

Paris, 20th August 1993

STATISTICS DIRECTORATE

JOINT ECE/OECD/EUROSTAT WORK SESSION ON STATISTICS OF SERVICES  
(13-15 September 1993 in Geneva)

THE DEVELOPMENT OF SHORT-TERM PRODUCTION INDICES FOR MARKET SERVICES

Contribution by Erwin Veil  
Head, Service and Foreign Trade  
Statistics Section

## The Development of Short-Term Production Indices for Market Services

1. The growth of service production <sup>1</sup> in the market economies since the 1960s has been faster than that of industrial production. As a consequence, the share of service production in Gross Domestic Product has attained nearly two thirds of total GDP in OECD Countries, compared with about one quarter accounted for by industrial production (see Appendix 1).
2. As regards statistics, particularly monthly production indices, the situation is inverse. For industrial production a great number of global and sectoral indices have been compiled by most OECD Countries <sup>2</sup>. By contrast, monthly production indices for services are sparse and heterogeneous. In addition, data on service production are hardly used for short-term economic analysis. This situation has aroused increasing concern, and initiatives to improve it have been taken; work is in process but it meets with many problems.
3. The purpose of this note is to describe the present situation and to analyse the issues involved. It is organised into three parts:
  - a. Present availability of monthly production indices for services
  - b. Work undertaken at the international level
  - c. Issues involved in creating monthly production indices for services.
4. In the discussion of this note, the following issues might be addressed:
  - a. Do Delegates agree with the description of data availability in Part I; are they prepared to provide information on the basis of the scheme shown in Appendix 2?
  - b. Do Delegates agree with the conclusions set out in paragraph 13?
  - c. What are Delegates' views on the issues addressed in Part III?

## I. Present data availability

5. A comprehensive inventory on short-term indicators of service production is in the process of being set up (see Part II of this note). Hence, the following indications are provisional and subject to adjustment.

6. Three OECD countries elaborate official monthly production indices for the service sector, which differ widely:

- a. The Research and Statistics Department of MITI in Japan <sup>3</sup> produces "Index Numbers of Tertiary Industries' Activities" which cover transportation and communications, distributive trade, hotels and restaurants, financial and insurance services, real estate and selected other services provided to persons and enterprises, and certain public services. Individual services reflect output quantities, deflated sales data, data on utilisation and consumption.
- b. The French Central Statistical Office (INSEE) <sup>4</sup>, has developed monthly indices at current values for certain services provided to enterprises and to households (which exclude distributive trade, banking and insurance, transportation and real estate renting), and separate indices on transportation; these data reflect turnover as reported in value-added tax declarations.
- c. Statistics Canada <sup>5</sup> produces monthly estimates of Gross Domestic Product by industry, in which the service sector covers 54 series relating to transportation, communications, wholesale and retail trade, and food services; these data reflect sales revenue in real terms (1986 prices).

7. On an experimental basis, the Federal Reserve System of the United States had developed production indexes for the whole service sector, which were taken over by the Coalition of Service Industries <sup>6</sup>; the publication of these data was discontinued at the end of 1991. These indices were based on directly measured indicators of output in physical units (such as air passenger miles, number of hospital admissions and trade volume on stock exchanges), production worker hours and depreciation indicators.

8. In addition, some OECD Countries compile indicators on selected service categories; these do not represent short-term production indices, but can be used for constructing them. The most important indicators <sup>7</sup> relate to:

- a. volume of retail sales and first registration of cars, and of wholesale trade
- b. numbers of tourist arrivals and nights spent in hotels and other accommodation establishments
- c. quantities of goods transported by specific modes of transport (e.g. inland waterways)

9. The analysis of short-term economic trends is normally made on the basis of data that do not include service indicators. Examples for this approach are the EUROSTAT publication "Eurostatistics: Data for short-term economic analysis" and the monthly publication of the German Central Statistical Office "Konjunktur aktuell" which do not show data on service production. Moreover, cyclical indicators - which are designed to depict movements in the economy over the business cycle and represent leading, coincident and lagging indices - do not include series on service production 8 9.

## II. Work undertaken at the international level

10. The issue of developing short-term indices of service production was addressed, for the first time, at the OECD Meeting of Service Statistics Experts held in 1991. It started from the observation that short-term service indicators had been neglected so far (probably due to the hypothesis that service industries are less sensitive to cyclical fluctuations). Experts concluded that the development of short-term production indices should be tackled, because the nature of many service industries is becoming more like that of goods-producing industries (many services representing intermediate consumption in the production of goods, partly due to the contracting-out of service provision).

11. As a consequence of this conclusion, OECD commissioned an experts' report on the possibilities of constructing short-term production indices for market services. This report, produced by M. Lacroix of INSEE under the title "Developing proposals for the construction of production indices for market services" [STD/SERV(92)9] was circulated to OECD experts in December 1992; it will be analysed in more detail in Part III of this work.

12. On the basis of this report there was a discussion on short-term service statistics at the OECD Meeting of Service Statistics Experts held on 7-9 July 1993. The discussion focused on (i) general issues, such as the desirability of establishing short-term production indices for services and their relationship with National Accounts and the indices of industrial production and (ii) more specific questions: should there be a production index for the whole service economy in addition to indices for individual services categories, which should be the scope of categories covered, which should be the indicators used, which should be the data sources, should constant price indices be based on deflation of current values or on extrapolation by quantities.

13. There emerged a consensus that

- (i) monthly indicators of service production are desirable and even necessary;
- (ii) there should be an overall index of service production in addition to indices for individual service categories (for which priorities should be agreed upon);
- (iii) service production indices should be confined to market services, because only these can be expected to be cyclically sensitive;
- (iv) the construction of service production indices should be analogous to the construction of indices of industrial production;
- (v) the monthly production indices should be complementary to quarterly and annual National Accounts data;
- (vi) the most appropriate indicator would be the turnover of service enterprises;

- (vii) constant price series should be calculated preferentially by deflating current values, but extrapolation should not be excluded;
- (viii) during a transitional and experimental period issues of constructing service production indices, such as the classifications used, the selection of appropriate series, the weighting schemes and the methods of estimating constant price series should be addressed.
- (ix) In addition, an inventory of available national indicators relating to services that can be used in the context of constructing production indices will be set up; national experts agreed to provide information, using the Australian submission (see Appendix 2) as a model.

### III. Issues involved in creating monthly production indices for services

14. The conclusions mentioned in paragraph 13 constitute the framework for the construction of monthly indices of service production. Their implementation raises a number of issues which have to be solved. The most important of them are assessed and possible solutions are sketched on the basis of the Lacroix Report.

15. The first issue is the delineation of market services. This problem is raised by the service categories which produce both market and non-market services, and for which the share of both elements in totals vary between countries, mainly education and health services. A possible solution would consist in limiting the coverage to the ISIC REV 3 categories that reflect market services exclusively, i.e.:

- 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
- O Divisions 92 and 93: other personal services

16. The second issue is the selection of the series to be included. Their numbers should be limited in order to allow rapid data processing; they should be directly observable and be representative of the corresponding larger aggregates.

17. The third issue is the determination of weighting schemes, both for the individual service categories and the global index for total market services. The most evident choice would be to use the structure of annual Gross Domestic Product data for service industries as the benchmark for weighting.

18. The fourth issue is the choice of the data sources. The main alternative is the use of administrative sources, such as the value added tax documents, and the recourse to surveys with businesses.

19. The fifth issue is the choice of the method of measuring production at constant prices. The basic alternative is extrapolation by quantity indices versus deflation of value indices. The appropriate solution depends to a large extent on the existence (or absence) of a link between the service concerned and a good that serves as support <sup>10</sup>. The first solution is feasible for service categories that have a close link to a good, such as transport (measurable by ton-kilometers or person-kilometers), communications (numbers of letters or telephone calls) and rentals (numbers of goods rented). For most other service categories where there is no direct link to a physical support (e.g. legal advice or software development) deflation of current values by adequate prices (producer or consumer prices) is necessary. At any rate, the choice of the appropriate method requires an intensive analysis and stratification of the services concerned.

## NOTES

1. There is no official definition of service activities. This note follows the common practice of defining service activities in terms of the following ISIC REV 3 categories:
  - 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 service activities
  - P. Private households with employed persons
  - Q. Extra-territorial organizations and bodies
2. cf. OECD, Indicators of Industrial Activity, Section one: Quantitative Indicators, and EUROSTAT, Industrial Trends: Monthly Statistics
3. Ministry of International Trade and Industry (MITI), Service Industry Statistics and Research Office, Outline of the Survey on the Service Industry by MITI, Tokyo 1993.
4. INSEE, Indices mensuel de chiffres d'affaires dans les services aux entreprises and les services aux entreprises and Les chiffres d'affaires dans l'industrie, le BTP et les transports, Ministère de l'Economie et Ministère des Entreprises et du Développement Economique, Conjoncture dans les services, and La France des services.
5. Statistics Canada, Gross Domestic Product by Industry (monthly): it shows an index for all service producing industries and indices for individual business and non business services.
6. Coalition of Service Industries, Service Production Indexes.
7. EUROSTAT, Services and Transport (monthly).
8. As an example, the Cyclical Indicators of the UK Economy compiled by the CSO do not include services.
9. An explanation for this lack of short-term service indicators was provided by G.H. Moore, Leading Indicators for the 1990s' (Homewood Ill 1990), p. 92: "... many of the service industries have continued to grow



## NOTES

(.../...)

during business cycle contractions as well as expansions.\*

10. cf. H. Picard, Des indices de prix pour les services aux entreprises?  
C'est possible! Chroniques de la S.E.D.E.I.S. 15 Septembre 1992

# APPENDIX 1

## Gross domestic product by type of expenditure, by kind of economic activity and by major economic grouping

economy grouping												
Country or area Pays ou zone	Year Année	Gross domestic product total Produit intérieur brut total	Expenditure on gross domestic product Dépenses imputées au produit intérieur brut					Gross domestic product by kind of economic activity Produit intérieur brut par branche d'activité économique				
			Government final consumption expenditure Consommation finale des administrations publiques	Private final consumption expenditure Consommation finale privée	Gross domestic investment Investissements intérieurs bruts	Exports Exportations	Less imports Moins les importations	Agriculture	Industrial activity Activité industrielle		Construction	Services
									Total	Manufacturing Industries manufacturières		
						Of good and services De biens et de services						
Percentage / En pourcentage												
Market economy countries - Pays à économie de marché	1960	100.0	14.5	64.6	20.6	12.1	11.9	10.4	33.7	28.4	5.5	30.4
	1965	100.0	14.7	63.0	22.1	12.2	11.9	9.1	33.8	28.7	6.1	30.3
	1970	100.0	15.8	61.3	22.7	13.5	13.2	6.9	30.4	26.1	6.0	36.6
	1975	100.0	16.7	60.5	22.4	18.2	17.7	6.9	30.1	23.9	6.4	36.7
	1980	100.0	16.3	60.3	23.4	21.2	21.2	5.9	30.6	22.8	6.5	37.0
	1989	100.0	16.0	61.5	22.4	18.0	18.0	4.1	27.3	22.5	6.2	62.4
Developed market economy countries - Pays développés à économie de marché	1960	100.0	15.3	62.9	21.2	11.4	10.9	6.3	36.4	31.0	5.6	-
	1965	100.0	15.4	61.4	22.8	11.5	11.2	5.5	35.7	31.0	6.3	-
	1970	100.0	16.6	59.9	22.9	13.0	12.4	3.9	31.6	27.7	6.2	38.3
	1975	100.0	17.7	60.3	21.6	16.9	16.5	4.1	29.9	25.4	6.5	39.5
	1980	100.0	17.4	60.3	22.8	19.6	20.0	3.2	29.9	24.2	6.5	60.4
	1989	100.0	16.4	61.4	22.2	17.0	17.0	2.4	27.1	22.7	6.2	64.2
Developing countries and territories - Pays et territoires en développement	1960	100.0	10.5	73.1	17.7	15.8	16.9	31.6	20.9	15.6	4.7	42.3
	1965	100.0	11.0	71.3	18.5	15.5	16.3	28.4	23.3	16.9	4.8	43.5
	1970	100.0	11.8	67.6	21.4	16.1	16.9	22.4	24.2	17.8	5.3	48.1
	1975	100.0	12.8	61.2	25.5	23.4	22.9	17.8	30.9	17.7	6.0	45.3
	1980	100.0	12.8	60.2	25.5	26.4	24.9	14.7	32.8	18.0	6.7	45.9
	1989	100.0	14.0	61.7	23.4	24.8	24.0	14.5	28.4	20.9	6.1	51.0

Source: UNCTAD, Handbook of International Trade and Development Statistics  
1991, New York 1992, page 446

**ABS SHORT-TERM INDICATORS AND PRODUCTION INDICES FOR SERVICE INDUSTRIES AS AT MARCH 1993**

<i>Survey</i>	<i>Survey Frequency/ Type</i>	<i>Scope</i>	<i>Statistical Unit</i>	<i>Main Classifications Used</i>	<i>Main Data Published</i>	<i>Index Published?</i>	<i>Index Basis</i>
Company Profits, Australia	Quarterly/ Sample	Private Sector non-financial corporations. Small companies and Community Services Sector excluded.	Business/ Management Unit	Industry-Broad level	Profits, Depreciation, Net interest paid.	No	
<b>FOUR, EARNINGS, ETC</b>							
Employed Wage and Salary Earners, Australia	Quarterly/ Sample	Most of the economy. Chief Service Industry excluded - Defence.	State Enterprise Unit	Public/ Private Sector, Institutional Sector, Industry - broad level, Level of Government, State, Sex, Full-time/Part-time	Number of employees, Gross earnings.	No	
Average Weekly Earnings, States and Australia	Quarterly/ Sample	Most of the Economy. Defence excluded.	State Enterprise Unit	Public/Private Sector, Industry - broad level, State, Sex	Average weekly ordinary time/total earnings for full-time adult employees and average weekly total earnings for all employees	No	
Award Rates of Pay Indexes, Australia	Monthly/ Sample	Most of the Economy. Defence-specific awards excluded.	Award	Industry - broad level, Occupation group, State, Sex	Index numbers of weighted average weekly and hourly award rates of pay for full-time adult employees	Yes	Fixed Weight Index

ABS SHORT-TERM INDICATORS AND PRODUCTION INDICES FOR SERVICE INDUSTRIES AS AT MARCH 1993

<i>Survey</i>	<i>Survey Frequency/ Type</i>	<i>Scope</i>	<i>Statistical Unit</i>	<i>Main Classifications Used</i>	<i>Main Data Published</i>	<i>Index Published?</i>	<i>Index Basis</i>
Vacancies Overtime, Australia	Quarterly/ Sample	Most of the economy. Defence excluded.	State Enterprise Unit	Public/Private Sector, Industry - broad level, State	Number of job vacancies, job vacancy rates, average hours of overtime worked and percentages of employees working overtime	No	
Industrial disputes, Australia	Monthly/ Census with a cut-off (covers disputes which involve stoppages of 10 working days or more)	Economy wide	Establishment	Industry - very broad level, State, Duration of disputes, Cause and method of settlement	Number of disputes, workers involved, working days lost and working days lost per thousand employees	No	
Labour Force, Australia	Monthly/ Sample	Civilian population aged 15 and over	Individual	Labour force status, Age, Sex, Industry (3 digit level - quarterly only), Occupation, State, Full-time/ Part-time, Duration of unemployment	Numbers in population by classifications as shown, hours worked and participation rates	No	

## ABS SHORT-TERM INDICATORS AND PRODUCTION INDICES FOR SERVICE INDUSTRIES AS AT MARCH 1993

<i>Survey</i>	<i>Survey Frequency/ Type</i>	<i>Scope</i>	<i>Statistical Unit</i>	<i>Main Classifications Used</i>	<i>Main Data Published</i>	<i>Index Published?</i>	<i>Index Basis</i>
Lease Finance, Australia	Monthly/ Size Cut-off	Banks, Finance Companies and other significant lessors	Legal Entity	Type of Goods, Type of Lessor, Broad Industry of Lessee, State	Value of goods under finance lease commitments (excluding leverage leases)	No	
Cash Management Trusts, Australia	Monthly/ Census	Cash Management Trusts	Legal Entity	Instrument Type, Financial Sub-sector of Issuer of Instrument	Financial operations, net yield to unit holders, assets and maturity dissection of assets	No	
Public Unit Trusts, Australia	Quarterly/ Size Cut-off	Significant Public Unit Trusts	Legal Entity	Type of Unit Trust, Instrument Type, Financial Sub-sector of Issuer of Instrument	Financial operations, selected liabilities, assets, income and expenditure	No	
Monthly Statistics for Corporations Registered under the Financial Corporations Act, Australia	Monthly/ Census	Building Societies, Authorised Dealers & Money Market Corporations, Finance Companies, Credit Unions, General Financiers & Other Financial Corporations	Legal Entity	Type of Financial Institution, Instrument Type, State	Financial operations, selected liabilities, assets, interest rates and maturity dissections	No	
Managed Funds in Australia	Quarterly/ Census	Managed Funds	Legal Entity	Type of Fund, Instrument Type, Financial Sub-sector of Issuer of Instrument	Information about money pooled for investment purposes	No	

## ABS SHORT-TERM INDICATORS AND PRODUCTION INDICES FOR SERVICE INDUSTRIES AS AT MARCH 1993

<i>Survey</i>	<i>Survey Frequency/Type</i>	<i>Scope</i>	<i>Statistical Unit</i>	<i>Main Classifications Used</i>	<i>Main Data Published</i>	<i>Index Published?</i>	<i>Index Basis</i>
Assets of Superannuation Funds and Approved Deposit Funds, Australia	Quarterly/ Size Cut-off	Significant Superannuation and Approved Deposit Funds	Legal Entity	Instrument Type, Financial Sub-sector of Issuer of Instrument	Assets	No	
Common Funds, Australia	Quarterly/ Census	Common Funds	Legal Entity	Type of Fund, Instrument Type, Financial Sub-sector of Issuer of Instrument	Financial operations, assets and liabilities	No	
Assets and Liabilities of Friendly Societies, Australia	Quarterly/ Size Cut-off	Significant Friendly Societies	Legal Entity	Instrument Type, Financial Sub-Sector of Issuer of Instrument	Assets and liabilities	No	
<b>FINANCE - GENERAL</b>							
Private New Capital Expenditure, Australia, Actual and Expected Expenditure	Quarterly/ Sample	Private Sector. Community Services excluded	Business/ Management Unit	State, Industry groups or sub-divisions, Broad type of asset.	Actual and expected capital expenditure on new buildings/ structures and plant & equipment	Yes. Quarterly for Australian totals of buildings/ structures; plant & equipment.	Deflated current values
Stocks, Australia	Quarterly/ Sample	Private Sector. Services included: Wholesale/Retail, Accommodation, Pubs, taverns, bars, Restaurants and Licensed Clubs	Business/ Management Unit	State, Industry groups or sub-divisions, State of Processing.	Stocks by Stage of Processing	Yes. Quarterly for Australia at broad industry (sector) levels.	Deflated current values

## ABS SHORT-TERM INDICATORS AND PRODUCTION INDICES FOR SERVICE INDUSTRIES AS AT MARCH 1993

Survey	Survey Frequency/Type	Scope	Statistical Unit	Main Classifications Used	Main Data Published	Index Published?	Index Basis
<b>WHOLESALE &amp; RETAIL TRADE</b>							
Retail Trade, Australia	Monthly/Sample	Retail Trade excluding motor vehicles/boats/parts/fuel sales/repairs, bread/milk vendors, footwear repairs and electrical goods repairs. Also includes pubs, taverns, bars, restaurants, licensed clubs and hairdressers.	Establishment	State, Industry classes or groups	Turnover	Yes. Quarterly for State totals and Industry classes or groups for Australia.	Deflated Current Values
Motor Vehicle Registrations, Australia	Monthly/Census-Administrative By-product	New motor vehicles registered for the first time	Motor Vehicle	Type of Vehicle, Type of Fuel Used, Postal district of owner.	Number of registered vehicles, Make/model, Weight.	No	
Wholesale Sales, Australia (published, ABS use)	Quarterly/Sample	Wholesale Trade	Business/Management Unit	Industry-broad groupings	Total actual Wholesale sales	No	
<b>TOURISM, TRAVEL, AND ACCOMMODATION, ETC.</b>							
Tourist Accommodation, Australia	Quarterly/Census	Predominantly short-term accommodation: Hotels, motels and guest houses with facilities in most guest rooms; holiday flats, units and houses (size cut-off) and visitor hostels. Caravan parks - short or long term.	Establishment	Type of Accommodation, State, Star Grading (Hotels and Motels), Short/Long Term (Caravan Parks).	Number of Units, Capacity, Availability, Occupancy, Arrivals, Average Length of Stay, Accommodation Takings, Employment	No	

## ABS SHORT-TERM INDICATORS AND PRODUCTION INDICES FOR SERVICE INDUSTRIES AS AT MARCH 1993

<i>Survey</i>	<i>Survey Frequency/ Type</i>	<i>Scope</i>	<i>Statistical Unit</i>	<i>Main Classifications Used</i>	<i>Main Data Published</i>	<i>Index Published?</i>	<i>Index Basis</i>
<b>TRANSPORT</b>							
Interstate Road Freight Movement, Australia	Quarterly/ Size Cut-off	Major Road Freight Operators and Freight Forwarders Operating Interstate	Enterprise Group	Broad Origin/ Destination Zones	Road freight (tonnes) movements between interstate locations	No	
Foreign Trade, Australia: International Cargo	Quarterly/ Census	All inward/ outward cargo for which customs documents have been received by ABS	Cargo Transaction	Commodity, Mode of Transport, Place of Loading/Discharge	Gross Weight (tonnes), Value	No	
<b>FINANCE - SPECIFIC</b>							
Housing Finance for Owner Occupation, Australia	Monthly/ Size Cut-off	Banks, Permanent Building Societies and other significant lenders	Legal Entity	Type of major lender, State	Secured finance commitments to individuals for construction/purchase of dwellings	No	
Personal Finance, Australia	Monthly/ Size Cut-off	Banks, Finance Companies, Credit Unions and other significant lenders	Legal Entity	Type of major lender, Purpose, State	Finance commitments to individuals	No	
Commercial Finance, Australia	Monthly/ Size Cut-off	Banks, Finance Companies and other significant lenders	Legal Entity	Type of major lender, Purpose, Broad Industry of Borrower, State	Finance commitments to businesses	No	