purpose of *analysis*. Consequently, if a model has *no solution* with given numerical values, or has no unique solution, the exploration and analysis of factors responsible for the lack of solution may be just as instructive for the planner as a solution itself. But such a situation is always very concrete, very special. In the following I, therefore, assume that the models in question can be solved, and that we are able to produce the solution with the computers available.

Our calculations are always aimed at a comparative analysis of given conditions and/or strategies of economic policy. These conditions and strategies always find expression in input structures (or in some parameters of the programming models), and the fundamental point of view in their comparative analysis is to find out what activity levels and structure (production, consumption, foreign trade) and rate of growth they bring about.

Thus, our calculations are not directly aimed at planning the input structure, or at the formulation of a strategy for economic policy. These we must get ready, from "outside", be it in the form of rough hypotheses, or in the form of elaborated plan conceptions. By studying the possible alternatives, our calculations prepare the well-founded decisions.

3.1. Study of a given structure

It is necessary to study the actual structure as it exists at the beginning of the plan period, and the structure planned for the end of the plan period. A given working phase of long-term planning starts with the former and ends with the latter. However, numerous transitory alternatives between the two can be also examined.

A given structure is always interpreted for a definite period, e.g. for the beginning of the 1960s, or for the middle of the 1980s. We do know (in case of the base period), or have planned (in case of a structure planned for the end of the plan period), or assume (in case of transitory structures, in conformity with them) the activity levels of K consecutive years in the period concerned.

First step: this is the study of individual elements of the structure:

— the matrices G_k defined in relationship (14), characterizing the internal transformation of the economic system;

— the relations existing within society and with the rest of the world; regarding the system of these relations as a standard, open, static input-output model;

— on the basis of relationship (18) the parts of this system, the “cumulation” taking place within this system, etc.;

— the links between the systems: regarding their aggregate as an open, static input-output model;

— on the basis of relationship (22) the internal “cumulation” of the joint system, the structure of its “value added”, of its “final output”, etc.

Second step: this is the study of the rate of growth and of the activity pattern belonging to the structure. We solve — if it can be stated — the eigenvalue problem (29). (If it cannot be stated, we solve problem (27); but in this case we cannot omit to study the following: what concrete economic phenomena are reflected by the singular nature of matrix QM_K ?) Is there a highest positive rate of growth, and, if so, how big is λ^* ? Are there any complex or negative eigenvalues of a greater absolute value than this, and, if so, what are they? (Namely, these will affect the solution of the system of difference equations.) What is the production structure defined by the eigenvector belonging to it? Substituting this into (18), what kind of work-performance, consumption and foreign trade activity structure will result? How does all this differ from the actual (planned, assumed) activity structure?

Third step: this is the simultaneous study of the structure and the given production level of K years. We solve the system of difference equations (23). (If there is no unique solution to it, why not? In this case we iterate on the basis of relationship (22).) We also substitute the solution into (18). Does the solution converge, diverge or oscillate? What is the trend over time of production, work and consumption, exports and imports in a finite period of T years? What is the average rate of growth? Is it lower or higher than the λ^* above? Can cycles be shown to exist? If so, what are they? How does the activity pattern change in time, does it move towards the pattern belonging to λ , or does it move away from it, or does it fluctuate around it?

If it is not a case of the initial, actual structure, we might repeat the third step with the alternative series of the production level of K years.

Fourth step: this is the study of alternative strategies by partially relaxing the restrictions of the structure. We solve the linear programming model defined by the relationships (31)–(32)–(33). First we try to increase the constants at the right side by the rate λ^* obtained in the second step, and to set the parameters μ , ω , η and δ figuring in the time preferences in accordance with λ^* . Is there any solution to this “open-closed” model? If no, what constraints do prevent this?

Then we quantify alternative strategies by changing the constants and the parameters that express time preference, and solve the model with each of these strategies. In connection with these solutions we ask the same questions as in the third step; we compare the solutions with one another, and with the solution of the system of difference equations.

Fifth step: by a further "opening" of the model, we can define further linear programming model variants not described here. This is advisable if also other linear programming models are employed within the scope of causes of differences in the course of comparing the results of the various models. Namely, in this case it may be useful to approximate gradually, step by step, this actually "almost closed" programming model described here to the other models, and to study the differences between the solutions step by step.

3.2. *Study of structural changes*

Within the scope of the series of models described here, two methods offer themselves for studying the structural changes which take place over time:

- to study both the earlier and the later structure in the manner described in paragraph 3.1, and compare the results;
- to solve the linear programming models defined by relationships (34) and (35), and compare the solution with the results obtained in the former, fourth step.

I believe that the methodological aspects of this series of calculations have been presented with sufficient clarity. Yet, as concerns contents and economic particularities, these must be determined in the knowledge of the given phase of planning work, in their dependence on actual problems, and — unfortunately — in their dependence on available calculation devices.

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СЕРИЯ МОДЕЛЕЙ ДОЛГОСРОЧНОГО ПЕРСПЕКТИВНОГО ПЛАНИРОВАНИЯ

М. АУГУСТИНОВИЧ

В статье представляется серия линейных моделей, применяемых в долгосрочном макроэкономическом планировании.

Автор дает в своей статье определение отраженной с моделях системы экономических взаимозависимостей, распространяющихся на расширенное воспроизводство материальных благ и услуг, а также на взаимосвязи этой производственной системы с обществом и с остальными частями мира (труд и потребление, импорт и экспорт). Помимо обычных моделируемых макроэкономических взаимозависимостей в системе взаимозависимостей в форме явных функций учитываются и взаимодействия между 1. запаздыванием капитальных вложений на K лет и объемом списываемых и обновляемых основных средств, 2. некоторыми демографическими факторами и влиянием распределения и перераспределения доходов на структуру потребления, 3. структурой импорта и структурой экспорта.

Эта система взаимозависимостей в соответствии с различными предположениями относительно структурных условий выражается в форме различных математических моделей. В числе замкнутых моделей фигурируют система однородных линейных разностей уравнений K -ой степени и задача собственных значений — собственных векторов; а предположение свободы в формировании структуры ведет к моделям линейного программирования.

В заключение в статье кратко представляются возможности выполнения плановых расчетов при помощи данной серии моделей.

A. NAGY

THE ROLE OF CONSISTENT TRADE-NETWORK MODELS IN FOREIGN TRADE PLANNING AND PROJECTION OF THE SOCIALIST COUNTRIES

The author deals with the experiments and research in socialist countries, directed towards ensuring the consistency of foreign trade plans and projections. He discusses certain specialities in the application of trade-network models to the foreign trade planning of socialist countries and methods for ensuring internal and international consistency*.

Medium- and long-term planning and projections are playing an increasing role in the activities of the leading economic organs and research institutes of the socialist countries. In medium- and long-term projection exercises it is necessary to ensure consistency of export and import estimates both with the development of the domestic production and consumption structure and with the system of international trade.

Thus foreign trade projections have to be consistent in a double sense:

(a) in the *internal* sense: imports, respectively exports have to be equal to the difference between domestic production and consumption in all sectors of the economy;

(b) in the *international* sense: import and export projections of each country have to fit into the system of international trade.

Foreign trade plans and projections can be regarded as consistent only if they satisfy both these requirements, i.e. if they fit into the domestic balances of each sector and if the export estimate of country *i* to country *j* corresponds to the import estimate of country *j* from country *i*. There are several methods, now widely used, to achieve internal consistency, e.g. the balancing method, the input-output tables, the constraining equalities in programming models, etc. In view of the number of existing methods for dealing with internal consistency, this paper will be directed to problems of international consistency.

In comparison with the study of problems of internal consistency, it would seem that international consistency has been largely neglected. A few research institutes have started to deal with this question in recent years, but the majority of national and international bodies concerned with planning and projections have not invested much in this problem until now. It

*The article is based on a paper prepared by the author as a consultant to the UN Economic Commission for Europe for the Ad hoc Meeting of Experts on Methods for International Trade Projections, held in June 1970 at Geneva.

is no wonder that at the present experimental stage of the investigations, no adequate and well-tried methods can be offered to ensure international consistency in foreign trade plans and projections. A summing up of the experiences and results and more concentrated efforts in this field are the more timely since, if no such methods are found, foreign trade plans and projections will inevitably comprise serious contradictions.

The fact that international trade is in many respects a closed system — with internal rules, trade flows having a definite structure and in many cases regular tendencies — should be emphasized in connexion with long-term planning since the extension of the time-horizon increases not only the freedom of decision, the set of feasible activities, but also the margin for error. More constraints and more rigid internal and external conditions are generally taken into account in short-term planning than in longer-term planning. This characteristic feature increases the danger that planning organs think they can do “what they like” with the distant future, under the assumption that the rate and direction of growth depends only on internal conditions and decisions. But the development of each country — especially their foreign trade — depends not only on their own decisions and actions but also on those of their trading partners, since international trade functions are an inter-related, organic system.

The requirement of international consistency in foreign trade planning and projection might seem to be very rigorous and hardly feasible. Trade-network models satisfying this requirement might be regarded as over-determined, leaving little room for manoeuvring or alternatives. In fact, however, international trade always satisfies this requirement in practice.

There can be many trade flows between two countries, very different in size and pattern, for which a great number of consistent alternatives can be planned or projected, except those which are not feasible internally from either side. Plans and projections prepared on a national basis, without taking into account the interrelations of the whole system of international trade, may easily have such a result.

Experiments ensuring international consistency of foreign trade plans and projections

Experiments and investigations directed towards international consistency of foreign trade will be reviewed with respect to:

- (1) “traditional” plan co-ordination among CMEA countries;
- (2) the linking of input-output tables of Czechoslovakia, Hungary and Poland through their mutual trade flows;
- (3) methodological research and experiments with international trade-network models.

To begin with, it should be stressed that, in all probability, information on these subjects is far from exhaustive. Publications are scarce and incomplete and it is difficult to obtain information on the numerous research projects now under way.

“Traditional” plan coordination

The necessity for co-ordinating national plans, especially foreign trade plans, was already felt in the early 1950s in the socialist countries. The actual co-ordination of plans started in 1955 and, since then, has been carried out over three five-year plan periods.

Without going into the details of the complex and continuously changing methods of plan co-ordination, emphasis is placed on its essential feature, i.e. the seeking of a consistent plan variant which might provide a basis for the conclusion of medium-term obligatory bilateral trade agreements.

In the course of preparing national plan proposals, there is a mutual exchange of information, enabling each country to consider the development programmes of the others. By means of comparing the main product-balances in the national plan proposals, the most important inconsistencies can be brought to light in the form of surpluses and deficits. Solution to these problems is sought in changing the production targets and trade quotas through bilateral and multilateral discussions. Because of its enormous data-requirement, the complications of the iteration process and the lack of adequate criteria for comparisons, international plan coordination with the help of a formalized model based on detailed material balances seems to be a hopeless task.

Preparation for important changes in the economic relations among the CMEA countries is under way. A substantial increase of economic integration has come into prominence which requires new planning and coordination methods and changes in the system of trade agreements. It has been generally recognized that the technique of balancing in quantitative terms was too detailed in most cases and led to a limitation of market factors in economic relations. The role of prices, qualities, supply and demand, credit conditions and world market changes were in many cases neglected, and this hindered recognizing, measuring and expanding the advantages of the international division of labour. In connexion with the unsatisfactory operation of market factors, a rigid confrontation of commodity patterns has become the predominant method for enforcing reciprocal interests. The development of trade was curbed for lack of efficient economic regulators, and this necessitated the bilateral balancing of payments in a too rigid manner.

The reform of economic relations among CMEA countries demands a more flexible price mechanism and foreign trade quota system, an increasing role of financial policy; multilateral payments and more direct international

contacts and co-operation between the productive and trading enterprises of different countries.

These changes will certainly have strong effects on the "traditional" forms of planning and plan co-ordination of foreign trade. It may be expected that the methods of national trade projections and their co-ordination, the use of trade-network models will come into prominence and will precede the coordination of material balances and trade plans.

The linking of input-output balances for Czechoslovakia, Hungary and Poland

The model [11] elaborated by the Planning Boards of these three countries is based upon their extended input-output balances for the year 1962. Flows among the three countries are represented by six import-matrices, where rows correspond to the productive sector of the exporting country, and columns to the using sector of the importing country. These matrices are available in common currency units (clearing roubles) as well as in the currency of both the importing and the exporting country. Trade flows with the rest of the world are available in clearing roubles, dollars and in the currency of one of the three countries, respectively. Domestic flows are available at domestic prices only. Thus the combined system of the three countries can be built up in two alternative ways: either in the currency (at prices) of the producing country, where the unit of measurement is the same along the row, or in the currency (at prices) of the using country, where the unit of measurement is the same along the column.

(a) *An open static input-output model of the combined economies of the three countries*

It is designed mainly for analysis: to see how primary inputs into the three economies flow through the productive systems and serve final use: how deeply the three economies are linked by direct and indirect effects, how various types of price systems would work out, etc. Disregarding the changes in coefficients, the model could be used to project total outputs and primary inputs in the three countries as well as trade flows among them in terms of domestic final use and exports to the rest of the world.

(b) *A linear programming model of the combined economies*

It is designed to explore the possible effects of extending integration among the three economies. Variables represent production, imports and exports by sectors and by markets. Imports from the rest of the world are treated as non-competitive while flows within the three-country-system are competitive. The model is to be solved in consecutive steps, with varying sets of constraints. The first set corresponds to the actual situation in 1962. In the consecutive sets, constraints are reduced step by step, starting with foreign

trade balance constraints up to a free migration of labour within the system in the final step. With each set of constraints two alternative objective functions are to be maximized: the common surplus in the foreign trade balance with the rest of the world and the common surplus in domestic consumption (the latter being shared by the three countries according to their national income in 1962).

The model cannot be regarded as a tool for projecting trade flows, as there is no reason to assume that the economies will follow the optimal path in the above sense. On the other hand, it may be regarded as an analytic tool of purposeful planning for structural changes in the economic relations among the three countries.

Investigations with international trade-network models

The idea that methods could be found for fitting development plan variants of the socialist countries into a consistent network of international trade, has only been recently developed. Individual countries have access to other countries' development estimates only through past experiences, incomplete information and hypotheses based thereupon, when they are preparing their own trade plans or projections. Although this information contains a lot of uncertainties, if fitted into a trade network model, it will have the advantage of a consistent system—the contradictions of the individual trade flows having been removed.

The first known experiment in trying to fit the foreign trade projections of a socialist country into the expected development of world trade with the use of the RAS* method was made by the Yugoslav Foreign Trade Research Institute. An account of these results was given by Dr. Ivo Fabinc in 1966 (see [2]).

The world trade network in the model was divided into 14 regions and Yugoslav trade was dealt with separately. The structure of world trade was computed on the basis of the average flows of the years 1955–1964 and the average margins (i.e. total exports and imports by countries, or regions) were extrapolated for 1970. The published results did not contain much numerical information, but they arrived at several interesting conclusions on the future development of the structure of world trade, on the different growth rates of trade of the regions examined and, as a consequence, on Yugoslavia's trade perspectives with them.

The Hungarian Institute for Economic and Market Research started to analyse the international trade flows in 1968 with the help of two models: (a) world trade was divided into 6 regions and 6 commodity groups and on the basis of the data for the years 1955, 1960 and 1965 extrapolations were

* See [12, 16].

made for 1970, 1975 and 1980; (b) a "gravitation" model was prepared for the trade of the socialist countries and their most important trading partners (27 countries for 1960), to analyse the factors influencing trade flows (see [6, 7]).

The model (a) gives a three-dimensional matrix-block for each year, where each x_{ijk} cell corresponds to a trade flow of commodity k from exporting country i to importing country j . The changes in structure, the dynamics and internal rules of world trade can be studied on these blocks of matrices. The RAS procedure was suited for the extrapolation of the three-dimensional matrix-block. When starting with a block of a base period, a tri-proportional extrapolated block is prepared corresponding to the given total exports, total imports of the regions and total trade of the commodity groups (which will be called margins, or vectors of margins in the following).

The divergence of the projected and actual flows could be found with ex-post comparisons and in this way structural coefficient networks were established for the periods 1955–1960 and 1960–1965. These coefficients (called φ) express the factors causing unequal growth in the trade of different regions and commodity groups, i.e. the effects of economic distance, commercial policy, economic integrations, traditional links, colonial ties, etc. These projections were based on hypotheses concerning the growth of the margins and concerning the stability or changes of the φ structural coefficient system. On the basis of different hypotheses, several projection variants were prepared for world trade in the years 1970, 1975 and 1980.

The reliability of results depends mainly on exogenous data: if such methods are found by which reasonable marginal data can be given and if the stability, or the tendencies of changes in the structural coefficients can be established, then this method gives satisfactorily reliable trade flow projections. Simple time-trend extrapolation of the margins over long periods has led to unrealistic results in the size of the deficits and surpluses in the trade balances of the different regions and the changes in the growth rate of total trade were not taken into account. Economically sensible corrections of the projections of the margins substantially improved the probability of the computed trade flow estimates.

The Hungarian Institute for Economic and Market Research intends to find out with a "gravitational" trade-network model — similar to those of Tinbergen [15] and Linnemann [4] — to what extent trade flows can be explained by economic potential, economic distance and — in certain cases — by preferential links between the exporting and importing countries. To this effect, cross-section analyses were applied for trade among eight socialist countries and their most important trading partners: eleven European and eight overseas countries, for the year 1960. Regression analysis showed a generally rather strong correlation between the independent variables of the

countries and their trade flows. The size of the coefficients was in the neighbourhood of those of previous similar investigations, with the exception that the independent variables of the importing countries had less explanatory value for the trade flows (one possible explanation of this is given on page 247).

The assumption that the trade of the socialist countries follows very different rules as compared with those of the other countries, was found to be erroneous. The coefficient of the preference variable for trade relations between the CMEA countries was very high, as could be expected, significantly higher than that of the EEC countries. The model in its present form appears unsuited for projection purposes because of its aggregated character (no commodity breakdown) and the high degree of relative error, even if the projection of independent variables is sufficiently accurate.

The Czechoslovak Foreign Trade Research Institute is also testing the application of some methods of synthetic analysis and of a prediction of international and Czechoslovak foreign trade. This work covers a wide range of problems and implies the combination of various methods, including both formalized models and empirical procedures.

The investigations are based on a series of trade flow matrices among 29 countries (19 developed market economies, 8 socialist countries and 2 developing countries) for the years 1963–1967. On the basis of these data they intend to analyse development of the commodity and geographical patterns of international trade, the relations of these patterns with the effects of foreign trade and with the utilization and allocation of production factors and, finally, the optimum rate of opening national economies towards world markets. The commodity structure is analysed according to 56 SITC commodity groups. The relationships of foreign trade patterns are tested with GDP, production of manufacturing, construction and agriculture and with capital formation. The work was started in 1969 and is concentrated mainly on time series and cross-section analyses, the application for prediction purposes will be started presumably at a later stage.

According to the information of the Yugoslav Foreign Trade Research Institute, an international trade model similar to the GEPEI model in France (see [9]) is under preparation. The important characteristic of this model is that it is not only disaggregated into commodity groups, but an internal consistency is also assured by linking the trade flows to national input-output tables. The research project is at the model-building stage, which will be followed by experimenting and testing; final results are not expected before 1975.

All the above-mentioned trade network models in the socialist countries have a marked experimental character. Research in this field is more or less at the stage where input-output analysis was in the early 1960s: the potentialities of these methods are starting to be recognized, but their advantages

and limitations are not yet fully appraised. As the importance of medium- and long-term planning and projections is on the increase in these countries, more attention has to be paid to the methods enabling the consistent linking of the national estimates.

Problems of application of trade network models for planning and projections

It is generally recognized that a substantial development of the trade-network models is needed to make them suitable for planning and projection purposes. There are a number of specific features of the economic structure, the planning and management systems and economic relations of the socialist countries which have to be taken into consideration in the course of improving these methods.

Some specific features

(a) Planning and projections in the socialist countries — even in their more aggregated forms — are in general more detailed than in the capitalist countries. Planning organs, e.g., cannot make much use of such models, which only show the development of total exports, total imports and their balance. Usually they need a more detailed breakdown by commodity groups or production branches and, owing to the differences in economic relations, they require a separate examination of trade flows and balance of trade with socialist and capitalist, developing and developed countries. It can be easily seen that a national planning or projection model which has only one export and one import function substantially differs from another one distinguishing, e.g., four commodity groups and three main market regions, having thus 24, or with their totals, 32 foreign trade functions. Similarly, it is unlikely that trade network models, showing only total trade data between the country-pairs, could satisfy the needs of the planners. This is one of the reasons why there is an emphasis in the experiment mentioned above to introduce commodity breakdown. However, decomposition is also needed to increase the explanatory value and the prediction accuracy of these models.

(b) According to past experiences of the development of socialist economies, one part of the domestic demand for important raw materials, capital and consumption goods remains unsatisfied. This creates a tension supposedly increasing the growth rate and growth has a preserving effect on this tension. In those fields where supply remains unbalanced, a "seller's market" is created and the role of the buyers, or of demand, is pushed into the background. This is the case in several spheres of trade among socialist countries, which can be intensified by the scarcity of capital, if the problem arises in capital-

intensive branches of production. Presumably, this may be the reason for the phenomena observed in the "gravitational" model, mentioned on page 245, that the demand of the importing country plays a smaller role than in models dealing with capitalist countries. Thus exports cannot be regarded as solely dependent on the importing countries' demand and more attention should be paid to the relations of domestic supply and of exports and to future changes in this relationship.

(c) As a consequence of the lack of convertible currency and owing to the significant weight of bilateral trade relations, financial balances have a great effect on the development of trade. This is closely linked to the fact that the availability of competitive export goods for markets with convertible currencies is generally restricted due to problems of quality and of technological level and to the barriers opposed to imports originating in the socialist countries. Under such conditions, import restrictions and different types of export subsidies come naturally into prominence, leading to the gap between domestic and world prices, to the decline of market factors and the advantages of foreign trade. In the countries and in the periods, where and when there are difficulties with the financial balances, trade policy has greater influence on trade flows, than in other countries and periods.

We may assume that the factors of trade policy have a greater effect on the turnover among the socialist countries and their trading partners, than e.g. in the trade among developed capitalist economies. The trade policy factors have partly permanent effects, which — at least for a certain period — determine steadily the structural coefficients of trade-flows. Such is, for example, the economic integration of a certain group of countries, which has a stimulating effect on the trade among the partners. The integration effect of the CMEA countries — also according to the evidence of the Hungarian "gravitational" models — is relatively strong, the trade flows between the partners are far larger than can be explained by factors having no trade policy character.

Trade policy factors have on the other hand temporary effects, and their influence on trade flows is unstable. Restriction, or stimulation of imports from certain markets, on account of the deficits or surpluses of the balance of payments can be regarded as such, for example. The structural coefficients between certain countries can have a changing nature because of similar fluctuating effects, which make their planning, or projections, very difficult.

When preparing medium- and long-term plans, such short-run fluctuation may be disregarded. However, the length of the permanent effects of certain trade policy factors has to be ascertained, or assumed. The increase, or decrease of discriminations, the spreading and pace of liberalization, the continuity and changes in the scope of the quota system, changes in the tariffs, or in the preferential links between countries are all factors which can cause

rapid and significant changes in trade flows, even if they have a stable effect until they are changing.

The analysis of the stability and changes of the structural coefficients, the examination of the factors influencing them, are of utmost importance, if we are looking for reliable information on the future trade flows of the socialist countries.

The problem of consistency

The utilization of trade network models for planning and projections may be envisaged in the following three ways:

(a) each trade flow is predicted with the help of detailed national foreign trade plans or projections;

(b) the vectors of margins (i.e. total exports, total imports of the countries and total trade of the commodity groups) are exogenously projected and the trade flows are computed on the basis of an assumed structural system;

(c) trade flows are determined by models where flows are treated as functions of exogenous independent variables (like the "gravitational" models).

The problem of consistency has different aspects in all three cases. In case (a) consistency of the projected trade flows is not ensured; it seems likely that, by adopting this method, two different data will be given for each flow, one by the exporting and one by the importing country. Presumably, the bigger the divergence of the two estimates, the stronger the effects of trade policy interventions and more efforts are made from either side to change the volume or structure of trade. Therefore, this method seems to be more suited to reveal inconsistencies and contradictions of the projections of the different nations, than to shape a unified plan or projection variant of international trade.

In case (b), the main problem of consistency is the solution of the conflict between the exogenously given margins and the pattern of the trade flows determined by the structural coefficients. The δ and ε structural coefficients proposed by Froment-Zighera [3] and Teekens [13] respectively show the divergence of actual trade flows from "normal" flows, the latter defined as the result of multiplying the corresponding elements or the margins, as shares in world trade.* The divergence is dealt with as a quotient in the

* The definition of δ and ε coefficients in the case of a three-dimensional matrix-block (with a commodity breakdown) is the following:

$$\delta_{ijk} = \frac{x_{ijk}/X \dots}{(X_{i \dots} / X \dots)(X_{\dots j \dots} / X \dots)(X_{\dots k \dots} / X \dots)} = \frac{x_{ijk} X^2 \dots}{X_{i \dots} X_{\dots j \dots} X_{\dots k \dots}}$$

and

$$\varepsilon_{ijk} = \left(x_{ijk} - \frac{X_{i \dots} X_{\dots j \dots} X_{\dots k \dots}}{X^2 \dots} \right) / X \dots$$

case of the δ and as a difference in the case of ε . It is known that the δ coefficients define a rigid trade structure with one degree of freedom, i.e. to a given δ system belongs only a single consistent set of shares of the margins. Thus, exogenously given margins and a given δ system can be made consistent only by changing either, or both of them. The ε coefficients give substantially more freedom for making independently projected margins consistent with a given structure, even if there are some constraints on the feasible choice of the margins in this case too.

The φ coefficient is the quotient of the actual trade flow and another one computed with the RAS method:

$$\varphi_{ijk}^t = \frac{x_{ijk}^t}{\hat{x}_{ijk}^t}$$

$$\hat{x}_{ijk}^t = r_i^t s_j^t q_k^t x_{ijk}^0$$

where:

x_{ijk}^t is the actual and
 \hat{x}_{ijk}^t the computed trade flow for the period t ,
 x_{ijk}^0 is the same trade flow in the base period, and
 r_i^t, s_j^t, q_k^t are the multipliers proportional to the given margins of the t period.

The main difference between the coefficients δ and ε on the one hand and the φ on the other is, that in the first two, all factors influencing a trade flow between a pair of countries (other than the size effects of total exports and imports) are combined, whereas in φ part of these factors are already included in the structure of the base period and this coefficient expresses merely the changes in the effects of these factors occurring between the two periods.

The inconsistency of the independently projected margins and the given φ structural system appears when, by multiplying a computed future trade-network by a φ coefficient matrix, the ensuing margins are different from those originally given. In this case — as with the δ coefficients — either the margins, or the structural coefficients have to be changed to achieve consistency between the margins and the trade structure.

In case (c), the exogenous variables determine each trade flow and the margins are derived by aggregating the flows, the conflict of consistency

where:

x_{ijk} is the export of commodity k from country i to country j ;
 $X_i \dots$ is the total export of country i ;
 $\dots X_j$ is the total import of country j ;
 $X \dots_k$ is the total trade of commodity k , and
 $X \dots$ is total world trade.

between the margins and the trade structure does not come up as in case (b). The problem with such a model, if used for projection purposes, presumably will appear in the inconsistency of both the trade flows and the margins projected by such an international model and by different national models. Therefore, the problem of inconsistency will be similar in this case to case (a), with the difference that we may get three different trade flow projections for a cell: one from the exporting, one from the importing country and one from the common model.

To link the results of the (c) type model to the national trade projections, either the future values of the independent variables, or their coefficients in the functions have to be changed. It can be argued that there is no need in this case to achieve consistency, because the divergence of the projections made with different methods are well suited for purposes of analysis and it would be difficult and uncertain to tell which of the two or three projections, built on different assumptions, is more realistic.

The main weakness of this method — according to limited experience — is that the values of the dependent variables can be calculated only within large margins of error even in the static case. There may be a danger that without serious improvements of the explanatory force of the trade flow function this method will be practically unfit for projection. One obvious way of improvement would be to follow the method of the CEPREMAP (see [1]) in making “gravitational” models for several commodity groups and finding the appropriate independent variables best explaining the trade flows in this three-dimensional sense. Experimentation with such a model is unfortunately hindered by the lack of comparable trade statistics for centrally planned and market economy countries by commodity breakdown and by the difficulties of linking production and trade statistics in general.

In the foregoing we have discussed the problems of international consistency: how to fit foreign trade plans or projections into a consistent system of international trade. But the real question behind this problem is *how to ensure both internal and international consistency*, i.e. how to fit foreign trade plans and projections into domestic production and utilization balances and at the same time into a world trade matrix.

If we regard the three cases mentioned above from this aspect, it will become obvious that case (a) satisfies best the internal consistency requirement, separately for the exporting and the importing countries, without satisfying international consistency. Case (b) is the second best from the point of view of internal consistency, because presumably the margins are satisfying it. In case (c), internal consistency is not ensured at all. Regarding these three main types of methods, we may generally conclude that there is a reverse order from the point of view of internal and international consistency: the better the one is ensured, the less is the other.

Plan and projection variants

One of the significant advantages of international trade-network models is that consistent variants can be prepared with their help. National plans can be prepared with different economic objectives and means for attaining them. Projections are built on different fundamental assumptions. With the development of planning and projection methods, the elaboration of several variants (instead of one) came to prominence. These variants — differing either in the level or pattern of consumption, or in the volume or allocation of investments, or in the rate of growth — include generally quite divergent foreign trade estimates.

Different consistent international trade network variants can be built on different assumptions concerning the dynamics and the structure of development of the national markets. This enables us to see which of the national variants can be fitted into an international trade system and what are the consequences for the whole system if certain changes are made in the volume and structure of national trade estimates. A comparison of the entirely different national variants could reveal which are the totally inconsistent alternatives and which would require an unconceivably large modification of world trade to ensure compatibility.

The examination of different projected consistent trade variants could help the planning organs in the different countries to estimate the margin for manoeuvre in their foreign trade estimates and to find an appropriate way for fitting them into the system of international trade.

Concentration of efforts

Finally, attention should be drawn to an important weakness in research on international trade-flows. There is too much superfluous repetition and parallelism in data collection, in making the data comparable and in testing certain methods. This disadvantage is increased by the deficiencies of mutual information.

Another weakness, closely linked to the previous one, lies in the comparability of statistical data. Even if improvements are impressive in this field in the last two decades, there is an urgent need to make further steps to obtain certain still missing information in order to unify and make comparable the data system. Internationally organized efforts are needed to link the statistical information on production with that on trade, for otherwise misunderstandings and difficulties of comparison are unavoidable both in national and international models.

It would be very useful to make further common efforts to carry out medium- and long-term international trade projections, including approaching and linking of national models, unification and extension of statistical data

supply, elaboration of certain basic hypotheses and their variants and a further testing and comparison of the different methods. The work completed and under way in this field provides us already with sufficient experience to concentrate on certain promising methods and to apply them with the approval and active help of the participating countries.

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РОЛЬ СОВМЕСТИМЫХ СЕТЕВЫХ ТОРГОВЫХ МОДЕЛЕЙ В ВНЕШНЕТОРГОВОМ ПЛАНИРОВАНИИ И ПРОГНОЗИРОВАНИИ СОЦИАЛИСТИЧЕСКИХ СТРАН

А. НАДЬ

Автор рассматривает вопрос, каким образом в среднесрочных и долгосрочных планах и прогнозах можно обеспечить согласование заданий по внешней торговле с консистентной системой мирового хозяйства. Без решения этого вопроса разработанные в отдельных странах независимо друг от друга внешнеторговые планы неизбежно приводят к возникновению противоречий. Безусловно необходимо принимать во внимание то обстоятельство, что развитие отдельных стран, — в особенности в области внешней торговли, зависит не только от их собственных решений и деятельности, но и от их партнеров, поскольку международная торговля развивается в качестве взаимосвязанной, органической системы.

Автор излагает произведенные до сих пор в социалистических странах попытки и исследования, которые были направлены на обеспечение международной consistency внешнеторговых планов и прогнозов. Останавливается на некоторых сторонах опыта осуществляемой на протяжении 15-летнего периода координации планов между странами-членами СЭВ, целью которой является составление исходящего из национальных планов consistentного планового варианта товарооборота между социалистическими странами, который бы предоставлял основу для заключения двухсторонних соглашений. Вкратце излагает цели и методы разработанной госпланами Чехословакии, Польши и Венгрии модели увязки межотраслевых балансов трех стран за 1962 год. Затем подробно останавливается на тех исследованиях, которые осуществлялись в социалистических странах в области изучения и использования моделей движения международной торговли.

Во второй части очерка автор останавливается на особенностях, которые в социалистических странах следует принимать во внимание в ходе применения моделей движения международной торговли для составления планов и прогнозов. В этом отношении указывает на необходимость разбивки на товарные группы, сравнительно большую роль эффектов предложения и значение факторов внешнеторговой политики.

В дальнейшем автор рассматривает проблему методов, с помощью которых можно было бы обеспечить consistency в моделях движения торговли и выясняет их взаимосвязь с consistency экономик отдельных стран, проявляющейся в их национальных планах. Автор приходит к выводу, что в применявшихся до сих пор методах между внутренней и внешней consistency имеет место обратная взаимосвязь: осуществление одной осуществляется в ущерб другой.

В заключение останавливается на преимуществах, связанных с возможностью изготовления на основании различных предпосылок consistentных вариантов-прогнозов с помощью моделей движения торговли. Указывает, что изучение настоящей темы требует большей международной концентрации, как в отношении сопоставимости данных, так и в отношении проверки методов.

REVIEWS

Ш. Ауш

ХАРАКТЕР И ПРОБЛЕМЫ РЫНКА СЭВ

(Международная научная конференция, 17—19 ноября 1970 г., Будапешт)

Конференция была организована Постоянной Комиссией СЭВ по экономическим вопросам. Ее открыл заместитель Председателя Совета Министров ВНР *Антал Апро*. Со вступительным словом и заключительной речью на конференции выступил директор Института экономики Венгерской Академии Наук академик *Иштван Фриши*.

На конференцию представили доклады 5 болгарских, 9 венгерских, 3 польских, 3 румынских, 8 советских, 2 чехословацких экономистов, а также 2 экономиста из ГДР.

На конференции, работа которой продолжалась два с половиной дня, по заранее полученным текстам докладов выступило большое число участников. Поэтому эти выступления были строго ограничены во времени. Прениями первого дня руководил заместитель Председателя Госплана ВНР *Отто Гадо*, а прениями второго и третьего дня — Председатель Государственного комитета цен *Бела Чикош-Надь*.

Антал Апро в своем вступительном слове, в частности, подчеркнул, что проведенная до сих пор совместная научная деятельность внесла существенный вклад в расширение и углубление сотрудничества наших стран. Однако задачи постепенного осуществления социалистической интеграции выдвигают целый ряд новых проблем, разрешение которых невозможно без активного участия тружеников социалистической экономической науки. Поэтому весьма актуальными являются вопросы, поставленные на повестку дня конференции в соответствии с решением Постоянной Комиссии СЭВ по экономическим вопросам.

«Эти вопросы, — сказал далее Антал Апро, — не могут решаться с одного дня на другой, и конференция, конечно, не сможет сразу выяснить всех проблем, содержащихся в поставленных на повестку дня вопросах. Все же представляется, что мы вступили в такой этап, когда непосредственный обмен мнениями между ведущими экономистами стран-членов Совета Экономической Взаимопомощи может привести к прогрессу в области разработки назревших проблем. Наши методы работы в рамках СЭВ страдают отсутствием систематического теоретического обсуждения важнейших вопросов, лишь редко проводится непринужденный международный обмен мнениями, хотя проводимые в свободной атмосфере дискуссии и собеседования ныне уже являются просто необходимыми.»

На повестку дня конференции смело были поставлены наиболее сложные вопросы. Последние сложны, — согласно мнению Антала Апро, — с одной стороны, потому, что теоретически они менее разработаны и, с другой стороны, потому что затрагивают целый ряд таких тем, в которых за отдельными точками зрения нередко кроются различные экономические интересы и различные взгляды. Однако экономистам следует знать и понимать не только точки зрения своих коллег, но также и интересы других стран, они должны оказать содействие такому совместному решению вопросов, которое в равной мере служило бы интересам всех стран и одновременно влияло бы в направлении более тесного сотрудничества, интеграции стран-членов СЭВ.*

Иштван Фришш, открывая конференцию, остановился на методах ее работы. При этом он подчеркнул, что свободная научная дискуссия, по всей вероятности, будет способствовать прогрессу процесса социалистической интеграции.

Конференция была организована в период, когда провозглашенная XXIII сессией Совета Экономической Взаимопомощи идея *интеграции* была не только принята, но и значительно продвинулась вперед в определенном направлении разработка плана ее осуществления. Это обстоятельство нашло отражение как в представленных докладах, так и в состоявшихся прениях.

В этой связи необходимо отметить, что 10—15 апреля 1967 года в Будапеште уже состоялась международная конференция такого же рода. Хотя тема ее и называлась «Цены мирового социалистического рынка», но содержание ее обнаруживало большое сходство с вопросами, рассмотренными на теперешней конференции.[1] В первую очередь не потому, что и на конференцию 1967 года были представлены доклады, посвященные комплексным вопросам социалистического мирового рынка и сотрудничества, а потому, что действие внешнеторговой цены и формирующего ее механизма цен по существу тесно связано с системой сотрудничества в целом, более того — и с особенностями внутренних механизмов отдельных стран-членов СЭВ. В характере цен и в механизме ценообразования находят отражение также и характерные особенности рынка.

Одним из весьма важных результатов конференции 1967 года, — как отметил, подводя итоги нынешней конференции, Бела Чикош-Надь, — оказалось то, что она положила конец двум крайним точкам зрения: с одной стороны, было покончено с концепцией «собственной базы цен» (ее сущность заключалась в признании данных *национальных* затрат отдельных стран-членов СЭВ и образование на этой основе с помощью какого-либо метода усреднения внешнеторговой цены), с другой стороны, была признана неудовлетворительной механическая адаптация цен мирового капиталистического рынка (даже при их очищении от конъюнктурных колебаний, монополистических факторов и т. д.), и вместе с тем была выдвинута категория «региональной цены». К этому можно добавить, что в то время мнение большинства участников конференции сходилась и на том, что вопрос образования региональной цены мирового рынка нельзя рассматривать в отрыве от выяснения вопроса о механизме цен. На конференции 1967 года высказывались весьма четкие мнения о способах решения этой проблемы, то есть об увязке внутренних и

* В связи с этим можно отметить, что на вопросах социалистической интеграции остановился несколько дней спустя после конференции на X съезде Венгерской социалистической рабочей партии Р. Ньерш, секретарь ЦК ВСРП. Полный текст его выступления будет опубликован в следующем номере нашего журнала. — *От ред.*

внешних цен в рамках соответствующей системы, поскольку это необходимо для образования «региональной цены», для ее сознательного дальнейшего развития с учетом совместно принятых соглашений. Важность этой проблемы подчеркивалась и многими участниками данной конференции, но с гораздо меньшим единодушием.

В высказанных на конференции мнениях нашло отражение вышеизложенное положение дел. Кроме многих расхождений во взглядах, в основе которых нередко лежали терминологические причины, по целому ряду чрезвычайно важных вопросов наблюдалось и единство или — в определенном смысле — близость взглядов. К их числу относится, например, роль связи между координацией планов, с одной стороны, и товарно-денежными категориями — с другой. Хотя по этому вопросу высказывались также и противоположные мнения, точка зрения участников конференции полностью сошлась на том, что товарные отношения должны в конечном итоге способствовать координации планов, создавая более благоприятные условия для долгосрочных производственных связей, реализуемых, в частности, и в совместных программах.

В первый день дискуссия по этому решающему вопросу интеграции затронула такие конкретные проблемы, как, например, взаимосвязи между специализацией производства и товарооборотом, прямые связи между предприятиями и другими хозяйственными организациями, дальнейшее развитие системы контингентов, а на второй и третий день прения развернулись по вопросам цен и взаимных выгод, связи между внутренними ценами и ценами мирового рынка, многосторонних связей и обратимости валюты.

Ввиду большого числа представленных докладов и того обстоятельства, что за два с половиной дня было заслушано 48 выступлений, невозможно подробно остановиться на всех аргументах. Поэтому, ссылаясь на некоторые из докладов, или приводя цитаты из них, мы хотим всего лишь иллюстрировать типичные мнения.

Полное единство взглядов было отмечено по вопросу о том, что рынок стран-членов СЭВ представляет собой отличный от экономических обществ капиталистических стран международный рынок, на котором в качестве партнеров выступают *осуществляющие самостоятельное плановое хозяйство* государства и государственные предприятия или другие хозяйственные единицы. Поэтому свою продукцию они сбывают только в товарной форме. В результате обсуждений сложилось единое мнение о том, что вопрос о плане и рынке не может ставиться в виде «или — или». Точка зрения участников конференции сошлась и на том, что в каждой из стран государство принимает решение по краеугольным вопросам перспективного развития. Их согласование является в основном задачей государства.

Однако когда прения коснулись отдельных конкретных вопросов — специализации, распространения бесконтингентного оборота, толкования денег и функций денег, — тогда не осталось никакого сомнения в том, что сущность вопроса заключается в следующем: намерены ли мы предоставить более активную роль товарным, стоимостным и денежным отношениям, а также действию связанных с ними законов — рынку — *внутри отдельных стран* и в тесной связи с этим и в дальнейшем развертывании социалистической интеграции, или же нет? Далее, является ли повышенная роль последних предпосылкой более эффективной, «положительной», структурообразующей интеграции или нет? Если да, то каких минимальных изменений

потребуется это во внутренних механизмах функционирования народного хозяйства? Детальное обсуждение этих вопросов, — как это предложил председатель на третий день конференции на основе выступлений, — можно было бы включить в повестку дня одной из последующих конференций. На этот раз эти вопросы были затронуты в основном в докладах некоторых венгерских и польских авторов, например, *Йене Вильчека* («Внутренняя система управления экономикой стран-членов СЭВ и механизм международного рынка СЭВ»), *Шандора Ауша* (в докладе «План, рынок и интеграция в странах СЭВ»). Й. Вильчек занимался в первую очередь поиском тех желательных решений, которые следует применять и при существующих в отдельных странах системах управления народным хозяйством. Ш. Ауш придерживался своей прежней точки зрения, в частности, по вопросу о том, что нельзя создать настоящего рынка в отношениях между отдельными странами-членами СЭВ, если такового не имеется внутри этих стран, что наличие такого рынка является важным условием также и сознательной структурообразующей интеграции на межгосударственном уровне. Он обратил внимание и на те новые факторы в реальных процессах внутреннего развития стран-членов СЭВ, которые, по всей вероятности, будут лучше, чем до сих пор, стимулировать осуществление совместных программ на межгосударственном уровне.

В то же время *В. Иванова* (НРБ) и *Г. Гребиг* (ГДР), ссылаясь на Перру и Гэлбрейта, указывали, в частности, на манипулированность цен и в условиях современного капитализма, ставя под сомнение их активную структурообразующую роль. Исходя из этих и других аргументов, они делали далеко идущие выводы относительно внутренней системы управления экономикой и механизма интеграции.

Отчасти в таком же духе высказался и *А. Лютов* (НРБ). Остановливаясь на значении создания совместных предприятий и филиалов, он подчеркнул, что их созданию и развитию интеграции ныне препятствует состояние механизма социалистического мирового рынка. По его мнению, — как и по мнению других докладчиков, в частности, *Кальмана Печи* (ВНР), представившего доклад «Некоторые принципиальные вопросы движения средств совместных предприятий», — расширение круга прав, возможностей и самостоятельности производственных предприятий и объединений ведет к установлению прямых связей с предприятиями других стран. Однако он добавил: «Было бы нереальным считать, что возможен некий скачок в решении этих проблем».

Ю. Кормнов (СССР) в своем докладе о вопросах специализации и кооперации и выступлениях остановился, в частности, на соревновании высококачественных готовых изделий на региональном рынке, что, по всей вероятности, должно привести к более низким ценам. Он при этом подчеркнул, что долгосрочную и устойчивую специализацию не следует понимать как жесткое и негибкое закрепление на много лет вперед одних и тех же технико-экономических параметров продукции, экономических условий обмена ею, неизменных объемов поставок, что трезвый расчет, учет хозяйственных интересов предприятий и государств, экономической эффективности производства, экспорта и импорта, обоснование своих действий с учетом всей совокупности реальных условий производства, рынка и потребления определяют цену в договорах по специализации и кооперации, либо указывают на нецелесообразность заключения такого соглашения, а не императив мировой цены или какая-либо другая условность.

Однако, что следует подразумевать под соревнованием? Ведь высказывались и такие мнения, — напоминая весьма старые точки зрения, — согласно которым при социализме в идеальных условиях имеет место не конкуренция товаропроизводителей, а и в международных масштабах происходит соревнование за создание лучших условий производства. Эти условия заблаговременно планируются внутри отдельных стран и координируются в международных масштабах. Согласно этой концепции, произведенному товару планом намечается место, условия его реализации на внутреннем и внешнем рынке. На этой стадии уже нет места для соревнования.

Г. Штэгер (ГДР), например, выступая отчасти против этой формулировки, указал на то, что категория цены должна присутствовать в определении направлений исследований, технического развития, специализации, то есть во всех фазах реальных экономических процессов. Он подчеркнул, что международное сотрудничество, основанное на производственной кооперации и специализации, представляет собой весьма комплексную проблему, и категория цены является лишь одним из ее элементов. *Р. Брауэр* (ГДР) в своем выступлении, однако, не оставил сомнения в том, что здесь речь идет не об активизации категорий товара, стоимости и денег, например, в процессе установления кооперации (под стимулирующим влиянием статично или динамично интерпретируемых сравнительных выгод), а, по его мнению, почти во всех случаях порядок обратен: сначала необходимо планомерно координировать реальные процессы производственного, научно-технического сотрудничества между государствами или другими хозяйственными единицами, цена же при этом играет роль средства калькуляции и измерителя рентабельности.

О. Тарновский (СССР) в своем докладе выступил против взглядов, согласно которым рыночные формы сотрудничества были необходимы лишь на начальном этапе сотрудничества. Он подчеркнул единство фаз процесса воспроизводства, которое не допускает одностороннего «преувеличения» согласования производственных структур, или же, наоборот, «преувеличения» сферы реализации товаров. Вместе с тем докладчик также высказался против — согласно его формулировке — «широкой коммерциализации экономических отношений». В ходе последующей дискуссии выяснилось, что под этим термином следует подразумевать по существу распространение бесконтингентного оборота, осуществляемого на основе относительно свободной договоренности сторон, включая и соглашения о ценах.

Согласно же другим мнениям — высказанным в первую очередь, но не исключительно, венгерскими и польскими экономистами, — более широкое распространение бесконтингентного оборота было бы весьма желательным (согласно, например, мнению *Ю. Солдачука*, *С. Полячека* и *Е. Здановича*, *Йене Редעי*,* *Йене Вильчека* и др.). По этому вопросу диаметрально противоположная точка зрения была сформулирована лишь одним *Н. Шеиным* (СССР). По его мнению, такой оборот сможет охватить лишь круг товаров, поставляемых в сверхплановом порядке, и усиление планомерности в будущем приведет к сужению оборота такого рода.

Отто Гадо уже во вступительном слове обратил внимание на то, что исследования по этим вопросам должны сосредоточиться на том, какие прак-

* Доклад *Й. Редעי* «Дальнейшее развитие внешнеторговых соглашений» был посвящен в первую очередь рассмотрению различных видов контингентов и преимуществ бесконтингентного оборота.

тические меры являются объективно возможными при существующих производственных отношениях, какие из них обоснованы назревшими предпосылками как в отдельных социалистических странах, так и с точки зрения интеграции в рамках СЭВ. Необходимо стремиться к познанию фактов, к вскрытию взаимосвязей и закономерностей, и из них следует делать соответствующие выводы. В связи с этим О. Гадо сослался на следующее место доклада Ш. Ауша: «В явлениях рынка СЭВ отражаются закономерности и противоречия тех конкретных производственных отношений, которые присущи именно этому рынку. Лишь исходя из них можно раскрыть законы движения социалистического мирового хозяйства, можно построить его политическую экономию... Нельзя понять, например, природу сложившейся во внешней торговле стран-членов СЭВ системы контингентирования, природу цен, взаимосвязи денежного обращения и кредитных отношений, товарооборота и координации планов, если мы хотим разъяснить их в отдельности, если не найдем за формами движения этих явлений их общую сущность». О них ведь, — как отмечалось в докладе, — нередко забывается именно в ходе разработки вопросов развития интеграции.

О. Богомолов (СССР) в своем выступлении подчеркнул, что во второй половине 60-х годов общественно-экономическое развитие стран-членов СЭВ выдвинуло задачи, для решения которых некоторые прежние формы и методы сотрудничества оказались недостаточно эффективными. Решение назревших проблем экономического строительства требует не только ускорения темпов развития интеграционных процессов, но и того, чтобы эти процессы стали главным содержанием, основой связей между социалистическими странами. На этом этапе совершенствование традиционных движущих сил сотрудничества необходимо сочетать с выявлением и практическим внедрением новых форм и методов. Имеются и такие взгляды, согласно которым в перспективе было бы желательно усиленно расширять неkontингентированный обмен. С этими взглядами выступавший не согласился.

Государственный план — наиболее действенный рычаг интеграции, заявил О. Богомолов. Тот факт, что совместная плановая деятельность является главным звеном в экономическом механизме интеграции, убедительно указывает на необходимость всемерного совершенствования этой деятельности.

В конечном итоге по вопросу единства применения плана и рыночных категорий, по крайней мере, в международных масштабах, сложились также и весьма близкие друг к другу мнения. Как отметил в заключительном слове О. Гадо, «все согласны с тем, что к интеграции следует идти, соответствующим образом увязывая план и рыночные отношения... Имеется полное единодушие в том, что рыночные отношения не следует ни недооценивать, ни переоценивать». Участники конференции смогли лучше узнать мнение друг друга и о внутренних системах управления народным хозяйством, этому способствовал и, например, доклад О. Гадо о плановом хозяйстве в Венгрии, наглядно иллюстрировавший единство плана и рынка, а также многие другие выступления в ходе прений. Из их числа следует выделить выступление Юлии Зала (ВНР) и, в первую очередь, выступление Аюша Балашиши (ВНР). А. Балашиша, в частности, отметил, что народнохозяйственный план представляет собой единую систему целей экономической политики и инструментов их осуществления. Экономическая политика, выдвигающая на первый план повышение эффективности общественного производства, может осу-

ществляться лучше всего посредством регулируемого на основе плановых целей рынка и деятельности предприятий, проводимой ими под влиянием последнего. Страны-члены СЭВ представляют собой обособленных социалистических собственников средств производства, и поэтому в экономических отношениях между ними необходимо не только координировать выраженные в планах цели экономической политики и государственные акции, оказывающие решающее влияние на структуру общественного производства, но и нужно иметь такую координированно выработанную систему инструментов, которая способна активно применять рыночные категории, позволяет устанавливать связи между предприятиями и направляет их в русло согласованных общих целей.

Споры, таким образом, не ставят под сомнение согласие, достигнутое участниками конференции по некоторым решающим вопросам. Единодушие проявилось не только в субъективном стремлении к интеграции и расширению кооперации, но и по тому вопросу, что степень разработанности долгосрочных планов, прогнозов отдельных стран представляет собой одну из важнейших предпосылок интеграции стран-членов СЭВ. Интеграция, оказывающая сознательное влияние на формирование структуры и в международных масштабах, должна основываться именно на них, а также на соответствующих технико-экономических прогнозах центральных органов СЭВ. Нам следует идти вперед путем их международной координации и осуществления долгосрочных — разработанных на основе взаимных выгод — программ комплексного развития.

Возможности конкретного продвижения вперед сформулировал в своем докладе *Тибор Киши* (ВНР): «Степень развития внутренних и международных производственных отношений, базиса и надстройки стран-членов СЭВ, а также различия в них, предопределяют *возможности дальнейшего развития интеграции СЭВ*. Последнее же может продвигаться вперед по двум линиям: 1. на основе комплексной программы, охватывающей органически взаимосвязанные задачи по развитию интеграции; 2. на основе двухсторонних соглашений, способных более быстро, чем комплексная программа, выполнить некоторые задачи, ускоряя тем самым прогресс интеграции в целом. Комплексная программа может предусмотреть лишь такие темпы развития, которые соответствуют общим интересам и точке зрения всех стран. Хотя в комплексной программе отдельные звенья развития и тесно связаны друг с другом, не исключена возможность временного развития отдельных звеньев порознь, по мере назревания условий. Звенья взаимно влияют друг на друга, продвинувшееся вперед звено подтягивает к себе отстающее. Временно может случиться и то, что отстающее звено чрезмерно тормозит развитие продвинувшегося вперед звена. Таким образом, развитие интеграции в рамках СЭВ зависит от совершенствования внутренних условий и взаимных отношений стран-членов, а прогрессу последних в свою очередь содействует развитие интеграции».

Особого внимания заслуживает доклад *В. Шаститко* и *Ю. Ширяева* (СССР) «Взаимодействие регионального рынка СЭВ с рынками третьих стран». В нем подчеркивались, в частности, пределы региональной интеграции и наряду с некоторыми оговорками отмечалось, что при нынешних темпах и размахе научно-технической революции экономическая замкнутость даже крупных государств может привести их к существенному отставанию во многих областях технического прогресса. Далее докладчики указали на то,

что для анализа реального положения в этой области сегодня, видимо, уже не применимы некоторые оценки, встречавшиеся в экономической литературе в прошлые годы. Нельзя, например, согласиться с тем, что между социалистическими и капиталистическими странами имеют место лишь спорадические формы разделения труда, не затрагивающие важных отраслей их экономики.

Дискуссия по вопросам цен и валюты в основном отражала противоположность тех мнений, о которых мы уже вкратце говорили выше.

Н. Баутина (СССР) сформулировала критерии эквивалентности обмена, исходя по существу из положений Рикардо и Маркса. По ее мнению, эквивалентность не следует отождествлять с понятием взаимовыгодности, поскольку последняя предполагает и устойчивый характер связей.

По сути дела сходные мысли были изложены и в докладе *А. Борисенко* и *Ю. Шамрая* (СССР), анализировавших преимущества и недостатки подвижности и стабильности цен. В качестве решения они предложили методы лучшего использования мировых цен, обеспечивающие большую гибкость. По мнению докладчиков, конечная причина определенной натурализации рынка СЭВ, появления «твердых» и «мягких» товаров заключается в том, что уровень цен на машины и оборудование превышает сложившиеся на мировом рынке цены, а цены на сырье отстают от уровня мировых.

Согласно мнению *С. Крыстева* (НРБ), контрактные внешнеторговые цены должны проявлять намного большую гибкость в отношении машин и технологического оборудования. Срок их действия может колебаться в пределах 2—3 лет, а срок действия цен на сельскохозяйственные и пищевкусовые товары может быть определен в 5 лет. Выступавший, в частности, настаивал на создании межгосударственного поощрительного фонда, предназначенного для развития сельского хозяйства внутри региона.

Вновь были затронуты проблемы механизма цен, подробно обсуждавшиеся три года назад. Это нашло отражение в докладах *И. Вильчека*, *Ю. Содбачука* (ПНР) и *Б. Чикош-Надя* («Национальные системы цен стран-членов СЭВ не могут служить мерилом экономической эффективности в деле организации международного разделения труда»), а также в докладе и выступлении *Ш. Ауша*, который остановился и на последствиях этого с точки зрения предлагаемой «системы предпочтений», «таможенных пошлин» и «общей валюты», указывая на иллюзорность таких предложений при существующей системе.

Близкие точки зрения высказывались и в ряде других докладов, так, например, в докладе *В. Рыбалкина* (СССР), который указал на важность создания эффективной системы экономического стимулирования предприятий и хозяйственных организаций стран СЭВ, участвующих в международном производственном сотрудничестве. Одним из вероятных направлений в решении этого круга вопросов, — как отметил докладчик, — является усиление взаимосвязи между внешнеторговыми и внутренними ценами.

Ю. Веселовски (ПНР) в своем докладе о валютно-финансовых вопросах, отметил, что в целях решения этих проблем в ряде стран уже произошли существенные изменения, в других же странах они находятся в процессе разработки. По его мнению, для установления взаимосвязи между внешнеторговыми ценами и результатами развития внутреннего производства необходимо использовать бюджетные средства и образовать определенные резервы в условиях «параметрической» системы управления. Однако докладчик отметил, что эта проблема подлежит более подробному обсуждению. (Это на самом деле

было бы весьма полезным, поскольку совсем невыясненным остался вопрос о том, что представляет собой «параметрическая» система управления.) Примерно в таком же духе высказался о проблеме органической взаимосвязи между внутренними и внешнеторговыми ценами, а также о связанных с нею неразрешенных вопросах материальной заинтересованности Б. Чикош-Надь, подводя итоги состоявшихся прений, предложивший созвать следующую конференцию в 1971 году. Он подчеркнул, что в последние годы был достигнут значительный прогресс в области оценки структурообразующей роли цен. Необходимость дальнейших дискуссий мотивируется и тем конкретным обстоятельством, что — отчасти из-за нехватки времени — «дискуссия по вопросу взаимосвязей между функциями денег и механизмом цен не сдвинулась со своего прежнего места». Можно добавить, что был даже сделан — в определенном смысле — шаг назад по сравнению с позицией конференции 1967 года.

По этим вопросам по-разному оценивали нынешнее положение и Н. Шеин, с одной стороны, и Ю. Веселовски, Ш. Ауш и К. Печи — с другой. По мнению Н. Шеина, переводный рубль и ныне выполняет функции меры стоимости, средства платежа и средства накопления, и в будущем эти функции станут тем полнее, чем больше будет товаров для покрытия заранее планируемых в денежном выражении процессов международного товародвижения. К. Печи выразил надежду, что в ближайшие десять лет будет осуществлена обратимость валют и в обороте между социалистическими странами. Он имел в виду в первую очередь свободную обратимость в системе иностранного туризма. Этим же вопросам посвятил свой доклад К. Кевер (ВНР) «Противоречия между внутренней финансовой системой и валютной системой стран-членов СЭВ и способы их решения». Он остановился в первую очередь на вопросах «валютного курса» создаваемой «общей валюты».

Проблемам специализации и обмена товарами широкого потребления между странами-членами СЭВ посвятил свой доклад и заместитель министра внутренней торговли ВНР Золтан Юхар. Он привел цифровые данные о весьма значительном росте доли импорта в венгерском внутреннем торговом обороте предметов потребления, отмечая, что примерно половина этой доли приходится на социалистические страны. Хотя Венгрия осуществила полную либерализацию этой части импорта, форма клиринга все еще представляет собой большое препятствие. Необходимо искать новые формы: к числу таковых относится обмен ассортиментом между системами внутренней торговли и товарообмен в пограничной зоне.

В дискуссии вторично выступил О. Богомолов (СССР). В оценке нынешнего положения он не разделял полностью точки зрения Н. Шеина. Относительно будущего, по его мнению, ключ к решению этого вопроса заключается — кроме обеспечения (не ясно, каким образом) единых цен на одинаковые товары — в создании соответствующих резервов по таким видам продукции, которые ныне еще являются дефицитными.

В таком же духе высказался в своем заключительном слове и И. Фришш. Он отметил, что цель конференции заключалась не в том, чтобы прийти к совершенно единому мнению. Это и невозможно среди противоречий, неизбежно вновь и вновь возникающих в природе и обществе. Однако конференция показала, что имеются способы и пути для сближения различных мнений, для успешного дальнейшего развития экономического сотрудничества стран-членов СЭВ. И. Фришш вновь подчеркнул полезность дискуссий, тем

более, что расхождения во взглядах имеются даже и в пределах одной страны. Несмотря на это, за последние 2—3 года был достигнут значительный прогресс в решении проблем. По его мнению, в международных масштабах исключено наличие одной единственной истины, а могут существовать лишь альтернативные истины. Это в свою очередь еще раз подчеркивает необходимость дальнейших научных дискуссий такого рода.

Литература

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BOOK REVIEWS

Gazdasági fejlődés és tervezés. (Economic development and planning.) Budapest, 1969. Közgazdasági és Jogi Könyvkiadó. 371 p.

The Institute of Economics, Hungarian Academy of Sciences, is one of the centres of economic research in Hungary that published two parallel collections of studies on research completed in recent years. One was already reviewed in the *Acta Oeconomica* Vol. V. No. 3. It contains articles on agricultural economics. The theme of the present volume is wider in scope, since "economic development and planning" covers a broad sphere of questions and a multitude of topics may be summarized under such title. Perhaps it might have been more correct to include the expression "economic model" in the title, since the majority of the studies use the modelling method to approach the problems of economic growth, planning, the economics of education and demand. The volume gives us a plastic picture of the great weight given to the application of mathematic methods in the research work of the Institute of Economics. Of the 13 studies included, only three can be considered mainly verbal in nature while the others use economic models in their

work or to raise programming questions. Of course, the volume only shows one aspect of the Institute's research activity and though, because of this, it is less informative in character than the collections of studies published earlier in the form of yearbooks. Nevertheless, the interrelations of the topics discussed and the methods applied make it more homogeneous than the earlier yearbooks.*

The studies in the volume can be grouped under four titles. One part deals with *questions of planning methods in the broader sense of the term*. A. Bródy's study "On the Mathematic Model of Longer Range Planning" uses a free, mathematically formulated and solved, statistically quantifiable model of the economy which can be easily handled by computer to raise several theoretical and practical issues in long range (15–20 year) planning, primarily the problem of calculating balanced, contradiction-free proportions within the national economy. Gy. Simon's study, "Optimal Planning with Spotlight Programming" reviews a technique he himself elaborated, which provides the opportunity to solve large-scale optimum problems, by substituting the original problem with a number of comparatively small problems. He applies a system of special-

* Regarding the activities and publications of the Institute of Economics, see M. Sági's article in *Acta Oeconomica*, Vol. V. No. 3.

ized optimization models where each model contains the entire problem, but is formulated in a special way. Each model is in reciprocal information connection with the others. The use of "spotlight programming" in national economic planning ensures wide opportunities for an effective linking of centralized and decentralized economic management methods. In his study "Ideas of Yesterday and Today in Mathematical Programming" *B. Martos* deals with the economic interpretation of certain concepts in mathematical programming. This is the viewpoint from which he approaches the topological features of the admissible set. He shows the economic interpretation of the convexity and quasi-convexity properties of functions, using the example of the cost function. In the concluding part of his study he deals with the objective function to the programming problem in connection with several families of methods (adjacent vertex methods, gradient methods), which can be used effectively to solve certain nonlinear programming problems. *Gy. Tényi's* study "Individual Interest and Collective Decision" summarizes the results and problems of the tendency in the study of social decision processes which originates from *K. J. Arrow*. He shows the different types of ordering relations which can be interpreted over the set of alternatives, and introduces the concept of the decision function, as a means which assigns the collective ordering of alternatives to a given system of individual preferences. The author describes the special classes of individual preferences, where it was possible to show the existence of the decision function, and he shows that the case when the decision function does not exist, occurs only if individual preferences show an extreme distribution. In the concluding part of the study the author examines the characteristics of a special type of decision function, that of the majority vote, with the aim of establishing what the decision function built solely on direct majority decisions preserves of the char-

acteristics of direct majority decision.

The next group of topics in the volume discusses several expressedly *theoretical* problems from among the extremely broad scale of problems of *economic growth*, then provides examples of *factual analyses in economic development* and of investigations in *development policy*. *I. Virág*, in her paper "On the Optimal Rate of Accumulation", uses a Harrod-Domar growth model as a starting point. The model's time horizon is finite, consumption is not discounted, the capital-output ratio is constant, and time lags do not exist. She then shows four model variations received by modifying these assumptions. Her conclusions may be summarized in that none of the accumulation policies stemming from the models meets the consistency criteria and, therefore, there is no discount function assigned to the Harrod-Domar growth model, which, weighting total consumption, would yield a consistent accumulation policy. *J. Horváth* studies in his paper "The Problem of Even Growth Based on the Kalecki Growth Model" relations between the investment rate and the growth rate using Kalecki's results. He studies what size the even growth rate should be, and how the national economy could be directed to an even rate of growth. In his calculations he arrives at a formula which yields the unique growth rate at which national income can increase evenly with a constant investment ratio. With given assumptions it becomes clear that if growth was uneven previously, the growth rate cannot be stabilized by fixing the investment ratio. A period of transition, equal to the average lifespan of fixed assets, is necessary for this. Following this, with a constant rate of investment, consumption increases at a pace identical with the national income, and the maximization of consumption is ensured by a rate of consumption equal to the elasticity of labour productivity with respect to the technological equipment of labour. *F. Molnár*, in his study "Periodicity and Cyclicity in the

Economic Development of the United States (1947–1966)” continues his earlier examinations, analyzing American production, investment trends and the fluctuation of consumption, as well as changes in its pattern. He concludes that in the above period three stages in economic development can be clearly distinguished. The first and last were of rapid, while the intermediate (1956–1961) was of slow economic development. The characteristic phenomenon of transition from one stage to the next was a marked change in the marginal capital-output ratio. The author’s main conclusion is that in the period studied economic development in the United States was not characterized by cyclicity in the Marxian sense, but by the changes in the stages mentioned, for economic growth was not disrupted by periodic crises stemming from overproduction. However, the cycle continues to be recognizable, through trends of separate and individual types of demand. Gy. Cukor, in his study “Some Problems of Industrial Development Strategy in the Developing Countries” searches for the answer to the following alternatives: small-scale craftsmanship or large-scale industrial development, and within the latter, the development of small or large-scale factories, capital intensive or labour intensive or an intermediate technology, import substitution or export promotion. Regarding the first group of alternatives, he emphasizes the advantages of mechanized production and large-scale factories. In the second group of alternatives, he draws the conclusion that the scope for the application of the intermediate technology is, at best, quite limited. With regard to the third group of alternatives he is of the opinion that, in general, the developing countries will not for a long time come to have the opportunity for the type of development where exports would be able to grow more rapidly than industrial production, and account for a substantial portion of the growth in production. At the same time, he also points out that absolute import substitution cannot be

the general road to industrial development. In his opinion, the major basis for the growth in industrial production is the expansion of domestic consumption. Á. Schmidt in his paper, “Certain Questions of Interrelations between a Balanced Budget and the Equilibrium of the National Economy”, points out that it cannot be the sole aim of budgetary policy to ensure a balance, and the latter can only be studied and interpreted in its national economic interrelations. In connection with the equilibrium of the national economy he emphasizes that in modern advanced economies complete equilibrium cannot be achieved, it is, in fact, an ideal of economic policy. There can be disequilibrium in the socialist economies too, though its features and the methods for eliminating it, are different from those observed in the capitalist economies. In planning, particularly in short- and medium-term planning, generally an *ex ante* disequilibrium exists. The national economic plan and the budget can finally be built on a compromise between development and the search for equilibrium. The author denies the viability of the views which claim that a balanced budget is the major indicator of equilibrium of the national economy in a socialist planned economy. In Hungary the majority of phenomena of national economic disequilibrium did not stem from the budget and are not reflected in the budget either.

From the point of view of founding perspective goals with respect to the labour force, the problems of *vocational training*, and *the economics of education* are of fundamental importance. The volume provides two studies completed in this respect. J. Kovács’s “Planning Model for Estimating Admittance to the School System” describes a simulation model, worked out to determine the number of students to be admitted to schools providing different types of vocational training. Along with the algorithms to determine the ratio of those going on to further studies, it contains a detailed description of the quan-

titative interrelations between the numbers of students in the different types of schools. In her study "Some Questions of Social Input into Vocational Training" Mrs. É. Schmidt-Kigyóssy, searches for the criteria which can form a basis for drawing up a rational, efficient educational plan on national economic level. She draws the conclusion that the efficiency of education is inseparable from the efficiency of the other branches of the national economy. She experiments with fitting education as an economic sector into a national economic planning system, and studies its efficiency in this way. The author concludes that on the basis of the available data, education and vocational training can be built into a programming model prepared for the practical purposes of national economic planning. She also experiments with determining the total national economic input into vocational training. She proposes a system in which it would only be of advantage for a given branch of production to increase the staff of qualified workers, if the costs of training are reimbursed for the branch that is, if a more rational utilization of intellectual resources is ensured.

Efforts at a scientific foundation to long-range planning are shown by the research projects which centre on different problems in the *pattern of demand, needs and consumption of the population*. In their study entitled "The Effects of Changes in Incomes and Consumer Prices on Demand", R. Hoch and I. Kovács have, in their endeavours to provide an international cross-section analysis, worked out a model through which the difficulties and contradictions inherent in conversions to a common foreign currency can be eliminated. They discuss the traditional consumption function and model, and the form of the model in which the income variable and the price variable appear in a modified way, the combined model of the income and price situation, the complete model of per capita consumption, and they find the latter suited for surveying the in-

come and price effects in both international cross-section, and nation-by-nation time series analyses.

The author of the study "Several Dynamic Experimental Demand Research Methods" M. Ördög reviews some dynamic demand models (attempts to generalize dynamic demand function by I. Fisher, Houthakker and Taylor, Bergstrom, Nerlove, Koyck). He illustrates on examples how the condition of supply-demand equilibrium can be determined on the basis of parameters of demand and supply functions.

Although the volume contains interesting results in many respects, almost each of the studies reflect a definite phase of research, as well as the requirement that this research shall continue in depth. Publication of the volume might aid realization of this goal by arousing interest in this direction, and by inviting discussion. Several studies in the volume will be published in an English language selection in the near future.

T. FÖLDI

BRÓDY, A.: *Proportions, prices and planning. A mathematical restatement of the labor theory of value*. Budapest, 1970. Akadémiai Kiadó. 194 p.

The original Hungarian edition under the title "Érték és újratermelés" (Value and reproduction process) was reviewed in the Vol. 4. No. 4. of *Acta Oeconomica*. Now the English edition of the book has been published in a joint edition of Akadémiai Kiadó, Budapest and the North-Holland Publishing Company, Amsterdam—London. Wassily Leontief has written a preface to the study, saying: "He (i.e. A. Bródy) advances in this book the solution of theoretical questions discussed in current issues of western economic journals, but in doing so he shows how both the question and the answers go back to Karl Marx and other classical economists. He makes effective use of powerful tools of formal mathematical

reasoning, but also of intuitive conjecture that, after all, is the ultimate source of all analytical insight. Engaged in theoretical inquiry, he is aware — and makes the reader aware — of the peculiar problems that arise whenever we have to pass from the observed facts to mathematical formulae and from mathematical formulae back again to observable factors.

A theorist will find in this volume an original and interesting discussion of the fundamental problems of economic growth. To a general economist not familiar with input-output analysis or the modern mathematical theory of economic growth, it offers a systematic introduction to both subjects."

J. VÁRI

BURGER, A.: *Economic problems of consumers' services*. Budapest, 1970. Akadémiai Kiadó. 264 p.

The *Acta Oeconomica* reviewed the Hungarian edition of the book in Vol. I. No. 1–2. The study has been published now also in English, in a revised and enlarged form. The additions comprise mainly reviews of the discussions concerning the services, going on in socialist countries.

The author also attempts in the English edition to assess the expected implications for the services of the reform of economic control and management. It should be also mentioned that some ideas advocated by the author have been adopted by the Central Statistical Office and are reflected in its practice.

GY. HAJDU

MÁRTON, J.: *Az élelmiszergazdaság új szerkezete*. (The new structure of the food economy.) Budapest. 1970. Kossuth Könyvkiadó. 210 p.

One of the most exciting present-day questions of economic research into the micro-, mezo-, and macrosphere is how the elements making up the food economy

are related to each other and how they fit into some organizational unit. These elements are: agriculture, the food industry, trading and servicing units. The topic requires many-sided research and, particularly in recent times, has come to the forefront of interest. In the course of developing the food economy, the everyday work of economists, agricultural experts and social scientists come across many practical problems concerning enterprise, public administration, control and law; problems urgently awaiting solution. Full-scale research has begun to overtake arrears and today the goal can already be set to provide theoretical guidance in this important issue for practice. The question is raised in a new manner in the present management system. The autonomy of agricultural, processing and commercial enterprises makes the establishment of closer vertical ties possible, but until now this has remained, for the most part, nothing more than a possibility. With his study of structural problems in the modern food economy, its vertical division and integration, János Márton successfully contributes to the materialization of these possibilities, even if within limits.

The book, which consists of six parts, discusses three spheres of problems.

In the first part the author reviews the concept of the food economy, its components, and the historic and present-day interpretation of the components — agriculture, the food industry, commerce. — He calls attention to the importance of a uniform interpretation of these concepts. He provides a succinct exposition of the history of the division of labour, centralization, concentration, cooperation, specialization and integration within the food economy, and gives a brief sketch of the present situation.

A decisive portion of the study deals with the *process of integration in the food economy*. The author surveys the views prevailing in respect of this, perhaps the most highly debated question in agrarian economy, supported by rich

domestic and foreign literature and then gives the following definition: "vertical integration in the food economy is a conscious economic organizational process, which combines the production and distribution activities of a single agricultural product, part of a product, or group of products in a uniformly controlled network of organization based on enterprise (cooperative) contract". (p. 40.)

The author reviews the complex and diversified ties, relations, reciprocal effects of the concepts reviewed, exposing the laws existing between them. This includes a study of the concentration of assets, and enterprise dimensions, the social division of labour, the forces of production and production relations as well as the examination of the organizational nucleus of the new connections among agriculture, the food industry and commerce, of the complicated direct and indirect relations in integrational ties. The conclusion by the author, that "integrated, vertical relations did not emerge in the sphere of large-scale production in general, but from disproportions in size, from disproportionate concentration of assets, that is, because of the dissolution of equilibrium between the branches of the food economy". (pp. 46-47.)

The study does not place its main emphasis on absolute size in the debate on the size of enterprises, but on the correct, harmonic ratios between its components. Using concrete examples, János Márton proves that in countries where the proportion of small and medium-sized enterprises is high (Japan, the German Federal Republic) the rate of economic development and the rise in the standard of living is faster. Using these examples the author draws the conclusion that, "based on the analogy of industry, we may conclude that just as the small-scale size of capitalist agricultural production is no longer considered a brake on the development of the forces of production, healthy proportions of the enterprise network are the reserves for acceler-

ating development". (p. 50.) Put like this, in my opinion, it is too general and debatable. Today the centralization taking place on an increasing scale in capitalist small-scale agriculture would seem to reflect that the advance of technology, and the advantages of technology cannot be fully utilized by the small-scale enterprises and, as a result, they are no longer viable. The author himself emphasizes this in a later part of the study. (See p. 64, and p. 75.)

Following the chapter entitled "The Antecedents of the Development of Modern Integration Efforts in the Food Economy", the author discusses the characteristics and major features of the vertical ties developing, and vertical integration in the capitalist, socialist and then the Hungarian food economy, under present conditions. In order to be able to make use of capitalist experience in Hungary, the author approaches the problem from three directions. First, he reviews the technical background to vertical division — proving the objective necessity for integrational ties —, followed by the capitalist principles of integration — the interest relations in the family-owned peasant economy, the capitalist large-scale farms, and those prevailing in non-agricultural fields as industry, commerce and bank capital, and finally, the major forms of ties — the enterprise, the contractual and the cooperative integration. The analysis of the system of, and ties between, the components of the socialist countries' food economies, and the study of factors effecting their development is more interesting to us. Relying on the laws of the development of the food economy, the author shows the minimum criteria for building up close vertical ties, and points out that only with the creation of these conditions can vertical relations between the components of the food economy be developed. We can draw many useful conclusions by studying the main forms of ties — in continuous change — in the socialist countries, primarily in the Soviet Union.

Making use of the experience, lessons and achievements of the capitalist and the socialist countries, the author explains trends in types of ties between the components of the Hungarian food economy, and then introduces the present forms and types in the food economy organization. The study touches upon correlations between the socialist reorganization of agriculture and vertical economic organization, discussing the opportunities provided by collectivization taking concrete form in the horizontal integrations of the productive sphere. The author discusses the obstacles to the progress of vertical integration, then characterizes the present position of the food economy like this: "Following the socialist reorganization of agriculture, — until recently — substantial development in the vertical relations of the food economy can only be found in state relations. On the medium and lower 'levels' traditions are still holding strong." (p. 155) After reviewing the results achieved so far by scientific works analyzing the vertical relations in food processing, we are shown the possible integrated vertical relation forms.

In fact the entire book, either directly, or indirectly, analyzes the structure of

the food economy. Nevertheless, the author provides a separate place for a study of the structural unity of the components, for the changes in proportion of the structure of the food economy. Here is where he talks about the product lines which tie agriculture, the food industry and the consumer together, as lines of force connecting the components of the food economy.

Beyond reviewing the content of the individual chapters, I would also like to emphasize what this work gives to the reader.

First of all, it provides a new way of looking at things. We obtain a picture of the content of the debates — concerning the food economy — going on among economists and can become acquainted with the author's point of view. We can see agricultural production, product turnover, and the main forms connected to one another in the chain of product processing in the capitalist, socialist and the Hungarian food economy. The list of references not only contains the material used as a source but also every single publication on this topic available in Hungarian.

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* We acknowledge the receipt of the enlisted books. No obligation to review them is involved.

** To be reviewed in *Acta Oeconomica*.

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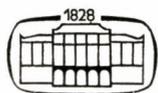
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T. Szentes

The Political Economy of Underdevelopment

After writing several books and papers on various economic topics (most of them in Hungarian) the author sums up in this book the results of his partial analyses of the external and internal factors of underdevelopment. The summarization is preceded and introduced in the first part of the book by a critical survey of the theories explaining underdevelopment. When investigating underdevelopment as a historical product of international capitalism, the author pays special attention to the operation and recent changes of the international division of labour. The analysis goes into particular details when the heterogeneous socio-economic structure and its effects on the domestic market, capital accumulation, labour and employment are investigated.

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CONTENTS

I. FRISS: Tenth Congress of the HSWP: Economy and Economic Science	273
P. НЬЕРШ: Вопросы международного экономического сотрудничества	281
J. KORNAI: Economic Systems Theory and General Equilibrium Theory	297
J. WILCSEK: Modern Small and Medium-Sized Factories in Hungarian Industry . . .	319
B. PÁLOVICS: Perspective Development of Hungarian Agriculture	333
J. SZITA: Efficiency of Hungary's International Cooperation and Long Range Import Policies	347
J. RÉDEI: A New Approach to Industrial and Technological Cooperation with the Developing World	361

REVIEWS

Income and Consumption	377
L. HALABUK: The Activities of the Econometric Laboratory of the Central Sta- tistical Office	381

BOOK REVIEWS

E. CSIZMADIA: Economic Concepts and the Food Economy (I. GÖNCZI)	387
S. CZEITLER: Hungary and the Capitalist World Market (GY. NÉMETH)	389
GY. SIMON: Economic Management and the National Economic Optimum (K. LÁNYI)	391
Major Features in the Position and Development of Internal Enterprise Mechanisms, Practical Questions in the Development of Internal Enterprise Mechanisms, (L. LADÓ)	394

BOOKS RECEIVED

399

I. FRISS

TENTH CONGRESS OF THE HSWP: ECONOMY AND ECONOMIC SCIENCE

The author — himself a participant of the Congress — raises some ideas on topical problems of the Hungarian economy and on related tasks of economics.

The Hungarian Socialist Workers' Party held its Tenth Congress in November 1970. The Congress of our party, playing a decisive role in leading society, aroused keen interest and responses both at home and abroad. And justly so since the congress tackled the most important present and future development problems of the Hungarian society engaged in building socialism, and also many questions of detail. The Congress evidently laid special emphasis on, and treated at great length, the problems related to the economic foundations of social progress. This was made clear in the report of the Central Committee and was carried by the contributions of industrial workers, enterprise managers, cooperative chairmen, by the speeches of the prime minister, party secretaries and council chairmen.

The basic tone of the contributions reflected the satisfaction of economic and political leaders as well as of simple workers with the healthy development of the economy and with the fact that the third five-year plan period had successfully been completed. Yet the contributions also showed our troubles, our concerns, and our deficiencies.

Much has been said about the economic tasks related to technological progress in enterprises and supervisory bodies, about raising the profitability of production, reducing production costs, about wage and income policies, the problems of income distribution in cooperatives, the supply of the population, consumer prices, price policy and costs of living, the tensions on the investment market and in labour economy, the organization of constructions, about the amalgamation and specialization of agricultural cooperatives, their association with state-owned enterprises, the large-scale industrialized stock breeding — mainly pig and cattle raising, — about the auxiliary undertakings of cooperatives, their good and bad aspects; and about the international contracts of enterprises and scientific research institutes and laboratories aiming at the development of production. But here and now I do not wish to deal

with these problems. I want to concentrate on the great processes and trends decisively influencing our whole economic development, and to approach them from the angle of political economy.

On the economic reform

The most important and significant source of our successes and results is the economic reform introduced on January 1, 1968, thriving, developing and ramifying ever since. "Relying on the experience of three years the Central Committee can state" — says the report — "that this instrument, though we are still learning how to use it, and are aware of the necessity of improving it — is already an effective weapon, helping our party and our people to solve the economic problems and realize our socialist efforts." The measurable results of our economic reform are shown fundamentally by the successful completion of the third five-year plan. These results also indicate that without slackening *the fundamental principles* of planned economy *we have succeeded* in increasing the planned character of management, *the efficiency of planned economy*.

With the reform thousands of economic leaders have come to age by being freed from a paralysing tutelage. Of course, coming to age does not turn every young man or woman into a mature grown-up, nor has the reform turned every economic executive immediately and automatically into a good manager standing on his own legs and making adequate use of all possibilities available. Perhaps there was nobody immediately affected by a sudden great change. Some managers missed the earlier close control, at least for some time, but later started to familiarize with the new methods. These have already born excellent results, and even better ones are expected in the future.

But how to use the reform well and how to improve on it? Evidently, we must learn to handle the regulating system in a way *required by the complexity of the system to be regulated*. Some major regulators, those constituting the basis of enterprise policy, must be kept unchanged and the others changed quickly, boldly and flexibly, as soon as they are found to fail to lead to the expected and desired results or to have unforeseen or undesirable side-effects. We must dare to make also experiments! We have not yet succeeded, with any of the regulators, in achieving a decisive change in the *field of technological progress*, though some initial results can be already registered. It is, however, also true that we cannot boast of great ingenuity in the service of technological development, nor have we displayed any major enterprising activity. Much better use could be made of the possibilities provided by the development fund, sharing fund, enterprise taxation and foreign trade for promoting progress in this field. Let us try to approach it from various angles, learning

and utilizing what we can learn from countries developing at a quicker pace than ours. Of course, this is easier said than done. Not only the enterprises must learn how to make use of the reform, but so must the authorities setting the regulators and the leaders co-ordinating the activities of these authorities.

As emphasized at the Congress, the economic reform is of great importance also for the *democratization* of the economy and of *public life*. It has expanded the scope of responsibilities, the sphere and extent of interestedness, enhancing the degree of engagement of those concerned. It has mobilized hundreds of thousands to discuss and study problems they never dealt with earlier. However, it goes without saying that the possibilities have not turned into reality overnight in this field either. It takes time for people to realize their possibilities, to learn how to live up to them, until it becomes their blood, and, until earlier rights and duties turn into everyday practice.

On the economic integration of socialist countries

While the economic reform is exerting manifold and mostly favourable effects on our whole economy and beyond, *another* development trend of high importance, *the economic integration of socialist countries*, has just started to unfold. One of the contributors to the Congress dwelt lengthily on the problems involved.* When tracing the sources of this trend, we must, as a matter of fact, reach back to the emergence of the economic world system of socialism. Integration necessarily results from the development of the forces of production. Scientific and technological progress leads to the socialization of labour in several branches of production for which the national frameworks are narrow in countries of small and medium-sized area and population. In other words: there are branches of production, as e.g. metallurgy and some branches of the chemical industry where *efficient* production is only possible on a large scale exceeding the possibilities of small and medium-sized countries. Sovereign countries with small area and population exist, and will continue, for a long time to exist, even in the socialist camp where production *extends across frontiers into other countries*, without abolishing the economic and political autonomy and independence of the socialist countries.

Increasing socialization of production affects not only the growing scale of efficient production, but also *research and development*, where, in fact, material and intellectual requirements are growing even faster, and the efforts to transcend frontiers are even stronger. The situation is similar in market research, marketing, in the production of spare parts, etc. This involves the

*. See the paper by R. Nyers, pp. 285—299. *Ed. note.*

necessity of a highly diversified, close and far-reaching economic cooperation, of a high-degree coordination of various economic activities, i.e. of *economic integration*.

Integration, as a programme, was raised at the April session of the Council for Mutual Economic Assistance in 1970. This should be understood in the sense that the leaders of the CMEA member countries decided to direct individual efforts made hitherto in a more or less spontaneous manner, into coordinated channels leading towards a major common goal. But, however effective the agreement on the common goal to be attained is, it *is the most difficult and complicated task* to harmonize the economic activities of eight countries. Each of them is politically and economically independent. Each has a different population; different history and traditions; different geography, soil, geological conditions; different internal economic management systems; different structures, control, price and wage systems; different administrative systems; different economic, technological and cultural development levels; different productivities of labour and standards of living.

Since economic integration was put on the agenda, much work has been done and is being done in CMEA member countries to prepare integration. According to the experience of more than one and a half years, the first results appear or may be expected in *prognostication, in the collation of plans, in coordination of production and in joint investments*. More intensive preparatory activity is needed that the next five-year plan periods shall see changes in such problems as the approximation of the systems of economic management, convertibility, uniformization of price systems and customs tariffs. The steps taken mainly in planning and productive cooperation, and more so those to be taken in these fields, may be expected to have effects on technological progress, and on raising the productivity of labour, as mentioned at the Congress.

It will be apparent from what has been said that with the progress of integration the CMEA countries will maintain and develop their hitherto close economic relations, and that these relations will bring about a qualitative change in their cooperation. For the smaller socialist countries these contacts have always meant *safe* sources of raw materials, on the one hand, and *safe* outlets for their finished products, on the other. This situation was very favourable primarily for the smaller socialist countries, facilitating their planning, yet also causing a certain complacency. The safety of markets failed to contribute to technological development, to the reduction of production costs, to the improvement of quality and to raising the productivity of labour. The stimulating effect of competition on intellectual activity was missing. Now, the advantages remain, but if they rely on production cooperation based on the most advanced technology and on broad research and development etc. efforts, they may be coupled with effective technological development and with a quick rise in the productivity of labour.

On long-term planning

The third development trend and process of high importance — long-term planning (15 years or longer) is also related to the economic integration of socialist countries. The prime minister dealt with the problem in greater detail at the Congress. The socialist countries will continue autonomous planning in the future, as they have done so far. Yet it has become clear that joint planning may offer much help in eliminating uncertainties concomitant to planning for two or more countries entering into production cooperation or into a relationship of buyer and seller. This help applies also to medium-term planning, but its importance is greater in long-term planning where, by the nature of things, uncertainty is greater than in the shorter run.

At the same time, long-term planning activities which have engaged a large number of planners, economists, statisticians, for more than three years already, have had a *fertilizing influence* on economic thinking in Hungary: they had a beneficial effect on the preparation of the fourth five-year plan. These activities started with a careful analysis of the living standard policy, industrial and agricultural policy of the seventeen-year period beginning with 1950, with a view to finding out what was correct, what were the mistakes or unavoidable shortcomings if any? When investigating shorter periods, such questions cannot be answered properly since both the origins and the consequences of decisions taken in economic policy of a period fall outside the limits of that period. For a scientifically founded answer the scope of investigations must be significantly expanded. Relating to a fifteen-year period, both questions and answers may be bolder, and safer conclusions may be drawn on what can be useful in the future.

In long-term planning, *the steady characteristics of importance, needs and development trends* of our economy and policy come to the fore and are distinguished from what is transitory, momentary or temporary. This distinction is not always or consistently possible in medium-term planning, and a mixture of the two may cause incorrect decisions.

In long-term planning, many details regularly appearing in medium-term plans must be disregarded, *ab ovo*. Many an important problem must be left open for lack of information necessary for decision. On the other hand, as regards plannable investments, production, etc., long-term planners have relatively great freedom and *broad opportunities to select the solutions and variants that may seem best*, because, in contrast to medium-term planning, their freedom of manoeuvre is not or hardly limited by investment projects started or planned, or by earlier decisions relating to, or affecting, the economy. Changes inducing structural transformation can, of course, be planned much better in long-term plans than in medium-term ones, as e.g. the plan of transforming the *pattern of fuel consumption* which has covered several five-year plan periods.

The role of economic science

Each of the three outstanding economic processes, i.e., the economic reform, the economic integration of socialist countries and long-term planning, pose great problems to those engaged in economics. This, of course, applies not only to scholars but also to practical people, to those working in the functional organizations, the ministries and enterprises. Earlier the idea prevailed that financial regulators were a matter for financial authorities and those employed by them, economic integration, a matter for economic ministries and their staff, and long-term planning, a matter for the National Planning Office and its staff. Before decisions were taken, the relevant authorities had to be consulted, sometimes also maybe a few major enterprises, but *science* had nothing to do with this. How could scientists meddle with such practical problems? Today, such ideas survive only in the minds of peoples adhering to old concepts and incapable of development. Our socialist society engaged in building socialism eventually makes everybody recognize that *without the help of science* such practical questions *cannot* be answered correctly in our country. Clearly, the same process induces also scientists to study practice and join hands with practical people. The relations between practice and science are by far not fully satisfactory as yet, but they *increasingly meet* the requirements raised by a socialist society.

What society expects scientists to do is not only to follow practice close to life and answer questions raised by practice, but also to recognize — relying on the broadest possible analysis of reality, on experience — the new phenomena and development trends beginning to unfold or *just in the making*. This can only be achieved in cooperation between theory and practice. In a socialist society, to avoid practicicism, which is almost inevitable in daily activities, those responsible for economic policy must either be scientists themselves — which is often not feasible — or at least closely join hands with scientists, which is generally possible. What we need is a scientifically founded economic policy with a wide horizon.

We have achieved substantial results in our economic and social progress. Yet, we cannot rest fully satisfied with them. We have done much to make up for our earlier backwardness, but, as regards the economic development level, we have not come much nearer to the more advanced countries. It goes without saying that the backwardness in economic development, due to century-old historical reasons, cannot be liquidated in a few five-year periods. But it is not self-evident *that the productivity of labour does not rise in Hungary much quicker than in some of the developed capitalist countries* and, therefore, the distance between us does not diminish, or at least not at the desired rate. This shows that we cannot satisfactorily avail ourselves of the superiority offered by the social ownership of the means of production. How

should this superiority become manifest? It should become manifest in the absolute assertion of *global social interests* in every field of socio-economic relations, in the *concentration* of efforts on the most important objectives of society, in the utilization of resources in compliance with global social interests, and in a functioning of our whole economy — for all its complexity and the possible maximum autonomy of its parts — as if it were a *single precise and perfect machine*.

Today, however, neither the desirable concentration of forces, nor the completely satisfactory utilization of resources, nor the functioning of our economy like one single and perfect machine can be listed among our achievements. This is illustrated also by the shortcomings voiced at the Congress and by the tasks listed in the decisions adopted. For the time being, there are e.g. impermissible tensions in the investment markets and in the labour economy; the volume and the capacity of investments, the putting into operation of new productive capacities and the labour situation are not coordinated in a desired manner; there is much to be done in organizing the construction industry and in developing the production of building materials; greater care should be taken to assert an adequate price policy; deficiencies in wages policy should be corrected, e.g., people performing work of higher quality should obtain higher average wages, but always in keeping with the general level of average wages.

The earliest possible attainment of such and similar targets by society requires a scientifically better founded economic policy and a closer cooperation between politicians and scientists to this end. Science, in this context, covers a wide scope of various disciplines, including sociology, jurisprudence, psychology, etc., with economics occupying a distinguished place among them. Proceedings in this direction, *the Tenth Congress of the Hungarian Socialist Workers' Party will remain a source of stimuli and guidance in economics for a longer time to come*.

Х СЪЕЗД ВSRП И ВОПРОСЫ ЭКОНОМИКИ И ЭКОНОМИЧЕСКОЙ НАУКИ

И. ФРИШШ

Автор в связи со съездом партии анализирует некоторые проблемы венгерской экономики и связанные с ними задачи экономической науки. Он указывает, что успешное осуществление экономической реформы является одним из крупнейших источников хозяйственных достижений. Удалось повысить уровень хозяйственного руководства без нанесения ущерба основным принципам планового хозяйства. Последовательное осуществление целеустановок реформы требует дальнейшего совершенствования системы регулирования. Особая необходимость в этом имеется в области поощрения технического прогресса, где пока сделаны только первые шаги. Он подчеркивает значение экономической реформы с точки зрения демократизации общественной жизни.

В связи с экономической интеграцией социалистических стран автор подчеркивает, что речь идет о таком хозяйственном процессе, необходимость в котором возникает на почве развития производительных сил. Узкие рамки национальных границ уже сегодня

дают о себе знать в особенности в области технического прогресса, исследования рынка, реализации, производства запчастей. Однако познание данного обстоятельства не меняет ничего в том факте, что согласование экономических действий стран-членов СЭВ представляет собой весьма трудную и сложную задачу. Со времени постановки на повестку дня экономической интеграции стран-членов СЭВ первые результаты получаются или, соответственно, ожидаются в совместном прогнозировании, координации планов, согласовании производства и осуществлении совместных капиталовложений. На новом этапе экономического сотрудничества социалистических стран сохраняются старые преимущества, а устранение прежних недостатков позволит поднять сотрудничество на более высокий уровень.

В связи с проводимым в Венгрии долгосрочным планированием автор отмечает, что оно оказало плодотворное воздействие на отечественную экономическую науку в целом. В рамках долгосрочного планирования на передний план выступают устойчивые основные характерные свойства нашей экономики и политики, а преходящие временные явления и процессы остаются в стороне. Плановики пользуются сравнительно большей свободой действия, чем в случае среднесрочного планирования, и получают возможность для выбора вариантов, обещающих наилучшие результаты.

В заключение автор указывает, что в связи с вопросами, затронутыми в статье, перед экономистами стоят крупные задачи. Возникает целый ряд вопросов, правильный ответ на которые сможет предоставить только наука. Следует выработать научно обоснованную экономическую политику, обладающую широкой перспективой, и сосредоточить усилия на осуществлении важнейших с точки зрения общества целей. В выполнении этих задач крупную роль может сыграть наука вообще и экономическая наука в частности.

Р. НЬЕРШ

ВОПРОСЫ МЕЖДУНАРОДНОГО ЭКОНОМИЧЕСКОГО СОТРУДНИЧЕСТВА

Статья основана на тексте выступления автора на X съезде Венгерской социалистической рабочей партии в ноябре 1970 года. Автор рассматривает в ней значение и роль международного экономического сотрудничества для венгерского народного хозяйства; детально характеризует связи Венгрии с социалистическими странами, в связи с этим останавливается на проблемах развития социалистической экономической интеграции стран СЭВ; обрисовывает венгерскую позицию по вопросам сотрудничества с развитыми капиталистическими и развивающимися странами.

Вопросы международного экономического сотрудничества неизбежно приобретают все большую роль, когда речь заходит о будущем. Ведь экономика внешнего мира служит нам не только мерилom для сравнений, но и экономическим ресурсом, более того, она является и фактором экономического риска.

Не случайно поэтому, что в последнее время в наших решениях по вопросам экономической политики всегда уделяется место развитию международных экономических связей. Одним из центральных принципов нашей экономической политики и хозяйственной реформы является органическая увязка экономического развития страны с использованием международных экономических возможностей. Этот принцип приобретает все большее значение в народнохозяйственном планировании, в работе правительственных органов и в практике предприятий, ускоряет наше развитие.

Наша активность на международной арене растет. Это явствует из наших газет и вообще из известий; почти дня не проходит без сообщений о международных переговорах по экономическим вопросам. А ведь сообщения даже отстают от быющей ключом жизни, не говоря уже о том, что иногда они доносят до нас яркое и интересное, плоды волнующих человеческих усилий лишь в форме бесцветных фактов. Мы можем рассчитывать на то, что в предстоящие годы в экономической и политической жизни нам придется заниматься воздействием внешних экономических связей и их использованием не меньше, а больше, чем сейчас.

Роль международного экономического сотрудничества

Возникает вопрос о том, какова взаимосвязь между полным построением социализма и развитием международного экономического сотрудничества.

Зависимость эта тесная и взаимная. Полное построение социализма может осуществиться только при росте производительных сил нашей страны, при мощном развитии наших производственных возможностей. Разумеется, это не все, что нужно для социализма, но, безусловно, в нашем случае это одна из предпосылок. Закономерно, что по мере иссякания экстенсивных источников развития национальных экономик все большее значение приобретает международное экономическое сотрудничество. Именно таково в данный момент положение и в нашей стране.

Мы живем в такую эпоху, когда во всем мире в развитии производительных сил, в экономической жизни проявляется тенденция к интернационализации, не угрожая существованию национальных экономик. Не вызывает сомнения, что данный уровень развития производительных сил страны, например Венгрии, мы и сейчас должны считать продуктом национального развития, но при этом таким национальным фактором, который в значительной мере обусловлен международным научно-техническим обменом и разделением труда. Как принято говорить, в наши дни происходит революция в науке, в технике и в методах организации. В этом бурном процессе принимает участие множество наций, из года в год накапливается громадный теоретический и практический опыт. Если мы хотим шагать в ногу с мировым развитием, более того, хотим на широком фронте работы приблизиться к наилучшим мировым показателям, то наряду с более концентрированным использованием собственных ресурсов все в большей мере должны опираться на научные, технические достижения и организационные методы других наций, импортировать их, использовать в отечественных условиях, обеспечивая поддержание современного уровня и в будущем.

В результате кооперации, распространяющейся за пределы отдельной страны, и в промышленном производстве все более пробивает себе путь тенденция к интернационализации. Зачастую конечный продукт фигурирует как национальный продукт, а членение производства по вертикали уже является международным. Так, например, гордость и надежда нашей промышленности — автобус «Икарус» — создается не только в результате кооперации десятков отечественных предприятий, в каждом автобусе воплощен и труд советских шахтеров и металлургов, польских машиностроителей, германских конструкторов двигателей и представителей других наций. Так обстоит дело со значительной частью промышленных изделий и в некоторой степени даже с пищевыми продуктами. И все же в порядке общего вывода можно сказать, что венгерская промышленность в сравнении с ее

возможностями участвует в международной производственной кооперации еще весьма и весьма слабо. С автаркией мы уже покончили ранее, но структура нашего производства еще носит на себе заметный отпечаток прошлого и мало отражает требования будущего.

Если мы хотим ускорить наше движение по пути социализма, то должны научиться лучше использовать в процессе технического развития фактор времени, ибо значение его громадно, но у нас все еще не оценивается по достоинству. Технический прогресс в наши дни характеризуется тем, что соревнование исследователей, производителей и наций по существу является соревнованием со временем. Ведь в принципе любая индустриальная страна, достигшая среднего уровня развития, уже способна к решению почти любых задач в области техники. Вопрос заключается только в том, сколько времени потребуется ей для исследовательской работы, к какому сроку будет готова хорошая конструкция и когда из этого получится пригодный для использования, надежный продукт. Стало быть, это только вопрос времени, но время решает все. Конкурентоспособность требует, чтобы сокращался путь от научного исследования до готового продукта, чтобы промышленность вовремя получала новую технику, а не после ее морального износа, и чтобы сроки освоения капиталовложений до ввода в эксплуатацию были сжатыми. Реально учитываемый фактор времени должен решать, что следует делать собственными силами, а что — в рамках международного сотрудничества.

Наконец, из принципа социализма само по себе вытекает и экономическая обстановка требует того, чтобы в ходе строительства социализма был открыт простор тенденции к интернационализации в экономике для того, чтобы лучше использовать человеческий труд, материальные блага, а фактор времени превратить в нашего невидимого союзника.

В нашей хозяйственной реформе мы исходим из того, что ни экономическая эффективность, ни дело международного сотрудничества не могут зависеть только от благих намерений плановиков или государственного аппарата, правильность действий должна обеспечиваться помимо этого широкой системой общественной заинтересованности. Именно поэтому мы стремимся к тому, чтобы развитие международного экономического сотрудничества отвечало одновременно как интересам государства, так и предприятий. Государственные интересы находят свое выражение в народно-хозяйственном плане, в межгосударственных соглашениях, в порядке государственной монополии внешней торговли и в государственном регулировании хозяйственной заинтересованности. Интересы предприятий, проявляющиеся в росте прибыли, действуют в нашей стране не автономно и обособленно, а в тесной связи с государственными интересами. Выполнение третьего пятилетнего плана показывает, что в наших условиях правильнее, если государство не предписывает предприятиям и кооперативам частных

заданий и показателей, а конкретизирует связанные с данной деятельностью общественные интересы и доводит их до предприятий посредством системы заинтересованности. Деятельность предприятий в своей совокупности хорошо увязана с государственными интересами, народнохозяйственный план по основным показателям выполняется, планомерность и пропорциональность улучшаются. Таким образом, развертывая хозяйственную реформу, мы служим и делу международного экономического сотрудничества.

Существующая ныне общность экономических интересов производства и торговли оказывается с точки зрения народного хозяйства более эффективной, чем дореформенная система, при которой связи производственных предприятий и внешнеторговых объединений основывались на безразличии, а порой даже на противоположности интересов. Общность интересов правильно, стало быть, применять, в качестве общего основополагающего принципа. Различные формы организационной интеграции производства и внешней торговли тоже дали положительные результаты, они исключают потери, порождаемые обособлением, повышают ответственность за качество, ускоряют ход дел. Но было бы уже нерациональным, если бы этот метод объединения применялся повсюду; специализированная внешняя торговля будет нужна и в будущем. На протяжении некоторого времени следует воздерживаться от крупных организационных перестроек во внешней торговле; в дальнейшем разумное расширение экспортных прав сможет вновь оказаться полезным там, где это обосновано с общественной точки зрения.

Международное сотрудничество оказывает растущее влияние на развитие потребления и его структуру. Совокупный объем национального потребления зависит от совокупного национального производства, но на ассортимент потребительских товаров большое влияние оказывает импорт. Страна, способная к устойчивому импорту потребительских товаров, тем самым может расширять ассортимент предметов потребления в такой мере, в которой это невозможно осуществить лишь за счет отечественного производства. Дело в том, что по ходу промышленного развития, особенно в нашей стране, надо открывать простор одновременно двум тенденциям: с одной стороны, сужению ассортимента продукции в производстве, с другой — расширению ассортимента товаров в потреблении. Это можно осуществить только при наличии равновесия внешнеторгового баланса. В нашей стране развитие в этой области в последние годы ускорилося. В 1955 году в обороте розничной торговли импортные товары составляли всего лишь 3—4 процента, в 1960 году — 6, в 1965 году — 8, а в 1970 году — уже 15 процентов. Этот процесс благоприятствует росту эффективности народного хозяйства, ибо мы можем использовать имеющиеся производственные мощности в таких областях производства, для которых у нас имеются наиболее благоприятные условия.

Таким образом, цель полного построения социализма влечет за собой и даже требует, чтобы наша экономическая политика была направлена на

динамичное развитие международного экономического сотрудничества со всеми странами, с которыми это возможно на основе взаимности интересов. Мы стремимся прежде всего развивать наши экономические связи с Советским Союзом — нашим важнейшим партнером и с другими братскими странами, вместе с которыми мы строим социализм. Для успешного осуществления этой ориентации на практике в нашей государственной работе нужно развивать межгосударственное сотрудничество, его систему, методы и практику. В партийной и профсоюзной работе нужно поддерживать новые начинания, применять при оценке прогресса в созидательном труде и международные критерии. В общественном мнении нужно укреплять сознание того, что повышение международной конкурентоспособности нашего народного хозяйства является классовою целью рабочего класса, ибо служит делу общественного прогресса, и национальной целью венгерского народа, ибо повышает наш национальный авторитет, обеспечивает жизненный уровень и будущее нашего народа.

Как будут развиваться международные экономические связи нашей страны в ближайшие 5 лет?

Мы планируем расширение связей по четырем направлениям. Мы предполагаем значительно расширить наш товарооборот со всеми странами. Намечается усиленное развитие научного сотрудничества и производственной кооперации с заграницей. Мы и в дальнейшем будем стремиться к международным кредитным связям, служащим делу сотрудничества, будем развивать международный туризм и международные услуги.

И в годы четвертого пятилетнего плана развитие венгерского народного хозяйства будет характеризоваться усилением его зависимости от внешней торговли. Темпы роста внешней торговли превышают темпы роста производства и национального дохода. Каждый процент прироста национального дохода связан с ростом внешнеторгового оборота не менее чем на 1,5 процента. В перспективе пяти лет мы рассчитываем на рост внешнеторгового оборота в размере 43 процентов. Опережающими темпами будет расти наша торговля со странами СЭВ, рост в этой области составит 47—48 процентов.

Мы будем развивать научную и производственную кооперацию прежде всего с социалистическими странами, и в том числе со странами-членами СЭВ, будем искать и поощрять новые ее формы и более интенсивные методы. Мы будем развивать наши кооперационные связи и с несоциалистическими странами, всегда согласуя их с социалистическими связями.

Множеством фактов и данных можно охарактеризовать нынешнее и предстоящее развитие двусторонней производственной кооперации со странами-членами СЭВ. В области производства средств автомобильного транспорта — одной из наиболее значительных областей нашего международного сотрудничества — мы уже сейчас интенсивно участвуем в кооперации с Советским Союзом и Польшей и стремимся распространять это сотрудни-

чество также и на другие социалистические страны. Последовательно и динамично развивается советско-венгерское сотрудничество в нефтяной промышленности, продолжается строительство второй линии нефтепровода «Дружба», в результате чего к 1975 году поставки советской нефти возрастут с 4 миллионов тонн в год до 6,5 миллиона тонн. Вскоре начнется осуществление венгеро-советского соглашения по олефинам, в рамках которого мы будем экономично даже с точки зрения мировых стандартов производить этилен и пропилен и обменивать их на изделия советской химической промышленности. Такая кооперация позволит нашей стране сэкономить капиталовложения на сумму 4—5 миллиардов форинтов и эксплуатационные расходы на сумму в один миллиард форинтов. Такую же экономию будет иметь и Советский Союз. В деле производства и взаимных поставок синтетического волокна мы начнем кооперацию между нашей страной и Польской Народной Республикой, в результате чего для обеих стран будут обеспечены условия более экономичного производства и сбережения капиталовложений. Мы будем развивать нашу кооперацию с Чехословакией в области машиностроения и производства предметов потребления.

В настоящее время разворачивается многосторонняя кооперация социалистических стран в области вычислительной техники, которая началась по инициативе Советского Союза. Успешно осуществляется болгаро-советско-венгерское сотрудничество в производстве соды. Между Болгарией, Советским Союзом, ГДР и Венгрией разворачивается широкое международное сотрудничество в области сельского хозяйства и производства пищевых продуктов. Все это отражает значительное развитие международной кооперации между странами-членами СЭВ.

На особенно быстрое развитие международного сотрудничества можно рассчитывать в химической промышленности и машиностроении, а в отношении капиталовложений — во всех отраслях производства. Я хотел бы на двух примерах проиллюстрировать международную взаимосвязь в области капиталовложений. Из 12 миллиардов форинтов, которые мы затратим на коренную реконструкцию текстильной и швейной промышленности, более 6 миллиардов форинтов составит стоимость импортных машин, из которых половина будет поставлена из социалистических стран. А на создание свиноферм по последнему слову техники, с замкнутым циклом, в рамках программы значительного увеличения производства мяса в последующие годы мы затратим 3 миллиарда форинтов, из которых почти 30 процентов также составляют импортные расходы. В очень многих отраслях капиталовложения только тогда приводят к современной технике и технологии, если сочетается применение отечественного оборудования и импортных машин.

Мы считаем, что активному международному сотрудничеству присуще использование международных финансово-кредитных возможностей. Сотрудничество венгерского народного хозяйства как с социалистическими

странами, так и на мировом капиталистическом рынке, также развивается при посредстве активных кредитных операций. Расширение товарооборота, развитие производственной кооперации требуют, чтобы в одних случаях мы предоставляли кредиты, а в других — сами пользовались ими. В наших финансово-кредитных связях мы стремимся и будем стремиться к надежности и сбалансированности. Мы хотим остаться надежными партнерами социалистических стран, и наших клиентов из стран капиталистического мира. Наши запланированные до 1975 года кредитные операции в рублях характеризуются сбалансированностью кредитов, в общем мы не намерены пополнять наш национальный доход за счет кредитов. Что касается долларовых расчетов, то здесь наша кредитная политика направлена на то, чтобы при наличии уравновешенного платежного баланса содействовать модернизации техники в нашей стране путем использования инвестиционных, среднесрочных кредитов. Наряду с этим мы, в меру наших возможностей, способствуем предоставлением долларовых кредитов расширению экспорта продукции венгерского машиностроения на мировой рынок.

Своеобразным видом международного сотрудничества является так называемый «невидимый» экспорт; мы заинтересованы в его сохранении и развитии. Продолжая идти по начатому пути, мы намереваемся развивать международный туризм, который за две пятилетки вырос в несколько раз. Сейчас уже ежегодно 4 миллиона иностранцев посещает нашу страну, а миллион венгров выезжает за границу. Международный туризм является дополнительным ресурсом экономического развития. В то же время он требует регулярных капиталовложений, тем более, что в будущем следует идти по пути улучшения обслуживания, а не быстрого роста числа туристов. Наряду с этим мы должны развивать и другую разновидность «невидимого» экспорта: различного рода деятельность, связанную с транзитными перевозками; она служит как интересам европейских стран, так и нашей страны. Ежегодно через Венгрию проезжает 2 миллиона человек, через нашу страну проходит много миллионов тонн грузов; постоянно растет потребность в торговых, культурных услугах и услугах связи. В ближайшие пять лет нам необходимо еще лучше пользоваться этими возможностями.

На основе наших планов мы по праву можем рассчитывать на то, что предстоящие пять лет будут периодом интенсивного развития международного экономического сотрудничества.

За социалистическую интеграцию

Наша партия не только поддерживает, но и добивается дальнейшего развития сотрудничества стран-членов СЭВ и постепенного претворения в жизнь идеи социалистической экономической интеграции, опирающейся на самостоятельные национальные экономики. IX съезд нашей партии (1966 г.)

выступил за укрепление и развитие СЭВ, но идея интеграции тогда еще не была выдвинута. В период между двумя съездами стало очевидным, что настало время подготовки к этому следующему шагу развития.

Мы считаем очень важным, что XXIII сессия стран-членов СЭВ в апреле 1969 года приняла идею интеграции, после чего можно было приступить к разработке плана ее осуществления. В этой работе, которая ведется уже полтора года, принимают участие представители и эксперты стран-членов СЭВ, среди них — представители нашей страны, выполняющие эту работу энергично и от всего сердца. Так как речь идет об очень важном вопросе, мы со своей стороны никогда не считали делом первостепенной важности спешку, для нас гораздо важнее основательность в работе. Так мы считаем и сейчас.

Подготовка программы еще не завершена, всеобъемлющая оценка ее еще невозможна. Мы уже знаем, что нельзя одним скачком перепрыгнуть из настоящего в планируемое будущее. Мы должны понимать интеграцию как продолжение нашего нынешнего сотрудничества, как дальнейшее развитие двусторонних связей и постепенное развертывание многосторонних связей. Вместе с тем ясно, что интеграция не просто продолжение чего-то, а новая фаза, в которой часто уже нельзя опираться на прежнюю практику.

Какие цели должна преследовать интеграция? Комплекс ее целей включает в себе такие задачи, как открытие пути для ускорения роста экономической эффективности во всех странах-участницах, превращение производственной кооперации в международную, многостороннюю специализацию ключевых отраслей промышленности, развитие на основе общих потребностей сырьевой и энергетической базы производства, расширение и обеспечение регулярности взаимного обмена предметами потребления. Мы уверенно продвигаемся вперед в достижении согласия относительно этих целей.

Какой должна быть система средств осуществления интеграции? Выяснение этого вызывает наибольшие трудности, и пока работа не продвинулась за пределы обсуждения этого вопроса. Сложилось общее принципиальное мнение, что в системе средств должны быть органически связаны три фактора: консультации между государствами по вопросам экономической политики, согласование народнохозяйственных планов и система экономических норм и регуляторов. Не выяснены еще взаимосвязь этих трех факторов и правильное распределение ролей между ними.

Существенный прогресс наблюдается в вопросе о проведении регулярных консультаций по вопросам экономической политики. В рамках этих консультаций страны-участницы, с одной стороны, информируют друг друга о направлениях и темпах экономического развития, а с другой стороны, вскрывают те области, где необходимо согласовывать или совместно решать вопросы развития. Можно надеяться, что этот метод в будущем получит применение в рамках СЭВ на пользу всем нам.

Важный сдвиг отмечается также и в развитии согласования народно-хозяйственных планов. Согласно этому каждая из стран-участниц и впредь будет самостоятельно разрабатывать и утверждать планы развития своего народного хозяйства, но при этом будет своевременно происходить и согласование существа этих планов на международном уровне. Такое согласование будет осуществляться не на последней стадии разработки плана, как это было до сих пор, а уже на первой стадии планирования, и согласование затронет не только отдельные части планов, а всю комплексную концепцию плана. Новой чертой в этой работе явится и то, что в вопросах перспективного развития мы будем согласовывать наши планы в перспективе не 5, а 10—15 лет. Таким образом, уже прояснились некоторые вопросы очень большой важности.

Однако в списке не выясненных должным образом вопросов фигурируют еще очень важные проблемы. Необходимо внести соответствующую ясность в вопрос о роли системы многосторонних экономических регуляторов в будущем, в частности, о функции системы цен, кредитной и валютной систем, а также о методах торговли и возможности перехода к обратимости валют. Мы совместно должны дать ответ на вопрос, возможно ли, и если да, то каким образом может происходить постепенное и частичное переплетение нынешних национальных рынков. Мы должны сообща найти ответ на вопрос, может ли быть успешным международное согласование планов, будет ли эффективной производственная кооперация, если в экономике и внешней торговле отдельных стран-участниц различными останутся принципы хозяйственной калькуляции, исчисление рентабельности и роль денег. Мы должны прийти к общему мнению в вопросе о том, как улучшить координацию деятельности наших стран на мировом рынке; следует изучить и вопрос о том, есть ли смысл в создании согласованной таможенной системы в отношении третьих стран при сохранении в рамках СЭВ беспошлинной торговли. Стоило бы рассмотреть и вопрос, как сделать привлекательным для стран, не являющихся членами СЭВ, присоединение или ассоциацию в случаях, когда наши интересы в конечном итоге сходятся.

Вопросы, ожидающие еще своего решения, настолько сложны, что в данный момент на них нельзя дать простого утвердительного или отрицательного ответа. Более того, может случиться, что принимая решения по некоторым вопросам, мы не можем четко предусмотреть направление будущего развития, а только сознавать, что позже это будет необходимым и возможным. В таком случае мы считаем важным заранее учесть это и не связывать себе рук, а обеспечить свободу действий, оставляя открытой возможность для решения таких невыясненных вопросов в будущем.

Мы должны сознавать, что надолго связали свою судьбу с идеей социалистической экономической интеграции, но вместе с тем и с ее проблемами. Одновременно мы можем быть уверены в том, что благодаря этому жизнь

рабочих и всех трудящихся улучшится, перед ними шире раскроется мир и горизонты будущего. Успешное развитие социалистической интеграции явится одним из крупных исторических свершений союзных социалистических стран.

Экономические связи между странами с различным общественным строем

Одной из характерных черт нашей эпохи является развитие экономических связей между государствами с различным общественным строем. Этот процесс закономерен, он не означает отклонения от исторического пути развития социализма, а отражает применение в условиях нашей эпохи ленинского принципа — вести политическую борьбу с империализмом и поддерживать мирные связи со странами с иным общественным строем. Оба эти положения ленинской политики являются постоянными и в конечном итоге не противоречат, а взаимодополняют друг друга.

Основной формой экономических отношений между социалистическими и капиталистическими странами и ныне является внешняя торговля. В 60-е годы, особенно в Европе, между двумя группировками стран заключаются долгосрочные торговые договоры, развиваются кредитные связи, многие страны Западной Европы, хотя и медленно, но все же идут на смягчение тор овых ограничений по отношению к социалистическим странам. Заслуживает упоминания, что 10 лет тому назад между странами Восточной и Западной Европы действовали лишь 23 долгосрочных экономических договора, а сейчас число их составляет 80. Несмотря на это, об оптимальном использовании возможностей в этой области говорить не приходится. Объем торговли между социалистическими и капиталистическими странами составляет всего 3 процента от объема мировой торговли, хотя эта доля могла бы быть значительно выше.

На повестку дня встал и вопрос о необходимости интенсификации экономических связей между государствами с различным общественным строем, и в настоящее время наблюдается обнадеживающее развертывание этого процесса. Так, например, Советский Союз за последние годы заключил договоры об экономическом, научном и техническом сотрудничестве с Финляндией, Францией, Италией, Австрией, Японией, Швецией и Бельгией. Такие договоры в сфере своих интересов заключают Польша, Чехословакия, Болгария, Румыния и наша страна. Большое значение имеет для нас, я бы сказал, во многом служит для нас примером экономическое сотрудничество между Советским Союзом и Францией, а также научная и экономическая кооперация, налаживающаяся между советскими и итальянскими органами.

По имеющимся признакам, отношения такого характера будут иметь место и в экономическом сотрудничестве между СССР и ФРГ.

В отношениях между социалистическими и капиталистическими государствами и впредь первостепенное значение будет иметь внешняя торговля, но развитие связей постепенно будет переноситься и на другие формы сотрудничества: на расширение сотрудничества в области совместной разработки природных богатств, на совместное участие в научно-исследовательской работе, на расширение торговли лицензиями, кооперацию и специализацию в области машиностроения, а также на образование смешанных внешнеэкономических объединений в капиталистических государствах. Все это приведет к расширению обмена товарами, торговли. Различные подсчеты показывают, что значительную долю торговли между капиталистическими странами — почти 20 процентов — составляет в настоящее время не традиционный обмен готовыми товарами, а непосредственная научная и производственная кооперация. Мы также должны следовать этой тенденции, так как в противном случае наша внешняя торговля рано или поздно будет способствовать не расширению наших ресурсов, а поведет к их сужению.

Из всего сказанного вытекает, что и наша страна должна принять участие в развитии экономического сотрудничества между государствами с различным общественным строем, в частности, европейского экономического сотрудничества. Это соответствует нашим интересам и, хотя и косвенно, но способствует достижению наших общественных целей. Именно поэтому IX съезд нашей партии поставил задачу дальнейшего расширения экономических связей с капиталистическими, а также и с развивающимися странами, поэтому же правильно подтверждение этого курса и в решениях X съезда.

Если мы хотим расширить и улучшить нашу торговлю на мировом рынке, то должны уметь приспосабливаться к быстро меняющейся товарной структуре международной торговли. Нужно уметь использовать спрос на технологически «интенсивные» виды товаров. С 1955 года в международной торговле наиболее быстрыми темпами развивается торговля машинами и транспортными средствами — в год в среднем на 10,6 процента. За ними следует экспорт продукции химической промышленности, оборот которого ежегодно увеличивается на 10,1 процента. Очень быстрый рост отмечается и в экспорте различных видов готовых изделий — в среднем на 7,8 процента в год. Можно ясно видеть, что особенно быстрыми темпами развивается экспорт продукции, которая связана с научно-технической революцией или быстро, в форме новых видов продуктов проникает в сферу производства и потребления. К ним, например, относятся: оборудование средств связи, органические соединения, пластмассы, научные, медицинские и оптические приборы, инструменты. Ясно, что наиболее энергично может развиваться товарооборот тех стран, которые в состоянии как производить и экспорти-

ровать такие товары, так и в силу уровня своего промышленного развития импортировать их.

Расширение разделения труда с капиталистическими странами для нашей страны представляется важным и полезным потому, что нам приходится обеспечивать ряд отраслей самой современной техникой, необходимой для экономического роста, за счет импорта ее из развитых капиталистических стран. Эти страны являются для нас также важными поставщиками сырья и других товаров, необходимых для производства.

Мы убеждены, что и капиталистические страны весьма заинтересованы в развитии своих экономических связей с социалистическим миром, они не могут позволить себе роскоши считать это дело второстепенным. Для каждой развитой капиталистической страны полезно увеличение — в целях торможения инфляции — импорта товаров из таких стран, куда она может и экспортировать свои товары; полезно также, если избыток промышленных мощностей используется посредством международной производственной кооперации. Между прочим, обе стороны уже давно знают, что, торгуя с капиталистическими партнерами, мы тем самым вовсе не экспортируем им социализм, но и они не могут экспортировать нам капитализм. В то же время развитие корректной торговли приносит взаимные экономические выгоды.

Основная цель в развитии наших экономических связей с развитыми капиталистическими странами заключается в том, чтобы наши партнеры без ограничений и без оговорок применяли к нам принцип наибольшего благоприятствования, прекратив дискриминацию нашего экспорта и отменив административные ограничения, не носящие таможенного характера. При этом мы стремимся к обеспечению нашим предприятиям соответствующих межгосударственных рамок для их деятельности на мировом рынке на длительный срок.

В соответствии с нашими принципами и хозяйственными интересами мы и в будущем должны следовать практике последних лет и упорно стремиться к тому, чтобы:

— активно содействовать разрыванию международного экономического сотрудничества в международных организациях ООН, особенно в Экономической комиссии для Европы, Продовольственной и сельскохозяйственной организации (ФАО), в Международной организации труда (МОТ);

— способствовать наиболее быстрому осуществлению разумно урегулированного порядка мировой торговли, в том числе и путем нашего присоединения к Генеральному соглашению по тарифам и торговле (ГАТТ);

— в соответствии с нашими интересами развивать экономические связи со странами Европейского экономического сообщества, а также со странами, объединившимися в Европейскую ассоциацию свободной торговли;

— наряду со связями с развитыми капиталистическими странами расширять и развивать наши связи и с большинством развивающихся стран;
— значительно развивать сотрудничество в области капиталовложений, торговлю лицензиями, производственную кооперацию на уровне предприятий и расширять кредитные связи.

Ожидается, что доля развитых капиталистических стран в нашем совокупном обороте составит в 1970 году 25 процентов. В том числе доля стран «Общего рынка» — 13 процентов, стран ЕАСТ — 10 процентов, а других развитых капиталистических стран — 2 процента.

Существенно возрос наш товарооборот, можно сказать, со всеми развитыми капиталистическими странами. Особенно расширились экономические связи с Италией, Австрией и Швецией. Значительно возрос и товарооборот с ФРГ, в то же время вместо прежнего, весьма пассивного баланса по существу удалось сбалансировать наш экспорт и импорт. В областях, где внешнеторговые предпосылки благоприятны, развивается наша торговля с Францией и Англией.

Своеобразным и важным явлением в нашей части света стало Европейское экономическое сообщество, известное под названием «Общего рынка», созданное в 1955 году и объединяющее шесть стран. Эта интеграция несомненно является одним из реальных факторов наших дней, а не просто временной группировкой. Складывающийся режим «Общего рынка» сильно затрагивает интересы нашей страны, особенно угрожая нашему экспорту сельскохозяйственных продуктов. Мы стремимся урегулировать свои проблемы прежде всего со странами, входящими в «Общий рынок», но наряду с этим по некоторым вопросам ведем переговоры и с центральными органами «Общего рынка», в первую очередь, в целях ликвидации неблагоприятного положения для венгерского сельскохозяйственного экспорта. Однако в этой области мы еще не ощущаем со стороны «Общего рынка» такой готовности к переговорам и достижению договоренности, которая соответствовала бы картине развертывания европейского экономического сотрудничества. В конце концов в будущем нам придется считаться с наличием двух прочных интегрированных групп в Европе: Совета Экономической Взаимопомощи и «Общего рынка». Если реальность этих двух организаций является фактом, то как реальный фактор будущего, должны рассматриваться нами и связи этих двух группировок.

Экономические связи Венгрии и стран «третьего мира» развиваются и становятся все более разносторонними. В численном выражении наш товарооборот с развивающимися странами невелик, но связи распространяются и на предоставление кредитов, и на научно-техническое сотрудничество. В общем объеме нашего экспорта доля развивающихся стран составляет около 6 процентов, а в нашем импорте — немногим менее 7 процентов. Экономическая значимость этих связей несравненно больше этой сравнительно

малой доли, она благоприятна и в политическом отношении. Значительное место в нашем экспорте занимают машины и оборудование, что соответствует нашей производственной структуре, а в импорте большую долю составляют такие сельскохозяйственные товары и промышленное сырье, для производства которых мы не имеем собственной базы.

Следует упомянуть и такие формы сотрудничества, как командирование специалистов и экспертов-консультантов, подготовка специалистов для развивающихся стран, изыскательные-исследовательские работы, предоставление технических консультаций по проектированию и организации, передача технической документации. За последние годы Венгрия в рамках научно-технического сотрудничества ежегодно принимала из развивающихся стран 150—200 человек. В настоящее время в наших университетах и институтах обучается свыше 500 студентов из этих стран.

В соответствии с нашими внутренними и внешними потребностями мы и впредь будем стремиться определять свою политику в области торговли с развивающимися странами так, чтобы создать предпосылки для быстрого развития в дальнейший период. В середине 60-х годов еще свыше 40 процентов нашего товарооборота с развивающимися странами концентрировалось всего лишь на двух странах — Индии и ОАР; сейчас мы ведем значительную торговлю уже с 12 развивающимися странами, наш товарооборот с этими странами все более удастся расширить до таких размеров, при которых уже обеспечивается его рентабельность и на длительный период.

Для стоящей перед нами в области международного сотрудничества задачи также справедлива установка нашего съезда, что мы должны работать в прежнем направлении, но лучше, чем до сих пор.

QUESTIONS REGARDING INTERNATIONAL ECONOMIC COOPERATION

R. NYERS

The article contains the contribution by the author to the 10th Congress of the Hungarian Socialist Workers' Party (November 1970).

In the first part of the article the author studies the importance of international economic cooperation. He concludes that, with the exhaustion of the sources of extensive economic growth, cooperation is becoming an increasingly important source for the progress of the Hungarian national economy. This is why one of the goals of the economic reform is that the development of international economic cooperation shall simultaneously be to the interests of the state and the enterprises as well. The reform endeavours to establish harmony between the common interests of the producer and the foreign trade enterprises, both in production and in trade.

The author then goes on to provide a review of Hungary's economic relations with the socialist, developed capitalist, and developing countries. He gives a detailed analysis of increasing cooperation within the CMEA, evaluates the achievements reached so far in working out the programme of socialist economic integration, and points out the difficulties which have appeared, along with issues not yet cleared up. He also explains the Hungarian standpoint in connection with these problems.

Regarding relations with the developed capitalist countries, the author emphasizes that advancing such ties is to the interests of both partners. In addition to foreign trade, endeavours must be made to expand other forms of cooperation — joint exploitation of natural resources, joint scientific research, trade in licences, cooperation and specialization in machine production, and joint trade associations — as well. In advancing cooperation with the developed capitalist countries, the fundamental goal of the Hungarian partner will remain to achieve that its partners shall secure for Hungary the application of the most-favoured-nation-clause unlimitedly and unconditionally, thus ending the discrimination and non-tariff trade barriers which have been restricting Hungarian exports.

J. KORNAI

ECONOMIC SYSTEMS THEORY AND GENERAL EQUILIBRIUM THEORY*

The study attempts to define the subject of economic systems theory, as a special branch of economics. Then the author deals with the Walrasian general equilibrium theory: he analyses its place in the history of economics, criticizes its assumptions and theorems and, finally, treats further problems of research.

A new question posed by history

As of January 1, 1968, a reform of economic control and management was introduced in the Hungarian People's Republic. The reform affected several important characteristics of the operation of the economic system, such as the sphere of authority of the National Planning Office and the ministries, their relationship with the enterprises, the system of material incentives, bonuses, prices, wages, credit granting, etc.

The reform had been prepared on behalf of the party and government by theoretical and practical economists. Their proposals filling several hundred pages were submitted to the leading party and government bodies for discussion and afterwards "translated" into the language of legal provisions and statutes. Finally, all regulations came into force simultaneously.

What we have here is a new and most significant phenomenon. Planning had existed in Hungary even before the reform: the plan prescribed the real activities of the economy — the volume of production, trade, consumption, investment, foreign trade — for the forthcoming period, together with the relating financial indicators. The preparation of the reform, however, represented "planning in an entirely different sense": it was the *system itself* that was being planned. It had been endeavoured to assess well in advance the effect of the measures abolishing the short-term plan instructions to the enterprises, or of those permitting the free formation of certain prices by agreement between seller and buyer. The consequences of changing the system had been carefully considered, even the interactions and mutual effects of thousands of partial measures.

* Paper submitted by the author to the international conference on new trends in contemporary economics arranged by the Hungarian Academy of Sciences in Budapest, June 1–4, 1970.

It is not the task of the present study to deal with the question whether the reform has fulfilled the expectations or not. What I wish to draw attention to is the phenomenon itself: a group of theoretical and practical economists is weighing up in advance to *minute details* the behavioural regularities and intricate operational mechanism of a new system.

In our present era, history sets the task deliberately to shape and to plan in detail *entire economic systems*.

The phenomenon is not confined to Hungary. Surveying the socialist countries, besides the basic identities we will find not negligible differences in the operation of the system. Various combinations of centralization and decentralization, planning and market, etc., will be met with. Differences appear in industrial organization, with different degrees of concentration in big trusts and unions, and fragmentation into minor enterprises competing with each other. There are differences in the principles of pricing, in the inequality of income distribution, in the effectiveness of material incentives. Planning methods and economic efficiency indicators vary from country to country. It would be self-deception to explain this on the grounds of differences in endowments. The latter, too, may play a role; the explanation should, however, be sought in the fact that the *ideas* of political and economic leadership in the individual countries *differ* on how to operate efficiently a socialist economic system. The abolition of capitalist production relations will in itself not decide the *concrete* system of the economy; in shaping the latter, political and economic leadership has a high degree of freedom.

Nor would it be appropriate to confine oneself to the socialist countries when dealing with this phenomenon. Let us think of the countries now rising from colonial status to independence. These countries, on having attained independence, find themselves facing the question, how to arrange their economic system. This is, of course, basically a political power question, depending on the classes and social groups those in power are belonging to. Yet, even this is not fully decisive and leaves open quite a few essential questions of detail. For example, in Burma, several methods of Soviet planning practice have been adopted although the party in power is not communist and not even Marxist. Numerous developing countries deliberately abandon the "regular" capitalist path, wishing to proceed towards a social formation of socialist character, introducing nationalization measures and planning. These endeavours, however, necessarily lead to a situation where decision must be taken on, what should be planned and what should be left outside the scope of planning; whether to fix prices or not; to what extent should economic administration and control be centralized, and so forth.

After this quick glance at the other socialist countries and at the "third world", we may now repeat what has been stated above on the basis of the Hungarian example, namely that in our present era history has posed a *new*

question to economics. *How should an economic system be "arranged"*, how should its operational mechanism be shaped? It is to this question that the responsible leaders of party and government expect an answer from the economists, and a rather *concrete* answer at that. At the present stage, the answer has obviously become inadequate that we need socialism, social ownership, planning . . . All right, but how should control be exercised over the goods in social ownership; should they be distributed on the basis of rationing in order to ensure consistent equality, or should market forces and energetic material incentives be resorted to? Should we plan only the main proportions or also the detailed program of production and consumption? Hundreds of questions of this type await an answer. And if science, with its strictly scientific apparatus, fails to provide an answer, practice will have to find some answer and introduce some concrete system.

What is the situation in economics as regards this range of problems?

The conservative bourgeois economist who has no doubts about the eternity of the capitalist economy will never pose such questions to himself. For him, the economic system is *given*. To use the terminology of the conceptual system of mathematical problem solution: the system is a "datum" of the problem and not its "unknown". The conservative bourgeois economist would put the question in this form: with the capitalist market system once given, what will be the effects of raising taxes or reducing interest rates, etc.

It was a basically different — revolutionary — approach that characterized the work of Karl Marx. He was convinced that the capitalist economy is not eternal and will come to be replaced by socialism. He would, however, not consider it his scientific mission to draw up a detailed "plan" of the operation of the socialist economy. He would laugh at the utopists who wasted their time on such trivialities. He confined his own problem basically to presenting the objective historical tendencies which lead necessarily to the formation of the socialist system.

This approach of Marx was historically fully justified. His intention was to revolutionize the masses with his works, and to point out the contradictions inherent in capitalism. As a "by-product" of his scientific activity, he dropped some ingenious remarks concerning the operation of the future socialist society; it did, however, not occur to him to speculate about information flow, planning methodology or pricing practice in a socialist economy.

However, the economist in a country where socialism has come into power cannot afford this attitude. He has ceased to be in "opposition" and belongs now to "government". It is his duty to think of the ways to render his own system more efficient. The revolutionary opposed to those in power may dismiss questions how the banking system or the flow of information between firms should be organized, as the internal affairs of the capitalists. To the revolutionary in power these have become, however, problems of primary

importance. Unfortunately, we must accept the fact that Marx did not answer these questions because, quite understandably, he never posed them.

Economists in socialist countries have for a long time failed to give satisfactory answers to these questions. They would mainly confine themselves to justifying the practice actually in force. Nor has this not exactly scientific attitude completely changed by now. The great variety of economic forms has been pointed out above. It is, however, curious to see—when reading the literature published in socialist countries—that every economist would praise the concrete economic system prevailing in his own country. Of the others he would usually keep tactfully silent. And should he deal with them, then rather in a critical manner, emphasizing the advantages of his own concrete system over the disadvantages of the others.

The development of society has brought into being a wonderful laboratory: the great variety of concrete economic systems. The principles of scientific approach would call for objective comparisons. Instead, however, every one of us would bend over his own retort and try to avoid looking at the test-tubes and microscopes of the others.

The author of the present study believes that economic science is lagging far behind the requirements of practice. The reforms have come about not on the basis of *strictly proven* scientific theories but rather under the pressure of various troubles and difficulties, built upon the common-sense and practical experiences of the reformers.

The truth of this statement is not affected by the fact that those first suggesting the reforms there were also university professors and scientific research workers in a fair number, or that economists are taking part and may even play a leading role in the work of commissions preparing the reforms. Their valuable contributions are based on their erudition, broad outlook and logic, and not on proven theories corresponding to high scientific standards.

The theory, the branch of economics called upon to fill this gap, I will call henceforth "*economic systems theory*".

The subject of economic systems theory

"System" is a rather general concept, employed by numerous scientific branches with physics, biology, engineering and technical sciences, sociology, etc. among them. In recent times, as a special branch of mathematics, there has appeared what is called mathematical systems theory, on an extremely high level of abstraction, in the mathematical description of all kinds of system. Closely linked with mathematical systems theory are two other branches of mathematics: control theory and cybernetics, dealing with the control of systems and with the information serving this purpose. [4, 6, 10].

In the present study, the "system" concept will be used in the sense defined by mathematical systems theory, control theory and cybernetics. The general definition is the following:

The system constitutes a set of interrelated elements functioning according to definite behavioural regularities. The structure of the system can be described by defining the constituent elements, the behavioural regularities in the operation of the individual elements and the connections existing between the elements.

The dishes piled upon one another in the sink do not form a system. The dishes are lying there as the housewife has left them. Their movement shows no regularity that would lend itself to description. Some of the dishes may touch each other but there do not exist between them any characteristically recurrent relations or flows. Thus, we have here a set without any characteristic structure.

The solar system, on the other hand, is a genuine system. Its elements are the sun, the planets and the moons of the planets. Every element has its characteristics motional and behavioural regularities which astronomers are in a position to describe with the greatest precision by means of mathematical formulae. There are various types of reaction between the elements: gravitation, radiation, etc.

Human organism is also a system. Its elements are the cells (or probably the separate parts within the cell: the nuclei, cell walls, etc.). The functioning of the cells is characterized by regularities. The cells are connected with each other by material flows, electrical impulses, chemical reactions.

All examples show that when dealing with a system we always analyse the relationships and the interactions between the "whole" and the "parts". (Oscar Lange has given his work on economic cybernetics the title "The whole and the parts".)

Let us now move closer to our subject, the economic systems theory. Every actually existing economy constitutes a system in the sense of the definition given above. Its elements are the productive units (e.g. enterprises, firms), the consumption units (households), the various institutions of administration and information (e.g. planning office, the ministries, banks, statistical office, market research institute, etc.). The characteristic activities of the individual elements usually follow certain regularities. This does not mean any strict determination, only that they react to definite impulses with some stochastic regularity. For example, the household is characterized by definite consumption habits which depend on several factors such as the income, age and social position of the household members, prices, fashion, cultural influences, and so forth.

Between the elements of the economic system there exists a variety of relationships. These are partly material flows (e.g. the transfer of commodities

from one enterprise to the other, or to the consumer), and partly information flows (prices and orders, instructions and proposals, reports and plans flowing back and forth between the elements of the economy).

Economic systems theory can be clearly separated from the disciplines dealing with other systems. Its subject is the system of social production and consumption, the mechanism regulating production and consumption.

The question now poses itself, whether "economic systems theory" is not simply a new, fashionable term to denote the old discipline of economics.

The answer is in the negative. Economic systems theory is but *one* branch, one domain of economics and does not embrace economic science in its entirety. Another branch of economics is *macroeconomics* which deals with global aggregates of the national economy as a whole and with their inter-relations (e.g. the connections between total national income, total investment and total consumption). To use the term employed above, it treats the economy *as a whole*. A further branch is *microeconomics* which analyses separately the firm or the market or the consumer. Here, the subject of investigation is some *part* of the economy. Both approaches, both traditional branches of economics have their *raison d'être*. Economic systems theory is, however, separate from both, wishing to deal, as has been pointed out above, with the *relationship between the whole and the part*.

Let us point to another fact that illustrates the distinction of economic systems theory from the other branches of the major discipline group of economics. An important sphere of interest of our theory is the study of the material structure of the economy, the description of the production-technical relations between production and consumption. It is generally known, e. g., what helpful tools are provided for the description and planning of the economy by the Leontief models describing the inter-branch input-output relations. However, the attention of economic systems theory is centred not on this but on the question, how the *control* of material processes is taking place, what information serves this purpose, what are the characteristics of the decision processes of economic organizations, and so on. The Leontief model describes the "body" of the economy; the main interest of economic systems theory, on the other hand, is directed towards the "soul", "brain" and "nervous system" of the economy.

For the sake of illustration, let us quote but some of the questions to which economic systems theory is expected to answer.

— Which are the constituent elements of the economic system? What organizations and institutions are functioning within the system beside the basic units of production and consumption, i.e. the firm and the household?

— By what are the elements of the economic system motivated?

— Which are the factors under whose effect economic decisions come about in the elements of the economic system? How does the preparation and

making of decisions take place; what are the characteristic "algorithms" of decision-making?

— What types of information are flowing between the elements of the economic system? The classification of information: which is the information structure characterizing the system?

— Into what sub-systems is the system divided? (E.g. the market or economic planning, etc. is functioning as a separate sub-system.)

— What types of vertical connection, subordination and superordination relationships, hierarchical controls are formed within the systems?

— What are the adaptive properties of the systems; how do the elements adapt to each other and to changes in the environment outside the system?

— What are the selective properties of the system; how do the various elements of the system come into being, grow, wear away and cease to exist?

Economic systems theory has to give an answer to these and other similar questions primarily on the basis of experience and the observation of reality. It is on the basis of the observation of reality that it has to work out its mathematical models and to establish the laws particularly characteristic of the wider groups of concrete economic systems.

The place of general equilibrium theory in the history of economic systems theory

Considering the body of knowledge as a *whole*, economics has already produced a great number of works of lasting value. However, in the *narrower* branch we are discussing here, in economic systems theory, only very few major works have been published so far. Literature is particularly poor in works treating economic systems theory in a strictly closed logical manner, on the basis of mathematical models. Actually, there exists only one theoretical school which can be rightfully considered as meeting these requirements due to its scientific method and strictly axiomatic treatment of the subject: the general equilibrium theory. This school of thought (which will be called in the sequel shortly the GE theory) deserves special attention and thorough study by those interested in the development of economic systems theory.

The pioneer in the field of GE theory was Leon *Walras*. Since the publication of his work of outstanding importance, hundred years have already elapsed. [11] His theory enjoyed a new revival in the 1950's, primarily in the works of *Arrow* and *Debreu* [1, 2, 3]. These authors and their followers — mainly American mathematical economists used the most up-to-date mathematical tools (the theory of sets, fixed-point theorems, etc.) to provide a logically unimpeachable proof of certain theorems which *Walras* formulated in a somewhat vague form and did not prove quite precisely at the time. They describ-

ed the theory in what would be called axiomatic form. This means that they postulated some highly general *assumptions*. They did not prove the justification of these assumptions (it is in this respect that they would consider them as "axioms"), they only required that their formulation should be mathematically well defined and unequivocal, and that there should be no contradiction between the axioms. Now, once these axioms are given, the *theorems* can be deduced from them in a strictly deductive way by mathematical methods. Within the given theoretical framework, if the postulated axioms are accepted, the logical truth of the theorems will be mathematically strictly proven.

Since the first path-breaking works of Arrow and Debreu, hundreds of studies have been published on the subject, papers which — moving essentially in the same sphere of thought — further refined the mode of treatment, lifting some all too strong assumptions and extending the original Walras-Arrow-Debreu theorems to the more general cases.

The GE theory can be rightfully classified as belonging to the domain of economic systems theory. In its models the economic system consists of elements: producers (firms) and consumers (households). Each individual element is behaving in accordance with some characteristic regularities: producers would maximize their profit function and consumers would maximize their utility function. The elements are connected partly by real flows: products and material services released by the producers to each other and to the consumers. There are also information flows. Price constitutes the basic information. The system's production and consumption activities are regulated by the prices.

With the aid of its models the GE theory seeks an answer primarily to two questions to which also its theorems are relating. One group of questions concerns the conditions of *equilibrium*. (Hence the name of the school.) What is the condition for the supply (product output) of producers to equal the demand (product input) of productive users and consumers? What are the further conditions to ensure stability of this equilibrium and that, if once upset, it should be restored again? The other question group concerns the conditions of *optimality*. Here, modern GE theory employs a special optimality criterion (a wider, less restrictive one than that usually employed in the 19th century), called Pareto optimum. The system is in the state of Pareto optimum if no other state exists where no consumer would be worse off but at least one would become more satisfied. As a matter of fact, if the latter were the case, it would be worth-while to shift the system from its former state; nobody would suffer and one consumer would benefit. A system has not one single state of Pareto optimum but several ones; we are dealing here with a whole set of Pareto optima. Now, the GE theory seeks an answer to the question, what is the condition of a Pareto optimum.

At the same time, it will raise questions concerning the control mechanism (in practical terms, the price system): what are the properties of the price system which adjust the economic system to the state of equilibrium, and the state of Pareto optimum.

Unquestionably, the GE theory represents one of the peak successes in economics, and constitutes one of the most important chapters of economic systems theory in the strict sense of the word. No one dealing with economic systems theory can afford to dismiss it with some superficial critical remarks; it has to be approached with profound interest and scientific objectivity. And — as we have endeavoured to make clear in the first chapter of the present study — it is the *duty* of economic science to work out a practically applicable economic systems theory of high standards; the pertinent questions are posed by history itself, and by the parties, governments, leading economic politicians giving voice to the requirements of history. It is this fact that lends great significance to the criticism of the GE theory.

General viewpoints of a criticism of the GE theory

The criticism of the GE theory is a highly intricate task. The author has undertaken this criticism in a new work of several hundred pages entitled *Anti-Equilibrium*. [8] It is impossible to present all essential critical remarks within the framework of the present short study. Here, we have to confine ourselves to some comment.

Before entering upon the task of criticism, two viewpoints should be clarified.

One general viewpoint of criticism concerns the question, how should the GE theory be interpreted; as a *descriptive* theory explaining economic reality, or as a *normative* theory which puts forward suggestions as to how an economic system should be arranged. As a matter of fact, a great number of economists would retort to the accusation that the GE theory was not realistic enough: true, but it is intended to describe the situation not as it actually *is* but as it *should be*.

What is needed is a criticism of both interpretations which cannot be separated from each other. The descriptive interpretation is the primary one. Is the GE theory suited to describe and explain reality? If not — if it is operating with unrealistic assumptions (beyond the simplifications and abstractions which cannot be avoided in theoretical discussion and mathematical models), then there is not much hope that it can be of any use in the normative sense either. No normative theory can be taken seriously which cannot be carried into practice.

In the human organism, we have two of several organs: two kidneys, two lungs, two eyes, two ears, two legs and two hands. This serves also the

purpose of operational safety. But what would we think of the scientist who presented the following normative theory:

"Let us assume that human organism is capable of taking in two of every organ. Let us, therefore, have in future two hearts." The introductory assumption of the proposal is, in the descriptive sense, absolutely unrealistic, at least according to the present state of science. Accordingly, the normative proposal — logical as it may be from the viewpoint of "operational safety" — is itself fully unrealistic. The functioning of the human organism has its biological laws, and intervention has its natural limits which cannot be arbitrarily exceeded. Similarly, society and the economic system, too, have their objective laws which cannot be disregarded when giving advice. Intervention and the deliberate shaping of society have their bounds which must be fully known — on the basis of descriptive, explanatory theories — if we want successfully to intervene in the operation of the social organism.

It must be admitted that bold intervention may sometimes be successful even without the preliminary thorough knowledge of reality; yet, this cannot be considered as a general rule of action. To take again the example of the human heart: only when medical science had become thoroughly acquainted with the functioning of the heart on the basis of a most carefully tested descriptive theory, has it become possible to carry out cardial operations. And the typical complications following heart transplantation occur precisely because the mechanism of immune reaction is still not sufficiently known and has as yet no mature descriptive theory; as a consequence, in the majority of cases the organism rejects the foreign heart.

Marx has emphasized that it is not enough to know and explain the world — we must also be able to transform it. Today, this advice is still valid. However, the converse warning may also be timely. It is not enough to transform the world — we must also become acquainted with it, understand and explain it, in order to be able to change it efficiently and reasonably, with the least possible sacrifice.

Having thus dealt with the problem of "descriptive *versus* normative theory", another general viewpoint of criticism remains to be clarified, namely, whether the GE theory should be considered exclusively as a model of the capitalist economy and criticised as such, or whether it aspires at a higher degree of generality and should be considered as a *general* theory of economic systems.

Walras, when formulating his theory, had certainly nothing else in mind than the atomistic market of his era, the capitalist economy of the 19th century. However, several modern representatives of the theory would go beyond that and apply the theoretical framework of Walras also to socialism. The Italian economist *E. Barone* was the first to show that even the market of a "collective society" could operate on the basis of the Walras equations. [3] Later on, in

his now already classic paper on socialism, Oscar Lange continued and further elaborated Barone's train of thought. [9] He has shown that the central planning office of a socialist planned economy should be able to fulfil the same functions as the atomistic market of Walras' world: to feel out, by the method of trial and error and following the signals of excess demand and supply, the equilibrium prices and to adjust thereby the operation of the economic system.

On the above basis, it is justified to pose the question, whether the GE model is suited to become a *general, common* model of the modern commodity-producing economic systems based on the division of labour (with no regard to the prevailing ownership and power relations).

The assumptions — Criticism of the model

The critical remarks will be grouped around four problems.

1. *The stationary character of the model.* The GE theory starts from the following assumptions:

— There is a given definite set of products which does not change over time. This can be also interpreted as meaning that there is a permanent "product list"; producers would produce and consumers would consume only such products as figure in this permanent list.

— There is a given definite set of production technologies which does not change over time. When drawing up the production programs, only such technologies as figure in this set can be taken into consideration.

— The consumer has complete preference ordering over the set of consumption alternatives. This question will be dealt with in paragraph 2. below; here, the temporal aspect of the assumption should be only emphasized. According to this, the tastes and preferences of the consumer do not change over time and are given from outside, independently of the operation of the economic system.

The above assumptions of "stationarity", the supposition that definite economic phenomena should be constant over time, exclude beforehand, at the time of constructing the model already, from the sphere of investigation the basic problem of life, namely *change*. The GE theory stresses the question, how can given resources be allocated in a way that they shall best adjust to the given tastes of consumers.

The actual economic systems are characterized by permanent change. Old products would disappear and ever newer ones make their appearance. Where is detector radio in the age of the transistor, phonograph in the era of the tape recorder, double-deck aircraft in the jet age?

With the changes in the list of products and in technology, tastes and requirements also change. Tastes, requirements, "preference ordering" are not given from outside and determined once and for all; they are social products themselves, depending partly on production which is ever renewing and changing composition, and partly on other factors.

GE theory is not capable of explaining the social mechanism which brings about this continuous change. Yet, to understand this would be particularly important to the socialist countries which have many difficulties and can hardly be satisfied in this respect with the operation of their own concrete systems.

2. *Optimality.* The GE theory assumes that every element, every "cell" of the economy is optimizing, that their behaviour can be described in a form that they are striving to attain a conditional extreme value, a maximum of some function. The firm is supposed to maximize the profit function and the consumer the utility function.

Let us take first the firm. We do not wish to get involved in the debate whether it is true in the empirical sense that the interest of the capitalist firm consists unequivocally in maximizing profit (and only profit). Nor do we wish to discuss the question whether it is expedient in the normative sense to consider the increasing of profit as the only indicator to be maximized (either in the case of the capitalist economy where profits flow to the shareholders and into the treasury, or in that of the socialist economy where profits are shared mainly by the state budget and the management and collective of the enterprise). As regards the assumption of "maximizing the profit function", it is not the first but the second part of the assumption that we wish to discuss: *is the firm really maximizing?*

In our opinion, the terms "maximizing" and "optimizing" do not properly describe the actual behaviour of a complicated organization. The firm, be it a capitalist or socialist one, is an ensemble — a coalition, as it were — of groups which are more or less in conflict with each other, the scene of constant clashes of interests. Although conflicts are inevitable, the fact that the firm is, after all, operating and producing proves that some compromise has been found, some solution which was under the momentarily prevailing internal and external power relations acceptable to all. The firm's motivation is complex, with a variety of motive forces playing a part. However, in the final analysis they have some common origin.

The above is not meant to eliminate the differences between the socialist and capitalist firm. On the contrary, it was our endeavour to provide a more adequate and precise conceptual apparatus to describe these differences. Phrases such as "the capitalist firm maximizes profits" and "the socialist firm maximizes its contribution to the fulfilment and overfulfilment of the plan" are rather meaningless. The capitalist firm has a number of "aims";

e.g., to expand, to capture the market, etc. Within the firm, workers want higher wages, and this fact reacts in the final analysis on the firm's collective behaviour (prices, etc.). And in the other case, with a considerable part of socialist firms (with Hungarian enterprises among them), interest in profits plays a significant role, and there is no short-term plan to be overfulfilled. The behaviour of the firm is more intricate and complex, and cannot be described by arbitrarily selecting some magnitude "to be maximized".

The fact that we dismiss "maximization" and "optimization" as the model of the firm's collective behaviour does not mean that we are denying the existence of regularities in the latter. It is possible to describe the *response functions* of the firm's behaviour. The argument, the independent variable of the response function is composed of the impulses received by the firm, from social effects, information, plan instructions etc. to the social expectations, prices, orders received from trade partners, etc. The dependent variable of the response function is the productive activity, output, and the technology employed in production. There are differences between the response functions of the capitalist and socialist firms: they are sensitive to different impulses and react differently even to identical impulses. But there may be differences between the response functions of Bulgarian, Hungarian and Yugoslav socialist firms, too.

It is a strong assumption to claim that the behaviour of the firm can be described by a stochastic response function. (And yet, some assumption of this type must be employed to enable economic systems theory to construct models of economic systems.) However, this is a much less restrictive assumption than to say that the firm's response function has a special form, that of an optimization algorithm. The assumption of optimizing behaviour is considerably narrower and unrealistic.

The same criticism may be applied to the description of consumer behaviour. The assumption that the consumer has constant and complete preference ordering (or, what is theoretically equivalent with this assumption, that he has a utility function he maximizes) means, first of all, that the consumer is strictly consistent in his decisions following one another in the course of time. This is expressed by what is called the transitivity postulate in the theory of preference ordering. Having once preferred A to B, the consumer is not expected to choose at some other time B in preference of A (provided that there was no change in prices in the meantime in favour of B).

Things, however, look different in reality. The consumer is a human being; he may hesitate and even err. If he behaves in a truly rational manner, he will not follow the rigid "rationality principles" of the theory described above and conform with the transitivity postulate but will correct his error; if he finds out that B is better after all, he will choose it the next time.

The real problem, however, arises in connection with what has already been mentioned, namely with changes over time. In the case of a whole range of basic decisions, the consumer is not always faced with the identical decision problem. It is not even possible to raise the question whether his behaviour is consistent in the choice between A and B, since today he may have to choose between A and B, but tomorrow the choice may be between C and D, and in a few years between Y and Z.

It would be useless to pose the question whether the theory of preference ordering is "true". The real problem consists in the fact that — at least as far as the major part of decision series is concerned — it cannot be empirically tested, i.e. it is an *empty* theory. Its application will, accordingly, not lead to substantial theoretical results but at most to vacant logical exercises only.

Nor would it have, therefore, any purpose to pose the question whether the consumer is acting according to the criterion of „optimality”, and whether his individual decisions are consistent with one another. Instead, the question should be investigated, what does consumer decision depend upon. In the case of the consumer, too, we will have to describe stochastic response functions on the basis of empirical observation: what are the factors influencing formation of the consumption pattern of various social strata in various countries; to what extent is this consumption pattern influenced by prices and incomes, and to what extent by other factors such as imitation, cultural effects, industrial supply and so forth.*

3. *Convexity*. In most of the models of GE theory it is assumed that the set of feasible production programs is convex. It is not our intention to discuss here in detail what this exactly means. Let us instead raise a single question only. The assumption of convexity implies the exclusion of what is called the economies of scale.

In actual economic systems, the phenomena of diminishing, constant and increasing returns to scale can be equally met. It would be meaningless to raise the question, which of these should be considered "more important" or "more frequent". This depends partly on the nature of the decision problem. When, with some given volume of fixed capital and production capacity we have to choose from among various production volumes, beyond a certain critical point the phenomenon of diminishing returns will usually present itself: differential costs will increase. With a given technology, the return of some non-increasible resource of given quantity (e.g. some natural resource) will in the long run decrease. At the same time, there is another phenomenon of enormous importance. In the case of a long-term decision, when a whole new plant or new industrial branch is set up, the increase in plant size will be accompanied by comparative economies. The extent of the economies depends

* This criticism is related to the critical remarks offered by R. Hoch in 1960–62. See [7].

on the nature of the branch concerned; in the textile industry it may be negligible, but in the chemical and automobile industries or in metallurgy it may be enormous.

Economies of scale constitute a technical phenomenon of industrial organization. It is, nevertheless, the key to such important social phenomena as concentration which involves in certain branches a decrease in the number of firms and the emergence of oligopolies.

There still exist certain branches more or less characterized by atomistic organization, and it is appropriate that economic systems theory should *deal also* with such cases. It is, however, one of the shortcomings of the GE theory that it disregards economies of scale and thus neglects a basically important group of concentration phenomena.

4. *Uncertainty and information structure.* The GE theory usually starts from the following assumptions:

a) The economic decision-maker knows exactly his own decision alternatives, knows exactly all consequences of his feasible alternatives and has an exact idea of his own preferences. It is in the knowledge of these exact informations that he takes his (optimal) decision.

b) All information "inputs" determine *unequivocally* the decision. The decision problem can be formulated as a mathematical problem the solution of which is unique.

c) The decision is carried out in an exact manner.

All this can be summed up by saying that in the world of the GE theory there is no uncertainty. Unfortunately, in the real world there is.

Ad a) The decision-maker's knowledge of his own possibilities and of the expectable consequences of his decision alternatives is rather uncertain. Moreover, he has usually no exact idea of his own interests, tastes and desires either.

Ad b) The decision's dependence on the information "inputs" is not deterministic but only stochastic. In the case of a given decision-maker some definite ingoing impulses may be responded to not by a single type of reaction but by a whole set of various reactions. True, the various elements of this response set will not occur with equal probability. There are more and less probable reactions. This is one of the reasons why we are speaking of a stochastic response function. However, the statement that the response function is stochastic in character is much less restrictive than stating that it is deterministic. Thus, e.g., when the price of some commodity is reduced, the reaction will be divided: some will increase their consumption of it to a greater, some to a lesser extent. Others again will not change their consumption habit, and there may even be snobs who will now decrease their consumption because the commodity in question has become too "common". We have here a characteristic distribution of the reaction; within that probability distribution

there may, of course, be "clusters" (in our example, a definite increase in consumption), but the response will not be unequivocal.

Ad c) It is not certain that the decision will be carried out exactly; realization may differ from the intention.

The uncertainty which dominates the economic system is due to the fact that the future behaviour of the world outside the system, of its environment, cannot be exactly foreseen; we have only more or less reliable prognoses and expectations in this respect. Another explanation is that everyone is dependent on everyone while one decision-maker does not know exactly what the other will do in the next moment.

As a result of uncertainty, the following phenomena can be observed in the economic systems:

— The importance of collecting information is steadily increasing. This includes the gathering of information concerning both the world outside and the expectable behaviour of the decision-makers. The number of those engaged in gathering and processing information material has enormously increased. The technique of this activity is rapidly developing; let us think only of the telephone and the telex, the punch-card machines and the most important new device, the electronic computer. A number of institutions specializes in the gathering and processing of information and in the control activity based on the latter. These organizations are missing from the world of the GE theory where only productive firms and households exist.

— The independent decision-makers may *harmonize* their decisions. It is not absolutely necessary to watch the market in order to find out about the decisions of others; these can also be harmonized beforehand. Private ownership does naturally hamper this harmonization; it is only under the conditions of social ownership that it can be fully realized.

— The flow of information is multiplied. The decision-maker wishes to obtain multiple information about one and the same event; partly information following upon each other in the course of time (preliminary and ulterior information) and partly information deriving from different sources. One information (uncertain in itself) is checked by another one (equally uncertain in itself). This is similar to the phenomenon called redundancy in communication techniques and the related mathematical information theory. If there is some "noise" in a communication channel and we want the message to reach the addressee with adequate certainty, we will have to transmit more information than in the case of a noiseless channel.

— Not only the flow of information but the whole control system is multiplied. Sub-systems develop which operate side by side, complement each other, correct each other's errors, and control collectively the operation of the system. Several simple actions of the firm are controlled by such primitive signal systems as e.g. the observation of own stocks. If the stock increases,

production can be somewhat decreased, if they decrease, it can be somewhat increased. At the same time, other activities of a higher order are influenced by much more intricate signal systems and regulators of a higher order; e.g. in a socialist economy basic investments are allocated on the basis of the decisions of the planning office.

All that has been said in the preceding paragraphs indicates at the same time that modern economy has become a system of such complexity as can no longer renounce to *planning*. It is one of the important historical missions performed by socialism to create favourable conditions for the development of planning by abolishing business secrets, removing the obstacles to information gathering caused by private ownership, facilitating preliminary harmonization of actions and enabling more deliberate central control.

The GE theory proves that an economy is capable of operating under the most simple control and signal system — the price system. The atomized market economy is, accordingly, extremely *information-saving* in character. But in order to prove this, the GE theory employs a number of highly restrictive and partly unrealistic assumptions of which not the least in importance is its disregarding uncertainty. If we admit, on the other hand, the existence of uncertainty, it will be immediately clear that to build exclusively on price signals is not a thrifty but a miserly treatment of information. Reliable control requires a multiplication of information and control.

Here we have an example to illustrate what has been said in the preceding chapter when dealing with descriptive and normative interpretation. *Descriptive* economic systems theory must arrive at the statement that a modern, highly intricate economic system is unable to operate on the basis of a simple signal system (consisting exclusively of price signals). Once this is established, the absurdity of the normative advice suggested by the GE theory will also become obvious: it is not “information-saving at any price” that we must recommend to the economic system but a reasonable and safe multiplication of the control and information systems. In the language of practice this means that what is needed is a combination and collective application of long- and short-term planning, the harmonization of the firms’ interests and an operation of the market based on price and stock signals.

Equilibrium and “disequilibrium”

As pointed out above, the theorems of the GE theory are centred on two problem groups: the conditions of equilibrium on the one hand and optimality on the other. In the present paper, we are dealing with the problem of equilibrium only.

The Walras school defines the concept of static equilibrium as a state of the system where no participant has an interest in changing his position,

his behaviour. Should he change, he would be worse off than in the state of equilibrium.

Let us start with the normative approach. There is a phrase widely used in Budapest: "And is this good for us?" Is it good for any economic system when its participants stand at one point, frozen into immobility for fear that any change would put them into a less advantageous position than before.

It is not the relative satisfaction of all those participating that constitutes the precondition of change and progress. On the contrary, it is dissatisfaction, restlessness, tension and ambition that stimulates the process. It is not equilibrium that is desirable but the deviation on intention and momentary realization, of aspiration and success. In the present author's view, disequilibrium is preferable to equilibrium.

Turning now from the normative attitude to the description of actual economic systems, we will find that the typical state is not equilibrium but constant deviation from the latter. Either there appear surpluses, over-saturation, idle resources in individual branches or in the economy as a whole. Or, conversely, shortages present themselves. Both states of disequilibrium have advantages and disadvantages. In the "surplus economy", the very existence of surpluses and idle resources, the mass of advertisements courting the buyer's favour lead to losses. But, at the same time, this situation undoubtedly provides considerable incentive to genuine innovation, since the novelty character of the product and the arousing of new needs prove to be the most effective method to conquer the market. The "shortage economy" leads, on the one hand, to a maximum, one may say, excessive, exploitation of resources and capacities. There is no need for publicity, everything can be sold without that. On the other hand, there is no strong incentive to introduce new products at the cost of additional worries and risks, since even the obsolete old products can be easily disposed of. There is indifference to the qualitative requirements of the buyer. It would exceed the limits of the present study to analyse the question, what type of economic policy will lead to one stable state or the other. In this short summary of the critique of the Walras school suffice it to emphasize the importance of studying the problem. Pedantic investigation of the conditions of static equilibrium appears sterile when the genuinely relevant question is the description and explanation of the economic system's dynamic disequilibrium and the analysis of its consequences.

On surpassing the general equilibrium theory

When speaking of the relationship between a theory of social science on the one hand and politics on the other, three questions should be distinguished.

1. What is the theory's own political content? Has it any such content

or is it only its interpreters who think to discover in it such a content? When studying this question, we most rigorously confine ourselves to the study of the *theory itself*, independently of the environment where it has been formulated and propagated.

2. What are the possible political *interpretations* of the theory? Here, we are already looking for the theory's *ideological role*.

3. What are the political objectives those formulating and developing the theory have in mind? This leads to the *political and sociological* investigation of the genesis of the theory and of the behaviour of its authors.

To question 1: in my opinion, the GE theory is politically indifferent and sterile. Its strictly axiomatic form does not contain any unequivocal political interpretation. The theory's axioms and basic assumptions may be good or bad — but they are politically indifferent. If its axioms were workable and useful, then they could be accepted in Greece as well as in Sweden, in Albania as well as in Yugoslavia.

To answer question 2: the GE theory admits of a *variety of political interpretations*. It may constitute the ideology of a strictly centralized special "market socialism" (O. Lange). Models closely related to the GE theory may serve to justify the hypothesis of a strictly centralized socialist economy planned by computers, as described by some Soviet authors. But the same model may, according to another interpretation, serve as the ideology of a completely decentralized and liberal capitalist "free-market" economy (see e.g. Röpke's works). The fact that all these interpretations can rightfully refer to the GE theory lends support to the answer given to question 1 about the theory's political sterility.

To answer question 3: the *political motivations* of those working out and applying the theory are *highly heterogeneous*. It is a historical fact that the theory of marginal utility, marginalism and the GE theory have made their appearance as the opponents of the English classical economists and of Karl Marx. Several representatives of these trends have combined the GE theory concepts with pro-capitalist and anti-socialist interpretations, using e.g. the theory of perfect competition as an argument against socialist planning.

Others, again, have made use of this system of ideas in the interest of other political viewpoints; either to justify the "moderate" reforms of the capitalist economy (in the framework of what is called "welfare economics") or to substantiate some explicitly socialist concepts (O. Lange as well as some Soviet mathematical economists).

The GE theory must not necessarily be termed anti-socialist, notwithstanding the role played by anti-socialist concepts in its coming into being and development. From the purely *political* point of view, its axioms and ways of posing questions could be acceptable both to Marxists and non-Marxists.

It is not for political reasons that the GE theory should be rejected but because it cannot be properly used. It constitutes *an economic systems theory that is not workable*.

Up to the present, the GE theory has been criticised mainly by Marxist economists engaged in the history of theory and in the critique of bourgeois economics, and not by those whose interest is concentrated on the socialist economy and on the constructive development of economic systems theory. As a result, the critics' only concern was to disclose the anti-socialist roots of the theory and to emphasize its bourgeois and pro-capitalist interpretations. Although this was and still is necessary, this work is in itself inadequate. Socialism will hardly derive a lesson from the statement that this or that economist has used Walras' models to defend capitalism. *Political* criticism is, therefore, not enough. The adherents of socialism who have come to power need a *constructive* theory, an economic systems theory that *goes beyond* the Walras school. After a careful, thorough, objective and matter-of-fact revision of the assumptions, conceptual framework and theorems of the GE theory, a systems theory must be created which lends itself for a better description of the operation of economic systems and enables the drawing of more realistic conclusions. This is a task which will require the creative work of whole generations of economists.

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ТЕОРИЯ ЭКОНОМИЧЕСКИХ СИСТЕМ И ТЕОРИЯ ОБЩЕГО РАВНОВЕСИЯ

Я. КОРНАИ

Наша эпоха задала экономической науке новый вопрос: как сознательно формировать экономические системы, как детально планировать их и как устраивать механизм их действия. По мнению автора, на эти вопросы экономическая наука сегодня еще не может дать ответа, обоснованного теорией. Это отставание должно быть преодолено «теорией экономических систем».

До сих пор имеется лишь единственное сложившееся теоретическое направление теории экономических систем — это теория общего равновесия. В своей статье автор разverteвывает некоторые положения критики этой теории:

— Предположение неизменности определенных экономических явлений во времени не позволяет изучить изменение, которое является основной проблемой жизни.

— «Оптимизация» и «максимизация» не могут быть приемлемыми предположениями для описания функционирования, действительного поведения сложных экономических организаций, так как они не отражают множества действительных движущих сил, мотивирующих деятельность предприятий.

— Предположением выпуклости исключается случай экономии, достигаемой вследствие больших производственных масштабов (economies of scale), представляющей собой связанную с концентрацией группу явлений фундаментального значения.

— Теория общего равновесия строится на простой системе регулирования и сигнализации, так как игнорирует момент неопределенности. В действительности же существует неопределенность, поэтому в интересах надежного регулирования требуются многократные информации.

Для создания теории систем, которая будет пригодна для лучшего, более реального описания действия экономических систем, и для получения соответствующих выводов потребуются созидательный труд целых поколений экономистов.

J. WILCSEK

MODERN SMALL AND MEDIUM-SIZED FACTORIES IN HUNGARIAN INDUSTRY*

Taking into account the overcentralisation of industrial production in Hungary, the author suggests coupling concentration processes with the development of up-to-date small and medium-sized plants in order to raise the efficiency of large-scale plants; particularly in some branches of the engineering, and metal-working industries as well as in the textile and food industries.

Prior to Hungary's liberation from fascism in 1945, industry in the country was characterized by a comparatively high level of concentration. Since industrialization began later than in Western Europe, in many branches of industry — precisely because they were late in being established — the sizes of factories were comparatively favourable in the beginning. Small-sized and handicraft (artisan) industry were also of great importance.

However, as a result of slow capitalist development the comparative advantages of favourable concentration gradually decreased. At the same time, the progress of technology led to the shrinking of several trades in the small-sized and handicraft industries.

In the 25 years gone by many measures were taken with the goal of increasing concentration and specialization, and through this, to improve economic efficiency. In contrast with the spontaneous processes of capitalist economy, in the framework of planned economy this concentration and specialization developed under the effect of conscious, central measures.

A marked process of centralization took place following nationalization. Concentration of production affected both large-scale and small-scale plants. Concentration was aided by mergers of factories, enterprises, and the amalgamation of the majority of artisans into cooperatives. However, in many cases this was not accompanied by concentration of production.

The measures taken in the early 1960's provided a tremendous thrust toward mergers primarily administrative in nature, establishing the so-called nation-wide large-scale enterprises. An important goal in establishing these organizations was concentration of forces for the acceleration of technological

* Based on a paper presented to the International Industrial Conference in Budapest, in April, 1970.

development, for the improvement of economic efficiency, the ensurance of better organizational conditions for increasing concentration and specialization, and last but not least, for facilitating central control by a large-scale reduction in the number of enterprises, and by the liquidation of medium-level management bodies.

Efficiency of concentration

Thus, organization centralization was intended also to aid concentration and specialization of production. In many branches of industry mergers of enterprises were horizontal in nature, meaning that enterprises not related to one another by production were united into a single organization, frequently in a manner establishing enterprises which, accordingly, enjoyed monopoly positions in a branch of industry or trade. Horizontal mergers are expedient if they go together with the specialization of the merged factories and, accordingly with the concentration of the forces of production.

There were also some vertical mergers. Hopes had been primarily to achieve better cooperation within the large-sized enterprises established like this. Frequently the mergers of formerly independent enterprises in vertical relation with one another, reinforced the emergence of a monopoly situation, since the units of these enterprises eliminated — in order to better meet their own internal demands — the production of some items manufactured earlier.

Also further measures increased concentration and specialization. One of the most important of these was a government regulation which gave the enterprises monopoly rights for the coordinated development and production of certain groups of products while also obliging them to supply the market with these goods.

We will not go into the special problems of this monopoly situation, nor into the questions of economic competition. We would only refer to our article on the subject, published in 1967, where we concluded that competition requires more than simply organizational conditions. Disequilibrium irrespective of the number of producing and distributing enterprises — results in the supremacy of the seller. However, it is beyond debate that organization does have an influence on competition, and under monopoly organization the creation of equilibrium conditions is more difficult [1].

After the massive reorganization, Hungary had the most centralized industry among the socialist countries, as shown in Table 1.

The table shows that in Hungary at the date of the survey 9.7 per cent of the workers were employed in enterprises with a staff of 500 persons or less, while in the Soviet Union the figure was 24.2 per cent. In Hungary 34.5 per cent of the workers were employed in enterprises with staffs of over 5000, while the corresponding figure for the Soviet Union was 22.3 per cent. Per-

Table 1*Distribution of workers by the size of workers' staff in CMEA countries in 1965*

Country	Percentage of workers in enterprises with				
	Up to 500	501—1000	1001—5000	5001— 10,000	10,001— and over
	workers				
Bulgaria	31.8	20.9	39.2	4.3	3.8
Czechoslovakia	7.2	8.1	55.4	16.7	12.6
Poland*	21.2	16.5	47.2	11.9	3.2
Hungary	9.7	7.9	47.9	20.0	14.5
German Democratic Republic	42.7	16.8	29.8	8.2	2.5
Romania	13.6	20.2	51.9	8.8	5.5
Soviet Union	24.2	16.5	37.0	11.1	11.2

Source: Az ipar koncentrációja. (Concentration of industry.) Statisztikai időszaki közlemények. Budapest, 1967. Volume 98. Központi Statisztikai Hivatal.

* 1964 data.

haps it is unnecessary to prove separately that, considering the size and the level of industrial development of the two countries, the centralization of Hungarian industry is exaggerated.

The process of centralization can only partly be explained by the wave of amalgamation which took place in the capitalist economy, and is essentially still under way today. Capitalist amalgamations are consequences of the concentration and centralization of capital, and generally take place amidst the struggle of competition, while they serve to end competition, to ensure markets, and to increase economic influence. Today capitalist amalgamations are primarily characterized by their assuming international dimensions.

The socialist state ensured the maximum attainable degree of capital concentration and centralization by the expropriation of capital and the establishment of social ownership. In Hungary central economic considerations must decide precisely on which enterprise organizational frameworks are optimum and, in accordance with this, on the justified degree of centralization or decentralization. Decentralization does not amount to modifying the principle of unity of social property, but only means a sensible division of spheres of authority to take decision. The socialist state itself decides on where and to what extent enterprises should be combined or separated and thus it can change enterprise organization — independently of the spontaneity of the economic forces at play. If it does so, it is in fact exercising its right as owner. It is natural that the state, as owner, endeavours to make decisions on the basis of economic rationality. Its decisions are also influenced by the system

of economic management. The management system emerging in the course of the Hungarian economic reform, and the earlier established organization structure of the enterprises are not completely in harmony with one another, for in many fields the organization restricts the development of the market mechanism. However, in some fields preservation of the large enterprise units is still justified.

Centralization, nevertheless, does not by itself lead to concentration of production. In spite of an exaggerated administrative centralization, it is still possible that concentration and specialization of production are not satisfactory. A comparison of industrial plants (and not of enterprises) may supply data supporting a study on this subject, taking note of the fact that, irrespective of the problems involved in the comparison of international data, *the distribution of the labour force alone only provides opportunity for drawing very limited conclusions*. The Central Statistical Office completed a comparison with several of the most highly-developed capitalist countries according to the distribution of the labour force by industrial plants (not enterprises), and received the results shown in Table 2.

Table 2

Distribution of workers by the size of workers' staff in Hungary and selected Western countries

Country	Percentage of workers in enterprises with				
	50 at most	51—100	101—500	501—1000	1001 and over
	workers				
Belgium	21.5	11.9	30.1	12.9	23.6
United States**	14.1	10.2	31.3	12.8	31.6
United Kingdom**	9.6	8.8	32.3	13.9	35.4
Finland	19.0	12.9	36.9	14.3	16.9
France	23.4	12.8	32.2	11.0	20.6
Japan**	31.2	13.5	26.1	9.4	19.8
Canada**	20.6	12.9	34.2	13.0	19.3
Hungary*	5.1	5.3	21.7	16.9	51.0
German Federal Republic	9.6	8.7	28.7	12.3	39.8
Italy	23.7	12.2	25.2	8.6	30.3
Sweden	22.0	12.8	33.7	13.0	18.5

Source: see Table 1.

* Hungarian data relate to 1965, those for the capitalist countries stem from the nearest periods available (1958—1964).

** Excluding mining.

These data would seem to prove that in Hungarian industry not only is the degree of centralization high but so is the extent of production concentration, apparently the highest in the world. However, the distribution by employment is in itself insufficient to judge concentration. First of all, it must be taken into consideration that the level of labour productivity is substantially lower in the Hungarian industry than in the countries to which it is compared. Secondly, labour force concentration in itself is still very diversified, and by no means unconditionally indicates concentrated production too.

This is why a clear judgement on the degree of concentration cannot be passed on the basis aggregate indices for industry. Nevertheless, it is very likely that the degree of concentration is too high in many branches of industry, while in many other branches it is still insufficient. Even in those branches of industry where concentration is high by international comparison, concentration is frequently limited to employment, and is not combined with the specialization ensuring efficiency and the optimum plant size.

Growing concentration is a natural consequence of the development of productive forces, and until it reaches optimum size it is, in general, economically efficient and justified. Despite the fact that by aggregate indices for Hungarian industry concentration seems to be exaggerated, *in certain branches of industry the true concentration of production should be further increased*. It should be emphasized that not administrative centralization, but production concentration is meant.

In Hungary concentration is closely connected with the *optimum plant size*. Despite the high level of concentration, there are still many factories of smaller than optimum size. The road to further concentration leads frequently not through the mergers of industrial sites, but through building up plants of rational size. This is indicated, among other things, by the fact that in the branches of industry most important from the concentration point of view, it frequently happens that only a single factory produces certain products and, therefore, concentration could not be increased any more through mergers.

Efficiency of the concentration established is weakened in many cases because it was not combined with specialization and, instead, the concentrated factory continued producing a too broad range of products.

Another feature lessening the efficiency of concentration was its being frequently achieved simply through the merger of existing installations, despite the fact that a larger scale of mass production would have made much modern technologies possible and necessary. Efficiency of concentration depends exactly on the extent to which it is able to increase specialization and the mass character of production. (It would be very difficult to prove with figures, but it is highly probable that forcing a process of concentration which for lack of suitable financial means conserves technology, creates even less favourable conditions for efficiency.) For this reason, substantial investments

are frequently necessary. If they are not completed, a concentration realized without technological advantages may expressly increase production costs, since overhead is generally higher in the large factories and can only be counterbalanced with modernized technological processes.

Concentration is not an end in itself, and not simply the consequence of administrative measures. Merging the labour force and installations cannot in itself achieve results, for they are the outcome of technological development made possible through the mergers.

In general, the optimum plant size is on the increase in the production of basic materials. Although all generalizations require special care, it would seem that in most industrial branches producing basic materials, owing to the size of the country — very often at the cost of the emergence of monopoly positions — industry can only be expected to become competitive on a very high level of concentration. In contrast with this, in many fields of manufacturing concentration has its optimum, primarily depending on efficiency, and efficiency can often be better achieved through smaller or medium-sized plants.

Various studies conducted on branch level show that, primarily in the branches producing consumer goods — first of all in certain branches of the light and food industries, but in several engineering branches as well — there are quite substantial differences between Hungary and the most developed industrial capitalist countries, and that the concentration level in Hungary is exaggerated. *The difference can foremostly be found in the fact that there are comparatively few small and medium-sized plants in Hungary, and their share in production is low.* The importance of the small and medium-sized factories has not ceased on the present level of concentration, and the forces of production and, in fact, statistical data prove that in the most developed capitalist countries, along with the marked process towards monopolization, in many branches of industry the proportion of these types of factories is unchanged and their economic efficiency is satisfactory.

Advantages to be gained from the establishment of modern small and medium-sized factories*

Parallel with the process of concentration and centralization, many small and medium-sized plants were eliminated. Industry and the national economy feel this shortcoming. While the majority of craftsmen's cooperatives and the

* After this article was written, on April 20, 1970, the Government Economic Committee passed a resolution on the development of small and medium-sized factories. It is hoped that we can advance on the basis of the resolution, since the credit preferences, separate credit funds, and the capital available from the council development funds will no doubt improve the present situation.

local enterprises operating under the guidance of the councils can be included in one or the other of these categories, on the one hand, they serve primarily to meet local demands and, on the other hand, their technological standards are low. In essence, the really modern small and medium-sized factories are completely missing from industry. They would have a dual role to play: on the one hand, to satisfy demands which the large-scale plant is not capable of meeting economically and, at the same time, to extend the cooperation basis of the large-scale plants so that by increasing specialization, the production of the latter should become cheaper.

As a result of the diversity of demand, there are many products needed which large-scale industry can only produce uneconomically, either because the quantities asked for are too small, or because the large-scale plant — since it is less flexible — cannot adjust to market demands sufficiently rapidly, or production may also be uneconomic because of the high overhead costs of the large-scale plant. Elimination of the small and medium-sized plants caused a shortage of products justified neither by labour force, nor material, nor capacity problems. An economic elimination of these shortages can only take place through the establishment of modern small and medium-sized plants.

In most cases the modern large-scale plant of today can no longer operate truly economically if it has to produce all components and accessories etc. by itself, whereas procurement would be far more advantageous. The change-over of large plants to manufacturing new products would be made also easier by cooperation with modern and mobile small plants.

No matter how paradoxical it may seem, the creation of small and medium-sized plants would be of substantial aid to the concentration and specialization of production. They would make it possible for the large factories to narrow down their production spectrums and thus increase their specialization, and improve their efficiency; and this would not necessarily involve elimination of some production items. The small and medium-sized plants could, namely, take over manufacturing of products uneconomic for the large factories, while the small and medium-sized plants could produce them in specialization, efficiently and cheaply.

It must be emphasized that the economy is not short of just any kind, but of modern small and medium-sized plants. The ancilliary factories of the agricultural cooperatives, frequently working with very primitive technologies cannot be substituted for them, nor can the craftsmen's cooperatives nor the council-managed enterprises operating with obsolete machinery.

Another advantage of the small and medium-sized plants is that they can help in a more favourable *territorial* distribution of industrial productive capacity, and in the efficient industrialization of certain regions now of an expressedly agricultural nature. Substantial efforts have already been made in Hungary for the industrialization of rural areas. Aside from the new large-

scale establishments located in the countryside, industrialization of rural regions often did not increase efficiency and, in fact, the unimportant small-sized plants established by the agricultural cooperatives and those of the large enterprises operating with a comparatively low productivity, had a detrimental effect on the average productivity of industry.

E.g. in 1968 the agricultural and forestry enterprises (including the agricultural cooperatives) operated 9793 industrial plants, with an average of 5 employees each, yielding a sales receipt of 5144 million forints net, 42.5 per cent of which came from production in branches of the food industry. These units provided 1.6 per cent of the sales receipts of socialist industry. 3.1 per cent of all those employed in socialist industry worked here, but per capita sales receipts were here only 36.8 per cent of the average for socialist industry. This means that in agriculture the industrial plants work with a labour productivity incomparably lower than the average for industry. Naturally, considering the very low share in industry (1.6 per cent) we need not exaggerate the importance of this effect [2].

Obviously, the industrial ancillary units of agricultural cooperatives will continue to play a role in the processing of agricultural products, but it is unlikely that the agricultural factory units will be able to establish truly modern industrial plants, for they are not suitably prepared nor do they have sufficient experience, nor are they equipped with a skilled labour force. At the same time, exaggerated territorial decentralization of modern medium-sized plants is not advisable, since it would increase location costs while, at the same time, it would cause large transport charges and be opposed to the process of urbanization as well.

The *size of the country* also justifies the establishment of small and medium-sized plants and that much greater efforts shall be made than at present to achieve this. Naturally, they should be established in branches of industry where optimum plant size can be approached in this manner, too. It can be of tremendous advantage that these small and medium-sized factories can be constructed much more rapidly than the large ones, which means that the danger of obsolescence is less, and the tying down of capital is not too much of a burden during the period of construction.

Another reason why the establishment of modern small and medium-sized plants would seem advantageous is that they would weaken the *monopoly position* of certain large enterprises. They would not necessarily have to compete with the large enterprises directly, but would provide favourable cooperation possibilities for the large factories, enabling them to make better use of their own capacities, and increase supply on the market. Aside from this, the possibility of direct competition can, of course, not be eliminated, where this is justified from the national economic point of view.

Conditions for establishing modern small and medium-sized factories

Either the state or large enterprises can establish modern small and medium-sized factories. Cooperatives can also establish them through association. The present rural sites of large state enterprises often serve to lessen labour problems, or their own lack of space, rather than the goals mentioned. Nor have there been initiatives in the cooperative movement which would truly fill this gap.

Through cooperation between state enterprises and cooperatives, modern small and medium-sized plants could be established in the form of joint undertakings, which foremostly would economically meet some cooperation requirement of the enterprises in question. We assume that under the new management system, this goal will be reached with suitable guidance and incentives although it will take a comparatively long time. However, it is unlikely that enterprises will cooperate in establishing a plant which does not aid them in their own development, and does meet their own demands. This may happen, but it would be an exception. In my opinion it is debatable whether it would be expedient under socialist relations, to provide incentives for enterprises to establish a joint undertaking which has no production ties with the founding enterprises. The enterprises endeavour to make use of their development possibilities, while the establishment of new or joint enterprises — with production relations lacking — would not lead to the development of the enterprise; at most it would supply an income similar to rent. However, the nature of a socialist enterprise undertaking must not appear in the form of speculation, or in a diversification independent of its sphere of activities.

We can observe the diversification trend in capitalist enterprises, where one goal is the share risks, in order to better protect themselves against fluctuations in the business cycle. This is an understandable trend. However, regarding socialist enterprises, diversification makes central control more difficult when it exceeds the rather loosely determined sphere of activities. Central definition of spheres of activities is one of the means of central management, since it is one of the pledges that structural changes would be in accordance with the plan, while at the same time, it does not prevent structural changes within a sphere of activities. Regrouping of capital would not be fortunate if the enterprises ventured into areas foreign to their production, and if they tried to prosper through incomes earned in other branches.

At the same time, the enterprises in general will not have surplus capital of a volume to undertake ventures not related to their own production (preceding, complementing, or continuing their own production processes). Nor is it likely that enterprise managers would be willing to declare — by undertakings completely estranged from their own lines — that it was unneces-

sary to develop their own specialized fields, for they would fear this would also be a declaration of the fact that the financial means left in their possession were also superfluous.

It looks as if at least a part of the modern small and medium-sized enterprises had to be founded by the state. This requires changes compared to the earlier investment programme, and for this reason realization is difficult. The vast majority of investments implemented by central decision are large-scale enterprises. In general, investment plans are tense, and in investment goods particularly in construction, the shortage of capacity is most tangible. Still, it would be of purpose to earmark a smaller part of the substantial central means (without modifying the total sum, or the enterprise/state funds ratio) for the establishment of modern small and medium-sized plants. Although the efficiency of investment programmes can only be judged concretely, case by case, it is very likely that the modern small and medium-sized plants would be of economic advantage not only because investment costs would be paid off earlier, but also because they would improve the efficiency of *existing* factories and the supply of the population.

We can understand the importance of and modernness of these establishments, if we realize that at present in cooperative industry, which to an extent represents medium-sized industry, fixed assets per worker amount to an average of 20 000 forints, or about 1/10th the sum annual in the newly established modern state enterprises. Here too, the average hides a wide dispersion, but it shows the importance of the problem despite the fact that the structure by branches of cooperative industry deviates sharply from that of state-owned industry, and of course, this too influences capital-intensity.

Apart from the food industry — where in most cases, the importance of the medium-sized plants is beyond debate in my opinion — there are two fields where it would be of purpose to establish such plants and this could be realized comparatively rapidly.

One is the textile, leather, and clothing industries. According to comparative statistical figures the textile and clothing industries are over-concentrated and in these branches not even a correction for differences in productivity would fundamentally change the picture. According to a survey made by the Central Statistical Office, the number of workers per plant is the multiple of similar data for more developed industrial countries. This means that we have here a deviation of a magnitude which is thought-provoking even independently of methodological questions and uncertainties of comparison. Development of the textile and clothing industries is necessary in order to ensure supply of the population, and because of export interests but, in view of the expected industrialization endeavours of the developing countries, it is risky at the same time. Development through the establishment of modern small and medium-sized plants can be realized more rapidly and with smaller risk. At the same

time, these factories are more suitable for a better supply of market demands, for their ability to compete and their flexibility are greater, making them capable of meeting most differentiated demands. From the viewpoint of locating industry in the rural areas, it should not be neglected that staffing problems could be solved there mainly with semi-skilled workers, or skilled workers who could be trained quicker. In the textile and clothing industries, the small and medium-sized plants are viable in the most highly developed industrial countries.

The other branches where it is desirable and, at the same time, possible to establish modern small and medium-sized plants is the engineering industry or, to be more precise, certain fields of the engineering industry, since not all branches of the engineering industry are capable of operating such plants. Else, opinions regarding the degree of concentration in the engineering industry are much less homogeneous. The reason for this is simply that the engineering industry itself is by no means a homogeneous branch, and in more than one of its sub-branches further concentration is desirable.

However, there are fields within the engineering industry, where it is the modern small and medium-sized plants themselves which could aid a healthy concentration, in most cases when combined with specialization and cooperation. Despite the fact that in some engineering industry branches — for all known distorting factors — present concentration is exaggerated (e.g. in precision engineering and in the production of mass metal goods), concentration combined with specialization would not be aided by staff concentration, or by the frequently appearing endeavour for all semi-finished products and components to be produced by the large enterprise.

There are some cases when it is definitely disadvantageous if a phase is missing from the vertical process in a large enterprise, although primarily for technical reasons — it causes many problems. E.g. regarding engineering industry enterprises where there are special quality requirements against the cast or forged parts required, it is frequently questionable whether these enterprises should be forced into cooperation with a “large-scale” enterprise merged from many units.

The necessity for improving cooperation

The small and medium-sized plants serving the large enterprises can only increase the efficiency of the latter and of the entire economy, if they keep to deadlines, and in general, if contract discipline is of high standard. If the large enterprises cannot count on the shipments of the cooperating plants for certain, on their keeping to quantitative and qualitative prescriptions and shipment deadlines, then the advantage stemming from the rational division of labour could easily be lost. A strengthening of technological and financial

discipline (if needed, by making the laws stricter) is a precondition for the development of healthy cooperation relations.

However, also the price and taxation system must be studied from the viewpoint of the extent to which it aids, or hinders economic cooperation. It is not a question of establishing special preferences to aid the extension of cooperation, since that could easily provide incentives for organizing cooperation inefficient on the national economic level. It is desirable to set the goal that the price and taxation system shall aid the extension of cooperation if it is of advantage to the national economy, and shall hinder it if it is disadvantageous. There are indications which allow us to conclude that the present price and taxation system should also be examined from this point of view.

Without going into details of the question, it should be mentioned that today many a cooperation which appears disadvantageous (or advantageous) turns out to have an opposite effect when examined carefully.

Accepting the risk that a mentioning of certain questions out of context, without analysing their broad interrelations, can easily lead to debate, there are some problems which should be separately mentioned. One is closely related to the different price forms applied in the Hungarian price system. It would be worthwhile to study most carefully how the different pricing of products brought in the framework of cooperation and that of the final products affects judgement of the economic efficiency of cooperation. Another question requiring such study is the sensitivity of the profit tax system to narrowing down cooperation activities in an enterprise or to extending them. Here the question may emerge that by modifying cooperation the capital/wage ratio may also change, which is of substantial importance in the present tax and incentive system.

It should be emphasized that we have simply quoted examples, while an analysis should have to extend to many more questions, and simply raising the issues does not mean taking a stand on the problem. However, this is a fundamental issue from the point of view of the future and the efficiency of the small and medium-sized plants. The solution is necessary not for artificially securing the existence of the small and medium-sized plants (since we want to establish them now) but because we want to ensure that they shall be able to operate under truly optimum conditions. Internal cooperation — within the country — cannot be studied individually in all cases, meaning that the methods needed should automatically allow realization of efficient and hinder both the establishment and maintenance of inefficient cooperation.

The smaller a country, the narrower its domestic market, and the less a concentration study can abstract from the international division of labour. In those branches where concentration is a world trend, concentration is followed by a rapid growth of the optimum plant size. Maintenance or strength-

ening of competitiveness therefore, forces concentration along with an ever increasing scale of production. Today, however, in many branches of industry, it is only worthwhile to establish such plants whose production exceeds the demands of the narrow domestic market. Therefore, competitive, concentrated large-scale plants can only be established, if we can count on suitable exports. In these branches the problem of concentration is raised in practice in the form of whether or not we are capable of producing under optimum conditions, and whether or not we are capable of creating satisfactory and efficient concentration.

In a series of industrial branches, of course also the concentration demanded by the development level of the domestic market and the forces of production can be coordinated.

However, today the specialization which accompanies large-scale concentration demands the application of new forms and methods also in international cooperation. International production cooperation is increasingly growing in importance. In recent years Hungarian enterprises have signed a number of cooperation agreements of this type, but possibilities are much greater. Owing to the nature of Hungarian foreign trade relations, the endeavour to develop cooperation with the enterprises of the socialist countries is not only obvious, but the number of agreements on production cooperation with enterprises in the capitalist countries is increasing, too.

International extension of production cooperation can substantially enhance a production cooperation which realizes the viewpoints of the optimum plant size and specialization, that is, of economic efficiency. Hungary broke with autarkic development methods a long time ago. For some time it has been clear to Hungarian economic management that a small country, the size of Hungary cannot develop all sub-branches, and cannot produce in too broad a spectrum efficiently. Recognition of this fact makes possible, and at the same time demands, the further opening of an economy which is already open, and requires the simultaneous increase of both the volume and ratio of exports and imports.

With the aid of concentration, specialization and cooperation, growing international cooperation can increase productivity and efficiency. But — as in general in the economy — here, too, there are reciprocal relations. Cooperation not only provides opportunities for the improvement of efficiency, but it also demands greater efficiency. Comparative advantage can only be attained if the competitiveness of Hungarian industry is increased.

There are opinions, according to which international cooperation can be realized more easily by the large-scale enterprises. However, it is incorrect to draw the conclusion that it would not be wise or necessary to establish modern small and medium-sized plants. On the one hand, modern small and medium-sized plants could also be capable of competing in exports aside from

providing better supply to the domestic market and, on the other hand, the competitiveness of the large-scale enterprises depends to no small extent on our recognizing the importance of the small and medium-sized plants in improving the competitiveness of the large-scale enterprises.

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СОВРЕМЕННОЕ МЕЛКОЕ И СРЕДНЕЕ ПРОИЗВОДСТВО В ВЕНГЕРСКОЙ ПРОМЫШЛЕННОСТИ

Е. ВИЛЧЕК

Судя на основании международных сопоставлений, в венгерской промышленности наблюдается чрезмерная централизация и концентрация. Однако производственная концентрация заключается в первую очередь в концентрации рабочей силы, что не сопровождается желательной специализацией, а поэтому и недостаточно эффективна. В особенности не хватает в Венгрии современных мелких и средних предприятий.

Путь развития в отдельных отраслях в соответствии с проявляющимися в мировых масштабах тенденциями — это дальнейшее повышение концентрации производства, но в сочетании со специализацией и с особым учетом оптимальных масштабов производства и экономической эффективности, а в других отраслях — это создание современных мелких и средних предприятий. Благодаря своей гибкости последние могут расширять предложение товаров, производства которых нерентабельно в крупных предприятиях и которые поэтому имеют дефицитный характер. В то же время они могут улучшить и эффективность крупных предприятий, снабжая в рамках кооперирования их деталями, различными принадлежностями и т. д., производимыми ими более дешево в силу значительной специализации. Создание таких мелких и средних предприятий особенно желательно в некоторых отраслях машиностроения, в производстве массовых товаров и в некоторых отраслях текстильной промышленности, а также в пищевой промышленности.

Такие предприятия могут быть созданы существующими предприятиями (возможно, несколькими совместно), или же — и по мнению автора, этого нельзя избежать — государству в рамках программы капитальных вложений придется наряду с крупными объектами создавать и современные мелкие и средние предприятия. Для этой цели покрытием может послужить и относительно незначительная доля суммы, предусматриваемой для капиталовложений в промышленность.

Mrs. B. PÁLOVICS

PERSPECTIVE DEVELOPMENT OF HUNGARIAN AGRICULTURE

The paper discusses several questions with regard to the perspective development of agriculture. It deals in particular with the interrelations between the development of agriculture and the entire national economy, and the role of food exports. It takes a stand in favour of accelerating the increase in meat production.

Estimation of the expected development of agriculture and the food economy in the coming 15—20 years has been based on a study of Hungarian and international trends in this respect. Relying on economic considerations, it is possible to estimate which trends are continuing, which will become stronger, and which will become weaker or change. This economic weighing relies partly on the influence of circumstances which have existed so far, and which are expected to take place in Hungary, and partly on comparative analyses with other countries.

Estimation of expected trends in development provides assumptions and prognoses for developing perspective development concepts. The hypotheses and prognoses for the perspective development of the Hungarian food economy were published by the Long-Term Planning Committee for Agriculture and the Food Industry in early 1970. These hypotheses and prognoses mark the "medium", the possible field of movement, where future development will take place. Assumptions regarding market demands, possibilities for technical development, creation of the material conditions for production, and expected social changes, put certain restrictions on society's conscious planning-organizing activities. These restrictions, however, are by no means absolute in value, and they may change.

The essence of the perspective development concept is precisely that within the assumed, prognosticated, objective field of movement of development, it determines the direction of conscious social action regarding the most essential problems.

It follows that the perspective development concept can be formulated only for the whole of the national economy. The tools for realizing the major goals can be of many kinds. Accordingly, alternative development concepts can be developed for the whole of the national economy. The individual alter-

native concepts describe a consistent development concept each. Thus, the leading responsible bodies can choose the development concept which is the most advantageous, after weighing a number of points of view.

Is it possible to formulate a perspective development concept for a single, isolated branch in itself, for instance for the food economy, or agriculture? The development concept of the branch cannot break away from the development possibilities of the national economy, and must fit into its framework.

To work out the perspective development concept for agriculture makes a survey of many ramifying spheres of problems necessary. In this article I am only studying a few of them.

The development concept of the branch is based on the development laws of the branch, and on the fundamental demand from the point of view of the progress of the whole society, that the economic goal of development is to increase *efficiency*, to increase the mass of national income to be produced by the branch. This goal can be reached by making the best use of given, and procurable production factors, through meeting market requirements appearing in the form of demand on the market. To measure the increase in efficiency on national economic level is a most complex problem, and an explanation of this issue exceeds the scope of this article.

Setting the increase of efficiency as a goal cannot and does not mean that the development of the production branch, of the food economy should not adjust to the realization possibilities of the market, to the domestic consumption and export needs whose satisfaction is its fundamental task. Realization possibilities are a framework set by objective conditions, for the most part independent of our intentions, and related to the future level of economic development, which cannot be brushed off with the slogan of "increasing efficiency".

However, it calls for an explanation why the perspective realization possibilities still cannot be considered as objectively given in their entirety. I am not thinking primarily of the fact that there is greater or lesser uncertainty in estimating these realization possibilities. There is a certain amount of uncertainty in estimating domestic food consumption too, since in 15 years consumption habits may change and deviate to a certain extent, from the ones estimated, while price relations may also be modified (not only food prices but other prices too), and these will not be completely without any effect on the pattern of consumption. It is understandable that the uncertainty in estimating realization possibilities on foreign markets is even greater. Nonetheless, it is not these uncertainties which I am thinking of.

Future realization of foods depends — above and beyond the substantial demand raised by the increase in domestic consumption — for the most part on the importance of the food economy in foreign trade with capitalist and socialist economies. A study of the expected absorptive capacity of foreign

markets gives us only a partial reply to the question we are interested in: we can find out the possibilities for placing certain products and what these products are. According to the information we have at present, perspectives show realistic possibilities for placing foodstuffs, at least the biologically valuable ones suited to the demands of economies on higher levels of development, on the markets of both the developed capitalist countries and those of the socialist countries. Based on realistic calculations for the possibilities of increasing domestic production, and taking the growth in home consumption into consideration as well, we are not over-optimistic in assuming that the export commodity fund available to the food economy 10—15 years hence can be sold smoothly (provided the goods are suited to the demand of the markets of that time in respect of quality, choice, grade of processing etc). It is more questionable whether world market price ratios will develop favourably or not from this point of view.

We have yet to study the extent to which it is worthwhile to strive for an increase in the growth of agricultural and food production for export. From the point of view of the branch it is undoubtedly worthwhile to make use of all such possibilities, as will lead to a quicker increase of production. In agriculture, the increase in efficiency goes together with a continuous growth in output.

If, a greater market, and greater production possibilities are clearly favourable for agriculture it is not certain that the same is true for the entire balance of the national economy, where different branches compete for export markets. Naturally, this competition can only be felt between products which can replace one another on the market unlimitedly. If we have a possibility for choosing, for instance, between exporting foodstuffs or other products to the developed capitalist markets, then this weighing has a realistic foundation. If there is no opportunity for choice, then measurement is unrealistic, and would lead to conclusions which cannot be used in practice. It is a meaningless comparison to show that the export of product B is much more economic than of product A, if product B cannot be sold on the given market. This is how this should sound in perspective prognosis: 15 years from now we should primarily be exporting product B, but possibilities for winning, or extending the market are uncertain. It would be a risk to count on it. So, should we give up the idea to increase exports of product A, or rather strive to achieve maximum exports of both products? The answer can only be the latter.

According to the information we have to date, despite the expected spread of Hungarian industrial export articles on the capitalist markets, there will be a need for a continuous and fast as possible increase of food exports, so that our foreign exchange earnings be able to keep pace with the demands of the country's economic development. Even in a longer perspective, the exports of certain food products can be more advantageous than that of certain in-

dustrial articles, taking into consideration the fact that foodstuffs embody a growing number of industrial activities.

According to our own information, as well as to that of different international organizations, including the estimates of the FAO, in several CMEA countries there are tremendous potential food industry markets. Due to climatic conditions, difficulties of material-technical foundations and other reasons — it might be more economic to meet the demand regularly growing with the income of consumers, beyond increasing domestic production — at least in part, through imports. Opening of these market possibilities depends on many factors. It is probable that within the framework of the integration developing among the CMEA countries, based on long-term agreements, Hungary will be able to take a larger share than the present one in the food supply of the population of a number of socialist countries. In this hope we may rely on our climatic conditions, the development level of our agriculture and food production, and on the possibilities for its development. However, different branches of the national economy are in competition for the socialist export possibilities, and it is a very complex question to determine the extent of further export possibilities of the different branches with the gradual development of socialist integration.

This reasoning proves that such a fundamental condition for the development of the branch, as the extent of market realization possibilities, depends not only on external, objective circumstances and the internal development possibilities of the branch, but they are also influenced by decisions based on the circumspect evaluation of the whole of the national economy.

The situation is similar with respect to possibilities for technological development. It is possible to make a prognosis of the extent to which production processes, technologies and species, etc. known today or yet to become known will spread, when their use will become general, what are the technological development problems whose solutions will be urged by economic and social development. However, this depends not only on the achievements of scientific research, and the efficiency of the spread of information and farm advisory services, but on the financial possibilities which the branch may have at its disposal. And financial possibilities, first of all investment possibilities, again are determined by the allocation of the resources of the national economy, by weighing the needs of every branch. The branch — in this case, agriculture — and its technological development, therefore, cannot be judged in itself, but only on the basis of the technological progress of the entire economy, knowing the development of industries turning out producer goods for the food economy and international cooperation created to supply the food economy with the means of production, as well as the material resources available to the branch.

The direction of expected social changes, and the speed with which these changes take place again depends on the development of the national economy as a whole. The production factors of agriculture are most directly affected by the structure of employment, the number, composition and proportion of agricultural earners. The technological development of agricultural production, the reduction of production costs, and increasing competitiveness equally demand that agricultural employment shall decrease to the extent made possible by the technological progress. This again is a question which cannot be answered within the food economy, for it must be coordinated with the whole of the national economy. It is certain that in 15—20 years the number of those agriculturally engaged could be decreased to half its present level, if only agricultural interests were to be asserted. However, the conditions for this must first ripen in other branches of employment.

Therefore, the most important questions regarding the development of agriculture cannot be judged within the branch itself, but only on the basis of many-sided interrelations with the entire national economy. These questions include, above all, market demand for food, the financial means at the disposal of the food economy, and the size and quality of the labour force.

Does this mean that the direction of development is fully decided for the food economy by external factors, by resolutions which take also the sphere outside the food economy into consideration? Are there no alternative possibilities in the use of the markets, in the allotment of financial means, in the use of the labour force? It is obvious that such alternative possibilities do exist. It is correct and necessary to calculate variants for the alternative possibilities. These figures show the sacrifices needed to achieve certain results, with this or that change in the structure of production, and in this or that combination of the production factors. However, these variant calculations do not mean a different development concept, but simply a slightly modified variation in the details of a single development concept.

The perspective development concept of the food economy — as a branch concept — must be directed towards showing: what is the production development which is possible and desirable within the limits of sales possibilities, and what is the optimal input structure of the production level attainable by the 1980's.

If this development concept, optimal from the point of view of the branch, cannot be fitted into the perspective development framework of the entire national economy — because of certain problems concerning international exchange, scarcity of resources, or employment problems — then planners must be given lower or uppermost limits from without as directives, and these must be respected in marking out a suitable development direction in keeping with national economic interests. This means that — in accordance with external limitations — it is possible to work out another alternative of perspec-

tive development concept for the food economy which, however, will by no means be as favourable an alternative from the branch point of view.

So, alternative development concepts can primarily be worked out for the whole of the national economy, and not for single branches. It is worthwhile studying several variants of the perspective development of the branch — the food economy — on the basis of the national perspective development concept. The variants may differ from one another in production pattern (that is in market orientation), or in combinations of production factors. However, different combinations of production factors are not variants of equal rank, for the possibilities for substituting production factors are very limited.

Is a quicker or slower growth rate a question of concept?

Analysis of the trends in the economically developed European capitalist countries shows that at a certain stage of economic development the growth in agricultural output becomes stable and accelerates. In recent years there have been signs of this trend in Hungarian agriculture too. This is why we may state that in the coming decade or two, Hungarian agricultural production could be characterized by a comparatively rapid growth.

At the same time, a rather general trend — though appearing in stages — is the increase in the capital intensity of agricultural production, which involves a rapid increase in the productivity of live labour.

A further trend: in some areas, and in certain items, a comparative surplus of goods appears, while with other agricultural products (primarily cereals, milk and dairy products) the sums required from the state budget to subsidize them must be increased. This happens despite the fact that the majority of the world's population does not have sufficient food, and even in the economically developed countries, or those on medium levels of economic development, there are strata of the population whose level of food supply is below modern requirements.

Knowing this, is the assumption justified that it would be more economic for the national economy, to rest satisfied in agriculture, along with less investment, with a slower growth rate, so that there should not be any difficulties with realization? Can the following two perspective development concepts be confronted to one another in agriculture: *a*) comparatively high investments, a rapid growth rate of production, greater commodity funds for exports — which causes greater problems too —, or *b*) comparatively smaller investments, a moderate increase in the growth rate of production and a smaller commodity fund for exports. We must reply to a number of questions before formulating an opinion about whether it is, economically speaking, a realistic thing to contrast two such general alternatives, which do not examine

the structure of agricultural production. *The first question: is it in the interests of the country to increase its agricultural exports?*

It is clear that the primary interest of the country is to increase the export share of those branches in which the efficiency of the assets used is greater, and where greater gross and net incomes can be realized. In this sense the aim is undoubtedly correct to get a larger share of the export commodity funds from the processing industries, and that agricultural and food products should represent decreasing ratios. But does this mean that the volume of food exports can stagnate or drop? If the export products of industry — and now I am thinking primarily of exports to capitalist countries — replace food exports, then the foreign exchange situation of the country would not improve at a suitable rate. Therefore, from this generalized statement that with the progress of economic development the ratio of agricultural exports drops (which by the example of many economically developed countries can be also challenged), we cannot draw the conclusion that increasing food exports will become unnecessary with the perspective development of the country.

The growth in food exports is a factor in the use of our production potential which has an effect on the growth of the entire national economy.

Therefore, the conceptual questions of perspective development is not whether food exports should grow, since this growth is desirable and unavoidable from a number of viewpoints (I will explain this later in greater detail).

The conceptual question is that food exports should increase in such a way that the groups of products which can be realized favourably, safely, and economically, shall be the determining ones in the export pattern and the ratio of these products should increase. According to our present information these groups are: livestock, meat, meat products, fresh and processed garden products. We must make the remark that to increase production of the commodity groups listed is more capital intensive than on average, both in agricultural production and in the processing food industry related to them.

The problem is not that the development of the food economy produces a commodity fund so large in general that sales cause increased problems. Neglect of the development of the food economy is a far greater danger, for it is possible that a smaller export fund is created, and its composition will not be suited to the world market demands which are increasingly expressing themselves today, and will appear even more sharply in a decade or two. This means that a smaller increase in production may even cause greater problems in realization.

The second question: can it be to the interests of the country to "hold back" the growth rate of the food economy?

Let us look at the example of the economically developed European capitalist countries, and the countries of Europe in general. In the past 10–20 years, agricultural output of the European countries has grown rapidly. Ex-

perience has shown that the migration of the labour force away from agriculture does not put a brake on the increase in output.

It would seem that general economic development has a stronger effect on the growth of agricultural output than the size of market demands. Individual branches of industry are more flexible in keeping the volume of production in accordance with market demands, and in adapting the pattern of production to the same. In agriculture — particularly in the countries where small-scale farming dominates — each of the many farms endeavours to increase its own production to the maximum. Otherwise it could not even hope to increase its income at the same rate as workers in the other branches of the economy.

The growth in agricultural output is forced by the interrelation that the costs of agricultural production can be reduced most successfully by increasing yields, even if, beyond certain limits, greater inputs yield diminishing returns. This is why, in the case of certain products in the economically developed countries sometimes it presents a problem how to increase productivity in such a way that production should not grow simultaneously.

One of the contradictions in developing agricultural production is that transition to modern production methods, and to mass production must take place under conditions when solvent demand for food generally does not grow to the same extent as production might be increased.

Despite the difficulties, a rapid increase in production is still the major road for agricultural development. According to my calculations, prepared on the basis of data published in the FAO yearbooks, the annual average rate of increase in output was — between the averages of 1952—1956 and 1963—1967 — for the agriculture of the entire world 2.8 per cent, for the West European countries 2.6 per cent, and for the East European countries including the Soviet Union 3.9 per cent. In many economically developed European countries, the average growth rate was over three per cent annually. (Between the average of 1952—1956 and 1967, the average for France was 3.7, for the United Kingdom 3.2, for Austria 3.0, while in Hungary it was 3.2 per cent.)

From the point of view of the national economy, the main issue is not the size of the increase in agricultural production, but the structure of the growth. According to expected trends in domestic consumption needs and foreign sales possibilities alike, there will be a substantially greater need for those commodities whose production can be increased comparatively slowly, and by engaging increased financial resources. This is enough to indicate that the investment requirements for increasing agricultural output are far more dependent on the structure of the increment than on the average annual growth rate itself.

I would only like to emphasize two questions regarding the structure of agricultural output: the conditions for increasing cereal and meat production.

A rapid increase can be expected in cereal production. The average yields of cereals is rapidly growing throughout Europe. Those countries, which produced in the average of 1948–1952 as much grain per hectare as we did in 1967 have increased their per hectare average yield by 10–12 quintals during these 17 years.

Table 1

Average rise in cereal yields in some European countries (q/ha)

Country	Average grain yields		Increment in 17 years
	1948–52	1967	
Hungary	14.8	25.0	10.2
Sweden	19.2	32.6	13.4
German Democratic Republic	21.4	31.8	10.4
German Federal Republic	23.3	36.3	12.9
United Kingdom	24.6	38.3	13.7
Belgium	29.2	39.7	10.5
Holland	29.8	42.2	12.4

So far Hungary's highest yield was in 1969, with 28.5 quintals. If development in Hungary will continue at a similar rate, then by the mid 1980's, that is 15–16 years hence a 40 quintal per hectare average yield will be likely. In the hypotheses of the Long-term Planning Committee for Agriculture and the Food Industry the average yield assumed for 1985 are 40–43 quintals of wheat, and 49–52 quintals of maize per hectare.

The larger average yields of cereals may have an effect on the share of the area sown with them. In those European countries where the average cereal yields are higher than the European average, even in the capitalist countries where small-scale farming is dominant, there is an expressed trend towards increasing the proportion of area under grain cultivation.

Under Hungarian conditions, this type of development is increasingly aided by the large-scale organization of production. Here an increase in the proportion of the areas under cereal cultivation can even take place if the producer price, and/or the comparative profitability of cereal production decreases.

According to what we have said, the growth in cereal production can be rapid in Hungary even without major investments. It is obvious that the growth rate depends on a number of factors. These above all include the use of fertilizers, the observance of agro-technical requirements, and the use of varieties which react favourably to increased supply with fertilizers and other nutritive material. I feel that these conditions will further improve in the com-

ing 15 years. The fertilizers needed for the growth in cereal yields would be ensured by the farms even at the expense of other branches, if the fertilizer supply of agriculture were unable to keep pace with growing demands.

Hungary's per capita cereal consumption is continuing to drop and its effects are not counter-balanced by the moderate growth in population. Thus the use of cereals for food is slowly decreasing. Even today the main field where

Table 2

Proportion of cereals in the combined sown and planted areas

Country	Average of	
	1948-52	1963-67
	(percentages)	
Denmark	48	59
Holland	46	50
Belgium	50	56
United Kingdom	45	48
German Federal Republic	51	60
Sweden	36	44
France	41	46
Austria	47	53

cereals are used is animal husbandry, and the livestock's needs for fodder are increasing. A greater livestock, an increased meat production requires substantially more grain fodder even if specific fodder utilization improves and the ratio between farm-produced and protein-rich fodders shifts in favour of the latter. If livestock were only to grow at the same rate in the coming 15 years as in the preceding 15, then it would not be able to make use of the increased fodder basis. In this case, a large proportion of the cereals produced would have to be exported.

Many objections can be raised against this: cereal exports are characteristic of extensive agriculture. Perspectives for grain exports — at least in bread grains — are uncertain. The export of grains, because of low world market prices, is uneconomic.

It is true that it would not be correct, or even possible to organize the export of bread grains to capitalist markets. However, considering the total of the socialist countries bread grain supply is by no means as securely and as abundantly covered as in Hungary. For this reason, the export of bread grains may become a permanent item within the framework of the integration emerging among CMEA countries, if suitable financial conditions are developed, and long-term agreements can be concluded to ensure the market.

The situation is even more favourable regarding fodder grains, primarily in the case of maize. Not even in the Common Market countries are self-sufficient in maize, and the socialist countries, almost without exception, have problems in creating the fodder basis needed for the increasing animal product outputs.

Today grain exports require state subsidies. This question must be studied without prejudice. Nevertheless, there are many reasons in favour of using grain production rather to accelerate the growth rate of animal husbandry.

To increase meat production and meat consumption is a problem throughout the world, in both the developed and developing countries. We do not need to go into details to show that the sales market for meat promises much more secure opportunities in perspective. FAO prognoses, based on present trends in the growth of consumption and production assume for 1975 a deficit of 5.0—8.5 million tons, which is a substantial deficit on world scale. (For the sake of comparison, I would mention that in Hungary the 1967 meat production was — according to FAO statistics — 686 thousand tons.)

In several countries the increase in meat production is lagging behind demand because they do not have sufficient fodder grain. In other countries, however, it is the comparatively high capital intensity of animal husbandry, and the lack of the technical, economic and social conditions necessary for developing animal husbandry which is holding back the increase in meat production.

When evaluating several decades of development of Hungarian agriculture, we generally emphasize that the ratio between the two major branches, i.e. plant cultivation and animal husbandry, has shifted in favour of the latter. This trend has been comparatively slow in rate: the ratio of animal husbandry in the gross production of agriculture — calculated at unchanged 1959 prices — was 37 for the average of the years 1934—38, and 42 per cent for the average of 1965—67. In the economically developed countries this ratio is substantially higher.

It would require a very detailed, branched-off study to measure the past decade or two of development by international standards, to compare it with the development of other countries. So I must be satisfied with a comparison of one of the branches of animal husbandry, although undoubtedly the most important one: I would make a comparison with the other countries of Europe in the growth in meat production. The purpose of the investigation is to draw conclusions regarding the future increase in meat production in Hungary.

In 15 years Europe's meat production rose at an average of 4.5 per cent annually. Table 3 provides a list of the 15 European countries which provided 94 per cent of European meat production in 1967, ranked by their average growth rate in meat production.

Table 3*Growth rate in meat production in 15 European countries*

(Differences between the averages of 1948–52 and 1963–67, percentages)

1. Holland	6.4
2. Austria	5.9
3. Yugoslavia	5.2
4. Denmark	5.1
5. German Federal Republic	5.1
6. United Kingdom	5.0
7. Poland	4.9
8. Spain	4.7
9. Italy	4.4
10. German Democratic Republic	4.0
11. Czechoslovakia	3.9
12. France	3.9
13. Belgium	3.6
14. <i>Hungary</i>	2.8
15. Sweden	1.8

This means that in the period investigated among the 15 European countries mentioned, there was only one where meat production grew more slowly than in Hungary. Is the reason for the slower growth rate perhaps that in the base period our meat production was already comparatively high? Unfortunately not regarding meat production per hectare of ploughed and planted area Hungary was in 11th place among the fifteen countries studied in the average of 1948–52 and in 10th place regarding meat production per hectare of agricultural area. In the average of 1963–67 the situation deteriorated still further. Then, by both indices, Hungary dropped to the 12th place. Of the countries listed the only ones with lower per hectare meat production than Hungary were Italy, Yugoslavia and Spain.

In another index series I did not use the years 1948–52 as a basis because of the damage to livestock caused by the war, but took the average of 1952–56 instead. The growth rate of 11 years showed a more favourable result for Hungary. In this period Europe's meat production grew on average by 3.8 per cent annually, while Hungary's growth was more rapid, 4 per cent. At the same time, it is true that there was no other country beside Hungary where average meat production in 1952–56 was lower than in the average of 1948–52.

This trend might justify our hopes. But the comparatively high rate of growth proved to be temporary. Looking at it over a longer period, we may

consider it as making up for the earlier lag. Between 1965 and 1970 Hungary's meat production again dropped behind the average growth rate for Europe. According to the directives in the 4th Five Year Plan we are again planning a stage of catching up, with an annual growth rate of 4.1 per cent in meat production. If, over the long range, we can level out the fluctuations, then, between 1960 and 1975, we will get an annual growth rate of 3.0 per cent for the fifteen years.

This would seem to prove that in great production we have only temporarily succeeded in approaching the average growth rate of the European countries. Knowing the high level of domestic demand for meat consumption (in 1970 the per capita meat consumption not including fish was 56 kilograms, and in 1985 it is expected to be 78–80 kilograms), Hungary's foreign trade ties, and the potential production possibilities of the country's large-scale farms, this is rather unfavourable conclusion.

I have analysed in detail the tendencies in the meat production derived from cattle, sheep, pig and poultry. A full description of the results would go beyond the scope of this article. However, I would like to refer to the relationship between the increase in grain production, and the growth in the meat production of livestock types which consumer grain fodders.

In Europe as a whole, in 15 years grain production grew at 2.8 per cent on annual average while pork production rose by 4.7, and poultry by 7.4 per cent annually. This means that the growth rate of meat production was substantially greater than that of grain production, although the increase in fodder imports was also of help. Production of pork and poultry per hectare of grain producing area doubled in 15 years in Europe: it rose from 80 to 175 kilograms. In Hungary the advance was smaller than average, with production rising from 76 to 145 kilograms. An increase in the average yields of grain can create in the future favourable conditions for improving this indicator.

Summing up, we may conclude that in determining the perspective development goals of agriculture, the central issue will be not the size of the average growth rate in agricultural production, but that the development of animal husbandry shall be brought into harmony with the possibilities for increasing fodder production. The large-scale advance in animal husbandry, and primarily in meat production, experienced throughout Europe in the past two decades — made possible by the spread of industrial methods — was not realized sufficiently in Hungary because of the extraordinary circumstances of the period. Having surmounted the difficulties of the socialist reorganization of agriculture, we can make up for this handicap. The size of the agricultural large-scale farms, the division of labour and the cooperation developing between them, will make it possible to change traditional biotechnical conditions and reach new production levels. The means for this are: a complex closed-system animal husbandry technology relying on modern agricultural and in-

dustrial background and breeds and hybrids suitable for these conditions. This direction of development has already produced spectacular results in poultry breeding and is developing in pig and sheep raising, while in the field of cattle it is only in the very beginning stages. Socialist agriculture is capable of taking over and spreading new production processes comparatively quickly. We must make use of the existing potential competitiveness of our large-scale agriculture over countries struggling with many problems surrounding the small scale organization of their own agricultures.

The picture which has emerged when formulating the perspective development concept for agriculture is, that both the interests of the branch and that of the national economy justify the change in the ratio of plant cultivation to animal husbandry. And this structural change increases the demand for fixed assets, and puts a greater strain on economic investment resources. Restriction of investment possibilities in agriculture would handicap the development of animal husbandry, while a rapid development of this branch is a fundamental interest of agriculture and of the national economy

ПЕРСПЕКТИВНОЕ РАЗВИТИЕ ВЕНГЕРСКОГО СЕЛЬСКОГО ХОЗЯЙСТВА

Б. ПАЛОВИЧ

Автор рассматривает некоторые вопросы концепции перспективного развития сельского хозяйства.

Он устанавливает, что данная концепция в рамках предполагаемой прогнозированной объективной сферы развития определяет направление сознательного общественного действия. Концепция перспективного развития народного хозяйства может содержать несколько вариантов подлежащих свободному выбору.

По другому ставится вопрос в случае конкретной отрасли, например в ходе разработки концепции перспективного развития продовольственного хозяйства. Оценку важнейших вопросов концепции перспективного развития сельского хозяйства возможно произвести не в рамках отрасли, а на основании многосторонних взаимосвязей народного хозяйства в целом. Сюда относятся следующие вопросы: предъявляемые к продовольственному хозяйству запросы рынка и в первую очередь внешней торговли, величина материальных средств и трудовых ресурсов, предоставляемых в распоряжение продовольственного хозяйства.

Концепция перспективного развития продовольственного хозяйства, — в качестве отраслевого прогноза, — должна показать, какое развитие производства возможно и желательно в рамках реализации и какая оптимальная структура затрат будет соответствовать производственному уровню середины 1980-ых годов. Если эту концепцию развития невозможно включить в рамки перспективного развития народного хозяйства, тогда при соблюдении заданных извне директивных низших и высших лимитов можно разработать также и альтернативу концепции перспективного развития продовольственного хозяйства, которая, однако, с точки зрения отрасли не может быть в одинаковой мере благоприятной, идеальной альтернативой.

Согласно мнению автора основной вопрос перспективного развития сельского хозяйства заключается не в меньшем или большем темпе роста сельскохозяйственного производства, а в изменении соотношения между растениеводством и животноводством в пользу последнего. Такая тенденция повышает потребность в капитальных вложениях.

J. SZITA

EFFICIENCY OF HUNGARY'S INTERNATIONAL COOPERATION AND LONG RANGE IMPORT POLICIES

The development of Hungary's international cooperation requires definite export concentration and a broad scale of imports. This must be realized in economic policy through modification of the production pattern and further changes in this direction in the system of regulators. The need for increasing socialist import competition has already become topical.

It is a world-wide phenomenon that foreign trade turnover increases sharply in the countries implementing intensive economic policies, and in those moving in that direction. Between 1955 and 1966 each one per cent rise in the national incomes of eight small European capitalist countries* was accompanied by a 1.8 per cent rise in imports [1].

In Hungary this ratio was 1.6 between 1960 and 1966, 1.3 between 1966 and 1970, and the directives of the plan for 1971—1975 call for one around 1.2 per cent.

One of the fundamental principles of the party, and in accordance with this, one of the starting points of the reform in the system of economic control and management was that Hungary should increasingly use the advantages of the international division of labour. Whether we realize a narrower or broader international cooperation is an important question of economic growth, and is closely connected to decisions made on the majority of economic issues. There is no doubt that our opportunities for decision are limited by the world market situation, by the development level of the cooperation among the socialist countries, and the resources of the Hungarian national economy, but not to an extent that they would clearly determine the policy to be applied in the development of economic life and in international cooperation. Even under the given objective conditions, there is comparatively broad scope to evaluate and use the possibilities inherent in international cooperation for increasing economic efficiency.

Well-founded import policy

In the era of the technical and scientific revolution and growing world competition, the only way to conquer and preserve a suitable world market position is to *devote serious intellectual and financial resources to developing*

* Austria, Belgium, Denmark, Finland, Holland, Norway, Sweden, Switzerland.

production. For small countries the only realistic way to do this is *to concentrate forces on comparatively few fields, in order to increase exports*. In the small countries development is irreversibly moving towards reducing the number of branches playing key roles in exports and, at the same time, towards increasing the importance of these export branches in total exports and thereby enhancing the country's participation in the international division of labour.

In Hungary a more consistent implementation of this principle demands, among other things, more circumspect determination of the leading branches from the point of view of exports, so that these shall be given a certain amount of preferential treatment, first of all to help their technical levels to keep pace with the development going on throughout the world. This, in practice, demands the placing of enduringly dynamic branches into the forefront, partly because demand for their products increases most rapidly on the world market, and partly because these are the branches with the greatest opportunity to flexibly shift their production in case of changes in the pattern of demand.

The countries striving for a strong concentration of exports support their export expansions by increasing imports. But this import policy which is a concomitant of, and in fact, one of the conditions for export expansion, cannot be characterized by a placing of emphasis on certain branches, for the opposite is true. A dynamic export policy demand the dynamic growth of imports, and in its interest, an extension of the import range, and an *increasing liberalization of imports*. For a small country the endeavour to satisfy the majority of demand with domestic production is unrealistic, for this can only be valid for large economic units. For a small country, searching for the optimum in the international division of labour means *to build up stable and lasting export positions in not too many branches while, on the other hand, it involves giving up the development of domestic production, even abandoning it in a very broad range of products, and meeting home demands to an increasing extent through imports*. According to experience, economically developed small countries meet the demands of producers and consumers with a broad range of imports and a comparatively narrow spectrum of home production.

This point of view asserts itself only to a small extent in Hungarian imports. The ratio of semi-finished goods, machinery components and services is comparatively low in imports. One of the reasons for Hungary's comparatively high import ratio* of raw materials, 17 per cent of total imports, while in other countries with similar shortages of raw materials the ratio is much lower, e.g. in Austria 9 per cent, in Denmark 8, in Sweden 1.7, and in Switzerland 7. The import share of semi-finished products in Hungary was 18 per cent in 1966—1967, while in Austria it was 22 per cent, in Denmark 24, in Sweden 22, and in Switzerland 23 per cent [2].

*Excluding agricultural raw materials and sources of energy.

Hungarian raw material and semi-finished product imports are about *equal in value*, while in the other countries mentioned the value of imported semi-finished products is *two to three* times that of the raw materials. The comparatively low ratio of Hungary's semi-finished product import is partly caused by the *low level of international production cooperation*. While in Hungary the ratio of imported components is about 20 per cent of all components used in industrial production, in the developed capitalist countries this ratio is generally over 40 per cent.

The progress made in extending the import spectrum also influences export perspectives. The large-scale development of exports and their concentration to the selected branches can only take place at the rate at which the volume and range of imports is extended.

It is obvious that a development trend like this affects far more than simply foreign trade, it will influence the *entire structure of production*. Today in Hungary the number of products turned out by industry is increasing, and if this can be considered healthy in some fields because of greater choice, its trend is still unsuited to the requirements described.

In the past two decades strong protectionism prevailed in the economy. This was just about unavoidable in the period of reconstructing the economy after the war, and in the early stage of socialist industrialization. Under the effects of the structure developed as a result of industrialization, the demand of the national economy for imports increased, particularly from capitalist markets — for products which could not be supplied from the socialist markets — while at the same time the range of products which could also be sold on capitalist markets grew but slowly. This process led to a deficit in the balance of payments with capitalist countries and prevented making use of the comparative advantages attainable through foreign trade in the international division of labour. This means that the protectionism developed in this way also served to maintain the balance of payments. However, the strong isolation from the effects of outside markets created in the interests of industrial development, led to the realization of autarkic trends, and — in spite of a rapid quantitative growth — the technological development of industry lagged behind the requirements of the world market. This is why it has become necessary today to put the problem of *gradually eliminating protectionism* on the agenda. It is in Hungary's interests for the *impulses of foreign markets* to increase their effects on domestic production, consumption, and the import and export structure, for this too will aid *Hungarian economic life in more advantageously joining in the circulation of the world market, in increasing economic efficiency, and technological development*. The topical task is to accelerate this process.

Since the introduction of the new system of economic management this goal has been reflected to a certain extent in foreign trade, but the time has

not been sufficient to change the structure as yet. For the time being, the production and foreign trade patterns are being determined primarily by decisions made earlier, and essential changes can only be achieved over a longer period, through a suitable development policy. So far, in practice the viewpoints worked out in detail for *export policy* have been the whole realized, but the import policy closely connected to this has not been brought sufficiently into the forefront. The advantages of the international division of labour can only be exploited through a *combined* application of the two, and this is why it seems necessary to formulate *an economically sound, consistent import policy concept*.

The above is generally valid for the whole of Hungary's economic ties. At the same time, realizing them raises problems *deviating* to some extent in respect of socialist, developed capitalist, and developing country relations. Realizing this policy regarding the developed capitalist countries depends to a large extent on the rate at which we can progress in modernizing production, and through this, in increasing exports to capitalist countries. Foreign exchange problems are not the foremost limits to the realization of this policy regarding the socialist countries — though such problems do exist — but these are secondary to the special issues stemming from the conditions of the socialist market. These problems are what we wish to discuss now.

In the past two decades the basis of Hungary's international economic relations was *close economic cooperation with the socialist countries*. The foundation for this was similarity in our social systems, close political alliance of the countries grouped in the CMEA, and the economic experience gained in the past quarter of a century; this socialist economic cooperation was one of the decisive factors in Hungary's rapid industrialization, and in its entire economic development. Hungary's policies, economic policies, and economic interests equally demand that the guideline for the future extension of international economic relations shall be a further development of cooperation with the Soviet Union and the other socialist countries. The requirements of the efficiency of foreign trade also support these policies.

In international cooperation, we can only make use of comparative advantages with a more purposeful long-term import policy, and this would make the international division of labour truly effective. From the point of view of the efficiency of foreign trade we have to weigh how can we achieve the given goal with the least input, and how can we realize the greatest results (output) with a given input. This is why we must take comparative advantage into consideration in developing the pattern of foreign trade.

So far these demands have not stood sufficiently in the forefront. In decisions on foreign trade the "balance approach" was the ruling one. For the most part, foreign trade was a means of lessening the tensions stemming from an economic structure which was not sufficiently adjusted to market demands.

In general, Hungary only imported if, either due to natural conditions or to an unsatisfactory technological level, domestic production was not able to meet total demand for a product, or was not able to meet demands at all, and only in exceptional cases did we import because imports *were cheaper than home production*.

In the past — partly because of problems in the balance of payments — a simplified handling of foreign trade problems was widely dominant. The major goal was marked as *the increase of exports, and the decrease in imports*. However, this view is a barrier to utilizing comparative advantages. It is time to change the concept to fit the goal of making use of comparative advantages, that is, to *increase exports and imports parallel with one another*. We must naturally, even under this concept, continue to procure those products which cannot be produced domestically through imports, but we must also go beyond this, and extend the import range to those products whose import makes it possible to make use of comparative advantages. This is the only way we can achieve greater efficiency than with the earlier balance approach, which only looked upon imports as a means for covering shortages appearing in the material balances.

Foreign trade can make maximum use of comparative advantages, if mainly such products are exported which can be produced domestically with more favourable than average productivity, while imports, consisted for the most part of items which can be produced domestically only with a lower than average productivity. However, a study of the composition of Hungary's foreign trade turnover has shown that only 39 per cent of exports to capitalist countries and 55 per cent of those to socialist ones originate from branches with above average productivity. This, in itself, is not a poor ratio, but it becomes weaker when compared with the fact that 25 per cent of exports to capitalist countries and 21 per cent of exports to socialist countries consist of products where (if calculated in foreign exchange) not even wages and amortization are covered in prices. Nor do we make sufficient use of comparative advantage regarding imports. Only 34 per cent of Hungary's imports from capitalist countries and 29 per cent of those from socialist countries are products regarding which we truly make use of comparative advantage, that is, which are produced domestically under poorer than average circumstances.

Naturally, the structure of foreign trade and production cannot be formed exclusively in accordance with comparative advantages, for it is influenced by many other factors as well. Nevertheless, the concept relying on comparative advantages can lead to an entire series of new conclusions in the country's development policy, primarily in industrial policy. A study of these can provide an important point to hold on in determining which branches of production or groups of products should be placed in the forefront in development, which should be limited in development, and which are the ones where

we can raise the idea of completely abandoning production, and meeting demands through imports. Consistent realization of these viewpoints demands a new view in production policy. So far, in weighing the idea of imports, almost every debate was decided by the argument "why should we import what we produce at home?"

Of course, we should not push this policy — nor any other economic policy — to extremes. In the economy of any country, it is absolutely necessary to produce many goods to meet everyday demand — and here it would be unreasonable to look for comparative advantage. With a more detailed study of the question, it is possible and necessary to select the zone of the entire product range in which a search for comparative advantages can be considered topical, and this must be distinguished from the sphere of products, where other considerations determine production policy. At the same time, in scheduling the elimination of protectionism, the balance of international payments must also be taken into consideration.

In the improvement of the structure of the economy, it must be kept in mind that to *increase imports is ever more becoming a condition for raising exports*. This requirement has been strongly felt in the economic relations with the socialist countries of recent years. An *active payment balance* emerged with several countries, and this trend promises to be lasting. Hungarian export growth is being increasingly slowed down by the fact that certain partner countries have been meeting a portion of the demands of their consumers for Hungarian goods — because of trade policy reasons — by making purchases from other countries instead.

Naturally, we cannot strive to raise exports *at all costs*. We must take comparative advantages into consideration also in increasing exports. There can be no doubt that the development of exports depends not only on import demand trends, but also on the modernness, quality, and choice of our export products. However, the export level is also influenced by the import level and by the dynamics of its development. In certain socialist relations the situation has occurred that different export branches (bus production, computer-techniques, the instrument industry, telecommunications, the pharmaceutical industry, and the food industry) *are competing with one another* and they find the main barrier to increasing their own exports in the development and growing export plans of the others. They do not realize that *the export possibilities for the individual branches of industry depend not only on the volume of exports of another branch, but also on the quantity and structure of our imports*.

In judging the interrelations between exports and imports in socialist relation, the *special circumstances which emerge regarding imports must also be taken into consideration*. Realization of imports is by no means limited only by our own willingness, but by many other factors as well. These are particularly:

- shortages which appear in certain groups of products, and primarily in certain raw materials;
- the unsatisfactory technological (quality) standards of a portion of products;
- the marked separation of commodity funds intended for domestic consumption and for export, in certain socialist countries, etc.

There is no doubt that these circumstances make imports more difficult, even if the Hungarian party were willing to increase them. However, none of these factors disproves the necessity of a more dynamic import policy, and at most they indicate the limits and show the direction which must be observed in trade with the socialist countries, in order to bridge over obstacles in this field.

A dynamic import policy and the gradual elimination of protectionism is also a condition for more efficient economic development in other respects. The gradual pulling down of the walls of protectionism, and on that basis, a more immediate sensitivity to world market impulses can become a *first rate incentive for economic growth and technological progress*. The debate going on in Britain, regarding entry into the Common Market is characteristic of the approach to this problem. Those opposed to joining, argue that it would cause extremely sharp competition on the British markets since, in many fields, British producers would not be able to keep in step with increasing competition. Those in favour of joining use the same argument but they also say: let the competition of the Common Market come, because it is about time that British industry, which has been stagnating in many fields, shall be forced into more rapid development.

This question is a topical one also in Hungary. Elimination of protectionism would undoubtedly force domestic production to improve its technological level, and to reduce costs. However, not only are we able to bear this pressure, but we must view it as one of the major means to achieve the goals mentioned. However, it must be kept in mind that the method and rate of realization is of particularly great importance, for, while a sober rate means a *healthy pressure*, running ahead might cause very great damage. But, in practice it is often not easy to determine the borderline, within which removal of protectionism and liberalization of imports aid production, and beyond which they force it to decrease. The viewpoint of ensuring employment also sets limits to lessening the protection of industry, if not in general, in certain fields, and in certain periods. This means that while we must consistently execute this policy, we should proceed carefully and gradually.

Prior to the reform in economic management, world market impulses had little effect on Hungary's economic development. In this respect the reform brought about a fundamental change, although, for the time being, prices and financial bridges mitigate *the effects of world market impulses on the*

Hungarian national economy. It is clear that no country can completely give up the use of financial bridges, including Hungary. It is not only protection of the development of new productive branches that requires them, but they are also necessary because a wide range of prices valid on the socialist market deviate from world market prices. This is why we can orientate domestic production correctly only if we apply financial bridges to eliminate undesirable effects. However, the actual system of prices and financial bridges does not yet sufficiently serve the goal of the new system of economic management to reduce the over-protection of domestic production. In order to ensure smooth transition, full recognition of domestic cost relations was maintained, on too broad a scale, and in some cases, to an over-exaggerated extent, while the effects of world market price relations were neutralized. This is shown by the following.

— The *autarkic nature of the producer price system*, with its basic principle of fully recognizing inputs, taxes and profits in the price, was maintained. The price system *transmits world market impulses only to a limited extent* and, although the prices of export and import products are determined by world market prices calculated with the foreign exchange multiplier, the financial bridges applied on a broad scale, neutralize their influence in many cases.

— *The subsidies to production and foreign trade* are still substantial.

— Despite simplifications already executed, *the system of state reimbursement for exports is still too broad in scope and too differentiated*. The view that an income of at least *identical size* must be attained for products whether exported or sold domestically is still the ruling one, even if this income is not covered by the price at which the product is sold abroad. In order to provide export incentives in many branches of industry, state reimbursement ensures greater profits than domestic sale, while it does not distinguish between efficient and inefficient exports.

— *Import turnover tax*, which, despite repeated reductions, is still *too broad in scope and too high*, provides substantial, and in many cases *unjustified* protection for domestic production. Also imports of consumer goods from the socialist countries are limited by the fact that many products bear not only domestic turnover tax, but a separate import turnover tax as well. Arguments in defence of protectionism regarding consumer goods (e.g. import turnover tax) primarily emphasize that the prices of import products should be fitted into the consumer price system. This is already ensured by the (domestic) turnover tax always calculated into the price of the import products. However, the import turnover tax levied in excess of this causes a special isolation of consumer price ratios and, aside from this, it is one of the reasons why the share of consumer goods is so low in imports (in 1968 it did not even reach 8 per cent, compared to the 12–16 per cent of the small West European countries studied).

This simply illustrates the fact that protection of domestic production is *exaggerated, even in competition with goods stemming from the socialist countries*. Reducing the over-protection of domestic production is not only a condition for the development of exports, the extension of the international division of labour, and in this way, for making efficient the entire economy, but it aids internal economic development in other interrelations as well. In many cases it would not be economic to end the disadvantages stemming from monopoly situations, if competition were primarily limited to domestic production, e.g. by the creation of small factories, which could produce less economically, to break the monopoly of a large-scale factory. In many fields of economic life it would be purposeful to create the desired competition *through imports*, by ending protectionism and by gradual liberalization. Taking our export possibilities into consideration, this can be realized in the near future primarily through increasing our imports from the CMEA countries. At the same time, an increase in imports would substantially increase the range of consumer goods without any particular financial sacrifice.

Ending protectionism is deeply related to the development of the entire domestic production structure. This is why it cannot take place from one day to the next, but must be the result of a comparatively long-lasting process, and can by no means be realized in all branches of industry, or groups of products at the same rate. A great many factors must be taken into consideration in order to develop the proper order and rate of reducing protectionism.

Import policy and regulators

Realizing what has been sketched out above requires both internal regulations and international agreements.

Concentration of exports, utilization of comparative advantages, bolder liberalization and dynamic increase of imports and gradual elimination of protectionism *must receive a greater emphasis in Hungarian economic policy*. This trend must, above all, assert itself in the perspective plans. *Macro-economic tools are also needed* to change the structure of production, consumption and foreign trade, along with the use of the market regulators for this purpose.

The goal can be determined on the basis of perspective plans, but it would be a mistake to identify the programme aimed at changing import policy and the gradual reduction of protectionism with *perspective plans*. The strategy of international cooperation could only be worked out in outlines in the beginning, and gradual concretization could only take place during realization, if for no other reason, then for the fact that — by its nature — implementation would never depend exclusively on us, but also on our foreign trade partners. Therefore, resolutions passed on this issue must be supported by international discussions and common agreements. It must be ensured

that the proposed policy shall not be carried to extremes, since a too narrow range of exports and a sudden expansion of the import range could put us in a position so dependent on the world market, or even on the socialist market that it would rather prevent than aid secure economic development.

One of the immediate tasks in our international cooperation strategy is to determine for a longer period *which are the exporting branches we must primarily concentrate on, which are those branches where it is in our interests to increase import competition, and which are those where we wish to maintain the protection of domestic production*. This requires central, state resolution, and will provide a foundation for the development of our entire cooperation policy. Along with the strategic goals of international cooperation — which, obviously, can only be realized in a longer period of time — programmes for shorter terms must be worked out prior to preparing the national economic plans, and to talks on international agreements.

At the same time, the particular features of our present situation must also be taken into consideration. Owing to the reform in the system of economic management, enterprise interest in exports has grown. As a result of the great initiative of enterprise management, and their independent way of thinking, *important new forces* have joined in to ensure and increase exports. However, *there are no such forces operating in respect of imports, particularly from socialist countries*. The producers and foreign trading companies are also much less interested in expanding imports from socialist countries than in increasing exports. The foreign trade representatives operating in the socialist countries also need time, until they can change over from the earlier view, so that along with increasing exports they devote to the question of extending imports the attention it deserves. This is why the attention of state control must be directed — in the interests of developing cooperation as a whole, but also in order to increase exports — towards the *questions of efficient imports*, primarily from the *socialist market*. Today the greatest need for an active interference of state bodies in international cooperation is felt regarding the development of a deliberate import policy, and the application of related decisions. In this respect, central plans must be worked out to mark the rate for the elimination of protectionism, and the extension of import liberalization along with concepts regarding the individual countries, and those regulations which will allow the use of comparative advantage also in imports.

One of the decisive means in the policy directed toward the gradual use of comparative advantages, and elimination of protectionism is the *extension of international specialization and cooperation*. International specialization of the forces of production enables — through the concentration of productive activity and the increase in the productivity of social labour — to increase the competitiveness of exports, while, at the same time, it promotes control of home production through import competition. Specialization and cooperation

are factors in the stability of international economic ties, through the creation of stabler market relations, and by increasing the competitiveness of our products.

In improving the financial and foreign exchange economic regulators, how to support the realization of the economic policy concept mentioned must be taken into consideration. One of the important elements should be *the liquidation of the autarkic nature of the price system*; through this the effects of the world market will better assert themselves in prices. This type of system transmits more reliable and quicker economic value judgement to domestic production and the consumer. If the effects of world market prices can be asserted in our price system better than at present, then they could help the enterprises to stand fast in the ever-sharpening international competition.

To increase import competition and reduce protectionism in the relations of the socialist countries would require, among other things, the following changes in the accounting between enterprises and the state.

— *Budget support should gradually be withdrawn* from those factories where this is the only factor making them competitive with imports from the socialist countries.

— *Subsidies on exports directed towards the socialist countries should be reduced* to help that production and exports to socialist countries should concentrate on the most efficient product groups. However, in scheduling the reduction of subsidies, care must be taken that this should not endanger fulfilment of international obligations.

— The viewpoint of comparative advantages should be gradually realized also by *a revision of the state reimbursement system*. For this reason we should gradually break with the practice which almost automatically reimburses the difference between foreign exchange prices, and the total of domestic input, profits and taxes, and sometimes even more than that.

— *We should reexamine the system of import turnover taxes applied to imports from socialist countries*. In general, it would be wise to eliminate it regarding means of production, and also consumer goods, when and where the balance of the commodity funds and purchasing power make it possible.

In the interests of further deepening the division of labour with the socialist countries, *international talks* should be used to work out those regulations which take the *special features in the economies of the socialist countries and the cooperation which has developed between the CMEA countries* into consideration. These include:

— In those countries — primarily the Soviet Union — where within a broad range of products the list of export products is *comparatively small*, *increased market research* must be carried on to *extend import possibilities*. In the Soviet Union there are many machines, equipment and other intermediary products made, whose imports would be economic for Hungary, but in

many cases the Hungarian consumer does not even know them, since they do not belong to the customary commodity fund of foreign trade. This not only refers to finished products, but to intermediary goods, machine industry units, and consumer goods. Imports of productive units and components (motors, fittings, pumps, etc.) would deserve attention.

— We must find the *most efficient organizational form of cooperation on branch level*, in those fields where a more efficient division of labour specialization and increasing exports and imports stemming from this can be realized within individual branches. In this connection realization of the trend must be prevented which would desire imports and exports to balance each other within each small group of products.

— We must increase the efforts to apply *suitable market methods* aimed at increasing socialist imports. It is important, e.g. to compile catalogues of the goods produced in the socialist countries. We should more often organize exhibitions, send market research delegations abroad, and establish missions with the intention of increasing imports. Special measures should be worked out to *increase machine imports from the socialist countries*. (Discussions of these issues are already under way, and thus I neglect their detailed description.)

The concept described *is in harmony with the Hungarian concepts expressed on the question of socialist integration*. However, it would be incorrect if increasing imports, extension of the import range, and elimination of protectionism were made dependent on the progress of the talks directed towards integration. On the one hand, we would waste time, and on the other, not only talks can advance the cause of integration, but so can concrete measures taken by the individual countries. Realization of the proposed ideas *is in our interests, even if for a time integration only proceeds slowly*. At the same time, these measures, if they prove successful, could play the role of a catalytic in certain issues.

It is absolutely necessary for international talks to also support realization of the proposed concept. It would be wide *to initiate talks with the CMEA countries* — perhaps first of all with those whose foreign trade mechanisms are developing in directions similar to our own — in order to mutually discuss and implement the measures we have discussed above. One goal of these talks could be to gradually liberalize the turnover of an increasingly large sphere of products, and to reciprocally remove as many administrative barriers as possible to imports. The other goal could be to discuss the system of taxation and other conditions ensuring equal treatment we could provide for one another on our markets. It would be useful to hold similar talks with every country with which we have substantial economic ties, for realization of the concept depends to a great extent on the understanding and support we receive in these countries. For this reason, realization of a coordinated dynamic import

policy with respect to the socialist countries, could become one of the fundamental questions of economic policy coordination on the agenda, and it could play a suitable role in economic talns with the non-socialist countries too.

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ЭФФЕКТИВНОСТЬ УЧАСТИЯ ВЕНГРИИ В МЕЖДУНАРОДНОМ СОТРУДНИЧЕСТВЕ И ДОЛГОСРОЧНАЯ ИМПОРТНАЯ ПОЛИТИКА

Я. СИТА

В эпоху научно-технической революции повышенное использование возможностей, заложенных в международном сотрудничестве содействует росту экономической эффективности. Предпосылкой повышения экономической эффективности является концентрация серьезных умственных и материальных сил в той или иной отрасли. Поэтому единственной реальной основой быстрого и успешного прогресса для небольшой страны является концентрация экспорта на сравнительно небольшое число отраслей и параллельное развитие широкого диапазона импорта.

Такая экономическая концепция не могла реализоваться в достаточной мере в венгерской экономической политике, — в особенности в период экстенсивного развития из-за отсутствия равновесия платежного баланса. В результате объективных условий сложился жесткий протекционизм. Переход к интенсивному развитию требует постепенного упразднения протекционизма. Введение более динамичной импортной политики и постепенное упразднение протекционизма следует осуществить с учетом динамических сравнительных выгод. Следует оценить, достижение определенной цели с наименьшими затратами происходит ли путем отечественного производства или импорта.

Среди целеустановок новой системы хозяйственного управления фигурировало постепенное допущение импульсов внешнего рынка до отечественного производства. В результате необходимой, из-за бесперебойного перевода экономической жизни на новые рельсы, постепенности в венгерской системе цен еще можно обнаружить автархические черты и все еще является слишком широкой и чрезмерно дифференцированной система экспортных субвенций и налога с оборота в случае импорта из социалистических стран. По этой причине, — а также потому, что изменение структуры производства можно осуществить только в течение длительного времени, — мы не можем быть удовлетворены результатами, достигнутыми в этой области.

Задача венгерской экономической политики заключается в концентрации экспорта и ускорении темпа расширения импортного диапазона, в оживлении конкуренции импорта из социалистических стран, причем это должно найти отражение в среднесрочных и долгосрочных планах. Прежде всего следует определить те отрасли, в которых желательно осуществить концентрацию экспорта, а систему экономического регулирования следует постепенно, но последовательно приспосабливать к разрыванию конкуренции импорта из социалистических стран. Так постепенно следует лишить бюджетных дотаций те предприятия, которые только благодаря последним конкурентоспособны в отношении к импорту из социалистических стран, в системе экспортных субсидий нужно провести в жизнь более высокие требования к эффективности, надо осуществлять более интенсивное исследование рынка в направлении расширения возможностей импорта из социалистических стран и т. д.

Изложенная концепция находится в соответствии с соображениями относительно социалистической интеграции.

J. RÉDEI

A NEW APPROACH TO INDUSTRIAL AND TECHNICAL COOPERATION WITH THE DEVELOPING WORLD*

The study analyses the experiences gained in industrial cooperation between East and West from the point of view whether and how it could be applied to developing countries. The conclusion is that through industrial cooperation with enterprises in developed countries, the developing countries might be able to diversify production and export by producing for a larger market, without increasing their external dependency. The difference in the level of economic development and foreign trade performance between developing and socialist countries is in no way such major obstacle that would prevent many developing countries from following this example of industrial cooperation.

The concept of industrial cooperation

To begin with, let me make a few remarks by way of a definition:

Industrial cooperation is understood to mean the type of production and business relationship of a lasting nature between two or more independent enterprises located in different countries, in which:

a) the participating enterprises retain their legal entity but enter into a lasting and technologically warranted production relationship;

b) these production and technological relations are mutual, that is, do not consist in one-sided transfer of equipment, licences or know-how by only one of the participating enterprises and payment of compensation with currency or deliveries of products unrelated to a specific technological process by the other, but involve a *two-way flow of techniques and products in an organic process*;

c) production and technical relations are complemented with various arrangements for the marketing of the final product in the partner countries or in third countries;

d) decision-making in matters of cooperation is vested in the enterprises as an indispensable characteristic of the relations, while inter-governmental agreements provide a general framework for cooperation, promote

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enterprise initiatives and, on a reciprocal basis, grant various preferences for participating enterprises (exports and imports not subject to any quota regulations, mutual customs reductions and credit facilities, etc.).

This definition reflects, perhaps, a somewhat narrow concept of industrial cooperation. The limitation is deliberate, dictated by practical motivation rather than deduced from scientific premisses, in order to channel cooperation in a direction which will promote the scientific-technical and marketing advance of participating enterprises, integrate the technological efforts of two or more enterprises located in two different countries (a Western and an Eastern country or an advanced and a developing country), and place the exchange and improvement of technological know-how between them on a lasting basis. In *this* sense, and in this sense only, we have excluded from the concept of cooperation:

— simple sales of plants, equipment and licences, that is, credit or currency settlements, though this form may also leave scope for active participation by technicians, engineers and scientists of the buying country in the construction or development of a purchased project. On the other hand, we have not excluded from the concept of cooperation:

— joint scientific-technical research at government level, which might be conducive to cooperation arrangements between enterprises. The scope of industrial cooperation similarly includes the exchange of scientific-technical experience, licences and know-how which may be agreed upon between independent enterprises.

The main types of cooperation arrangements are the following:

— Arrangements concerning the joint manufacturing of a specified product, under which a certain final product (electronic computer, hydraulic excavator, punch-card-system, lathe, etc.) is manufactured from component parts made separately by the two enterprises. In this form of cooperation the two partners may have a more or less equal share of responsibility as it actually concerns a joint product (this form is called *cotraitance* in French) or one partner delivers component parts of part-equipment only, while another partner bears most of the responsibility for deliveries of the final product (this form is called *soustraitance* in French).

— Arrangements concerning *the joint production of different types (models) of a product-group*, under which certain types of a specific product are manufactured by one partner and other types by another partner, such as various pneumatic parts, motors of different size, etc. It depends on the nature of the trade agreement whether one enterprise acts as a contractor and another as a subcontractor or they take charge jointly of marketing operations in respect of all manufactured items.

— *Joint ventures in third countries* are a special form of arrangements for joint manufacturing and deliveries of a specified product, under which two

enterprises carry out a big project (power plant, engine factory, etc.) in a third country. These are non-recurrent ventures but the business is so large in scope, the periods of deliveries and construction are generally so long (3—5 years) that this type of cooperation is also considered to have a stable and lasting pattern.

The various types of cooperation arrangements are exemplified in Annex I.

A rather wide range of variations can be conceived within these three basic categories of cooperation. The classification is based on technical criteria. Another criterion for classification might be the responsibility for deliveries toward the buyer. Accordingly — as we stated before — the French classification knows two types of cooperation: *cotraitance* where the two partners bear a joint business responsibility toward the buyer, and *soustraitance* where only one partner is responsible toward the buyer.

An essential element of industrial cooperation is the transfer by one enterprise (the technologically more advanced) to another of equipment, licences and know-how. The methods of compensation for goods and intellectual products may vary, including, for instance, settlements in whole or in part by deliveries of products manufactured in cooperation. A cooperation agreement, however, should not necessarily involve an arrangement for full compensation by deliveries of products made in cooperation (the reverse flow of technology). This is another feature distinguishing cooperation arrangements from the so-called compensatory transactions where partners seek to achieve complete balance of mutual deliveries and where the most important of all, the exchange of goods has no technological content.

Strategies of the socialist countries (Hungary) for industrial cooperation

Having outlined the content of industrial-technical cooperation, I should like to say a few words about the considerations that have motivated the socialist countries, including Hungary, to expand cooperation in industrial production. The share of socialist countries in world trade is some 10—11 per cent, which is very disproportionate to their significant share of 33—35 per cent in world production.

The share of the socialist countries in the trade of the industrialized capitalist countries is about 4 per cent, or nearly double the 1953 level (2.1 per cent) while the share of the industrial capitalist countries in the trade of the socialist countries stands at about 25 per cent against 14 in 1953. Still, the past ten years (1958—1968) have actually seen a stagnation in trade expansion, as is shown by the following figures.

Table 1*Percentage ratio of East-West trade to total Western trade*

1962	3.7
1963	3.6
1964	3.8
1965	3.8
1966	4.0
1967	4.1
1968	3.8

These figures have led economists in the socialist countries to the conclusion that a great number of obstacles should be removed in order to maintain a dynamic growth of trade between socialist and capitalist countries. By way of indication I should refer to the need to remove quota limitations on exports from the socialist countries, to end customs and credit discriminations, to abolish the embargo list, etc. The firms of socialist countries should have a stronger feeling of security in the Western markets in order to be able to effect the kind of structural changes in the commodity pattern of their exports on which continued dynamic growth depends. An undeniable connexion exists between the dynamics of trade and the pattern of exports.

During the past ten years (1958—1968) the most dynamic sector of trade between the western countries was engineering (14—15 per cent), followed by chemicals (13—14 per cent) and other industrial products (12—13 per cent). Accordingly, trade in these three categories of industrial commodities rose at a higher than average rate (12 per cent), while the growth of trade in prime materials remained far below average (5—7 per cent).

In socialist exports to Western countries the share of both engineering (9—10 per cent) and chemicals (7—8 per cent) increased less than average (12 per cent), with a rapid rise (15—16 per cent) recorded only in the turnover of other industrial products (mainly of the light industry). In all three categories of prime materials socialist exports increased faster than the trade of industrial countries, particularly so in the category of raw materials (13 per cent for the socialist countries and 6 per cent for the western countries). This is shown by the great deviations in the share of individual commodity groups in total turnover:

A far more dynamic expansion of East-West trade is inconceivable without some modification of its structure, that is, without increasing the volume of trade in machinery and machine components flowing to the socialist countries from the West and back.

Are there any obstacles in the way of such exchange? I think, there are, indeed a double set of obstacles (the same or nearly the same for the developing countries, too).

Table 2*Shares of selected commodity groups in total turnover increase (1958–1962)*

Commodity group	Total turnover of countries	Exports of socialist to Western countries
Foodstuffs	10	18
Prime materials	8	23
Fuels	2	16
Total prime materials	20	57
Chemicals	9	4
Machinery	36	7
Other industrial goods	33	31
Total industrial goods	78	42
Miscellaneous	2	1
	100	100

Source: UN Monthly Bulletin of Statistics

Newcomers' difficulties in exporting technical products

One type of the obstacles I would call *institutional* in character. The supplier of machinery or machine components has to establish a more stable market position for himself than the supplier of prime materials, agricultural produce or articles of light industry. Some of these latter goods, including most products of light industry, are rather neutral as they also have qualitative characteristics relatively easy to define. While the suppliers of cereals, meat, fruits, and even of cotton fabrics or garments have to meet certain qualitative requirements as well, their products are used up in a relatively short time. Thus, once these qualitative requirements are met, there are no further troubles or risks involved. Not so with engineering products, machinery and components of capital equipment, where the requirements to be met by the exporter are not only more stringent but the qualitative criteria are not set for a single delivery. A company with a goodwill can realize higher prices for goods of the same quality than a less known enterprise, and this holds particularly for the supply of spare parts and machine components. The Western importer wants to know the technological standard and capacity of the enterprise on which the competitiveness of his own products may depend.

Machinery exports make it also necessary for exporters of the socialist and developing countries to set up offices and servicing agencies abroad, but this involves certain risks they would never undertake unless they, as investors,

had confidence in the durability of relations and were confident that an eventual change in the political situation — and this is of concern particularly to the socialist countries — would not directly affect their business activities.

There is one more obstacle to the development of such relations, namely, the lack of knowledge of the potential Western partners about the competitive capacity of the products of the socialist and, in greater measure, of the developing countries' companies. And as, *en bloc*, these firms have not yet been able to appear on the Western markets or have made but occasional and sporadic appearances with certain products, they have, indeed, been unable to get acquainted with the techniques of marketing and with market requirements, things which can be learned only and alone through actual experience on the spot.

I think it would be useful to point to some of the possible ways out. In our experience, one of the ways, and by no means an insignificant one, towards a solution leads through industrial cooperation as defined in the preceding part of my paper.

Advantages of industrial cooperation between East and West

I will now briefly outline the advantages accruing from industrial cooperation to Western and Eastern partners.

The general advantages inherent in the various forms of cooperation are obvious from the aspect of East-West trade: they may direct trade toward new channels, such as exchange of machinery and component parts, which could move it from its present inertia. But what are the direct benefits of cooperation for participating enterprises?

The advantages to Western partners are the following:

a) Through cooperation they may expand their markets in the socialist countries. Practice has shown that socialist enterprises like to buy from those of their Western partners with whom they have established cooperation relations. Products made in cooperation are likely to become popular and find a ready market in the socialist country concerned. The market is to expand both in depth and in scope as the socialist countries may sell the line of goods on other socialist markets or in the developing countries which Western partners may not directly reach at all.

b) A second advantage lies in savings in costs or in expanding physical capacities. Both offer tangible results. Lower production costs combined with highly productive imported techniques may bring about a relatively favourable cost level altogether. A similar advantage, partly related to production costs, is that a Western firm, by having part of its products manufactured by

a socialist enterprise, may, in a long boom period, easily surmount the limitations of its productive capacities.

c) A third advantage is the stability of relations. A Western company cooperating with a socialist partner is, in a way, organically integrated with the socialist market and may enjoy preferences in quotas, credits and — in case of reciprocity — in customs duties, which serve to increase its competitiveness on these markets. An even greater benefit than material advantage is the moral gain accruing, to a Western company merely from the fact of its business association even if not in a legal sense, with a socialist enterprise.

What are the advantages of cooperation to socialist enterprises?

a) Through cooperation, socialist enterprises strive to increase the competitiveness of their industrial export products by importing the latest technology. Cooperation gives enterprises a greater assurance and security that they not only obtain the most up-to-date technology of the moment but, seeing it improved, refined and perfected by their Western partners, are also able to keep abreast of technological progress.

b) Through cooperation, socialist enterprises can establish lasting business relations and thus ensure safe markets for their products. Another advantage is that socialist enterprises are enabled to widen the range of their production and enlarge the assortment of goods for sale and, through trade agreements combined with cooperation arrangements, to find easier access to external markets.

Are there similar advantages in North-South cooperation?

Let us return to the developing countries to see how these advantages can be realized in their case. While the problems of developing countries are not identical with those of the socialist ones as their industrial products account for a smaller share in exports,* this fact means only that these countries have to face a much stronger pressure of the problem how to improve the structure of their exports, and the difficulties of finding a solution are also greater. In the forum of UNCTAD, the developing countries achieve some results in their struggle for preferential treatment of their manufactured export products. Preferential treatment, however, may acquire a material content only as the industrialization of developing countries advances. At this point I wish to touch on the complex questions of industrialization from the aspect of industrial cooperation only.

* The share of industrial products in the total exports of developing countries is 20–21 per cent, of which 1.5–2 per cent is accounted for by machinery. Manufactures and semi-manufactures account for 64–66 and machinery for 30–32 per cent in the total exports of socialist countries. Machinery accounts for as little as 1.2 per cent of the exports of developing countries to the industrially advanced countries, against 9 per cent in the case of socialist countries.

Industrial cooperation, as I have defined it, may offer the following advantages (as against import-substituting industrialization or industrialization in the nature of an assembly shop established with foreign capital and technological aid usually directed to one market or to the market of perhaps a few neighbouring developing countries):

- this type of cooperation may ensure that the industrial products of developing countries shall reach a satisfactory level of technological development;

- under a cooperation scheme, the enterprise of an advanced country provides the latest technology and can also ensure its constant improvement;

- under a cooperation scheme, industrial development also serves to open up export outlets for the developing countries;

- cooperation starts a process of industrialization which retains the national character of industry and restricts foreign capital investments in the developing countries;

- cooperation leads to a change in the traditional pattern of commodity exchange, replacing the "raw materials for industrial products" formula by the "industrial product for industrial product" pattern of trade;

- cooperation serves to reduce the problems of financing industrialization by allowing machinery and licences to be paid for by deliveries of products.

These are benefits accruing to the developing countries. But the advanced countries also tend to gain from cooperation. The advantages are similar to those mentioned in connection with East-West cooperation:

- production of certain units of equipment, components and even machinery of different types in the developing countries serves in part to bring a solution to the problems of critically overloaded capacity in the advanced countries and in part to achieve savings in production costs;

- cooperation leads to market expansion in depth and scope; industrialization not only increases the level of demand in global terms but also makes the marketing of specified products in which it is interested easier for the Western firm participating in cooperation. (For an example, see the cooperation arrangement between the Hungarian Factory of Precision Mechanical Products at Győr and the Mecman Company of Sweden described in Annex I.)

The widening scope of markets implies an outlet for the products made on a cooperation basis in the developing countries as well.

This type of cooperation encounters a theoretical objection that it tends to strengthen relations based on a bilateral framework of compensation.

As regards this objection, a distinction should be made between compensation arrangements of a primitive nature which seek to bring about trade equilibrium with technologically unrelated products and may create forced channels of trade, on the one hand, and those for the exchange of products

through industrial cooperation aimed at a joint output and a joint marketing in a later stage, on the other. What we have here is a special kind of international division of labour widely practised between firms of the industrial countries and this formula is applied to relations between developing and industrial countries. While in the industrial countries this process is, at a high stage of industrial development, basically subject to the operation of market laws, here we have the case of an oriented process, in which the enterprises are the subjects of the production process but the whole of cooperation is promoted and encouraged by deliberate Government action.

Industrial cooperation complementing or supplementing direct investments in the developing world

Cooperation has an additional advantage over traditional industrialization with the help of foreign investments in that it provides a greater stimulus for the export orientation of industrial production. In discussing this question I shall rely on the article "The Latin-American Industry and Foreign Dependence" by Osvaldo Sunkel, a well-known Chilean economist, which was published in the April 1968 issue of *Comercio Exterior of Mexico*. Sunkel writes:

"Diversification of our countries' exports through industrial exports comes up against difficulties due to a close interpenetration of the domestic industry with foreign enterprises. Be it a subsidiary or a domestic company producing under foreign licence and trade-mark, the activity of the parent companies limits the operations of these firms on the domestic market, preventing them from exporting such products not only to the advanced but also to the developing countries, for it might well happen that in the (neighbouring) developing country there also exists a subsidiary company which has acquired the licence in question or is using the same trade mark, or, if not, it obtains these products from the country where the parent company is based. Latin America has a great deal of known examples to offer in this respect.

Under such circumstances, even if the developing countries were to receive tariff concessions on the export of their industrial products, the dependence of most of their industrial activities would substantially hinder them in making use of available possibilities."

Sunkel goes on to discuss other circumstances that are likely to constitute disadvantages of industrialization achieved with the help of direct foreign capital investments. For instance, the products manufactured are not adapted to the requirements of developing countries; the outlays attendant upon direct capital investments (transfers of profit, licence fees, interest charges, etc.) represent a heavy burden on the balance of payments of the devel-

oping countries; while reinvestment of profits comes to relieve this pressure, it entails a gradual "denationalization" of the domestic industry.

We have followed closely the line of Sunkel's reasoning only to the extent that it concerns the industrial export potentials of developing countries. We think that the problem here is partly similar to that which has led the socialist countries to favour the idea of industrial cooperation. The problem is similar only in part, because for the socialist countries the market possibilities appear differently, precisely as a result of economic cooperation between them. At the same time, as I have pointed out, industrial cooperation is one of the ways for the socialist countries to find, as industrial partners of Western firms, outlets for certain industrial products on markets where they do not yet have an established goodwill.

I think it noteworthy that, precisely because of these considerations, Sunkel has also come to the conclusion that the developing countries should follow the practice of the cooperation emerging between socialist and Western firms. We agree with Sunkel in stating that cooperation must not be conceived as the only desirable alternative to, and displacement of the flow of external aid to or private capital investments in the developing countries. We regard industrial cooperation — beside other means and ways of industrialization, which we do not question as being warranted in given cases — as an important element of industrialization strategy.

We agree with Sunkel in saying that "The experience described above and the said concept of industrial cooperation open up new channels for cooperation with foreign private firms which, on the one hand, allow the utilization of advantages offered by such firms (financial facilities, technological, administrative and organization experience) and, on the other, may eliminate the disadvantageous aspects of cooperation". Within a wider context, Sunkel finds the problem in the fact that while traditional capital investment serves to promote import-substituting industrialization — which, on balance, does not enhance diversification of exports and the growth of its volume but, in the shorter or longer run, threatens the equilibrium of the balance of trade and payments — cooperation, by linking two decision-making centres in such a way that imported technology and know-how are, in whole or in part, directly or indirectly, paid for with products manufactured with equipment received for cooperation purposes, tends to increase the industrial export potential and may modify the one-sided process of import-substituting industrialization, including its adverse effects on the balance of payments.

The author realizes that the experience of the socialist countries, including Hungary — which he knows best — in industrial cooperation is only partially applicable to the developing countries. Along with the similarity of problems, there are also essential dissimilarities regarding the sales of advanced technical products on the Western markets, such as:

- the socialist countries have, on the whole, reached;
- and some of them have even surpassed — the middle stage of industrial development;
- engineering goods weigh heavily in their exports, particularly to socialist and developing countries; they export a growing volume of some engineering products to certain industrial countries as well (machinery represents 15–16 per cent in the total exports of Czechoslovakia and the German Democratic Republic to the West; in Hungarian exports to the industrial capitalist countries the ratio is 13 per cent for lathes, 66 per cent for drilling machines, 42 per cent for machinery for the leather, fur and shoe industries, 58 per cent for ships, 18 per cent for radio sets, 91 per cent for bicycles, 30 per cent for incandescent lamps and 58 per cent for fluorescent tubes);
- the socialist countries have a more advanced technical infrastructure and a relatively significant reserve of technical professionals and skilled workers;
- the planned pattern of cooperation and specialization among the socialist countries increases the competitive capacity of their engineering production.

With all these advantages, however, Hungary is well aware of the fact that industrial cooperation is a process not without problems. Yet, this process has been developed because:

- the State has taken effective promotion measures; Hungary has a State Committee for Cooperation, composed of representatives of the most important ministries; two cooperation agencies have been set up to bring partners together; and enterprise has been established to contribute capital to major cooperation projects and to take care of coordination if two or more Hungarian enterprises are interested in a project; we have concluded inter-governmental agreements on industrial and technical cooperation with ten countries, setting up a series of specialized sub-commissions concerned with different industrial branches; and that;
- we have entrusted the producing enterprises with primary responsibility for cooperation arrangements and projects and have provided material incentives to them for the realization of cooperation projects.

It is characteristic in this respect that while in the period of 1964 to 1968 Hungarian enterprises concluded 27 cooperation arrangements, the number of authorizations for such arrangements was 26 in 1968 alone, 42 in 1969 and more than 20 in the first six months of 1970. (See Annex II.)

A final remark: industrial cooperation links together two centres of decision-making in such a way that State control and assistance *does not hamper the very active role of the private or State enterprises*. The main merit of industrial cooperation lies in that, without a formal foreign capital participation, *the home industry may qualify as an accepted industrial partner of the advanced*

country. It may offer a certain relief to the strain on the trade balance which currently goes parallel with industrialization by private capital in developing countries, by providing to the infant industries of the developing countries wider export market possibilities.

How far these asseverations are true, must be proved in the practice. The experience of the socialist countries is nevertheless encouraging in this respect.

Annex I

Joint manufacturing of a specified product

1. The "Vörös Csillag" Tractor Factory has developed the D4KB type, four-wheel-drive tractor, excellent for both agricultural and forest operations. At the same time, the Steyr Works of Austria possess an engine type 110—140 HP, by which the capacity of the D4KB tractor can be considerably increased and its technical qualities maximally exploited. In addition, the Steyr Works have rich experience in the manufacturing of tractors and related machine tools. The Dutra/Steyr tractor made under the contract combines the experience and technological merits of the two factories. On the basis of market sharing, both partners sell these tractors on their domestic markets and in third countries.

2. Under a cooperation arrangement between the Viscose Factory of Nyergesújfalu and the Österreichische Stickstoffwerke, the Austrian partner produces the acrylnitril monomer for the manufacture of the polyacrylnitril, while the Hungarian partner gears itself to the polymerization of the monomer and drawing the fibre.

The final product, the polyacrylnitril (PAN) fibre, is marketed under a market-sharing agreement. The cooperation arrangement saves \$ 3—4 million on investment costs on both sides and allows both partners to reach an optimal volume of production.

3. Under a cooperation contract between Medicor Works and Siemens-Reiniger Werke (Federal Republic of Germany):

— Medicor Works supplies X-ray machine components and fittings according to Siemens blueprints and under Siemens technical guidance;

— Siemens undertook to represent Hungarian X-ray equipment and medical instruments in third markets (Greece, Brazil, Pakistan, etc.);

— Medicor Works grants Siemens an increasing market concession for its purchases in Hungary;

— Medicor obtained the licence on Siemens Nanofoss (a new machine with excellent technical parameters) and put it into production.

4. Under an arrangement between "Komplex" Agricultural Machine Repairs Enterprise at Hódmezővásárhely and Steyr Works:

— the Hungarian enterprise is to manufacture tractor-drawn automatic windrow pickup cars jointly with Steyr Works. Three hundred such machines are to reach Hungarian farms in 1970. Some of the components come from Austria on the basis of settlement through Komplex's deliveries of Hungarian-made components. Provision is also made for the joint development of higher-capacity windrow pickups;

— Komplex has been authorized to export these cars to the socialist countries and to some markets in the Near and the Far East.

Joint production of different types of a product group

1. Under a cooperation arrangement between Danuvia Factory for Machine Tools and the West German Rexroth firm, Hungary will start the production of certain hydraulic units on the know-how of the West German firm, which will continuously take over part of these units to complete its own hydraulic system. At the same time, Danuvia will be able to deliver complete regulating systems with the input of hydraulic units imported from Rexroth. Thus, Hungary has started the manufacture of an advanced product with existing capacities. On the other hand, the West German firm supplying the know-how will achieve savings on investment costs at home as it will be able to satisfy from Hungary its growing needs for certain units.

2. Under a contractual arrangement between the Chemical Combine of Borsod and the Bleiberger Bergwerksunion of Austria, the Hungarian partner manufactures organic stabilizers for the rubber and plastics industry on the basis of its available primary materials and experiences, while the inorganic stabilizers are made by the Austrian partner. Thus, on the basis of market sharing, both factories have a full assortment of stabilizers without the need for development or investment in a field unknown to them.

3. The Factory of Eger for Precision Mechanical Products concluded in 1967 a cooperation agreement with the Mecman firm of Sweden for the manufacturing and marketing of pneumatic and hydraulic regulating systems it has developed for purposes of industrial mechanization and automation.

Under the agreement, the Mecman firm transferred to the Hungarian factory in 1967 the full production specification of the 1500 type cylinders.

The Hungarian factory also received from the Swedish firm appliances and component parts for compensation through deliveries of cylinders.

The Mecman firm granted the Hungarian factory interest-free credit along with the transfer of production specifications and deliveries of appliances and component parts.

Again, the Mecman firm undertook to buy 1500 type pneumatic cylinders, made in Hungary, for the full value of pneumatic and hydraulic units of other types purchase from it for domestic needs.

The Mecman firm transfers to the Hungarian factory its achievements in technical development.

The cooperation arrangement concluded with the Mecman firm for a period of ten years — along with stipulating mutual deliveries in an annual minimum value of one million Swedish crowns — allows the Hungarian factory to sell 10 per cent of its self-produced products and those delivered by the Mecman firm in other socialist countries.

Under this arrangement the Mecman firm takes care of the repairs under guarantee and servicing of Hungarian machines with built-in Mecman components in all those countries where it has an own servicing agency. On the other hand, the Hungarian factory undertook to set up servicing agencies in the socialist countries.

This initial contract of ten years' duration leaves scope for planning the manufacture in Hungary of additional groups of automatic units. The goal of the Hungarian factory is gradually to broaden the scale of domestic production of Mecman's technical units, starting with new types of cylinders and simpler (magnet) valves and then — after acquiring the necessary production experience and expanding the market — including more sophisticated units.

Subject to separate agreement, the contract allows marketing in third countries upon satisfaction of Hungarian and Swedish demands.

Annex 2

Distribution of cooperation contracts by countries

	1963—67	1968	1969	Total
German Federal Republic	9	11	12	32
Austria	4	5	7	16
United Kingdom	2	1	4	7
France	1	1	5	7
Switzerland	2	—	4	6
Italy	—	2	4	6
Sweden	4	1	—	5
Netherlands	3	—	2	5
Yugoslavia	—	—	4	4
Norway	—	1	—	1
Denmark	—	1	—	1
Mixed	2 ^a	3 ^b	—	5
Total	27	26	42	95

^{a)} Austrian-Italian, GFR, respectively Swedish-French

^{b)} Danish-Austrian, Swiss-French

— not defined.

Distribution of cooperation agreements by industrial branches

	1963—67	1968	1969	Total
Engineering	21	14	27	62 ^a
Chemical industry	1	7	10	18
Light industry	2	1	4	7
Agriculture	3	4	1	8
Total	27	26	42	95

^{a)} Five of the sixty-two cooperations concern the production of household appliances.

НОВЫЙ ПОДХОД К ПРОМЫШЛЕННОЙ И ТЕХНИЧЕСКОЙ КООПЕРАЦИИ С РАЗВИВАЮЩИМИСЯ СТРАНАМИ

Е. РЕДЕИ

Согласно определению автора международная промышленная кооперация представляет собой продолжительную производственную и коммерческую связь между промышленными предприятиями двух или нескольких стран. Характерной чертой промышленной кооперации является взаимное участие в производственном процессе и обмене техническими знаниями, причем в большинстве случаев эта двухсторонняя техническая связь сопровождается также и соответствующими торговыми контрактами. Тенденция данного определения заключается в том, что оно недвусмысленно указывает на продолжительный характер связей и органическое сочетание интересов, которые складываются в отношениях между двумя предприятиями. Производственная кооперация может принимать различные формы: совместное изготовление какого-нибудь продукта, разделение производственных профилей, совместное предпринимательство в третьих странах и т. д.

Автор излагает опыт, полученный в рамках кооперации социалистических предприятий с предприятиями капиталистических стран, останавливаясь в первую очередь на инициативах и результатах венгерских предприятий. Он указывает на то, что промышленная кооперация играет важную роль в венгерской внешнеторговой стратегии, в первую очередь в отношении увеличения экспорта готовой продукции, в капиталистические страны, в том числе изделий, представляющих собой результат высокого технического уровня производства и высококвалифицированных умственных усилий.

На основании опыта производственной кооперации между восточными и западными странами автор высказывает соображение, что эта форма может играть роль также и в экономических связях между развивающимися и развитыми странами, особенно если мы принимаем во внимание тот факт, что одно из главных стремлений развивающихся стран заключается в повышении доли готовой продукции в своем экспорте. Одна из форм иностранного содействия индустриализации развивающихся стран заключается в непосредственных капиталовложениях развитых стран. Однако известно, что последствия иностранных капиталовложений имеют и свои теневые стороны, отчасти потому, что они могут укреплять не всегда положительную роль иностранных фирм на внутреннем рынке, но помимо этого также и потому, что они могут приводить к созданию таких местных сборочных заводов, которые способны удовлетворять только нужды внутреннего рынка и не могут заложить основы динамичной экспортной деятельности. Можно предположить — пока в первую очередь только на основании теоретических соображений — что промышленная кооперация может хотя бы частично устранить эти недостатки, поскольку существенный элемент соглашений о промышленной кооперации может состоять в образовании такого разделения труда между предприятиями развитых и развивающихся стран, которое помимо удовлетворения нужд внутреннего рынка, путем соответствующего повышения технического уровня, представляет последним возможность также и для выступления на зарубежных рынках.

REVIEWS

INCOME AND CONSUMPTION

Within the framework of the 1970 session of the Hungarian Academy of Sciences, the Department of Economics and Legal Sciences, organized with the contribution of the Department of Philosophy and Historical Sciences, a discussion on *Socialist Distribution, its Reflection on the Conscious and its Development*. The debate was held in two sections, attended by economists, statisticians, historians, sociologists, etc. The session was opened by *István Friss*, member of the Academy.

The first section discussed income and consumption, while the second debated the problems of earnings and distribution according to work. Here we would like to present a picture of the session debating the questions of income and consumption.

The papers submitted were grouped around the following major questions:

— What is the extent to which the concept of incentives should be realized in *income distribution*, and to what extent should the social policy approach be valid? How should distribution of the income sources (forms) of the total population develop, and of what nature should it be? How should the dispersion of incomes by the population develop, and of what nature should it be?

— What are the requirements which Hungarian society must raise on trends in *consumption*? What is the extent to which the pattern of consumption is affected by its own internal laws, and to what extent can it be influenced? Does socialist society have its own special consumption model?

The papers attempted to reply to problems which have arisen through concrete analyses of concrete problems, and in many a question they did supply answers conforming to the present development level of science. Conflict between opposing views showed that there are many important interrelations which have yet to be exposed and cleared up by economists, statisticians, sociologists, etc.

Within the framework of this article, we are reviewing those papers which primarily dealt with the issues outlined above.

Róbert Hoch, candidate of economic science, reported in an introductory paper entitled "*Problems of Planning Income According to Sources*" on the problems raised by long-range income planning, and the ways of solving them.

The population earns and receives its income in different forms. The majority is *money income*, and including consumption of their own produce, it is called: *personal income*. The smaller share of income is in the form of *free*

benefits. According to 1970 data, the ratio of the two types of income is 88 : 12. The income forms corresponding to different sources have different functions; increasing them has deviating effects on the political spirit of the population, on ambition to work, on income distribution, on population increase and, last but not least, on the pattern of consumption.

Extremely strong — and beyond doubt justified demands are raised for increasing each form of income. The prime task of income planning is to determine the growth in the different forms of income in coordination with one another. This requirement of consistency not only means that the whole emerges as the sum of all its parts, but that in determining the ratios, clearly formulated socio-political objectives must be asserted. So far, requirements for the individual forms of income — family allowances, old age pensions, etc. — were formulated independently of one another, and in fact in certain cases they crossed each other. Now, efforts are being made to plan the growth of the individual forms of income in coordination with one another.

The fundamental question is whether we primarily wish to realize an *incentive* or a *social policy* concept? Mr. Hoch explained that in the coming fifteen years income policy must primarily serve economic growth, and within this, first of all, the growth in consumption while, at the same time, substantial progress must be made in realizing social policy goals, too. However, we can comply with the latter only if the material and financial bases (national income, etc.) which are the means for solving the problem, expand at a rapid pace. Increasing the national income — together with other conditions — can only be accelerated with the aid of an incentive income policy.

The incentive income policy raises demands first of all against *increasing earnings*. In studying the relationship between earnings and monetary social benefits, Mr. Hoch pointed out that in the coming decade and a half, the latter must, by necessity, increase faster than the former. Namely, per capita pensions, and monetary social contributions per child to costs of education increase more rapidly than per capita money incomes, and the population not in the working age will grow more rapidly than total population.

However, realization of the incentive concept does not even assume unconditionally a more rapid increase in the sum of earnings. What must be studied in this respect is: what percentage of per employee increment of earnings should belong to each 1 per cent rise in productivity? Studies completed during planning show that the proportion must be higher than the average of the past period (between 1965 and 1970 each 1 per cent rise in productivity was accompanied by a 0.72 per cent increase in incomes); but an identical rate of growth of the two factors need not be aimed at. Only further studies can show which is the most favourable coefficient within this zone. While we have quite well defined information relating to the desirable growth rate for the different types of benefits, no similar criteria have been worked out for earnings. However, experience clearly proves that a satisfactory rise in productivity can only be attained if the growth in real earnings is *not lagging behind* the rise in productivity.

Another projection of the incentive concept is related to free benefits. According to experience gained in studies so far, the *population more highly values the rise in financial incomes than free benefits*. Our comparative lag behind the more developed countries in total incomes is generally smaller with regard to free benefits than money incomes. Based on this, the perspective

planning hypotheses formulated the correct requirement that financial incomes must increase more rapidly than free benefits. However, in the present stage of planning, we cannot tell whether we will be able to meet this demand or not. It is clear that the fundamentally free nature of health facilities, education, etc., must be maintained, and substantially advanced. The sphere of free benefits can neither be substantially reduced nor extended in scope. If we comply with these requirements, then it can, in any case, be ensured that financial incomes shall increase substantially.

Iván T. Berend, doctor of historical sciences, in a paper entitled "*Consumption pattern — Way of Life — Consciousness*" showed relying on detailed data, the deep-reaching financial, social and cultural changes which took place in Hungary in the past 20 years. The way of life of a substantial portion of society has changed, in a comparatively short time, to an extent, which earlier only took place through several generations. These changes have had an important influence on forming the conscious mind. Part of this effect has been positive. The modern way of life, a higher cultural level, the spread of mass communication media have broadened peoples' horizon, and increased the attractiveness of the socialist system to a great extent. However, development also had negative effects on consciousness. The lecturer pointed out two such negative features. First of all, demands have increased much more rapidly than possibilities for meeting them. Secondly: a vast majority, but not all of society has been able to make full use of the benefits of rapid development. Those in the lower income groups have not been able to enjoy the achievements of a more developed technology, etc. to the same extent as the majority, nor those who live under backward settlement conditions, despite the fact that their incomes may have been satisfactory. However, the demands of these strata also increased rapidly. The tension caused in this way must be gradually reduced.

Zoltán Somogyi, scientific research worker, Institute of Philosophy, Hungarian Academy of Sciences, presented a paper entitled "*Three Possible Concepts for the Complete Building Up of Socialist Society, and Socialism as a Way of Life*". The first concept finds the socialist way of life, in essence, in its conscious elements (collectivism, relationship to work etc.). It underestimates the historical role of catching up and overtaking the more developed capitalist countries. The so-called cultural revolution is one of its extremist appearances. The lecturer dismissed this road as absurd. According to the second concept, attention must be concentrated to the competition on an international scale, and the socialist way of life — it is said — will develop by itself as a by-product of the increase in production and consumption. Zoltán Somogyi criticized this concept, too. In his opinion, optimization and humanization reciprocally assume each other's existence. The actual task is to render the dual goal, and its simultaneous realization concrete.

Ferenc Zala, Director of the Institute of Home Trade Research analysed, in a paper entitled "*Expectations and Requirements of Socialist Society in the Development of Consumption*" the direction in which the *pattern of consumption* is developing, and whether it is the desirable one. This direction is determined by a certain automatism. The automatic trends essentially carry development in a direction leading to the consumption pattern of the more developed capitalist countries. (Among other things — but not solely — because the western way of life has an effect on the behaviour of the Hungarian consumers.)

Nevertheless, according to Mr. Zala, international comparisons must only be used as planning tools with limited validity. (Also, capitalist countries on the same level of development differ from one another, with respect to their consumption patterns.) However, in development the special features of socialist society must be expressed, and the consumption pattern must be influenced accordingly. But the principles under which the programme for the conscious influence of consumption could be drawn up, have not yet been cleared up sufficiently.

The title of the paper by *József Berényi*, candidate of economic sciences was "*Social Policy and Economic Policy*". In his opinion there is no alternative for choice between the two types of policy. Neglect of the one prevents realization of the other as well. Earlier we believed that there was no need for a separate social policy alongside and aside from economic policy. The author emphasized the following important interrelation to characterize the relationship between economic policy and social policy. The economic policy serving the *whole* of society frequently afflicts certain individual strata (e.g. the transition to modern fuels is directly detrimental for coal miners). The principle that all groups of a noteworthy size shall benefit from development must not prevent implementation of an economic policy advantageous to society as a whole. Strata affected detrimentally must be reimbursed with the means of social policy.

Ervin Frigyes, candidate of economic sciences, analyzed in a paper entitled "*Some Questions of Income Inequalities of the Worker-Employee Population*" particularly the income inequality indices of the worker and employee population, comparing them with similar indices of other countries. By analysing the aspects of income distribution, the author reached the conclusion that equal importance must be attributed to incentive policy and social policy. In incentives — he stated — earnings were not the sole feature which should be kept in mind. People are not wage automata. The atmosphere of a workshop or an office and prestige points of view also play an important role in performance.

Ferenc Pataki, candidate of educational sciences, emphasized in his paper entitled "*Some Socio-Psychological Problems in the Development of the Socialist System of Distribution*" among other things, that material incentive can only achieve its goal if supplemented with the social recognition of work (and naturally, the reverse was also true). Moral incentives can only be effective if realized in ways which are not formal, and are in harmony with the value judgement of society.

Ödön Éltető, deputy department head of the Central Statistical Office showed in a paper, "*Dispersion of Incomes of the Population*" the role played by differences in earnings and in the number of dependents in the family in the differentiation of family incomes. He drew the conclusion that families' per capita incomes must be considerably equalized. This equalization can be reached by society taking over a substantial share of the costs of supporting non-earners. According to the lecturer, this would result, at the same time, in families being able to live on income levels in keeping with their earnings.

István Kemény, scientific research worker of the Sociological Research Group, Hungarian Academy of Sciences, presented a paper entitled "*Some Sociological Problems of Income Inequalities with Particular Regard to Manual Labourers*". Based on representative surveys, the report dealt primarily with

the position of workers on low income level. He analyzed the fact that a part of those with low earnings stem from the "native" city dwellers; however, the majority are those who have come to the city from villages, and who, for one reason or another, were incapable of truly taking root in the cities. With these latter, it is quite frequent that the low income is weighted down with higher than average expenses (e.g. rented furnished room of sub-tenants). It can be shown that the cultural level of this stratum is generally low. This is also a reason why the workers with low earnings do not make in general as full use of free medical care, education, etc. as do e.g. skilled workers. This means that these benefits only equalize differences in their money incomes to a smaller extent. From now on, the lecturer pointed out, greater attention must be paid to the position of workers in the low income group.

Summarizing the results of the conference we can state that its main results consist not so much of solution to the problems raised in the debate but rather in the stimulus the conference gave to further investigation and debate.

L. HALABUK

THE ACTIVITIES OF THE ECONOMETRIC LABORATORY OF THE CENTRAL STATISTICAL OFFICE*

Econometrics — according to a widely accepted definition — is the social science which makes use of the tools of economic theory, mathematics and statistical inference, uniting them for the analysis of economic phenomena. Different types of classification are possible with respect to econometric research. I would like to emphasize the following three:

Econometrics in the stricter, and the broader sense: One concept views econometrics as the analysis of economic interrelations; in this interpretation the essential contents of econometrics are production functions, demand analysis and interdependent economic models. Others interpret the concept of econometrics in a much broader sense, and along with the above, they also list among its functions e.g. time series analysis, productivity and cost analysis, input-output analysis, calculation of consumer price indices or the analysis of income distribution etc.**

Another possible classification distinguishes econometric methodology ("the theory of econometrics") from the application of the methods.

Not infrequently we also meet with a distinction which starts from the difference between stochastic and deterministic methods and solutions.

The goal of the few features mentioned above is not to establish a system, but simply to ease localization of the Econometric Laboratory of the Central Statistical Office, and definition of its work within this field of activity. The Laboratory is engaged in applied econometrics: *in trying the practical application*

* Its full name is: Laboratory of Statistical and Mathematical Methods for Economic Application.

** From this point of view it is worth-while referring to the enormous number of papers presented at econometric congresses which, aside from the topics listed, also cover purely descriptive accounting systems, i.e. subjects barely capable of being grouped under a single heading.

of *econometric methods*. In other words, its activity consists of the selection of promising econometric methods, trying them out experimentally, and making them available to a broad circle of users. With reference to the above three distinctions: the Laboratory uses the term of econometrics in the broader sense; its activities equally extend to the development of methodology and its application; if the logical and practical possibility exists, it prefers stochastic solutions to deterministic ones.

One of the most important features of the work of the Laboratory is its *experimental* nature. This nature gives rise, and is closely connected to several characteristics of the working methods of the Laboratory. To mention a few:

- The work of the Laboratory consists of completing research projects. Each individual theme represents an independent experiment; not a single work is repeated in an unchanged or barely changed form;

- Although the Laboratory carries on its work using the most up-to-date foreign literature, in the course of its research in possibilities for application, it further develops the methods to greater or lesser extent;

- With the completion of the "laboratory" experiments, the Laboratory considers its task as accomplished; it does not consider "large scale" application to be its role;

- The completed experiments result in conclusions which are economic or methodologic in contents. The validity of both types of conclusion is limited by the size of the experiments completed, by the size of the sample, in accordance with the basic laws of statistical inference;

- Calculations carried out on computers are slowed down by the fact that we do not have at our disposal full programmes for the research themes, and, accordingly, the experimental projects must be broken down into computerized phases. The calculations must be interrupted between phases, since at these points decisions which are not or cannot be programmed become necessary.

*

The research activities of the Laboratory can be divided into two parts. One includes the projects of *national economic modelling*, and the other the rest of the Laboratory's research themes.

So far the Laboratory has constructed three national economic models. These are the M-1, the M-2, and a joint Czechoslovak—Hungarian model.

The M-1, prepared in 1965, was a small-scale model consisting of a few equations, and its aim was to experiment with and find out the problems of the application of econometric models in a socialist national economy. Prior to this, the only socialist country where an econometric model was prepared was Poland (at the Katowice College of Economics, under the leadership of Professor Pawlowski). The M-1 model, without being particularly rich in economic information, fulfilled its role by providing methodological experience and ideas for development regarding specification we needed to prepare the M-2.

The M-2 model already expresses an economically founded, concretely and realistically formulated system of hypotheses. The system of hypotheses combines in a linear equation system the most essential interdependencies of the Hungarian national economy. The equation system is composed of five blocs: the production bloc, the utilization-consumption bloc, the labour force bloc, the foreign trade bloc, and the real income equation. The model contains

a total of 23 stochastic and 3 definition equations, and there are 26 jointly dependent and 32 predetermined variables in it. In order to estimate parameters we used the classical least-square method along with two variants of the method of instrumental variables and the method of principal components. After completion of the estimation, the model yielded numerical values for 56 parameters in all,* meaning that within the framework of the system of hypotheses to describe the national economy, it provided quantification for the same number of effects. Although for a minority of the parameters no significant values were obtained, the majority did quantify interesting interrelations.

The joint Czechoslovak—Hungarian model was prepared under agreement and in cooperation with the Computing Research Centre (United Nations D. P.) in Bratislava. The goal of this model was to make possible comparison of parameters quantifying the corresponding relationships by starting from identical specification. The model contains a total of 12 equations (of these 4 are identities) with 26 variables. The identical models of the Czechoslovak and Hungarian national economies have been completed, and comparison of the corresponding structure is now under way.

Preparation of the three models introduced above produced also some by-products. These can be summed up in three groups.

One of the uses of the M-1 model was that it definitely pointed out that the agricultural production equation cannot be successfully quantified without taking into consideration the irregular factor of weather. We had to complete a very detailed study in order to condense into a time series with a single numerical value for each year the immeasurably many effects (consisting of contradictory elements) of weather on Hungarian agriculture — a job that went well beyond the creation of the “weather variable” applied in the M-2 model.

In fact, modelling consists of two stages. The first of these is the construction of the model, and the second “operating” the model. By the latter, we primarily mean using the model for forecast and simulation. With the experimental model M-1, we made the first step — equally of experimental nature — in forecasting and simulation. Use of the M-2 for similar purposes is now under way.

Parallel to preparing the M-2, as a precondition and, at the same time, as a consequence of it, we had to deal with a series of methodological questions. These include the analysis of multi-collinearity, study of autocorrelation, the use of cross-section analysis in models built on time series, and the use of non-linear relations in linear models.

The other group of research themes handled by the Laboratory is much more ramified. However, the majority of these can be grouped into three spheres of problems.

To a great extent, econometrics is concerned with research in *relationships of economic processes*. *A priori* information, and the applied hypotheses — which abstract from reality to a greater or lesser extent — place different types (models) of relationships in the foreground, which require suitable methods of quantification and analysis. Of the possible models, the Laboratory has so

* With the majority of this parameters in several variants, in accordance with the methods of alternative estimation. (A greater number of parameters was gained on the basis of the reduced form.)

far studied the correlation model (simple, multiple and partial), the method of canonical correlation, factor analysis, and the method of principal components. This sphere of topics which, in fact, includes the different problems of multivariate statistical analysis, cannot be sharply separated from the topic of national economic models, since, indeed, the latter also deals with the quantification of relationships. Actually, in estimating the M-2 model — together with other methods — we also made use of the principal components method.

Time series analysis is a method for the separation of formal components. In its activity to date the Laboratory has dealt with the study of seasonal fluctuations, of measuring them, and with methods to eliminate them; analysis of cyclical and trend components will be the subject of later investigations. Within the framework of investigating seasonal fluctuations, the Laboratory completed comparative analyses regarding a series of seasonal adjustment methods. These included four so-called "traditional" methods: moving averages, the analytical trend, the link relatives and the monthly averages methods. All of these traditional methods are characterized by simplicity in calculation and, at the same time, by a lack of foundation from the aspect of probability theory. This is also true of methods which have been further developed to a certain extent e.g. by certain American institutions (Bureau of Labor Statistics, Bureau of the Census including the methods BLS, Census 1, Census 2, . . . etc.). A certain deviation from traditional methods is the assumption of changing seasonality and the use of so-called seasonal factors instead of seasonal indices. The Laboratory has also made use of substantially better founded methods in its comparative studies, including e.g. spectral analysis and the adjustment method developed by D. W. Jorgenson ("minimum variance, linear, unbiased seasonal adjustment").

Another research theme is directed towards study of some basic and easily manageable relations of *information theory* for use in economic analysis. As a result of the research project, the Laboratory has illustrated with a series of examples the application of such indicators for characterizing distribution structures, their changes and deviations from one another.

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The Laboratory publishes two series on the results of its research activity. So far eleven issues of the *Ökonometriai Füzetek* (Papers in Econometrics) [formerly *Nemzetközi Módszertani Füzetek* (International Methodological Notes)] have been published. The role of this series is to provide final information on research projects already completed. The *Laboratóriumi Munkaanyagok* (Laboratory Working Papers) provides preliminary information on partial results of the research projects. In contrast to the other series, often they are intermediary products. This series too, has had eleven issues published.

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BOOK REVIEWS

CSIZMADIA, E.: *Gazdasági koncepciók és az élelmiszergazdaság.* (Economic concepts and the food economy.) Budapest, 1970. Közgazdasági és Jogi Könyvkiadó. 237 p.

Within the dynamic development of Hungarian economic life, a particular transformation is taking place in agriculture, or, as most recently it is combined in terminology with the food industry: in the *food economy*. This book deals with the major features of this transition, the reasons behind it, and in many respects, with future prospects. In the meantime it approaches the function of the food economy in the development of the national economy and the realization of these functions as reflected by individual elements of the economic policy mechanism (allocation of resources, the price system, credit system, the foreign trade and domestic trade system, etc.) from various aspects. Along with his analysis of the facts and outlines of proposals, the author criticizes many economic concepts and standpoints connected with the evaluation of agriculture. The book is divided into four parts.

The *first part* discusses several fundamental questions of the advance of the national economy and agriculture; including certain retrograde features of the old system of economic management which have not yet been fully overcome (forced extensive industrialization, deviation between the magnitudes of resources and demands, the unsatisfactory rise in the productivity of labour, etc. It stud-

ies the position of the food economy in inter-industry relations, and concludes that the share of food products in total consumption by the population — despite a decreasing trend — is still quite high (60 per cent including tropical fruits, coffee, cocoa, etc. and tobacco, 46 per cent without them). It is shown that the present price system gives a distorted reflection of the weight represented in the national economy by agriculture. By calculating either at prices proportionate with social input, or completing calculations at world market prices, the contribution of agriculture to the national income would increase, and that of industry would drop. The acceleration of scientific and technological progress creates a new situation also in the food economy. It ripens the conditions for integrated economic action, extends ties between industry and agriculture, and demands reorganization in cooperation between enterprises, including extension of the sphere of activities by agricultural enterprises.

The *second part* discusses the increasing role of the food economy in Hungary's economic life. It analyzes the agricultural net product and its net commodity output, the foreign trade turnover in major food products, and the increase in investments. It points out the importance of agricultural exports to the national economy; in the past decade the active export-import balance of agriculture turned the trade balance of the economy into an active one, and in certain years it reduced its passive balance.

Then the author goes on to argue with the views according to which the agricultural branches overtax the resources of the national economy. In contrast with this, according to the calculations by the author, food production is less of a weight on the national economy than other branches of similar importance. In his opinion, agriculture is not more capital intensive than other branches of the national economy and, in fact, it is the least capital intensive of the raw material extracting branches, though at the same time, the food industry is more capital intensive than the average. For this reason, in the interests of greater production and export volumes, the technological progress of agriculture should be accelerated, even alongside an increasing rate of imports, since in Hungary agriculture plays an important role in the balanced growth of the entire national economy.

The *third part* deals with the financing of agricultural development and incomes. It criticizes the over-concentrated income policy of the old mechanism, which in agriculture did not ensure expansion, and in fact, in some areas, not even simple reproduction. It reviews the changes in this field which the new mechanism has brought about, and their consequences. It points out the importance of the autonomy of the enterprises and profitable economy, including however — taking the increase in input of industrial origin consideration — an expectable trend of price increases in agricultural production, if the price ratios remain unchanged. It considers price subsidies for inputs which directly affect increasing yields particularly important. In analyzing the income relations of the agricultural cooperatives the author draws the conclusion that the income levels of the farms operating under unfavourable natural conditions continue to be low, despite the general trend towards improvement, and credit opportunities are too limited in general. Therefore, the financing function of the banks should be extended, and the de-

velopment of new economic forms is justified in order to ensure more rational investment of financial resources. (Joint undertakings, and associations, unions, cooperative reciprocal aid fund, cooperative credit bank, the mobilization of savings accounts for production purposes, etc.).

The *fourth chapter* deals with the industrialization of agriculture, and its social and economic consequences. Many factors provide incentives for the transformation of rural living conditions, including, first of all, the change in generations, the industrialization of the village, and the turning of agricultural work into skilled labour. The mobility of the rural population is decreasing, and the village is becoming a more heterogeneous social formation than the city. In the villages the cooperative economic formations will continue to be typical in the future. The enterprise character of state and cooperative farms will approach one another, but the difference stemming from the different ownership relations will remain; in both enterprise forms independent management with financial autonomy as well, will become stronger. The emergence of new features is expected in cooperative farm economies too; however, the author points out that the achievements of *internal* enterprise development will, for the most part, be determined by *external* conditions (price, credit, subsidy, etc. policy). The household farming of cooperative members (particularly regarding animal husbandry) will show a declining trend in the future, but they will be maintained for a long time to come. With the industrialization of agriculture, economic ties will be restratified, together with the division of labour and cooperation in the macro- as well as the micro-sphere.

Ernő Csizmadia's book provides a fortunate blend of presenting the problematic features of economic processes, a purposeful analysis of interrelations and proposals for the future. It is to his credit that he also presents deviating views in

connection with several critical problems of economic concepts, emphasizing his own point of view in the meantime. His work is a valuable contribution not only to understanding the complex problems of economic development in the country, but — from the point of view of the food economy — to further developing the management and incentive systems as well.

I. GÖNCZI

CZEITLER, S.: *Magyarország és a tőkés világpiac*. (Hungary and the capitalist world market.) Budapest, 1970. Kossuth Könyvkiadó. 234 p.

The book by Sándor Czeitler, the Hungarian deputy minister of foreign trade who died with such tragic suddenness last year, was published in November. The cover designer couldn't know in advance that the black book jacket would become a startling symbol for readers who knew his work, his competence in economic issues and the unswerving enthusiasm with which he spread the economic way of thinking.

Sándor Czeitler's name frequently appeared in the authors' list of economic periodicals. His articles analyzed the question and problems of advancing international economic relations and the measures needed for progress, from different approaches. The book which has just appeared also serves this purpose. With a review of Hungarian foreign trade activities on the capitalist markets in the past decade (in greater detail in the past five years) the author points out Hungary's achievements and development of her participation in the international division of labour, shows several problems, and marks the major tasks facing the country, as well as the guidelines to be followed in the readjustment of the commodity pattern and in formulating trade policies with respect to the direction of trade.

The book is divided into three major parts. The first one is intended to show

the role of Hungary's participation in the international division of labour, from the view-point of the development of the national economy. The country's dependence on the international division of labour is generally known today. However, in studying the major specialities of Hungary's participation, the author voices the conviction — supported many-sidedly by his practical activity — that in order to make use of the advantages inherent in the international division of labour it is absolutely necessary to increase the competitiveness of domestic products on markets abroad, and to lessen the sensitivity of exports to business cycles.

A rapid increase in foreign trade turnover is not sufficient in itself. If this rapid growth rate is not accompanied by our joining the international division of labour with suitable efficiency then, sooner or later, this will have an unfavourable effect on the development of foreign trade turnover — primarily on exports —, and through this, on the technological level, and the competitiveness of the whole industry.

The idea the author uses to start from is that to increase the efficiency of production is a central issue from the view-point of the future development of the national economy. And the most important condition for this is the fitting of our country into the world economy. *The fundamental means of joining in the international division of labour is the capability of the enterprises and branches of industry to increase the production of items which can pass the test of the value judgement of the international markets and which can be thus sold at a good price.* It is pointed out that, alongside the gradual increase in exports, deconcentration of Hungarian exports on the capitalist markets must also be taken notice of. Improving efficiency demands the development of sharp export profiles. In the author's opinion, the present rather unfavourable situation is caused most likely by unexploited export possibilities in a number of industrial

branches and these could be brought to the surface with the application of a selective export incentive system.

The author does not study the development of foreign trade with capitalist countries in an isolated manner, but throughout the book, he closely embeds them in the development of the world economy. Through a many-sided approach, it is shown that — although today Hungary's share in world trade is but 0.8 per cent — the search for mutual advantages could create a basis for increasing the country's role in East-West trade.

The second part is entitled "Major Problems in the Commodity Pattern of Foreign Trade with the Developed Capitalist and Developing Countries". By way of introduction to this subject a picture is given of the structural changes which have taken place on the commodity markets of the capitalist world economy in the past decade, and of trends in the business cycle. Trends in the foreign trade turnover of the individual major groups into the general development trend, distinguishing, however, the changes in demand on the markets of the developed and developing countries, as a result of their different economic development. A detailed study of the position of Hungarian agricultural and food products, of raw materials, semi-finished products, and manufactured goods (including engineering) and consumer goods on the capitalist markets is given and then the export tension caused by structural changes in contradiction to trends in world trade is discussed. In connection with the different major commodity groups, the author gives a deeper study of branch perspectives — practically by branches of industry — indication the realistic and expedient possibilities for increasing exports on the basis of an analysis of foreign markets, and comparative advantages.

The study of trends in exports is followed by a review of imports in a breakdown by major commodity groups. The author points out that one of the funda-

mental problems of development is that demands which can only be met from the capitalist markets have grown quicker than Hungary's ability to export to capitalist countries. Foreign trade with the capitalist world market took place on the basis of the "residual principle", that is, in general the products imported from capitalist countries were not those the home production of which could not be solved economically, but mainly those in which the socialist countries were unable to supply sufficient quantities, and which were indispensable for the country's economic development. Since exports could not be increased proportionately with import requirements, import substitution became the fundamental goal of domestic investments, which, on the other hand, further narrowed down the capital available for the modernization of the manufacturing industry, and the development of export possibilities.

In the second part of the work, Sándor Czeitler concludes: considering that Hungary has no foreign exchange income worth speaking of beyond the amounts received for products exported, the balance of foreign trade turnover must be considered the fundamental factor of external economic equilibrium. With all loans raised with the aim of covering foreign exchange expenses, it must be taken into consideration that the currency needed for repayment — if not in the short then in the long run — must be produced by increasing exports. This means: it is not immaterial whether foreign exchange loans are used for imports appearing in the consumer sphere, or to establish capacities aimed at increasing exportability. In presenting trends in imports from the capitalist world market, the author completed his study from this point of view.

In this same part — as an independent sub-chapter — questions of developing cooperation agreements with the industrially developed capitalist countries are dealt with. The review of this cooperation is given outstanding importance in

the book. The reason is that here, too, the author would like to emphasize that international production and sales cooperation must be developed, and play a major role beside traditional trade forms, for this is essential for Hungary in the era of the technico-scientific revolution. This is the only way to follow the highly accelerated rate of technological development. Reviewing the theoretically possible methods of cooperation, the author concretely reviews the cooperation agreements concluded in recent years, and is happy to establish that the direct relations created by the reform in economic management has had a favourable effect on this, too. The enterprises increasingly feel the advantages of industrial cooperation, the positive effects it has on the development of production, and search in ever greater numbers voluntarily for the way to increase productivity, and to meet modern demands for quality.

The third part provides a picture of the pattern by countries of Hungary's capitalist foreign trade turnover, and trade policy questions. The author begins the chapter with a review of the trends in trade policy developed on the capitalist world market. Measures taken to liberalize international trade, and the changes in the commodity pattern which took place as a result are analyzed. A study of the appearances of protectionist trends, and then an analysis of the trade policy of the capitalist countries regarding the socialist countries is also included. The trade policy applied to Hungary definitely marks our own foreign trade trends. However, the conduct of the individual capitalist countries and their integrations deviate from one another. The author shows this concretely, regarding trends and perspectives in trade with the European Economic Community and the European Free Trade Association, as well as with the non-European developed capitalist countries. Commodity turnover with the developing countries is discussed in a separate chapter, in the light of the role

of the African, Asian, and Latin American countries in world trade.

The book is concluded with a brief evaluation of Hungary's capitalist market relations in 1969 and early 1970.

The concluding statement refers to the fact that measures to further develop the economic regulators of foreign trade activities were taken in the meantime. These measures will serve to reinforce the favourable trends in the trade with the capitalist markets, and to increase the efficiency of Hungary's participation in the international division of labour.

Mrs. GY. NÉMETH

SIMON, GY.: *Gazdaságirányítás és népgazdasági optimum.* (Economic management and the national economic optimum.) Budapest. 1970. Közgazdasági és Jogi Könyvkiadó. 268 p.

The author was one of the first Hungarian economists to champion the causes of complementing the traditional methods of national economic planning with mathematical ones. In his major works to date he primarily urged and propagated the application of linear programming models and experimented with solving planning and management tasks of national economic dimensions. His present work is a portion of his doctor's dissertation submitted to the Hungarian Academy of Sciences.

The reader receives the results of two large-scale, pioneering econometric studies in this book: one is determination of the production functions for the national economy and its branches for the periods 1966/50, 1968/50 and 1966/58 (Part I) and the other is a national economic *ex post* programme for 1959—61, with the aid of a single aggregated linear programming model (Part II). The model-outline called by the author as dynamic is closely linked with the latter study, and more loosely connected to the former. The model yet to be worked out in detail,

serves the goal of allowing the preparation of medium and long-term plan variants, also through linear programming (Part III). Detailed reviews of the problems which arose during programming and the final results can be found in Part IV of the book and in the tables of the Appendix.

The information gained through the production functions may be needed primarily for estimating the parameters of long-range models. Simon's experiment is aimed at setting up a production function that would also yield, in an explicit way, the differential contribution of the material and personal factors of research and technological development. For this purpose he accepted a modified variant of the Cobb—Douglas function, where the dependent variable is national income (in fact the growth index of national income), while its independent variables (also index numbers) are: labour, capital (value of operating equipment), the personal factor of research and technological development (the so-called disembodied technological development), the factor of the technological equipment of labour (termed embodied technological development). The measured data of 26 branches for 16 years (1950—1966) for estimating the parameters of the four production factors (and for a fifth parameter, the so-called correction factor). This was thus the largest undertaking completed so far in Hungary in calculating branch production functions.

The author devotes the majority of the book to questions of national economic programming. In this context the results of the *ex post* programming, in fact, only receive an illustrative role, but they are extremely interesting in themselves.

The *ex post* programming model covering the entire economy related to the period 1959—61. The goal of the study was to enable the author to experiment with the construction of a linear programming model that would enable him to obtain an economically founded (consistent) optimum price system, without having to

take into consideration the factors of uncertainty regarding the future. The model extends to cover 30 branches. Valid foreign trade contracts, the use of capacities existing at the beginning of the period, and the 1961 ratios between consumption and accumulation appeared as compulsory prescriptions. The actual consumption of 1961 was also prescribed for the model as a consumption minimum. The programming was completed with three types of objective functions: maximization of consumption and the national income with a free structure of surplus consumption; the same with a compulsory (1961) structure of the surplus consumption; maximization of the balance of trade with non-socialist countries.

The technical coefficients of the model were partly the actual coefficients of the statistical input-output tables, and partly incremental flow coefficients were estimated regarding surplus production.

The results of the programming proved that Simon's aggregate linear programming model is suitable for "returning" on the whole the level of activities of a period gone by (that is, it is capable, on the given level of aggregation, of taking the most important interrelations of the economy into consideration). At the same time, it showed the activities where unutilized reserves, which traditional planning could not take into consideration, remained. With the aid of a clever manoeuvre (that is, by assigning positive objective function coefficients to a part of the slack variables of the primal problem) the model was able to make the shadow price system belonging to the optimal solution "resemble" the true price system of the given period, that is, to only deviate from it insofar as according to other studies, it must, by necessity, deviate. Therefore, e.g. the interest rate on capital, the foreign exchange coefficient (costs of a unit of foreign exchange received through exports in terms of domestic currency) obtained with the shadow prices are barely different from values received through other

means, while the agrarian scissors are not much wider in the calculations completed with the model than those shown earlier on the basis of the input-output tables.

For those who fear shadow prices primarily because of their "shadow" nature, it would be difficult to find cleverer or more convincing proof of the reality of shadow prices.

Simon makes full use of this empiric proof, of the convincing force of "recognition", and draws many conclusions in the nature of economic policy from the comparison of shadow prices with world market prices, and shadow wages with true wages. Then — since he assumes that the results of the *ex ante* programming will have the same "reality value" as those of the *ex post* programming — now, relying on theoretical reasoning, he repeats, or reformulates his earlier arguments in favour of operating the shadow prices obtained from the national economic programming as a real price system. There is no doubt that these are the most readable chapters in the book, for the author argues a standpoint crystallized in debates going on for a decade now and, in addition, Simon knows how to provide excellent arguments.

In the opinion of the author, at the same time, there is a relationship between the differential yields to be calculated from the production functions and the shadow prices of resources (in the broad sense). However, with production functions, so far, only the differential yields of major prime resources (production factors) have been determined in a significant way, while with national economic programming we can obtain differential yields for a broader and more detailed sphere of resources.

The perspective plan now being prepared, to cover the period from 1970 to 1985 has provided a tremendous impulse to domestic research in dynamic national economic models. The common feature of the models published to date is that they generally attempt to describe a long-

range decision, or a decision series of several stages in the framework of a single large-scale linear programming problem, and the time factor is generally represented by intertemporal variables in them.

Simon's model is perhaps most closely related in its structure to the (stochastic) model of the Dutch Henri Theil (see *Econometrica*, Vol. 25. 1967. pp. 346—349), although he does not include probability variables. The technical coefficients of the large-scale linear programming problem form a quasi-triangular hypermatrix, that is, for every single period T_i , the technical coefficients belonging to the variables of the period T_i must be determined along with a further $i - 1$ number of coefficient matrices which reflect the foreseen — or prescribed — effects for the period T_i of the previous T_1, T_2, \dots, T_{i-1} periods. In addition, the model scheme contains further special conditions which ensure, in an ingenious way, that the level of intertemporal activity shall only change monotonically.

The basic model provides opportunities for developing a number of variants and model systems which may even be connected to one another, with different time horizons, and worked out with differing degrees of detail. The major goal, here too, is to receive an optimum evaluation system (and from this a price system, foreign exchange coefficient, interest rate on capital, tax system, etc.) suited to the most important economic policy goals which, even with a more or less decentralized system of economic management, will ensure that the economic policy goals shall be realized — and this through implementation of the optimum activity levels gained from the program.

In this respect the necessary deviation between the shadow price systems of short-, medium- and long-term programming, appears as a new element. In the opinion of the author, it would be wise to differentiate between the prices necessary for founding short- and long-term decision. The former could be called current

prices, and the latter "centrum prices", around which the current prices could fluctuate in accordance with the short-term economic policy goals. This would mean that the shadow prices would be of two types: current shadow prices and centrum shadow prices, and the suitable true price system and financial regulators could be deduced from these. It clearly requires further research to establish the conditions under which the fluctuation of current prices truly takes place around the centrum shadow prices.

The volume is concluded by a list of references, which includes only the most essential works, and for that reason, can be used well by readers.

K. LÁNYI

A vállalati belső mechanizmus helyzete és fejlődésének főbb vonásai. (Major features in the position and development of internal enterprise mechanisms.) Budapest, 1969. Közgazdasági és Jogi Könyvkiadó. 299 p. — *A vállalati belső mechanizmus fejlesztésének gyakorlati kérdései.* (Practical questions in the development of internal enterprise mechanisms.) Budapest, 1970. Közgazdasági és Jogi Könyvkiadó. 177 p.

These two books were published in too few copies to meet demands. Since they provide very important guidelines for developing internal enterprise mechanisms, it is desirable that they should become known to the public on the widest possible scale.

Both books were prepared on the basis of the summary reports of the work panels established by the Department for Economic Policy of the Central Committee, HSWP to aid the development of internal enterprise mechanisms. The purpose and necessity of the work completed can be illuminated by the introductory sentences

* Experiences of the economic reform in Hungary. 20 questions and answers. An interview with Rezső Nyers, Secretary

of the reply to an interview* by Rezső Nyers: It is a characteristic trait of progress under the economic reform that we have altered the "macro-mechanism" of the "whole" (i.e. national economy), so that the reform may proceed in the direction of the "parts" within the "whole", towards an internal reform of the different enterprises. This sequence is a matter of principle: the "micro-mechanism" of the enterprise has to evolve under the influence of the "macro-mechanism". The two books are intended to aid development in a many-sided way.

The prefaces to both were written by József Bálint. He marks the goal of the first book as "enterprise and ministry level aid to reach a better understanding of and solutions to present problems in the enterprise sphere. More intensive debate and work should begin in this field, and in the end, this will produce practical results." According to the preface, the goal of the second book — dealing with practical issues in the development of the internal enterprise mechanism — is to aid the working out of concrete forms of enterprise economy by providing information on the merits of the matter, reviewing methods, and presenting concepts.

From now on, I will deal first with the major statements of the two books, and then, by relying on them and in order to help further work, I will sketch out several conclusions and development possibilities which may be proposed.

The editors of the volume, Major Features in the Position and Development of Internal Enterprise Mechanisms, led by Professor Kálmán Szabó, deal in accordance with the goal outlined in the preface, primarily with fundamental theoretical questions related to further development of internal enterprise mechanisms. They publish the abridged descriptions of the material of four work groups. Their Summary Report was de-

of the Central Committee of the Hungarian Socialist Workers' Party. Budapest, 1970. Pannonia Press.

bated by the Economic Work Group of the Central Committee, HSWP. The published work took into consideration the comments of the Work Group.

Aside from the Preface, the book is divided into five parts. The first is the "Summary Report" by the Internal Enterprise Mechanism Work Panel already mentioned, to be discussed in detail. Parts 2—4 review the results of investigations in industry, the building industry and home trade, while the 5th part deals with an analysis of existing incentives within the enterprises.

After a discussion of the reasons making the development of internal enterprise mechanisms necessary, the introductory part of the "Summary Report" marks the main problems of modernization as follows:

— Progress has been very uneven and, on the whole, has lagged behind possibilities.

— Enterprise management's behaviour was dominated — quite understandably — by the problem of *fitting into the new circumstances* at the expense of other important tasks. The majority of the enterprises have taken the first steps to assess true market demands, but, in general, they have not formulated well-founded concepts either for the development of their business policies, or for developing capacities. It frequently happens that the enterprises get stuck in *formal-organizational solutions*, there is much uncertainty as to the necessary modification of economic functions, and the forming of new functions.

— One of the most striking features of the new situation is that the enterprises have maintained the *exaggerated centralization* of their organization. Frequently even large, strong internal units (factories, etc.) do not have the necessary or desirable operative autonomy.

— *Material incentives* for the internal units of the enterprise, and the individual workers are unsatisfactory. There is no suitable relationship between the true

material performance of the individual units, or of the individual workers, and their share in it.

The practice of *economic democracy* has not yet developed satisfactorily.

The parts of the "Summary Report" are built around the detailed analysis of these major problems, in marking the directives for further development.

The first chapter, which deals with "*The Development of the Management System and Economic Functions*" raises the requirement that the present exaggeratedly operative and production-centred style of management shall be replaced by a concept of management *taking the goals of the entire system of management into consideration*. In order to reach this goal, the work to be performed must be channelled into a forced path to optimum extent, essentially with modernized organizational and operational rules. This assumes the correct determination of decision levels, reduction of the number of management steps, and the gradual development of a "management method based on exceptions". The necessary and desirable *selection* must be based on a conscious and carefully devised personnel and cadre policy. More thought must be given to training new generations of managers, and endeavours must be made that the new managers should emerge from among the capable workers within the enterprise. The system of appointing managers should be maintained, but selection of persons suitable for executive posts should by all means be better founded and more *democratic*; e.g. leading managerial posts should be filled through competition.

The second part of the "Summary Report" "Tasks for the Development of the Autonomy of Units within the Enterprises" considers the development of operative independence of units within the enterprise, in production and turnover alike, as one of the *key problems* in the improvement of the enterprise mechanism. It emphasizes however, that the degree of independence and its nature *depend on*

many circumstances and conditions. Determining these is a pioneering venture, even if it is obvious that these first experiments cannot be complete, because new possibilities and conditions will be created by both everyday life, and scientific research and technological achievements.

The authors consider it an important condition that perspective goals, and enterprise business policy goals should *point out a direction*, and that the scope of transferred authority should have a regulated framework. Another condition is that the level and qualification of the management of the internal units and their staff be suited to the requirements of independent management.

Along with these conditions, the economic conditions of the enterprise and its internal units are viewed as important influencing factors. In industry, factors under study are the size of the enterprise, the number of factory units, their size and location, the structure of production, its horizontal or vertical nature, the convertibility of capacities, and in general, all circumstances which influence the economic expediency of a division of labour expressing internal independence.

The fundamental and many-sidedly expressed idea of *proposals aimed at the development of incentives* is that wherever the economic achievements (profits) of the activities of the internal units can be clearly measured, or can be made measurable, it is expedient to link interests primarily to achievements, and to give *through this* the units comparatively large independence. Where measurement of inputs by the internal units has been solved for the majority of costs, it is advisable to place *the savings in input* in the centre of interest of the unit concerned. If these possibilities do not exist at present, it is wise to establish an internal interest linked to the internal accounting system, and to characteristic *indices*.

Among the many very good conclusions and proposals in the part entitled "Development of Individual Interest and

Incentives", we would emphasize the one stating that the interests of those in important leading positions should be connected with the *annual* achievements, while those of the others to concrete output which can be accounted *throughout the year*. There is no doubt that the *time factor* requires increased attention, special calculations, etc. in all fields of economic life. It is certain that the efficiency of incentives, and the subjective evaluation of the material recognition achievable are not independent of the time that passes between the completion of the work, and receiving the payment for it. It is also certain that the evaluation of the time factor is different on the different levels of enterprise hierarchy. This topic requires further sociological, psychological, etc. research and experiment, which may result in a further development of the entire system of incentives.

The group of authors of the book *Practical Questions in the Development of Internal Enterprise Mechanisms*, led by Dr. Lajos Dózsa, place, in accordance with the goals already described, *practical* questions in the forefront, in a noteworthy, special way, for first they discuss the results of investigation which can be *generalized*, — then they provide a forum for describing the system of incentives realized in four enterprises.

The book is divided into four parts. The first part is entitled "Further Development of the Internal Enterprise Management System, and Economic Functions" deals with the effects of the new economic environment, questions of enterprise autonomy, and then, in accordance with the purpose of the work, it treats practical questions of several important fields. Among its many valuable proposals, the ones which must be emphasized are those which prove the *necessity for the joint development of planning and the system of information*. It is important that the enterprises should carry out, in accordance with the proposals of the book, complex, system-oriented organization, and

in this framework, view the joint development of planning and the information system as an outstanding fundamental condition of a rational decentralization of spheres of authority. The better the regulation based on the actual plans, the more decisions can be decentralized in a manner that the central will shall be still realized, and the necessary coordination ensured. The *joint* development of planning and the information system creates, in general, the preconditions for the most efficient application of computers, and for the realization of "management on the basis of exceptions".

The conclusions which consider the essential modernization of enterprise planning necessary (and not a further refining of present processes) are also most noteworthy. Interpretation of production management activities in the narrow sense is good and topical, since in several enterprises we can experience a production-centred trend which would make production management into the dominant element in planning.

The second chapter, entitled "Further Development of Major Economic Functions in Enterprises" examines the necessity of developing labour, investment, technological development, material economy, realization, financial and credit economy activities, and possible directions of improvement from the following points of view:

— To what extent have *requirements* changed as a result of the reform? How do these effect the functions mentioned, and what *necessary changes in content* are raised by them?

— What types of *solutions are best suited to achieve* this goal in respect of *sphere of authority and organization*?

Among the many useful proposals in the part dealing with *technical development and investments* the ones of particular importance are the need for the *complex, system-oriented* evaluation of the eligible variants and the warning concerning the very careful analysis of *convertibility*.

The third part deals with questions of "Financial Interests and Accounting within the Enterprise". Its introductory part deals with general questions of interest, and the second part would like to raise ideas by reviewing the system of incentives developed in the Electric Installations and Apparatus Works (VBKM), the Paper Industry Enterprise, Tungsram United Incandescent Lamp and Electrical Co. Ltd and the Cotton Printing Enterprise. In conclusion, it studies the accounting problems of the management systems.

Of the three aspects of enterprise interest, (state and enterprise, enterprise management and factories, factories' internal interests) the book only deals with the ones within the enterprises, in a manner placing the enterprise profit-fund, which presents most problems, in the forefront.

The part entitled "Types of Solutions to Interestedness within the Enterprises" differentiates between plan-oriented, basis-oriented and normative interests. It lists the advantages and disadvantages of all three types and then draws the conclusion that no stand can be taken regarding the value, and degree of utility of the three types. In all cases, local conditions determine which type of interest system it is expedient to apply. Regarding the present and near future, one can agree that the authors do not establish a ranking among types of interests. However, it may be assumed that in the future, as a result of many reasons, *interestedness based on the plan* must be realized in the decisive majority of the enterprises, and one of its basic types is normative interest. A fundamental condition, naturally, is that modern, complex planning methods which require computers be made use of in enterprises which, at the same time, are primarily necessary to increase the efficiency of management.

The part dealing with the contents of factory (factory unit) interests is highly valuable. In connection with the first

book, but to a certain extent, in deviation from it, it differentiates between incentives directed towards profit content, production costs content, and towards observing economic partial indices.

*

In general, it is not necessary to form categories for new books according to character and type, since their places are obvious. This case is, however, an exception, for both works are new from more than one point of view:

They are not only specialized works, but can also be considered as *new and very special means for indirect management*.

— They provide new ideas *with respect to the methods of indirect management* too. They criticize, evaluate, urge progressive discussion, and give room for enterprise description which is so original that even the local, newly coined expressions have been maintained.

Both books emphasize and consciously take into consideration the *systems-connections* between the macro- and micro-mech-

anisms. This is important because it frequently occurred even with works claiming scientific standards that the macro-economic sphere was exaggeratedly separated. Many works limited themselves to formulating the requirements on the enterprises, while avoiding discussion of problems in their realization. The list of things to be done, raised by the two books, proves that solution to problems of the enterprise sphere on scientific level is urgent and important not only because of the new possibilities and requirements, but also because of the gap which must be closed in.

Nation-wide surveys, and a many-sided evaluation of the data received (partly completed by computer) were also used in preparing the books. The nearly 200 members of the work groups had talks with nearly one thousand enterprise managers (executives). In this way the material published truly contains the experience and proposals of a wide circle.

L. LADÓ

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SUMARIO

Artículos:

- ANTONIO CARRILLO FLORES *El número 150 de El Trimestre Económico*
SOLON BARRACLOUGH *La Reforma Agraria en Chile*
ANDRÉS CASO *El empleo como objetivo de la política de desarrollo*
CAMILO DAGUM *Un modelo econométrico de la oferta y la demanda de energéticos*
ALDO FERRER *El capital extranjero en la economía Argentina*
HORACIO FLORES DE LA PEÑA *México. El marco económico de la política de industrialización. Estudio en honor de Michel Kalecki*
CELSE FURTADO *Dependencia externa y teoría económica*
PABLO GONZÁLEZ CASANOVA *Las reformas de estructura en América Latina (Su lógica dentro de la economía de mercado)*
HELIO JAGUARIBE *Ciencia y tecnología en el cuadro sociopolítico de América Latina*
GUILLERMO MARTÍNEZ DOMÍNGUEZ *Integración y desarrollo de la industria eléctrica de México. La obra 1965—1970*
FELIPE PAZOS *El financiamiento externo de América Latina*
ANÍBAL PINTO *El modelo de desarrollo reciente de América Latina*
RAÚL PREBISH *Más allá del sistema económico*
JESÚS PUENTE LEYVA *Recursos y crecimiento del sector agropecuario*
CARLOS SANZ DE SANTA-MARÍA *Algunos comentarios sobre el comercio exterior de América Latina*
OSVALDO SUNKEL *Capitalismo transnacional y desintegración nacional en América Latina*
CARLOS TELLO *Notas para el análisis de la Distribución Personal del Ingreso en México*
MIGUEL S. WIONCZEK *Hacia el establecimiento de un trato — común para la inversión extranjera en el mercado Común Andino.*

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WITH MARKET ECONOMIES

Contents

MAN-MACHINE PLANNING J. Kornai 209

TESTS AND USES OF MACRO-ECONOMETRIC MODELS: A CRITICAL SURVEY
R. Agarwala 235

UNCERTAINTY, INFORMATION AND DECOMPOSITION IN THE PLANNING OF A
PRODUCTION SYSTEM U. Ennuste 258

RAS PROJECTIONS WHEN TWO OR MORE COMPLETE MATRICES ARE KNOWN
R. Lecomber 267

ECONOMICS AND POLITICS OF ECONOMIC REFORMS IN EASTERN EUROPE J.
G. Zieliński 279

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