STATISTICAL OFFICE
OF THE UNITED NATIONS

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GENERAL METHODOLOGICAL PROBLEMS OF THE QUANTITY AND PRICE INDICES OF SERVICES

(Preliminary conclusions on the results of the enquiry on national practices and views in respect of general methodological problems)

New York, September 1988

I. INTRODUCTION

1. In March 1988 the Statistical Office of the United Nations Secretariat circulated a questionnaire to national statistical offices requesting information on practices and views in respect of some methodological problems in the field of quantity and price indices of services. In order to facilitate the collection of the information, a background document summarizing the current knowledge of the Statistical Office on selected methodological aspects was enclosed with the questionnaire. Countries were requested to submit their answers by the end of May 1988.

2. The present document summarizes the conclusions which can be drawn from the replies on the general methodological problems only. By the time of this writing it was not yet possible to process the information received on national practices, service industry by service industry. A comprehensive summary of the findings of the enquiry is planned for 1989.

3. As of 20 August 1988, replies had been received from 36 countries. Six of the respondents (Ethiopia, Guatemala, Republic of Maldives, Papua New Guinea, Rwanda and Switzerland) indicated that no service indices are computed in their countries. Eight of the countries (Bangladesh, Belgium, Belize, Greece, Kuwait, Mauritius, Panama and Sri Lanka) provided information on current practices only and did not express any views in respect of the methodological problems. The present document summarizes the replies of the 22 countries which supplied information in respect of methodological issues as well: Australia, Austria, Botswana, Canada, Chile, Czechoslovakia, Denmark, Finland, Germany (Federal Republic of), Hungary, India, Indonesia, Luxembourg, the Netherlands, New Zealand, Norway, the Philippines, Poland, Republic of South Africa, Spain, Sweden and Trinidad and Tobago.

II. NEEDS FOR IMPROVEMENTS AND FEASIBILITIES

4. Practically all of the responding countries agree that quantity and price indices of services is a relatively underdeveloped area of statistics and needs improvement. In most of the replies this statement is made explicitly, in some of them only implicitly. The unanimity in respect of the dissatisfaction, however, covers different levels of development of service statistics and different types of problems. At one extreme, Trinidad and Tobago, for example, states, that "in fact no quantum indices are available and the price indices which are used constitute only a small section of the index of retail prices". Botswana and Indonesia seem to be in similar circumstances. At the other end of the spectrum the problems in some developed countries are that some gaps need to be filled and that more details (in stratifications) or more homogeneous units need to be used.

5. Two of the replies do not share the fear expressed in the background document (para. 5) that the weaknesses of the service indices may seriously jeopardize the quality of the summary growth rates (e.g. GDP quantity indices). The reply of the Federal Republic of Germany points out that GDP constant price data can also be determined on the basis of final demand (expenditure) data, where fewer services are involved (since intermediate services are not covered) and where the constant price computation is easier (since no double deflation is needed). Similar views are also expressed by New Zealand.

6. No country challenged the view expressd in the background document (para. 2) that from some of the service indices (e.g. from those for the public administration) one cannot expect more than that they contribute to the computation of the overall growth indices; however, from these service indices themselves one cannot draw analytical conclusions.

7. As to the feasibilities to improve service indices, views were divided. Some countries consider that, owing to the shortage of resources, there is nothing (or only very little) that can be done in the foreseeable future. Botswana simply states that owing to the weaknesses in the statistics of goods it cannot invest resources to improve service indices. "As a developing country the importance of services do not justify niceties e.g. stratification in the index compilations". A similar reply is given by South Africa: "There is a considerable scope for improvement of the price and quantity indices of services in South Africa but lack of resources precludes any meaningful improvement in the near future." Hungary and Poland consider some improvements desirable; however, these are at the same time very costly and therefore are not feasible in the near future. New Zealand also thinks that the feasibility of some desired changes depends on the resources which, for the time being, are lacking.

8. Other countries report continuous improvements and/or substantial developments planned for the near future. Australia, Denmark, Finland, the Federal Republic of Germany, the Netherlands and Norway should be mentioned in this group; however, there are also others in which, at least in some aspects of the index computations, some improvements are envisaged.

9. As to the main fields of the improvement, most countries concentrate on the development of the basic data. In developing countries like India the main task mentioned is to bring more service units under statutory provision of statistical information; in a number of countries (like Denmark, Federal Republic of Germany and Luxembourg) improving the data base consists mainly of extending price index calculations to industries/areas not yet covered, while for some other countries the main source of improvement in the basic data is obtained by the compilation of more frequent/annual input-output tables (e.g. Chile, Finland and Norway).

10. Only four countries (Denmark, Federal Republic of Germany, Luxembourg and Norway) reported that they were revising (or had recently revised) the various methods (approximations, indicators) applied and that they were switching from one method to another which promised more reliable results. To use more detailed breakdowns (further stratifications) is the intention of Canada, Chile, Denmark, Finland, the Netherlands, and, if resources permit, Hungary and Indonesia. To use more homogeneous units in the index calculations was mentioned as the plan of the Federal Republic of Germany, the Netherlands and Norway.

11. As to the general evaluation of the state of service indices and of future prospects, as described in the background document, nine countries (Austria, Czechoslovakia, Denmark, Finland, the Federal Republic of Germany, India, Indonesia, the Netherlands and Trinidad and Tobago) considered it as realistic and seven countries (Botswana, Chile, Hungary, the Philippines, Poland, South Africa and Spain) as too optimistic. No country considered it as too pessimistic.

III. THE REASONS FOR THE DIFFICULTIES WITH THE SERVICE INDICES

12. Section II of the background document tried to set out the main reasons for the difficulties encountered in respect of the service indices. The following reasons were mentioned:

- a large part of services is not sold on the market (has no price);
- many services have a unique product character;
- for some services quality changes are relatively large and frequent;
- some services have a preventive character;
- the benefit obtained from some services also often contains effects other than the results of the production;

- the quality of some services can be judged on the basis of subjective criteria only;
- the customer cannot appreciate well the quality of some services;
- it is especially difficult to separate the quantity from the price component in the case of services whose output consists of a margin;
- services which are both sold on the market and provided free of charge cause additional measurement problems.

13. Seven of the responding countries (Canada, Chile, Denmark, Norway, the Philippines, South Africa and Spain) considered the list as sufficiently exhaustive and did not have any comments on it. Six countries made relatively small comments. The Federal Republic of Germany and Hungary pointed out that some of the reasons mentioned are characteristic for the indices of goods as well. Finland mentioned, as an additional difficulty, that for some services (e.g. financial ones) the concept of output even at current prices is not sufficiently clear. Czechoslovakia considered that the problem of services which are provided both in the form of market products and free of charge needs further clarification. India and Indonesia mentioned the shortages of basic data as an additional characteristic difficulty of the computation of the service indices. The Netherlands was the only country having several comments on the list, contesting some of the statements (e.g. is it proven that the productivity of some services really increases rapidly?), and even some of the reasons listed (e.g. that customers cannot well appreciate the quality of some services).

IV. THE THEORY OF APPROXIMATIONS AND THE MAIN METHODS DISTINGUISHED

14. The background document presented the view that as a consequence of the various limitations in many of the service industries the quantity and price indices cannot be computed in a straightforward way (as would be required by the theory); some assumptions have to be applied, or in other words, only some approximations of the indices can be used. The background document proposed a flexible attitude in respect of these approximations. Since circumstances and conditions differ from industry to industry and from country to country, in one case one of the approximation methods may provide the relatively most reliable results, while in another case another might. Therefore, a striving for uniformity would be desirable neither within the same country nor internationally, for the same industry. In each case that method of approximation should be selected which, in the given circumstances and conditions, promises the most reliable results.

15. It seems that this theory of approximations was widely shared by the responding countries, although many of them did not say it explicitly. There were only two groups of views which were basically different form those expressed in the background document: the theoretical objections raised by Austria and the pragmatic oversimplifications proposed by some developing countries.

16. The Austrian view is that in the case of non market services there is no central concept of indices; if there is no such central concept, one cannot speak of approximations ("approximations of what?"). At the same time Austria proposes a certain symmetry between the nominal (current price) and real (constant price) production accounts. Since, in the first, output is equated with inputs, on the basis of the symmetry requirement: .."one could argue that the decision in favour of using non market services accounts in portraying a certain activity is tantamount to abandonment of taking into account a 'productivity' element". If this theory is accepted, then the property of the input type approximations that they do not take into account the effect of the productivity changes is not a shortcoming or necessity but a virtue, since it is in conformity whith the symmetry theory.

17. While most of the replies interpret the flexibility proposed by the basic document in a way that both feasibility and reliability factors should play an important role, in some replies it seems that only feasibility counts; the reliability/accuracy considerations are not taken into account at all. It cannot be denied that in the circumstances of many developing countries in many cases only one method of approximation can be used. However, even in these cases the extent to which the given method is used because it is considered as the proper approximation (i.e., that which promises the relatively best results), and the extent to which it is used only because the lack of basic data does not permit anything better, should be made clear.

18. The main approximation methods distinguished in Table 1 of the background document are the following:

1. Rough input measure
   a) price approach, b) quantity approach;
2. Stratified input measure
   a) price approach, b) quantity approach;
3. Rough or stratified input measures with productivity change adjustment;
4. Rough output measures;
5. Benefit type measures;
6. Borrowed quantity or price indices.

Though it does not figure in the table, the text of the background document spoke about another dimension of approximations, i.e. about the shortcut that single indicators can be applied instead of the theoretically required double indicators (e.g. separate deflation of gross output and of intermediate consumption).

19. Only the Federal Republic of Germany and Norway commented on the distinction of approximations, with both proposing further refinements. According to the Federal Republic of Germany "the question of output versus input approaches is in the background document too narrowly limited to physical units. Output indices can of course be constructed both a) by deflation of output series by means of original output price indices and b) by deflation of output series by means of output price indices which are computed on the basis of input prices (intermediate consumption and wages)."

20. The Norwegian reply draws attention to the fact that distinction should be made as to whether the price and quantity indices are computed independently from each other (i.e. without reference to the ratio of values in current prices), or whether one of the two indices is computed directly and the other indirectly, as the ratio of the value index and the directly computed index. The latter case is considered by Norway as superior to the former, and one of the improvements contemplated for the near future consists just of shifts from the independent calculations to calculations where one of the two indices is determined in an indirect way.

21. As it turns out from the information given on the present computation practices, there are also various intermediate/mixed solutions of approximations. As Canada indicated in its reply, methods for the same industry also may differ depending on whether the indices are annual or sub-annual ones.

V. DEFLATION VERSUS EXTRAPOLATION

22. The background document, in conformity with other methodological recommendations of international organizations, suggested that, except in some special situations, deflation should be preferred to extrapolation, since, in general, price relatives display less variation than quantity relatives; therefore a representative price index has a smaller sampling error than a representative quantity index take from the same sample. This general rule applies to both goods and services production; however, as pointed out by the background document, there are two groups of exceptions, where extrapolation may provide better results than deflation:

(i) services which are not sold on the market (like public administration, education) have no real prices: deflation (by

cost components) may therefore be more complicated and less accurate than extrapolation;

(ii) for some services (even for some marketed services), price and value data for other than benchmark years may be incomplete or may not even exist, while some quantity information (to be used for extrapolation) may be more complete and reliable.

23. As to the general principles, there are only small deviations in the replies from what is said in the background document. However, partly because countries may have different circumstances and partly because they may judge relative advantages and disadvantages differently, there are substantial differences in practices in respect of the shares of extrapolations and deflations, and, in some cases, in respect of the direction that further develpment should take.

24. Three countries (Czechoslovakia, Hungary and Poland) give overwhelming preference to deflation and do not use extrapolation at all, or only in some exceptional cases. Another three countries (Federal Republic of Germany, the Netherlands and Norway) consider deflation as the main method but recognize that in some cases, extrapolation can provide better results; this is also reflected in their practices. Austria and Canada prefer deflation for all marketed services; as to the non marketed services, however, the situation is mixed. In the practice of Chile and Luxembourg, extrapolation is the main method (without contesting the principles set out in the background document). India prefers to use deflation whenever possible; however, in practice, extrapolation is the dominating method; deflation is applied mostly for non market services. In Denmark and Indonesia the present development trend is to increase the share of the extrapolations. In the Philippines, South Africa and Trinidad and Tobago, no preference is expressed, with data availability considered to be the decisive factor in selecting the method.

25. As to the relative advantages of deflation versus extrapolation, the Federal Republic of Germany and the Netherlands argued that one of the advantages of the deflation method is its better reflection of quality changes. Since, in the case of price index computation, fairly well-specified representative items can be selected, while quantity data are very often available only for relatively heterogeneous commodities, deflation can avoid the "unit value bias" better than extrapolation can. With extrapolation many quality changes remain included in the price index (instead of the quantity index to which they theoretically belong).

VI. DOUBLE INDICATOR VERSUS SINGLE INDICATOR METHOD

26. The background document argued in favour of the double indicator method (where gross output and intermediate consumption are deflated/extrapolated separately, and where the value added at constant prices is determined as a residual), since the implicit assumptions behind the single indicator method (i.e. that the intermediate consumption/gross output ratio does not change substantially and that the price indices of gross output and intermediate consumption do not differ much), are not sufficiently justified in many cases. However, when no sufficient information is available for the application of the double indicator method, and in cases where the above assumptions are likely to hold, or where the share of the intermediate consumption is relatively low, the single indicator method (where the value added itself is deflated or extrapolated) may provide a good approximation.

27. Most countries agreed with the above considerations of the background document. Nevertheless, again, owing to the differences in circumstances and in appreciating relative advantages and disadvantages, present country practices as well as plans for how to develop service indices differ substantially. Six responding countries (Botswana, Czechoslovakia, Denmark,

the Netherlands, Norway and Poland) use only (or mainly) the double indicator method. Three countries (Canada, in their annual accounts, Federal Republic of Germany and Hungary) use the double indicator method for all or most market services and the single indicator method for all or most of the non market services. In India, the double indicator method is used whenever possible. Three countries (Luxembourg, South Africa and Trinidad and Tobago) are not able to use the double indicator method, at least in most of the service industries. Chile and the Philippines do not consider it appropriate to use the double indicator method. Indonesia uses the double indicator method but wants to switch to using the single indicator method to a larger extent. It is noteworthy that even countries with similar development levels differ greatly in respect of the methods used. The most striking contrast is perhaps that between Botswana and its neighbour South Africa: in the former, the double indicator method is the only (or almost the only) method used, while in the latter the double indicator method is not used except in some marginal cases.

28. Three countries provided explanation as to why they either do not use the double indicator method or as to the circumstances under which they do not use it. Chile argued that the use of the double indicator method is less appropriate in conditions of high inflation and large changes in relative prices. The Australian argumentation points to another property of the double indicator method:

> "The double indicator method may not always be the best way of estimating constant price value added in practice. For example if value added is relatively small (i.e. gross output and intermediate input values are close to each other) and errors in estimating either gross output or intermediate input at constant prices are appreciable, then the estimates of value added could well be less accurate than those derived using a single indicator. An example is sales of alcohol by hotels and clubs, where the value added is very small relative to gross output."

Essentially the same argumentation is given by the Federal Republic of Germany, where for similar reasons there was a switch from the double indicator to the single indicator method in the computation of wholesale trade and retail trade indices.

29. Before leaving this section it is worthwhile to draw attention to the fact that owing to the possibilities of the various mixed solutions, the number of approximation variants in respect of the deflation/extrapolation and double/single indicator issues is quite high. Without trying to give a full list of the various possible methods the table below may illustrate this problem by listing eight relatively simple variants.

Number of variant	Aggregate: Gross output	Aggregate: Intermediate consumption	Aggregate: Value added
1.	Deflated	Deflated	Residual
2.	Deflated	Extrapolated	Residual
3.	Extrapolated	Deflated	Residual
4.	Extrapolated	Extrapolated	Residual
5.			Extrapolated by gross output index
6.			Extrapolated by intermediate consumption index
7.			Deflated by gross output index
8.			Deflated by intermediate consumption index

Further distinctions can be made whether the quantity indices are based on physical quantities only, or whether they also have a value component, and by whether or not they are related to the value ratio (see the distinction proposed by Norway in para. 20 above). All this does not yet take into account that input type indicators (manpower, working hours, use of selected input items, etc.) can also be used for extrapolation and that input elements can also be deflated.

VII. OUTPUT VERSUS INPUT APPROACH

30. In earlier discussions on service indices there were views encountered which considered that the main thrust in the development of this field of statistics should be a switch from input type approximations to output type approximations. The background document was more cautious in this respect. It did not declare the output approach as better than the input approach in all conditions. It only considered that the shortcomings of the former (mainly the consequences of using for the index computations units which are not sufficiently homogeneous) in general cause less trouble and are easier to remedy than the shortcoming of the input approach with its neglect of the effect of the productivity changes. The background paper recognized that there might be cases where a relatively refined input method provides more reliable results than a crude method based on output units.

31. Most of the countries seem to support this view of the background document. Nevertheless, national practices differ to a substantial extent, and there are also differences as to the direction in which countries intend to develop their service indices.

32. There are three countries with views differing from the theoretical considerations of the background paper. Austria's symmetry theory has already

been referred to in para 16. According to this view, for the non market services the input types methods should be considered as indices in their own right (and not as approximations), since this procedure is more consistent (symmetric) with the current price accounting of non market services. To some extent a similar view is expressed by the Federal Republic of Germany: "As gross output (of non market services) is calculated by adding up input values, the same way of calculation should be used with constant prices, i.e. by means of input approaches." India recognizes the general superiority of the output approach; however, "... it may lead to erroneous result in some of the developing countries." No elaboration on this problem is given in the Indian reply.

33. Australia does not seem to be in contrast with the general principles suggested by the background paper; it does, however, give more detailed argumentation on the preferences.

> "Apart from conceptual considerations, the output approach is preferred because a measure of output (quantum of service) is generally more readily available than measures of inputs to service industries. In addition, where stratification is used, it is much simpler task to stratify outputs (e.g. telephone services, telex services, etc. in communications) than it is to disaggregate inputs to specific areas of operations within an industry. The input approach is used in those areas where it is extremely difficult to quantify output, such as public administration."

34. As to the present national practices, only (or practically only) output type measures are applied in Botswana, Chile and the Philippines. Mostly output type approaches are used in Australia, Canada, Denmark, Finland, Indonesia, the Netherlands and Norway. Output type measures are used for market services and input type measures for non market services, at least in most cases, in the Federal Republic of Germany, Hungary and

Luxembourg. The situation in Czechoslovakia is similar, although the distinction line is material-non material rather than market-non market. Input type approximations are preferred and are mostly used in Poland and Trinidad and Tobago.

35. As to the trends in development of their service statistics three countries (Denmark, Luxembourg and South Africa) indicated that they would like to increase the share of the output approaches. Two countries (Finland and Hungary) noted that they do not want to change the present shares; there was no indication by other countries on future plans in this respect.

II. PRODUCTIVITY ADJUSTMENTS

36. The main shortcoming of the input type approaches is their implicit constant productivity assumption. The fact that this is a disadvantage, distorting the results of the indices seems to be generally recognized. 1/ Some segments of the productivity changes can be "caught" and incorporated into the quantity indices by means of stratifications (discussed in the next section of this paper). The question, however, remains open as to whether or not one can do something with the rest of the productivity changes. One group of experts is in favour of somehow estimating these productivity changes and adjusting the input type quantity indices by them; others do not see sufficient justification or feasibility for these estimations and propose to use the input type quantity indices without any adjustment. The background document presented this problem without giving a strong preference for one solution or another.

1/ The only exception seems to be on the part of those who adhere to the "symmetry theory" as described in para. 16 above.

37. The 21 countries who expressed a view on the productivity adjustment issue can be grouped in the following ways:

(a) those who do productivity adjustments: 3 countries (the Federal Republic of Germany, Norway and Sweden);

(b) those who do not adjust their indices for productivity changes but would like to do it: 11 countries (Botswana, Chile, Czechoslovakia, Finland, Hungary, Indonesia, Luxembourg, the Philippines, Poland, South Africa, and Spain);

(c) those who do not make adjustments and would not like to: 5 countries (Australia, Austria, Canada, Denmark, and the Netherlands);

(d) those who do not make adjustments and who did not express an opinion on this issue: 2 countries (India and Trinidad and Tobago).

38. The main arguments against productivity adjustments were their arbitrary character (Austria and Denmark) and the doubt as to whether a rough estimate better approximates reality than no productivity change estimate (the Netherlands). "The Australian Bureau of Statistics (ABS) is reluctant to assign arbitrary adjustments, since the issue of productivity measurement is a sensitive area of wage negotiation proceedings between government, employers, and trade unions in Australia, and any ABS measure would need to be soundly based on objective evidence." From the Danish reply: "Since such productivity adjustments tend to be arbitrary it is probably best to avoid them altogether and leave any such adjustment to users of the data."

39. As to the productivity adjustment as applied in the Federal Republic of Germany, the following can be learned from the reply:

"Productivity adjustments are necessary only in cases of input approaches, i.e. in Germany only for non-market services.

- As far as government services are concerned, a productivity effect results with our calculation method from stratification:

Wages are deflated by wage indices subdivided in several strata; therefore there are variations of productivity caused by changes in the structure of the staff, (that is an effect similar to the one mentioned in your background document, paras. 25-27).

In addition to that effect, we add an (arbitrarily selected) annual rate of productivity increase of 0.5 per cent. It would of course be desirable to find a better foundation for this arbitrarily selected productivity rate.

- As far as "private non-profit institutions serving household" and "domestic services" are concerned, we have used up to now a simple extrapolation by a rough input approach (i.e. employees). Productivity adjustments are not made because the extrapolation of value added by the number of employees is already biased because of the part-time jobs. As soon as the calculation of man-hours worked is available, we will use these more refined units, but it will then be necessary to provide also for productivity adjustments."

40. The Norwegian reply gives the following information:

"It is a difficult task to introduce a productivity adjustment into the estimation, because of the arbitrariness as to the data availability and choice of variables. In Norway, we have introduced productivity adjustment for producers of government services based i.a. on wages statistics. These productivity factors are estimated on a current basis, with a range generally from 0 to 1 per cent among the production sectors. Among service industries, fewer rather than more productivity adjustments should be recommended. At any rate, a fixed productivity adjustment should not be advocated by the UNSO."

41. The most detailed information in respect of the productivity adjustment issue is available for the Swedish practice. In 1987 the Swedish Ministry of Finance published a detailed study on methods and results of measuring productivity changes for public services in Sweden. [2/] The most striking findings of this study are the results themselves. Contrary to the general belief that productivity of public services continuously increases (although one cannot measure the rate of increase) the study found that in Sweden, productivity in public services decreased between 1970 and 1980 by an annual rate of 1.5%. If these productivity changes had been taken into account in the Swedish GNP calculations, the 1980 index (1970 as base) would have been only 117 instead of the 121 as officially published.

42. The productivity change estimates were based on series of quantity indicators. A relatively large number of quantity indicators were monitored in our attempt to get units as homogeneous as data availability permits. To some extent, in some fields, quality changes also were taken into accoumt; the authors recognize, however, that this effect was not sufficiently covered by the calculations, and this problem requires further studies.

IX. THE STRATIFICATION ISSUE

43. The background paper strongly advocated to widen and deepen the stratifications in the computation of service indices, considering this as one of the main ways to improve the quality of these indices. Stratification, in addition to its general beneficial effect in reducing the size of the sampling error, in the case of input approaches enables to reflect the inclusion in the quantity indices of one part of the productivity changes (that part which stems from the composition changes among the strata), provided that the cost level differences can be accepted as relatively good approximations of the productivity differences.

2/ Sweden, the Ministry of Finance, Public Services - a searchlight on productivity and users (Stockholm, 1987).

44. The replies to the Statistical Office, in general, seem to support this view; nevertheless, the situation in which the countries find themselves and the intentions as to what they plan to do vary substantially. About half of the responding countries (Austria, Canada, Finland, India, Indonesia, Luxembourg, the Netherlands, Norway, Poland and Spain) are not satisfied with the present level of stratification and want to deepen and/or widen it. Two countries (the Federal Republic of Germany and Hungary) are not entirely satisfied with the present level of stratification but are not able/willing to spend additional resources to improve it. The Philippines also sees problems in the present practices; however, at this stage it is only studying the issue and has not drawn any conclusions. Three countries (Australia, Denmark and South Africa) consider their present level of stratification as satisfactory. Botswana, at the other end of the spectrum, does not apply any stratification and does not see any feasibilities to improve this situation.
Czechoslovakia's situation is unique: they apply relatively detailed stratification for the material services but practically no stratification for the non-material services (for which, so far, only experimental constant price computations have been carried out).

45. Australia's comment deserves special mention, since it differs to some extent from the views expressed in the background document. "Stratification is used mainly in those service industries where the quantum of various types of output is available, as occurs in the transport and communication industries. Until a satisfactory method of productivity adjustment is determined there is little point in stratification of industries where constant price value added is obtained using labour input as the indicator."

46. The Norwegian practice seems to be the most advanced, in respect of stratifications.

> "By having introduced about 200 different services specifications (commodities) in the final national accounts (and 115 in the provisional annual national accounts), Norway has introduced a fairly detailed stratification in the service indices computations. However, a target of say 25 per cent services share of the commodity specifications could be set, by which a coverage of 300-350 different services specifications could be achieved. This should be a long-term goal of the Norwegian national accounts."