

A NEW STAGE IN THE ACTIVITIES OF THE COUNCIL  
FOR MUTUAL ECONOMIC ASSISTANCE IN  
THE FIELD OF INTERNATIONAL COMPARISONS OF  
NATIONAL PRODUCT

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This article reports on the plans of the member countries of the Council for Mutual Economic Assistance (CMEA) in the area of the purchasing power parity comparisons of national product and similar aggregates. A series of comparisons of the U.S.S.R. with other individual member countries was made for 1959, 1966, and 1973. A new series will be undertaken for the year 1978. The scope of the program will be expanded to cover several new aggregates, including productivity concepts and total consumption of the population. The article discusses the conceptual and methodological problems and plans. Among other matters, attention is being given to the possibility of reducing the number of specifications priced, without sacrificing accuracy.

The 1970s have witnessed further development of work within the Council for Mutual Economic Assistance in the field of international comparisons of national product and similar aggregates. Thus, in 1975 the CMEA completed the third international comparison of basic value indicators for 1973. As a result of this comparison, internationally comparable data have been obtained on national income utilized, final consumption, material goods consumption by the population, net capital formation, capital investments and industrial and agricultural output.

The primary emphasis has been on direct binary comparisons of U.S.S.R. aggregates with those of the other member countries of the Council. To convert the member countries' aggregates into U.S.S.R. currency and the U.S.S.R. aggregates into the currencies of the U.S.S.R. partners, considerable information on prices of representative commodities has been collected. For example, for the repricing of personal consumption (the main component of final consumption) the number of selected specifications with appropriate prices varied from 700 to 1300; for the repricing of capital investment about 900 specifications were selected; for the repricing of industrial output the number of selected specifications varied from 900 to 1300. It should be pointed out that some price-ratios have been used for the revaluation of both capital investments and industrial output. In their efforts to select specifications, to match qualities of products and collect information on prices and so forth the central statistical offices of the CMEA member countries were assisted by hundreds of organizations and institutions responsible for research and development in various branches of industry. The CMEA Statistical Division carried out general co-ordination of this work.

The aggregates in question were subdivided into a number of detailed categories designed mainly for repricing purposes. For example, final consumption was subdivided into 213 detailed categories, capital investments into 83

categories, and industrial output into 392 groups. An unweighted geometric mean was computed from the individual price ratios found for each detailed category. Indices calculated with two different sets of weights (the U.S.S.R. prices and the prices of the second CMEA country in question) showed the impact of negative correlation between prices and quantities. Aggregate results were obtained by using the geometric mean of these indices. Agricultural output was revalued into a common currency through the use of a direct revaluation procedure. Agricultural statistics of the CMEA member countries are sufficiently comparable so that there are few problems with such a procedure. Indices of volume obtained as a result of direct bilateral comparisons were used subsequently in carrying out multilateral calculations. The bridge-country method was employed to this end, U.S.S.R. data being used for linking.

Information obtained as a result of the international comparison for 1973 has been used to improve analysis of the economies of CMEA member countries and for planning measures related to economic integration. The latest stage in the ICP covers the period from 1976 to 1981. Using the framework of this new stage, a new international comparison of a number of important macro-economic indicators will be carried out for the year 1978. The purpose of this paper is to outline the basic features of the new stage in the ICP and to review briefly methodological problems to be solved.

The main objective of the international comparison for 1978 is basically the same as the objectives in 1959, 1966 and 1973. It is to provide the CMEA and its member countries with comparable data on the most important macro-economic indicators necessary for comparative economic analysis. However, one of the features of the new stage in the ICP is that data obtained through international comparisons are now more widely used for solving practical problems. For instance, data for 1978 will be used to compile joint economic forecasts, to co-ordinate economic plans and planning targets, and to analyse the process of economic development in the CMEA member countries. Also, data on national incomes are to be used to determine the share of the CMEA member countries in financing certain joint projects. The price ratios obtained through international comparisons will be used exclusively for achieving comparable valuation of indicators. In our opinion, however, they could also be of interest to the CMEA work in the field of financial problems.

Taking into account the growing demand for comparable and reliable information on economic performance and the level of economic development, the CMEA Standing Commission on Statistics is making a great effort to improve methods of comparison and to increase the number of indicators to be compared. For 1978, in addition to the above-mentioned aggregates compared for 1973, the following new indicators will be examined:

- national income produced;
- productivity of social labour;
- total consumption of the population;
- final output of industry.

CMEA has used so far for comparison purposes only the indicator of national income utilized, which is the sum of final consumption and net capital

formation. However, to make a more accurate analysis of relative levels of economic development it was decided to use also the concept of national income produced. It goes without saying that this concept will be based on MPS methodology.

As is well known, the use of a double deflation procedure in international comparisons entails a number of practical difficulties, in particular, the need for large amounts of additional information on price ratios for intermediate goods. As an alternative therefore, national income produced will be estimated as the sum of all components of final disposition of national income, including the balance of external trade and losses. It is noteworthy that the CMEA Standing Commission on Statistics has decided to establish a methodology for converting the balance of foreign trade into a comparable currency. It is expected that it will be based on data on exports and imports in the so-called transferable rubles, which are being compiled now for foreign trade statistics purposes.

Comparable data on national income produced will allow comparison of indicators of social productivity, defined as the ratio of national income produced to number of persons engaged in material production. Though the basic principles of labour statistics have been compiled by the CMEA Standing Commission on Statistics, it is necessary to make some modifications and corrections in order to adapt them to the purposes of international comparisons of productivity. The methodology of compiling labour inputs should take into account the differences in labour legislation of the CMEA member countries which determine employment of certain categories of persons and are of interest for international comparison purposes. For instance, differences in the duration of a working day and in the number of working days should be taken into account. Data on the so-called "listed number of the employed" in the material sphere are to be used as a starting point for the computation of labour inputs, the methodology of which has been specified by the CMEA Standing Commission on Statistics (23rd session). In a number of cases, however, the "listed number of the employed" includes certain categories of employees who were not taking part in production for a relatively long period of time, e.g. persons studying or improving their skills off-the-job, women on maternity leave, etc. Therefore, in order to improve comparability of data on labour inputs these categories of persons should be excluded from the "listed number of the employed". On the other hand, the "listed number of the employed" does not include some persons who actually worked, e.g. those hired for temporary jobs (window-cleaners etc.). These categories of persons should be added to the "listed number of the employed". In agriculture it is necessary to add persons temporarily engaged in harvesting and similar jobs in agricultural enterprises, e.g. students, military personnel, etc. There are certain differences in the organization of the agriculture of the CMEA member countries. For instance, in some cases certain activities are undertaken by special organizations servicing agriculture, whereas in other cases these activities are undertaken by agricultural enterprises themselves. These differences should be taken into account in order to achieve better comparability of data on labour, even if the output of the organizations in question is not included in the national product.

International comparisons of labour productivity will be carried out in two versions:

- as national income per employee in the material sphere;
- as national income per hour of work in the material sphere. For the first version, the labour input will be based on the concept of a “physical person”. It means that the person should be counted only once even if he is employed at the same time at two jobs. For example, members of agricultural co-operatives working part time on their personal plots will be counted only once; industrial workers temporarily engaged in agriculture will be counted only once. At the same time, the concept of labour input calculated in hours should cover all time spent in production including work at personal and private plots, etc. The bulk of information on labour inputs can be obtained from such traditional and reliable sources of data as records submitted by enterprises and organizations, population censuses etc. It means that a high level of accuracy can be achieved. In some cases, however, data on certain categories of input can be obtained only through indirect methods, on the basis of economic calculations relying on certain assumptions and conjectures. This is true for estimates of input in employees’ and farmers’ personal plots.

The comparison of labour productivity will make it possible eventually to compare indicators of economic efficiency reflecting the joint impact of such factors as quantity and quality of output, output per worker, material input, and capital outlays. For comparisons, data on stocks of fixed assets and material circulating assets (inventories) in comparable terms will be needed. However, at present there are no plans to carry out such a project.

Another “new” indicator of the forthcoming comparison is the total consumption of the population, defined as the value of goods and non-material services, acquisition and consumption of which by households is financed out of their personal incomes or from social funds (free of charge). This indicator will supplement the traditional CMEA concept of consumption of material goods by the population and will make possible in-depth analysis of living standards. The merits of this indicator are well-known and there is no need to dwell upon it. It diminishes the impact of differences in the organization of the economy on the measures of relative levels of consumption and standards of living. For the international comparison of the total consumption of the population, a number of methodological problems need to be solved, in particular, the problem of repricing the value of services provided to the population free of charge. The cost of services provided to the population free of charge is revalued into the common currency by repricing basic elements of material and labour input. For instance, the cost of medical services will be subdivided for the purpose of repricing into the following components:

- wages and salaries of doctors, dentists;
- wages and salaries of nurses;
- other wages and salaries;
- expenditures on energy and fuel;
- expenditures on medicine and drugs;
- expenditures on items from paper;
- expenditures on items from wood;

- expenditures on items of mechanical engineering;
- transportation cost;
- running repairs;
- depreciation of fixed assets;
- other goods and services.

It should be pointed out that CMEA has accumulated certain practical experience in solving these problems. For instance, in 1976 the statistical offices of Hungary and Poland released a joint publication containing the results of a comparison of the total consumption of the population of these countries. This experience will be taken into account in preparing the methodology of comparison on a multilateral basis.

A few words should be said about the comparison of the so-called final output of industry, namely that part of the gross output of an industry which is used outside that industry. The application of this concept will diminish the influence of differences in the organization and specialization of industrial production on the relative levels of output of industries. Comparable figures on final output will supplement data on gross output which also includes the amount of product consumed within the enterprise (factory, plant etc.). It should be stressed that the choice of gross output and final output as indicators for international comparison has been determined to a certain extent by practical difficulties related to the comparison of value added (gross or net). It is noteworthy that there are proposals to use a mixed approach, selecting various indicators (gross and final output, value added etc.) for the compilation of quantum index-numbers for individual branches of economy. An average index for industry as a whole would be computed by weighting individual indices by the share of the branches in overall value added. This approach has certain merits but there are no intentions to apply it in practice in the forthcoming comparison.

To complete the review of problems related to the choice of indicators for the comparison, one should mention the choice between gross and net bases for calculating the national product. So far for the purposes of comparison national income has been compiled in two versions: the consumption of fixed assets was either included or excluded, with the gross basis version being considered as a supplementary one. This practice will be probably continued in the future. In our opinion, however, the choice between these two concepts should be based on a comparison of the distortion of indices of production using net value added when differences in depreciation rates are substantial or using gross value added when differences in coefficients of capital requirements are still greater.

Let us now turn to problems of achieving common valuation of indicators. For direct binary comparisons of appropriate indicators of all member countries with those of the U.S.S.R., the data of all countries will be valued in the U.S.S.R.'s currency and the U.S.S.R.'s data will be expressed in currencies of all respective partner countries. The two indices obtained on the basis of this procedure will be averaged geometrically. The repricing will be achieved through a well-known procedure, collecting extensive information on prices for a considerable number of commodity-representatives. This method is well-known and there is no need to describe it in detail. It should be pointed out, however, that under the programme of further work in the field of international

comparisons of macro-economic indicators approved by the Commission special measures are to be taken to improve the methodology in some respects. For example, special experimental computations are to be carried out to determine more accurately the optimal number of price-ratios and specifications for various indicators. These computations will be based on data for 1973, although some conclusions will be drawn for 1978.

These experimental calculations are being carried out now with respect to industrial output, and the first results have already been obtained. Several possibilities of deleting price-ratios have been tested in order to evaluate the impact of reduction in the number of specifications for price and volume indices on their accuracy. The preliminary analysis has demonstrated that there are large possibilities for reducing the number of specifications in the forthcoming comparison of industrial output for 1978 without diminishing the accuracy of volume indices (approximately by 10–15 percent as compared to the total number for 1973). The results of the above-mentioned experimental calculations will be taken into consideration in determining the target number of specifications for 1978. The number of detailed categories is expected to be preserved approximately at the level of 1973. Experience has demonstrated that CMEA member countries are in a position to furnish basic information broken down with high accuracy into a sufficiently large number of detailed groups; on the other hand, it is clear that the aggregation of detailed groups into larger categories may lead to a serious distortion of volume indices. Closer attention will be given the principle that the number of specifications of each group should depend on the homogeneity of the smallest group, the dispersion of the price-ratios and the importance of the group (its share).

As was the case in the previous comparison undertaken by CMEA, the list of specifications will not be, strictly speaking, the same for all countries concerned. The advantages and disadvantages of this approach are well-known, and there is no need to discuss it here. There will be empty cells in the price-matrix, but it should be emphasized that achieving transitivity of purchasing power parity coefficients at the level of detailed categories and analytical groups is not envisaged at this stage of work. It is also likely that in some countries no specifications at all will be selected for some detailed categories. The repricing of such categories into a common currency will be carried out on the basis of certain conventional assumptions, e.g. with the help of indices computed for similar groups, etc. The specifications will be selected in general in such a way as to include in the sample the most important and typical products relating to the appropriate detailed categories. A distinction will be made between products of domestic origin and imported goods for machinery and equipment purchased for capital investment. The bulk of the specifications will consist of identical or similar products; rare products will be included in the list only in exceptional cases.

For products whose inclusion in the list is desirable in spite of substantial quality differences, adjustments in prices will be made to achieve better comparability. These adjustments will be based on the quantitative evaluation of differences in quality; they will be made at special meetings of experts which are planned to be convened for this purpose.

Another possibility of improving the quality of data which is being considered is replacing the method of repricing the output of construction on the basis of revaluation of cost (this method was used in previous comparisons) by the method of deflation by coefficients of purchasing power, the latter being computed for identical buildings. The commission has decided to carry out experimental computations for a number of countries on the basis of the second method, which will be used as a supplementary one.

International comparisons of agricultural output will be carried out to obtain volume indices for both gross output (including seeds and forage consumed out of own production) and the so-called final output (excluding input of seeds and forage from all sources) for 1974, 1975, 1976, 1977, 1978 and for the period 1974-78 as an average; the latter is desirable so as to reduce the impact of fluctuations in weather conditions on the relative levels of production. The comparable figures on agricultural output will be subdivided into the most important agricultural products and groups of products, e.g. crop production and animal husbandry.

The quantum indices computed on the basis of direct binary comparisons of indicators of all countries with the U.S.S.R. will be used as a foundation for calculating indices for any pair of countries as was done in the comparison for 1973. A bridge-country method will be applied for this purpose. The bridging will be carried out on the most aggregative level. This method, as is known, produces indices which do not meet certain requirements, e.g. base-country invariance, characteristicity of weights (to some extent). Therefore, the CMEA Standing Commission on Statistics has decided to carry out experimental calculations on the basis of other methods of multilateral comparisons, e.g. Geary-Khamis, EKS, etc.

A few words should be said on the choice of prices for evaluating indicators. Until now in order to evaluate, for instance, personal consumption (the problem is most acute in this area) the CMEA has used average national retail prices irrespective of the source of supply of goods (e.g. purchases on a free market, private production). The disadvantages of such a method are also well-known: it ignores the relative differences in trade and transportation costs and to some extent differences in quality (e.g. goods sold at free market at higher prices are not infrequently of relatively higher quality). Thus, as a result of this mode of valuation, indicators of countries with a relatively high level of consumption from own-account production may be comparatively overestimated. Therefore, the CMEA Standing Commission on Statistics may wish to discuss this problem again. Moreover, it should be pointed out that the CMEA member countries have an information basis for using individual prices for the different sources. For instance, there are systems of balances of agricultural goods both in kind and in money terms. These balances contain information on consumption by the population of agricultural goods by sources of supply, and appropriate prices. In our opinion, valuation at the level of individual prices is essential if we consider important the consistency between estimates on national product obtained separately on the production and disposition sides of the material balance. This consistency is important even in the case when in practice estimates of national product are prepared only by the flow of final goods method.

And finally we should like to point out the following. As is known the UN Statistical Office is carrying out a similar project. Therefore, it would be desirable to expand co-operation between the UN and the CMEA in this field. It could be of mutual benefit to both sides and, in particular, would save funds for further work in this field.

#### CONCLUSION

The distinctive features of a new stage in the international comparison of purchasing power in the CMEA are the further improvement of comparison methods and the increase in the number of indicators to be compared. This is related to the growing demand for comparable data on basic macro-economic indicators on the part of the CMEA and its member countries with the view to solving a number of important practical problems related to the implementation of the programme of economic integration. In particular, work has been started on the development of the methodology of conversion into a common currency of the balance of external trade as an element of the national income produced, and on the methodology for comparing labour productivity. Measures are being taken to improve methods of repricing. Experiments will be carried out with respect to methods of multilateral comparisons which would yield indices meeting various analytical requirements.

The implementation of the above-mentioned measures and plans approved by the CMEA Standing Commission on Statistics will provide the bodies responsible for planning and decision making with more extensive and more reliable information.