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NATIONAL ACCOUNTS AND BALANCES

INTERNATIONAL COMPARISON OF PRODUCTION, INCOME  
AND EXPENDITURE AGGREGATES

Report of the Secretary-General

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## I. INTRODUCTION

1. The past two decades have witnessed the rapid development of work at the national level on the estimation of product, income and expenditure aggregates. As a result, in all regions of the world an increasing number of countries regularly publish such estimates.<sup>1/</sup> The data are widely used at the national level for economic policy making, planning and research.
2. The use of the same data in the international context has been less successful. It is still very difficult to compare national estimates, even if standard methodology has been adopted to produce them. More often than not, the official exchange rates are inadequate to convert the estimates of different countries to a common basis of valuation. It is generally accepted that a more refined method of conversion is desirable for analytically meaningful international comparisons of national product, income and expenditure.<sup>2/</sup>
3. In accordance with the views expressed by the Commission at its thirteenth session<sup>3/</sup> and with paragraph 295 (3) of document E/CN.3/351, "Integrated five-year programme of international statistics", considered by the Commission at its fourteenth session, the Secretariat initiated more systematic work on this subject in 1967.
4. As a first step, a preliminary investigation was carried out of existing experience in this field and a review made of the main problems and difficulties involved in undertaking a large-scale project. The present report draws attention to some of the findings of this inquiry. It is believed that a discussion of these questions by the Commission, particularly in relation to the proposed project of the Secretariat, might be of considerable help in guiding further work in this field.

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<sup>1/</sup> Yearbook of National Accounts Statistics, 1965 (United Nations publication, Sales No.: 66.XVII.2) includes national accounts estimates for ninety-four countries and territories.

<sup>2/</sup> The Commission, at its thirteenth session, discussed at some length the conversion problems involved in comparing various estimates originally expressed in national currencies. "It was generally agreed that this problem was an important one and that the solution obtained by using currency conversion rates based directly or indirectly on prevailing exchange rates was inadequate for many purposes" (Official Records of the Economic and Social Council, Thirty-ninth Session, Supplement No. 3 (E/4045, E/CN.3/339), para. 77).

<sup>3/</sup> Ibid., para. 79.

## II. NATURE AND SCOPE OF POSSIBLE COMPARISONS

5. The initiation of the present project implies a departure from the use of official exchange rates as a basis for the comparison of aggregates in national currencies. At the same time, it implies a rather detailed investigation in terms of the breakdowns of the various production and expenditure aggregates. It calls not only for improved general conversion rates by which the main aggregates (such as gross domestic product) of the various countries should be made comparable but also for differentiated conversion rates for the various components of production and expenditure, since it is believed that even the most realistic over-all rates cannot produce equally realistic comparisons for specific production or expenditure components. Indeed, the detail required for the realistic comparison of the different production or expenditure elements is generally also a prerequisite for the construction of realistic over-all conversion rates.

6. The relative significance of the various components of production and expenditure may thus differ according to the system of valuation applied. In value terms, it will differ whenever valuations other than the actual national valuations are used.<sup>4/</sup> This varying significance of different production or expenditure components is largely based on the understanding of these components as value data, obtained through the multiplication of quantities by related prices. Naturally, if given quantities are multiplied by different sets of relative prices, the resulting value aggregates will have different relative magnitudes.

7. This well-known circumstance is one of the basic reasons, if not the basic reason, for the concentration of detailed international comparisons around aggregates which are closely related to the so-called "real" flows or transactions. It is only for these flows that alternative measures of the dimensions of the components are available.

8. Among some basic analytical purposes to be served by macro-economic aggregates, the following can be mentioned:

(a) The analysis of the production of national economies (especially by industrial origin and according to interindustry structure);

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<sup>4/</sup> This is also the case when, instead of current national prices, constant national prices are used for valuation.

(b) The analysis of the income of the nations (the distribution and redistribution of the income accruing to the factors of production);

(c) The analysis of the expenditure on the national products (for private and government consumption, fixed capital formation etc., in appropriate subdivisions).

9. Generally, the international comparison of the production and expenditure aggregates (and their subdivisions) is more promising than that of the income flows. The former are more closely connected with the flows of goods and services and the above-mentioned quantity and relative price relationships are more easily followed in their case.

10. However, international comparisons of production and expenditure aggregates and their subdivisions are also useful from the point of view of comparative income analysis. The insight gained into patterns of private consumption via the comparison of expenditure data, for example, is of very considerable value. It is also believed that the proposed comparisons of the purchasing powers of per capita national incomes are of great analytical significance.

11. Taking into account the conceptual and practical problems of this work, it would appear appropriate at this time to think only of a broad long-term framework of comparison targets. In terms of the aggregates of the revised System of National Accounts it would seem desirable to attempt the following comparisons:

(a) Gross domestic product;

(b) Gross domestic product by industrial origin, in about twenty main subdivisions or, if the organization of the comparison study facilitates it, also in terms of some forty major groups (mainly for purposes of industrial statistics);

(c) Private consumption expenditure;

(d) Private consumption expenditure subdivided into:

(i) Food, beverages and tobacco;

(ii) Clothing, foot-wear and accessories;

(iii) Gross rent, fuel and light;

(iv) Furniture, furnishings, household equipment and household operations;

(v) All other goods and services;

Where practical, the further subdivision of the main expenditure elements (especially into such components as expenditure on transportation, health and education) would also seem desirable;

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- (e) General government consumption expenditure;
- (f) Gross domestic capital formation;
- (g) Gross domestic capital formation subdivided into:
  - (i) Gross fixed capital formation;
  - (ii) Increase in inventories;
- (h) Gross fixed capital formation subdivided into:
  - (i) Dwellings;
  - (ii) Non-residential buildings;
  - (iii) Other construction;
  - (iv) Machinery and other equipment;
  - (v) Transport equipment;
  - (vi) All other gross fixed capital formation;
- (i) Exports;<sup>5/</sup>
- (j) Imports;
- (k) Exports and imports subdivided according to broad economic categories.

12. While the objectives for the work indicated by this list are admittedly ambitious, it seems necessary to try to envisage a broad, long-term framework for these comparisons. The actual possibilities, on the other hand, will vary widely from country to country. In the case of a number of countries, comparisons on this scale (or even, in some respects, on a wider scale) are apparently feasible.

However, the comparison of a relatively broad range of aggregates is much closer to the economic realities and statistical possibilities of the developed countries than to those of the developing countries. Special care has to be given to this problem.

13. While there are advantages in envisaging a broad, long-term framework of objectives in this field, at the present stage the task would be to attempt quantity and price comparisons for as many subdivisions of gross domestic product as feasible. The eventual number of categories would probably prove to be somewhere between fifty and 100. Ideally, for each of these categories there would be a price comparison, a quantity comparison and a value comparison for each of the countries involved.

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<sup>5/</sup> In the case of the elements under (i), (j) and (k), the aim is to have comparable export and import data within the framework of the supply and demand for goods and services in the domestic economy. For numerous other purposes, such as balance-of-payments analysis, the data on international trade are appropriately converted at prevailing (official) exchange rates.

### III. PROPOSAL FOR FUTURE WORK

14. It is realized that comparable valuations for the various aggregates mentioned above can be attained by the use of different techniques. However, it would seem inappropriate to make firm decisions at this time on the methodology to be adopted for a large-scale international project in this field. Methodological thinking alone cannot determine the decisions that will ultimately have to be made. Only further experience with actual comparisons (especially comparisons involving the developing countries and comparisons between whole regions) would seem to make it possible to arrive at sound final recommendations in this respect.

15. In recent years, renewed interest has been expressed in the investigation of per capita indicators of physical quantities and their correlation with per capita national income figures. It is believed that compilations of this type may be helpful for the ranking of countries according to their level of economic activity, especially in regions where value aggregates are not yet available or are believed to be of poor quality. It is hoped that, as experience is accumulated with estimates of comparative income and product on a per capita basis, it will be possible to embark upon a systematic search for short-cut methods of making these comparisons. Such short-cut methods will be essential if a large number of countries are to be brought into the system of comparisons.

16. At the beginning of the work, however, it seems necessary to concentrate upon international comparisons of value aggregates as earlier described. Initially, it seems best to lay emphasis on binary comparisons among a few developed and developing countries, the total number of which could probably be five or six. An effort should also be made to devise a way in which a consistent matrix of intercountry comparisons might be presented. Perhaps the most promising approach in this connexion will turn out to be the construction of a series of regional price and quantity weights, each applicable to a group of countries chosen for their geographical propinquity and similarity of social and economic structure.

17. Careful comparisons of the kind envisaged require large resources. In view of the dimensions of the task and in the light of the experience gained in similar studies (such as those of the Organisation for Economic Co-operation and Development and of the Council for Mutual Economic Assistance), only a relatively large and properly financed undertaking can produce authoritative studies in this field. It is hoped, however, that substantial progress with this work along the line indicated above can be made in the period 1968-1971.

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18. The initial phase of the work is envisaged as a joint undertaking of the United Nations and the University of Pennsylvania, the latter's contribution to the work being financed by a grant from the Ford Foundation. The joint project will be sponsored by the United Nations and the Director of the Statistical Office will be Chairman of the Advisory Board. Professor Irving B. Kravis of the University of Pennsylvania will be director of the project and an associate director will be provided by the Statistical Office. It is envisaged that ten or eleven persons will participate in the project and that half of the personnel will be provided by the University of Pennsylvania and half by the United Nations. Assuming the success of the initial project, at the end of a three-year period the United Nations will assume responsibility for carrying on the work as an integral part of its own activities.

19. It is assumed that the results of the project will be useful in the situation mentioned above. However, it is realized that in many cases, the interest in the comparison is somewhat indirect; for example, the interest of the users of the data may ultimately lie in the comparison of "welfare" or "economic power". It seems necessary, therefore, that the nature of the comparable statistical measures should be clearly stated and that an indication be provided where possible of the relevance of the measures to the discussion of such questions.<sup>6/</sup>

20. It is realized that additional data collection will be necessary for many phases of the work if the project is to be successfully executed and that the co-operation of the official statistical agencies in the countries involved will be required. In this connexion, the possibility of using data from other comparisons of this kind (such as those made by Canada, Japan and the centrally planned economies) will be investigated and the feasibility of linking in the work on Latin America undertaken by ECIA (more recently with the assistance of the Brookings Institution) will be explored.

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<sup>6/</sup> Often the phenomena of ultimate interest do not lend themselves to direct quantitative measurement. Indeed, notions such as "welfare" and the "level of economic development" rarely have strict and unambiguous definitions, internationally (or even nationally) agreed upon. In numerous cases, however, the users of different statistical measures behave as if the given measures could be used without much qualification in such contexts.

21. The project will benefit from the experience of the studies carried out earlier in this field by OECD and other organizations. At the same time, it will break new ground. Generally, comparisons of the kind envisaged involve so many intricate problems of concept and method that a very high degree of accuracy cannot be expected of the results, especially on the world level. Nevertheless it is hoped that, with patient efforts, considerable improvements over existing procedures in this field can be achieved.

#### IV. PROPOSAL FOR ACTION BY THE COMMISSION

22. The Secretariat proposes to initiate work on the international comparison of national production, income and expenditure aggregates and their main components with a view to the ultimate improvement of the international comparability of these data. A first project on the subject has been prepared for the years 1968-1971. As part of this project, it is intended:

(a) To carry out comparisons for a selected number of countries, and

(b) To develop, test and describe suitable techniques for the more comprehensive comparisons to be carried out at subsequent stages of the work.

23. The Commission may wish to express its views on this project and to give its general approval to the proposed programme of work in this field. It may also wish to request the Secretary-General to report to the Commission at its sixteenth session on the progress of this work and on the results achieved.

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