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PRODUCER PRICE INDICES: SESSION 3

**CORPORATE SERVICES PRICES INDICES AND THEIR FITNESS FOR
USE AS DEFLATORS
IN UK NATIONAL ACCOUNTS**

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1. Introduction

1.1 This paper outlines the review and evaluation processes that the UK Office for National Statistics (ONS) is applying to its quarterly Corporate Services Price Indices (CSPIs) after their initial development. These processes support two main aims:

1. To assess a CSPI's fitness for use as a deflator
2. To assess a CSPI's publication status.

2. Deflators

2.1 The deflators required have been those for the calculation of national accounts, namely the quarterly output measure of GDP. In many cases, turnover in the service sector requires deflation by CSPIs and/or consumer prices. In December 2000 the ONS launched the experimental Index of Services (IoS) which is a monthly measure of the output of the service industries. It shares the same data sources and methods as GDP(O) and there is a common review and development programme. Most CSPIs are not currently available on a monthly basis and therefore monthly figures need to be interpolated from the quarterly price indices.

2.2 A UK National Statistics quality review recommended that there should be a programme for combining new, more detailed turnover data with price indices and incorporating them into the GDP and IoS measures. This recommendation also suggested that there should be acceptance criteria for the use of CSPIs in these short-term output indicators.

3. Publication status (not publishable/experimental/fully published)

3.1 The second aim relates initially to deciding whether or not a newly developed CSPI is of sufficient quality and robustness to be published as part of the ONS' series of "Experimental Statistics". This "experimental" status acknowledges that there may be some gaps in the CSPI's coverage and some possible weaknesses that are being addressed. Crucially, the experimental status signifies that the series may be subject to revisions, some of which may be relatively significant and affect historical values of the index.

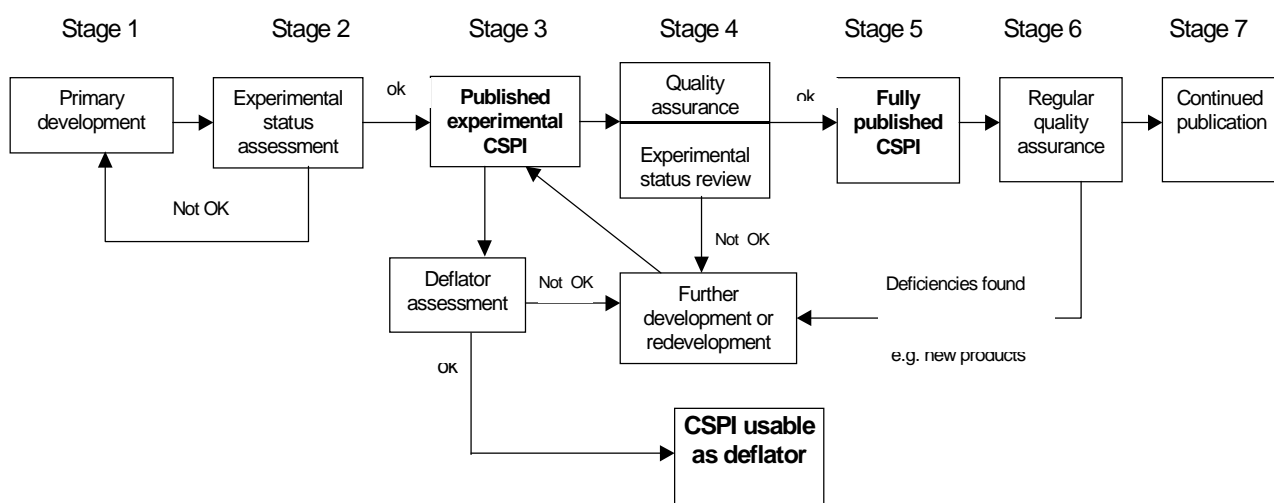
3.2 Similar, slightly enhanced, criteria are to be applied after a reasonable period of publication as experimental series (at least 5 quarters) in order to assess whether or not publication as an official, non-experimental series can now be justified. The additional criteria relate to data collection and quality adjustment issues and the apparent reliability of the index. At present, all UK CSPIs are classified as experimental as this final phase is yet to be fully applied. The intention is to do so in the near future and it is envisaged that probably at least 12 of the current 28 CSPIs may be suitable for publication as fully published series.

4. Achieving the aims

- 4.1 To a certain extent the two aims set out above are interdependent. It is certainly possible though to achieve one in advance of the other. But the criteria used to assess progress against each of the two aims are similar, even the same, in many respects.
- 4.2 This paper first describes the established development, review and quality assurance process that exist for CSPIs and then elaborates how the assessment of fitness for use as a deflator fits in with that process.

5. The CSPI Development Process

- 5.1 The diagram below illustrates the process through which all CSPIs normally go. It is the intention that the development process goes from left to right in the diagram but there are often detours for further development or refinement. The order can vary slightly, but each index goes through each stage at some point - and sometimes more than once.



- 5.2 The "**experimental status assessment**" (stage 2) occurs when the initially developed series is first considered for inclusion in the quarterly CSPI results summary, released under the ONS' "Experimental Statistics" banner. There are detailed development and quality assurance processes that are adhered to, so that the indices are developed on as consistent a basis as possible, whilst benefiting from the lessons learned from the indices developed earliest.
- 5.3 The "**experimental status review**" (stage 4) is linked to quality assurance and a judgement is made as to whether the experimental label of the individual CSPIs under review should be removed. The UK is currently devising criteria here.
- 5.4 The "**deflator assessment**" is a related, but separate, assessment where a set of criteria are applied to each developed CSPI to judge fitness for use as a deflator in National Accounts/Index of Services calculations. Note that the deflator assessment could actually be carried out at any stage of the above process. Also, in some cases, for example where the

GDP measure for the industry is based on volume, the CSPI may not actually be needed as a deflator (although it could be if the need arose). There are two aspects to deflator assessment. The first is absolute i.e. how reliable is the CSPI in its own right. The second is relative i.e. to compare the CSPI with whatever deflator is currently in use (if any).

- 5.5 CSPIs are regarded as very important to UK national accounts as some of the deflators currently in use are less appropriate than a CSPI would be. For example, retail price indices are used but they just relate to consumer markets. Also the average earnings index is used for a number of industries but is a measure of input which means we assume that changes to input costs follow through to price changes in the services being provided.

6. Proposed Process for evaluating CSPIs as deflators

- 6.1 This section describes the process by which CSPIs are going to be assessed in the UK as being fit for purpose as deflators in National Accounts i.e. IoS and GDP(O). In order that CSPIs are to be used it is necessary that a process is set in place that will enable full and proper evaluation of the CSPIs on a consistent basis. This will lead to clear audit trail on recording decisions made by National Accounts in respect of CSPIs.

Identifying which CSPIs are available and could potentially be used as deflators

- 6.2 In the past, no formal evaluation has taken place on the CSPI data series for use as deflators. Currently 8 CSPIs are in use as deflators and a further 8 have been highlighted as immediate possibilities. For each of the 8 CSPIs currently in use as deflators an individual assessment was made in the past, but in an ad hoc way.
- 6.3 In future there will be a periodic review of the data sources available to National Accounts, taking into account progress with the development programme for the CSPI. Where new series have become available these will be highlighted and considered conceptually.
- 6.4 In many cases a CSPI would merely replace another price series currently used. However in some cases a CSPI may be considered as a component in the replacement of a volume series, in which case there would also be an evaluation of the appropriate turnover series to be deflated by the CSPI.

Evaluation of CSPIs already in use as deflators

- 6.5 In the interests of completeness and accountability, it will be necessary to carry out the same process detailed here for the CSPIs that are already being used as deflators. This would assist in benchmarking the kind of outcome expected from the deflator assessment exercise.

Identify future priorities

- 6.6 Although many CSPIs are under development, industry categories requiring a CSPI are set out in the development priorities of National Accounts. This is updated on a regular basis (annually at the least). This is important as it helps ensure that the needs for an appropriate deflator are fully accommodated and monitored in the CSPI development process.

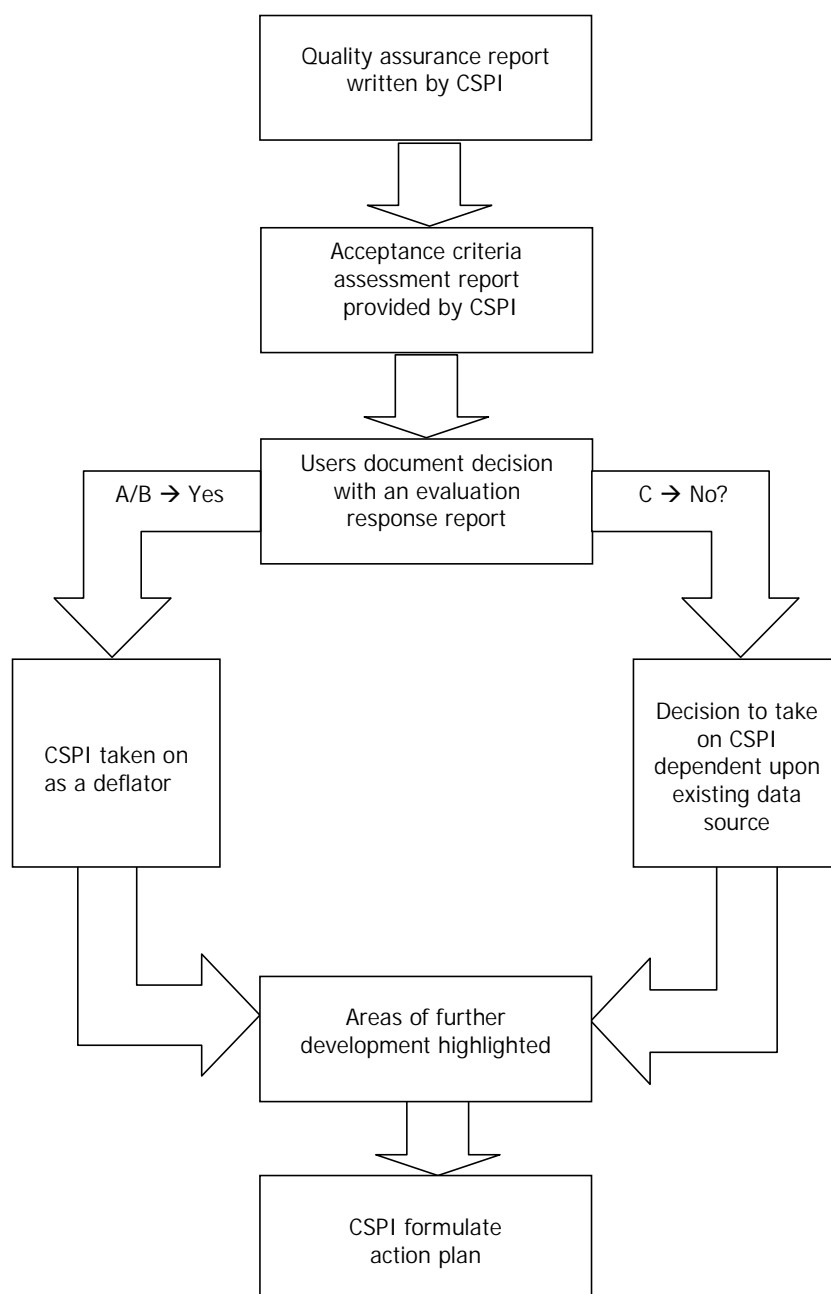
Details of the evaluation process as deflators

- 6.7 At present the CSPI team evaluate individual series by a quality assurance report (see Stage 4 in diagram). This report basically outlines the methodology of the index, the data collection method, sample sizes, behaviour of the series, key events, organisations consulted, date of first data collection, general comments on the index, feedback from trade associations etc. Based upon the information presented in the report, a decision is made as to whether the series is of a publishable quality and/or whether there are further development needs.
- 6.8 The new evaluation process would take the existing CSPI quality assurance a stage further by assessing them for fitness for use as deflators as well. The process would use two areas to assess CSPIs, these are:
- National Accounts criteria for taking on CSPIs as deflators (absolute and relative, see paragraph 5.4)
 - Eurostat handbook on price and volume
- 6.9 The criteria list for the first has already been drafted and this sets out all the theoretical requirements an ideal price index or deflator should have (see Annex). Although it is not expected for a CSPI to meet all the requirements set out, it follows the same conceptual approach of the Eurostat handbook.
- 6.10 It is proposed that the CSPI team would produce a report addressing each criteria of the deflator list and this would then be provided to the users for assessment. The quality assurance report and criteria assessment would then be used to make an assessment of the CSPI.
- 6.11 In assessing the CSPI, it is proposed that the Eurostat A/B/C classification is used i.e.
- | | |
|------------------|---|
| A methods | Most appropriate methods |
| B methods | Those methods which can be used in case an A method cannot be Applied |
| C methods | Those methods which shall not be used. |
- 6.12 Once the assessment has been made by the users (National Accounts and Index of Services colleagues), an evaluation response report will be written which will comment on the CSPI, provide an A/B/C rating and indicate areas for future development. In the case of an A or B rating, it is likely that the CSPI would be taken on as a deflator (unless there is an existing methodology which is deemed conceptually better).
- 6.13 If the CSPI's method is classified as a C method, it might still (just possibly) be taken on as a deflator, assuming there really was no suitable alternative or it could not be improved.
- 6.14 In all cases areas for future development would be set out. This will provide the CSPI team with a clear direction from users. The CSPI team would then respond to the decision made

in the form of an action plan, setting out when and how the further developments will take place.

- 6.15 This process will provide both parties with an accountable framework with clear roles and responsibilities. The whole process is fully documented, with decisions set out at each stage. This audit-trail will be invaluable to both parties.

The proposed process is summarised in the diagram below:



Note: It is important to remember that the needs and priorities of National Accounts are considered at all stages of CSPI development. This means that the assessment included in the process illustrated in the diagram above is not a sudden intervention. Rather, the CSPI development is tailored right from the beginning towards scoring as highly as possible against the assessment criteria and the development is steered to some extent by these needs. Ultimately there should be no surprises when the assessment report is produced. The action plans referred to in the diagram should be extensions of earlier plans and are not expected to be remedial in nature.

7. Conclusion

- 7.1 This paper highlights some of the difficulties associated with developing price indices suitable as deflators which are also useful in their own right as indicators of price changes in their respective industrial sectors.
- 7.2 The approach that the ONS is taking is to formalise the process of development, review and quality assurance. This should ensure consistency of approach and will provide an audit trail of the decisions taken and actions agreed. On first view this may seem a little heavy-handed but it has been accepted as necessary and workable.
- 7.3 The approach also means that National Accounts colleagues are sure to be actively involved in the CSPI development process. In addition, it helps ensure that recommendations of international practice (such as the Eurostat handbook) are taken into account.

ANNEX 1

Acceptance Criteria for CSPI use as deflators in GDP(O) and the IOS:

Absolute criteria

1. The sample should be representative of the industry for which the price estimate is being produced. This will be judged partly by the estimated proportion of the gross output of the industry that is included in the sample.
2. The sample should be designed according to the best statistical practice: *ideally* it should be based on the UK's Inter Department Business Register as a sampling frame; it should be a regularly renewed random sample not a panel; and it should be stratified, ideally by turnover, to reduce variation between the estimates and the population values. Where the Inter Department Business Register cannot provide a sampling frame, corresponding best practice with good quality sampling criteria and structure should be used; e.g. in respect of sample size and distribution within a population to ensure the sample is representative of its population.
3. The weighting structure of the sample should be clear to the national accounts customers and with any non-standard weighting procedures explained.
4. The sample should be designed to produce appropriate estimates of change over the previous collection period and the estimates should be collected in a way that ensures this aim is met.
5. Where a product or industry includes a significant non-corporate or personal element a corresponding price series will be made available from Consumer Price Index data, if appropriate and available. (So to facilitate joint use of the two price series, some estimate of the corporate and non-corporate proportions of the whole should be provided.)
6. The specification of the questions on the questionnaires should be clearly understandable and should be compatible with the National Accounts' business inquiry definitions required by the ONS' National Accounts Group. The definitions of the prices being collected must be relevant to, and representative of, the industry being priced.
7. Where serious definitional difficulties exist, they should be formally shared with the National Accounts customers and both parties shall become jointly responsible for a common decision to be made on future collection, for the short or longer term, on the basis of a shared understanding of the difficulties and of the extent to which a useful solution can realistically be expected.
8. Where data collection uses external sources, the methodology and definitions for the series in these sources should be investigated and understood, and the ONS should ensure that the resulting information is acceptable, e.g. the sizes and structure of their sample sources, their series definition, industry or product scope, timeliness and relevance of the data to a particular period.
9. The supplier data should be collected in a timely fashion and should relate to a clearly defined period of time - this should be clearly identified on the survey form. The extent of any time lags should be made clear to the National Accounts customers.

10. The periodicity of the data collection should match the periodicity of the resulting series (at present quarterly) except in rare exceptional circumstances where temporary special dispensation has been agreed with the National Accounts customer.
11. Where product disaggregation is fluid or frequently changing, the supplier branch must make the customer aware of the difficulties. This includes such instances as changes in the product relationship to an industry category and/or to the SIC definition where this may become uncertain or may be a source of discontinuity in a series. Then the ONS supplier branch and the customer can reach a joint decision on future action.
12. A minimum of three years (twelve quarters) of good quality data must exist for a CSPI to be considered for use for GDP(O) and the monthly IoS.
13. Any erratic movements must be explained. For example, where an individual data point is more than two standard errors away from the expected value an explanation must be provided.
14. The methodology for collection and production of each CSPI should be systematically reviewed and updated every five years. Reports of these reviews should be widely available. For those service industries where the market and pricing structure is changing relatively quickly these reviews should be every three years at least.
15. All of the information describing how a CSPI meets each of these acceptance criteria should be made widely available to all customers.

Relative criteria

- 16 In addition to the above, comparisons with the deflators currently in use for GDP need to be made. Indeed those existing deflators also need to be judged in relation to the above criteria and a comparison of the outcomes must be made. Where the CSPI is clearly more appropriate than the existing deflators then a process of replacement should be agreed.