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INDEX NUMBERS OF WHOLESALE PRICES

(Memorandum prepared by the Secretary-General)

1. The subject of index numbers of wholesale prices has been before the Commission at its past three sessions. At the seventh session the Commission reviewed the work in this field in a memorandum (E/CN.3/144 and E/CN.3/144 Add.1) in which the Secretary-General presented the main problems which had been revealed as a result of the study made in many countries of the technical report circulated to countries at the Commission's request.
2. The Commission considered the views expressed by countries on this subject as summarized in the memorandum. As a result of its review of the problems, the Commission arrived at conclusions which may be summarized under the following headings:
 - (a) the desirability of expanding the amount of price data collected;
 - (b) the field to be covered by the index-numbers;
 - (c) the commodities to be included;
 - (d) the selection of varieties;
 - (e) the stage of distribution at which the prices are collected;
 - (f) the combination of the price quotations into variety and commodity price indexes;
 - (g) the weighting of the indexes;
 - (h) the formula to be used;
 - (i) the base period;
 - (j) the periodic reviewing of the indexes.

3. The major problem which was revealed by the Commission's consideration of the subject and on which no unanimity was able to be reached was the fundamental division of opinion on the merits of what may be referred to briefly as the traditional indexes and the sector (or industrial) indexes. The difference between these two systems of index numbers prices, the Commission will recall, arises from differing concepts of the purpose and scope of the index numbers. These contrasting concepts result in differences, in practice, in the methods of:

- (a) classifying price quotations to obtain averages for groups of commodities;
- (b) weighting the price quotations;
- (c) treatment of commodities at different stages of processing.

4. Where an industrial or sector classification is used, the prices are grouped together to form index numbers which are correlative with the value of the output (or input) of industries, groups of industries, or economic sectors. Each commodity is therefore assigned a weight proportional to the value of the output (or input) of that commodity which moves from that sector to (or from) other sectors. Thus, in this system no weight is given to that part of the output which is consumed within the sector (or industry) and certain commodities which are produced and consumed entirely within a given sector disappear completely from the computations.

5. In the traditional index-numbers, on the other hand, the price quotations are averaged for groups of commodities with indifference as to their sector (or industry) of origin or destination. This indifference may be absolute, as when commodities produced by different sectors are aggregated (e.g., agricultural raw materials and manufactured goods) - or relative, as when commodities in a group are given weights based not on their importance in that group but on their importance in all groups (e.g., weighting cotton yarn by total produced in a price index of the output of the cotton industry).

6. In accordance with the Commission's request that the Statistical Office undertake further discussion with national statisticians on this problem, the Secretary-General placed the subject on the agenda of the Third Regional Meeting

of European Statisticians and the meeting discussed it as one of its two main subjects. In view of the thorough consideration which the meeting gave to this matter the Commission may wish to consult the report of the meeting which is available for the Commission's reference (E/CN.3/Conf.3/1).

7. The European statisticians agreed with the Commission's view as to the need for extending and improving the collection of price statistics. Specific detailed recommendations could not be made but it was thought desirable that national statistical offices be encouraged to exchange information as to their experience in collecting prices for difficult commodities such as durable consumer goods. An important discussion took place on problems of sampling encountered in the various stages of construction of an index number of wholesale prices, viz: in the selection of quotations and correspondents, of varieties, and of commodities. Decisions on the frequency of collection of data were also recognized as falling within the scope of sampling. It appeared that much had to be done to apply modern sampling theory to the construction of price index numbers, and the combination of theory with statistical practice could profitably be explored further. It was felt that the collection of price data should be organized along a planned design, rather than by following the line of least resistance. Although in most, if not in all, countries the amount and quality of primary information on wholesale prices was still inadequate, it was probably undesirable and uneconomical that all the available information should necessarily be incorporated in the index numbers. The corresponding problems encountered in the field of retail prices were considered to be different and considerable progress has already been made in a number of countries in the design of family budget studies and of cost-of-living index numbers built upon them.

8. The meeting discussed the meaning of the sector approach. It was concluded that the full logic of this approach was followed in European countries only by the United Kingdom and the Republic of Ireland, the former having abandoned entirely the traditional wholesale price index numbers even though the full range of sector input and output price indexes was not yet available. The main reason is that the traditional index numbers, such as those relating to textiles, included commodities at different stages of

production, from raw materials to finished products, and it was difficult to interpret such index numbers for purposes of economic analysis since the prices of the commodities included were obviously directly dependent on each other, and the prices of raw materials exercised an excessive influence on the index. The meeting agreed, however, that commodity indexes are useful for market reporting of business intelligence and that commodity indexes for a narrow range of goods, e.g., cotton piece goods, are important components both of the commodity price system and of sector input and output indexes.

9. It appeared that the index numbers of western Germany and the Netherlands occupied an intermediate position. Although these countries produce index numbers for separate sectors, the weights attached to a commodity deliberately include the transactions of all establishments belonging to a given sector, that is, they include transactions within the sector also. This, however, did not seem to be the final decision of western Germany, and it was expected that in due course, as the relevant information became available, transactions within given sectors would be shown separately by classification according to the sector of destination, and eventually index numbers similar to those prepared in Ireland and the United Kingdom would be published. It was evident from the discussion that in all countries the adoption of the sector approach was limited not so much by theoretical objections as by the non-existence of the necessary statistical data. While the price information required for different purposes is practically identical, it is more difficult to derive the weights required for price index numbers for the output or input of particular sectors. Such information is obtainable from censuses of production of a type which is customary in Ireland and the United Kingdom, but which most countries have not yet undertaken. It would not, therefore, appear practicable to make binding recommendations on the introduction of these new index numbers, since any progress in this field is likely to be hindered for the time being by the lack of adequate basic industrial statistics.

10. The European statisticians did, however, agree to proceed with sector index numbers on an experimental basis. It was agreed that among the indexes for major sectors which should prove most valuable were indexes for the input and output of agriculture, the input and output of manufacturing industry,

for imports and exports, for capital goods (other than buildings) entering into domestic investment, and for the input of materials into the building and construction industry. It was thought that such index numbers are or ultimately will be demanded by businessmen and farmers, and that they may replace the use of the traditional general index in business contracts, though the more general view seemed to be that the use of existing commodity group indexes and the general index in business contracts was likely to continue for some time. No agreement was reached on the question of whether or not the traditional general index should be abandoned, although the possibility was discussed of compiling other general indexes, applicable to definable aggregates, in addition to, or in substitution for, the traditional index.

11. The results of the consultations which the Statistical Office has undertaken both in Europe and elsewhere may be summarized as follows:

- (a) There appears to be general agreement that the conceptual incongruity between the traditional indexes and the aggregates to which they are usually applied, seriously limits the analytical use of these indexes;
- (b) The need is felt in many countries for indexes which reflect changes in the price components of the economic aggregates in current use for economic analysis, viz: the output (and input) of principal national industries; the output (and input) of sectors of the economy for which data are assembled in the form of national accounts; the output (and input) of groups of industries, changes in the level of activity of which have important effects on the economy as a whole; the value of imports and exports and of particular categories of imports and exports;
- (c) Progress in the development of the required price indexes has lagged behind the development of the value aggregates owing to the difficulties of collecting prices for many complex manufactured commodities - as compared with the relative ease of the price collection for the homogeneous commodities which usually predominate in the traditional indexes;

- (d) The weighting of the commodities in the sector or industrial price indexes is much more difficult than in the traditional indexes because of the fact that data for all the components of the value aggregates are frequently not available;
- (e) Administrative and related considerations in many countries will necessitate the retention of traditional indexes for a long time to come.

12. In view of these considerations, the Commission may conclude that the demands of analysis will make it progressively more necessary for countries to compile indexes of the sector or industrial type, but that in view of the practical difficulties, the Commission's work on this subject should, for the present session, be devoted to discussion of the methods by which this kind of development may be facilitated. In that case, the Commission will wish to discuss means for assisting and encouraging countries,

- (a) to undertake the necessary extension of their price collection;
- (b) to reassemble and reweight the price quotations to obtain additional indexes for economic analyses, and
- (c) to indicate whether countries should attempt initially to compile indexes for broad sectors such as agriculture and manufacturing, or for smaller sectors such as individual industries.
