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DEVELOPMENT OF AN OECD INDEX OF SERVICES PRODUCTION MANUAL

Invited paper submitted by OECD[1]

ABSTRACT

The OECD Short-Term Economic Statistics Expert Group (STESEG) was established in July 2002. At its inaugural meeting it was agreed that the development of guidelines and identification of recommended best practice to facilitate the implementation of comparable short-term output indicators for service industries by OECD Member countries was a major priority. The Short-term Indicators for Services Task Force created by the STESEG, consisting of representatives from several Member countries, is now in the process of preparing a manual on practical methods for compiling a monthly (or quarterly) Index of Services Production. This work is being undertaken in the context of other initiatives co-coordinated by the OECD to expand the availability of statistics for the services sector.

This paper discusses the need for such a manual and for short-term statistics on services output in general, describes the progress the task force has made to date and emphasizes the need for wider country participation and input to this initiative. Because the development of an Index of Services Production is closely related to national accounts production side concepts, the need for contribution from and coordination with work is this field is also addressed.

INTRODUCTION

1.   A key outcome of the inaugural meeting of the OECD Short-Term Economic Statistics Expert Group (STESEG) in June 2002 was the recognition of a lack of short-term indicators for

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[1] Paper prepared by Richard McKenzie.

services output across OECD Member countries, and that the Group should work to improve this situation. In response to this need, the Short-term Indicators for Services Task Force established by the STESEG is in the process of developing a manual to aid country development of comparable monthly (or quarterly) Index of Services Production (ISP). This paper describes the intended content and use of this manual.

THE NEED FOR A SHORT-TERM INDEX OF SERVICES PRODUCTION

2.   Although most OECD Member countries collect some statistical information on the production activity of their services sectors, only a limited number of OECD Member countries appear to cover the services sector comprehensively and with high frequency. A monthly ISP is only available for the United Kingdom and Korea, whilst Canada and Finland publish monthly estimates for service production activity as a part of their monthly GDP. Japan produces monthly indicators for tertiary industry, which cover both industry and services sectors.

3.   In comparison, almost all OECD countries produce a monthly Index of Industrial Production (IIP), which has long been regarded as the main short-term economic indicator for providing early information on likely cyclical movements within countries economies. However the relevance of the IIP as an indicator of cyclical movements for the whole economy has somewhat diminished over the years, as the contribution to GDP of service industries has increased rapidly relative to the contribution of industrial activities (see Attachment 1). In addition, service industries have become increasingly dynamic and are having a larger influence on cyclical fluctuations in the economy, in particular within the information and communication sector[2]. Consequently users of statistics are demanding short-term indicators of services output to obtain better advanced information on cyclical influences in the economy, in particular, to enable more informed decisions on economic policy.

4.   So why don't the majority of OECD Member countries have comprehensive short-term output measures for the services sector? The short answer is that the enormously diverse and constantly evolving nature of services industries makes it extremely difficult to measure output, particularly on a short-term basis. Consequently the primary goal of STESEG through the activities of the taskforce is to create a practically focused manual for compiling a monthly (or quarterly) ISP, based on countries experiences to date and utilising existing international guidelines where available.

PURPOSE AND CONTENT OF THE ISP MANUAL

5.   The STESEG task force agreed on the following objective for the proposed manual:

  "To provide statisticians with practical guidelines to compile a monthly ISP"

6.   Thus, the primary focus is on a monthly ISP although the manual will emphasise that the principles would also apply to a quarterly ISP. The connection with national accounts concepts will also be noted, given that the key role of a monthly ISP for analysts is to be a good predictor of movements in quarterly or annual GDP (i.e. in short-term forecasting models also containing the monthly IIP).

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[2]   This refers in part to the activities within the proposed Information and Communication division of ISIC Rev. 4; see Attachment 2

Use of existing international guidelines

7.   The STESEG task force has been working to identify the most preferable and practical methodologies which can be used to compile a monthly ISP. It aims to identify the most suitable variables to measure various services activities every month and to harmonise the definitions and titles of key variables for a monthly ISP. The principle sources of material for the manual will be methods currently in use within statistical organisations, and relevant existing international guidelines, in particular from the following sources:

- Eurostat manuals: Methodology of short-term business statistics – interpretation and guidelines; Handbook on price and volume measures in national accounts; European System of Accounts, 1995 (ESA 95)
- System of National Accounts, 1993 (SNA 93)
- IMF: Quarterly National Accounts Manual

Practical research performed so far

8.   For the preparation of an initial version of the manual the STESEG task force has already undertaken substantial work to compare methods currently used in Korea, UK and Canada to produce monthly ISPs. This analysis revealed a wide variety of methods used to measure output across different parts of the services sector.   The main differences observed entailed variation in the:

- definitions and terminology used;
- source of variables within the same service industry, e.g. administrative vs survey data;
- type of variables used to measure output within the same service industry, e.g. deflated turnover vs direct volume measures;
- types of deflators used for value data within the same service industry, e.g. detailed PPIs vs general or proxy deflators, e.g. GDP deflators, industry PPIs, CPIs, wage rates;
- differing use of input measures, e.g. change in employment, as a proxy for change in output;
- different coverage of service industry sectors,e.g. Korea does not cover ISIC industries L and P, and there were some differences in the coverage of sub-industries.

9.   The extent of such differences across even these three countries suggests that an ISP manual should not strive to present only standardised methods or single best practice. In fact a manual which draws on the different experiences of countries and provides a range of choices for measuring output within each service industry would be a very powerful practical tool. It is likely to be directly applicable to a large number of countries and should enhance the future availability of such data by more countries. Of course, some assessment is required within the manual to identify preferred methods that countries should strive to achieve.

Definitions and scope

10.   Conceptually, an Index of Services Production should measure change in domestic real gross value added at basic prices within the scope of ISIC industries G to 0^3. However the variables proposed in the manual will generally attempt to measure change in gross output, based on the assumption that change in gross output is a good approximation of change in gross value added in the short-term. This recognises the fact that information on intermediate consumption cannot realistically be collected on a monthly frequency.

11.   The manual aims to facilitate the compilation of the ISP with its main industrial components for both market and non-market activities. Definitions of market and non-market activities will draw on material from the SNA 93 and ESA 95. This is considered an important breakdown to make, as although the relative importance of market and non-market establishments varies across countries within the services sector, the production of market establishments is very likely to undergo economic cycles that differ from those of non-market establishments.

Contents of the Manual

12.   It is intended to present the manual in six parts:

    1   Introduction, background and reasons for the development of the manual;
    2   Definitions and terminology;
    3   Recommended variables for measuring output within ISIC divisions;
    4   Issues associated with choosing appropriate deflators;
    5   Advice on compilation, weighting, etc.;
    6   Recommendations for implementation and dissemination.

13.   The key content of the manual will be located in Section 3 which will discuss the variables that should be considered for use in measuring services output. This will come from an analysis of methods currently used by countries, together with recommendations in the Eurostat Handbook on price and volume measures in national accounts.

Classifying variables within the manual

14.   The goal is to define three categories of variables which could be used to measure output at the 4-digit ISIC level within ISIC divisions G-O[4]. These categories will be defined as:

Preferred: the most highly recommended variable. For the market sector this may often be turnover deflated by a specific price index, or an output volume indicator which can account for quality change to some extent. These variables may relate to A and some B methods referred to in the Eurostat Handbook[5].

Alternative: other less suitable output variables, including proxy indicators. For example, turnover deflated by a general price index or quantit measures. These would be broadly inline with

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[3] See Attachment 3 for a definition of these ISIC industries, based on ISIC Rev. 3.

[4] The taskforce is closely following the development of ISIC Rev. 4, such that the final manual will actually be structured by this new classification.

[5] See Attachment 4 for a definition of A, B & C methods for the Eurostat Handbook.

B methods in the Eurostat Handbook.

Other: other variables which in some cases may provide a reasonable proxy to output measures on a short-term basis, e.g. employment. These would be broadly in line with C methods in the Eurostat Handbook.

15. It should be noted that the Eurostat Handbook will only be used as a methodological guide given that it was developed as a best practice manual for compiling annual indicators. Therefore, whilst the principles of this handbook are relevant, in terms of practical implementation by national agencies one cannot expect to compile monthly data to the same degree of conceptual purity.

16. Eurostat now favours gross constant price output indicators, principally deflated turnover, as the best type of proxy for short-term change in constant price value-added. 'Input' indicators, regarded as 'C' category indicators in the Eurostat Handbook (i.e. not to be used), can nevertheless measure change, often indirectly, in a part of constant price value-added; employment is an obvious example. These may be appropriate to use for the compilation of a monthly (or quarterly) ISP in the absence of any other information (and may be appropriate in general for non-market services).

17. The practical aspect of the manual will be evident through the provision of examples of variables currently used by national statistical organisations (NSOs) classified within the "preferred", "alternative" and "other" categories. In this context the manual will provide a wealth of information on both conceptual ideals (based mostly on the Eurostat Handbook) and practical implementation options.

Assessment framework: a set of 'general conditions'

18. The categorisation of example variables into "preferred", "acceptable" and "other" will be made through reference to a set of 'general conditions' which bear a close resemblance to the concept of quality assessment frameworks developed over the last few years by national and international statistical agencies. This will also provide a set of criteria upon which NSOs can assess the appropriateness of their own variables available for use in compiling a monthly ISP. A subjective assessment will be made based on the following criteria:

Industrial appropriateness: An indicator or proxy should ideally relate exactly to the 4-digit ISIC it is being used for. However indicators which are not an exact match can be considered as a compromise although the circumstances must be assessed.

Functional suitability: As the purpose is to estimate short-term <u>change</u> in services GVA, an indicator should be designed to do that, rather than, for instance, being designed to measure the level of the indicator at a point in time.

Coverage: An indicator that is estimating short-term change in value-added should cover, in some representative fashion, the full range of businesses or other types of organisation or activity that are included within the industry or sector category in question.
Timeliness: As the purpose is to have timely estimates of short-term change in GVA of the services sector, the chosen indicators must be available quickly.

Periodicity: To reflect monthly (or quarterly) GVA, an indicator should ideally consist of

independent monthly (or quarterly) observations.

Reliability / accuracy: The level of accuracy of the indicator itself should be acceptable. If data is available to express this in, say, 'standard error' terms, good. Otherwise the variability of the series of observations should not be so large as to obscure the path or rate of change of the indicator series.

Relevance: The indicator should measure (or at least approximate) changes in output (or GVA) rather than some other variable or concept. Series can be benchmarked to quarterly or annual GVA data to reduce the possibility of long-term bias[6].

Consistency: The same indicator should be used throughout the entire time series. If there are definitional changes, adjustments should be applied to ensure consistency.

Comprehensiveness: The set of indicators used should cover all parts of the services ISIC and should cover no part more than once. In practice, marginal deviations from this criterion are tolerable.

19.   Whilst the manual will provide a guide to compiling a comprehensive ISP across the whole services sector, it will also be designed to support the establishment of indices on an ISIC division basis. This will be relevant for countries that only have the resources to cover a limited number of divisions, and who wish to focus on those which are most significant or cyclical.

Deflators

20.   The Section of the manual on deflation will draw heavily on material produced by the OECD/Eurostat Task Force on producer price indexes for service industries (PPIS), which intends to produce a set of methodological guidelines for compiling PPIS. The STESEG task force has established a close working relationship with this task force and also with the Voorburg Group, where a paper on the development of the ISP manual will be presented at the September 2004 meeting in Ottawa. A paper was also presented at the October 2003 meeting in Tokyo, which suggested that the Voorburg Group should promote studies by countries to assess the fitness for use of PPIS as deflators of monthly values in an ISP, through undertaking the following types of analyses:

●   Assess the stability of quarterly PPIS within different industries to determine their suitability for use as proxy monthly deflators, (i.e. through extrapolation).

●   Assess the seasonality of PPIS. The fact that industry based PPIs are generally not seasonally adjusted by NSOs is not really an indicator that seasonal adjustment would not be required for PPIS, as pricing strategies and external influences on prices in service industries can differ significantly to those in industry.

●   Studies comparing price evolution in PPIS, which are output price indices, to wage based indices for specific industries. If significant differences are found, then large biases may

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[6] However, if a variable turns out to consistently be a poor predictor of change in GVA then benchmarking the variable will not by itself improve anything (i.e. in this case the variable should not be used).

exist where NSOs continue to use wage-based indices as proxies for output price indices when deflating value data in service industries.

• Studies to assess the correlation or relationship between PPIS for certain industries. This may indicate that where a country has not yet developed a PPI for a particular service industry, it may be satisfactory to use a PPI from another service industry as a proxy deflator, in preference to a broader price index or wage based measure.

COUNTRY PARTICIPATION IN FUTURE WORK

21.   Canada and the United Kingdom have to date been the countries most actively involved in the STESEG task force responsible for producing the manual, in support of the OECD. Input on initial work has also been provided by the United States, New Zealand, Belgium, Iceland, Hungary, Mexico, Finland and the Czech Republic.

22.   At present, detailed information on methods used to measure service production activity within NSOs has been provided by Korea, United Kingdom and Canada, with less detailed information being provided by New Zealand, United States, Hungary, Mexico and Finland. Given that the methods to be covered within the ISP manual will be closely related to production-side concepts of the national accounts, it would be very useful for the STESEG taskforce to gain further information about methods used within service industries for OECD countries that currently produce quarterly national accounts by the production method. Indeed, the usefulness of the manual will be largely determined by the practical examples it provides, and currently this is restricted to the three countries that have provided detailed information about their current series. This information was provided in response to a specific request by the OECD to all Member countries to collect information on national practices for measuring services production. The questionnaire used for this request, and examples of how other countries have responded can be made available to countries who have not yet contributed, to enable their methods to be referenced as appropriate within the manual.

23.   Furthermore, continuing effort needs to be made to coordinate work on this topic at the international level between national accounts working groups and the STESEG task force. An initial presentation of the work on preparing the ISP manual was recently given to national accountants attending the Joint UNECE / OECD / Eurostat Meeting on National Accounts in Geneva on 28 April, as part of a special half-day session on short-term statistics and their relation to national accounts.

24.   Further input from countries through the provision of detailed comments on draft versions of the ISP manual is also seen as a crucial part of its development. The first draft of a 'prototype' manual will be distributed for comment at the 28-30 June 2004 STESEG meeting, followed by a more complete draft version at the 2004 Voorburg Group meeting and the 2005 STESEG and Voorburg Group meetings. The manual is expected to be finalised by early 2006.

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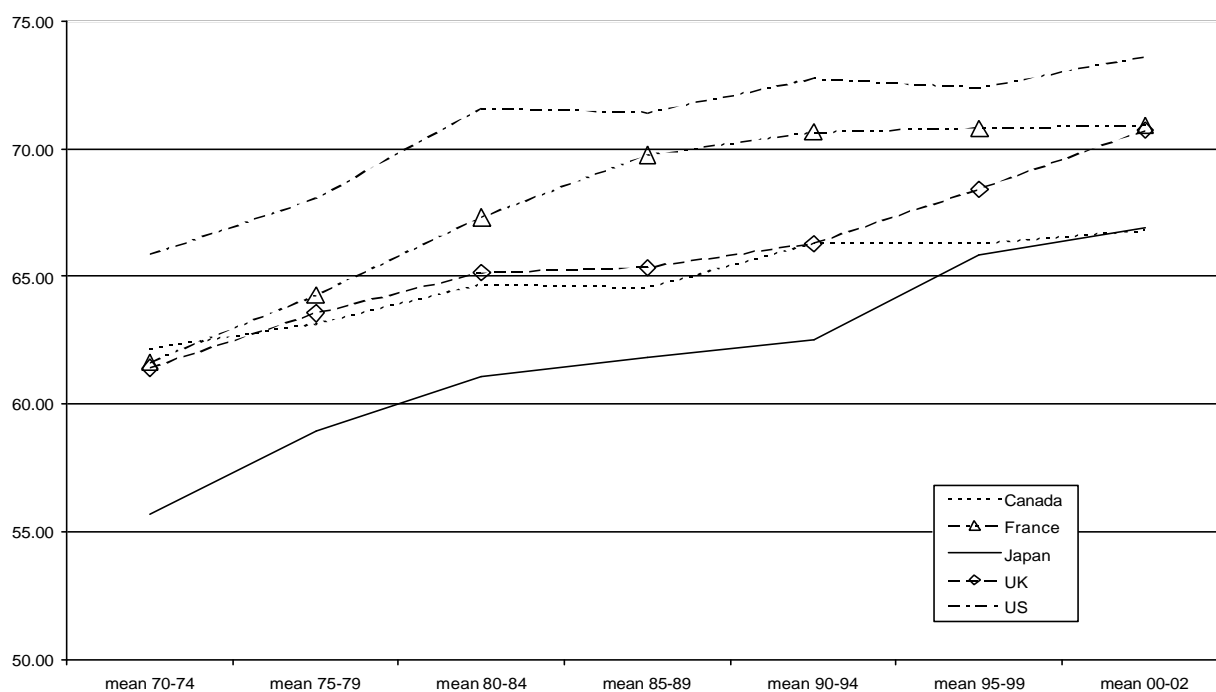
Attachment 1: Share of GDP and correlations between growth rates for the industrial and services sectors: Canada, France, Japan, UK and USA 1970 – 2002.

Graph A-1: Share of Industry (ISIC Rev.3 C to E) to total Value Added (1995 constant price)
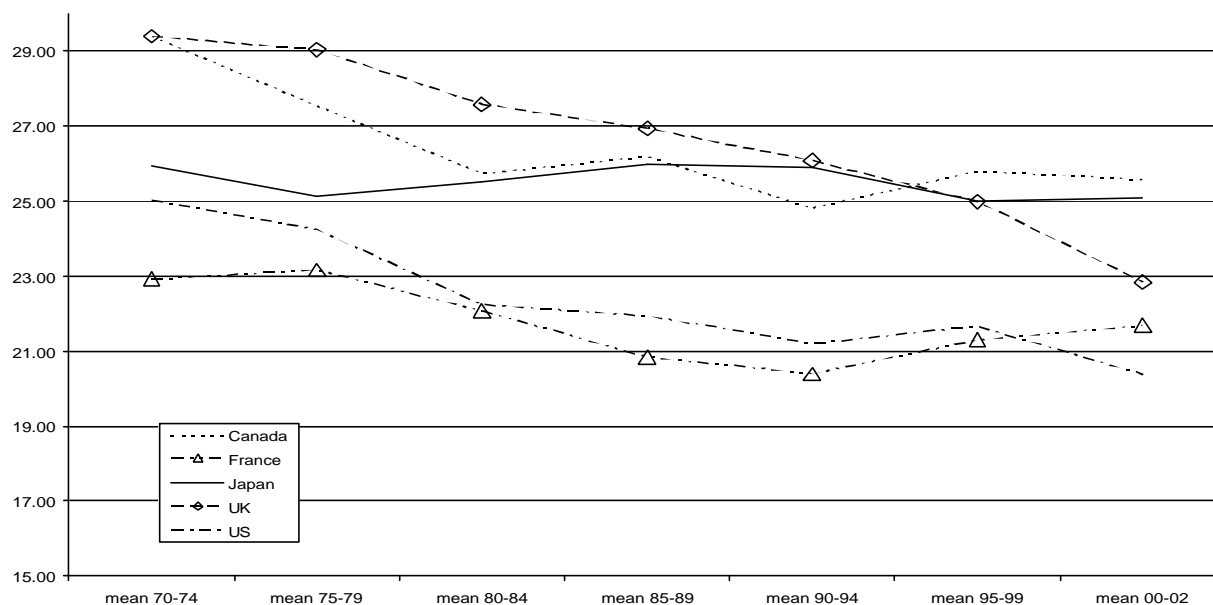
Graph A-2: Share of Services (ISIC Rev.3 G to P) to total Value Added (1995 constant price)

Table A-3: Correlation coefficients between industry, services sectors and total economy

during 1970-2002

Coefficient of correlation between:	Canada	France	Japan	UK	US
Industrial sector and Total economy	0.989	0.985	0.995	0.980	0.988
Services sector and Total economy	0.999	0.999	0.997	0.998	0.999
Industrial and Services sectors	0.984	0.977	0.987	0.967	0.978

Attachment 2: ISIC Rev. 4 structure and link to ISIC Rev. 3.1 for division K
Draft December 2003

K		Information and communication	Link to ISIC Rev.3.1	Comments
	53	Publishing activities	2211, 2212, 2219, 7221	
	54	Motion Picture and sound recording activities	2213, 9211, 9212	
	55	Broadcasting	9213	
	56	Telecommunications	6420	
	57	Information technology service activities	7210, 7229, 7290	
	58	Internet service providers and web search portals and other information service activities	7240*,7499*, 9220, 9231	From 74: telephone based information services

Attachment 3: ISIC Rev. 3 divisions G - O

G   Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods;
H   Hotels and restaurants;
I   Transport, storage and communications
J   Financial intermediation;
K   Real estate, renting and business activities
L   Public administration and defence, compulsory social security
M   Education
N   Health and social work
O   Other community, social and personal activities

Attachment 4: Measuring the conceptual quality of methodology - Summary of A,B and C methods in the Eurostat Handbook

This note summarises the approach to measuring conceptual quality within the Eurostat handbook on price and volume. A summary of the ABC approach can be found below, together with examples.

A methods	Most appropriate methods	A methods are the methods that approximate the ideal as closely as possible. In some cases, where it is not clear what the ideal would be, it may not be possible to define A methods.
B methods	Those methods which can be used in case an A method cannot be applied	B methods are acceptable alternatives: they are further away from the ideal but still provide an acceptable approximation
C methods	Those methods which shall not be used.	C methods are too far away from the ideal to be acceptable. They would generate too great a bias or would simply measure the wrong thing.

A methods

- Both quality and quantity changes are taken into account so the impact of productivity changes are reflected.
- Output deflated by an appropriate and representative output price that takes account of quality change.
- Model prices that are representative of the full range of services.
- Output deflated by unit values (ratio of revenues to quantities e.g. revenue by minutes consumed) which are for similar products and quality adjusted
- Collect actual prices (need detailed price indices and expenditure weights - difficult to obtain and can change rapidly)
- Appropriate Consumer Price Index (CPI) (adjusted to basic prices)

B methods

- Main difference with an A tends to be not able to take full account of changes in quality.
- Output deflated by an output price that has coverage that does not relate directly to the output being deflated or is not adjusted for changes in quality.
- Detailed (appropriate and representative) volume indicators for well defined products not subject to rapid quality change - important that indicators are applied in sufficient detail that the products are homogenous.
- CPI not adjusted to basic prices
- CPIs should be limited to deflation of that part of output that is sold to households unless price and price development are the same for households and enterprises.
- Broad Producer Price Indices are also used
- Extrapolates base year gross value added by a weighted volume index
- Lack of detailed composition of an output can be a problem.

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