OUTPUT AT CONSTANT PRICES IN THE SERVICE SECTOR

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The purpose of this brief note is to raise for discussion the problems in moving from estimates of service sector output at current prices to estimates of the volume of service sector output or output measured at constant base year prices. Reference is made to the United Kingdom position and to desirable developments.

Consumers' expenditure and consumer price indices

The basic problem of establishing price and volume measures of services has, of course, been around for a long time in the context of consumer price indices and the measurement of consumers' expenditure at constant prices as a component of the national accounts.

The UK consumer price index, titled the retail prices index (RPI), covers a comprehensive range of personal goods and services (see reference 1, A Short Guide to the Retail Prices Index). Prices for transport and communications (17% of expenditure covered by the index) are relatively straightforward to collect and housing (16%) is a special subject area, which we do not need to go into for present purposes.

Personal services more generally - catering, hairdressing, repairs, fees, medical expenses, entertainment etc - make up 11% of the index. They are covered by 69 separate price indicators out of a total of some 600, the number of indicators therefore being in proportion to the importance of the services in the index as a whole (though the actual number of individual prices collected in calculating each indicator is relatively small).

There are difficulties in selecting indicators which will give an accurate representation of the diversity of the services in question (more so than for the more homogenous food section, for example). However, since the services are bought by consumers in a retail situation, once identified the service can usually be priced readily from one month to another. There are problems of quality changes, but no more so than for clothing or durables. For example, the pricing of a woman's shampoo and set (hairdressing terms), the dry cleaning of a man's suit or the admission charge to a cinema are readily identified and collected, so long as the same establishment is approached each month.

Where the service is less standard from one transaction to another, pricing becomes more awkward. For example, the price indicator used for legal fees is the cost of transferring the title to a standard three bedroom semi-detached house in a particular neighbourhood. Here the "standard" is less clearly defined and the service required from the lawyer will vary depending on the complexity of the legal transaction in a particular case.

In the United Kingdom figures for consumers' expenditure at constant prices have been published for many years. Where current price figures are calculated from quantities and prices of course the quantities (combined with base year prices) are used in producing the constant price figures. Otherwise constant price figures are obtained by deflating the current price figures (using a deflator which is often based on the corresponding RPI component). In the case of personal services it is rather less common to be able to make use of volume indicators, partly for reasons of definition discussed later.

But some volume indicators do exist. For example, expenditure on cinema admissions at constant prices is obtained by multiplying the average cost of admissions in the base year by the number of admissions in the current year. (The implied deflator here will clearly differ from the indicator used in the RPI, referred to above, to the extent that there have been changes in fashion in the closing down of small rural cinemas and the splitting of city cinemas into two or three to encourage attendance.) (See reference 2 - "UK National Accounts: Sources and Methods", Chapter 6, Part B, for details).

The output measure of GDP

The UK is unusual in producing regularly (quarterly) a measure of gross domestic product at constant factor cost calculated from output indicators (GDP(O)). Each industry in the SIC is given a base year weight calculated from the industry's contribution to gross value added in the base year. Increases in the volume of gross output between the base and current years for each industry are weighted together to give an estimate of GDP at constant prices in index form for the current year.

This method clearly relies on the assumption that changes in real gross output are representative of changes in real value added - either the pattern of inputs and outputs in each industry does not change very much, or changes in one industry are compensated by off-setting changes in another. The index is considered to be a reliable and quickly produced measure of short-term changes, but cannot be expected to give reliable estimates of long-term changes. (The index is reweighted regularly, but the existing index is chained on to this new base rather than recalculated to incorporate estimates of the effect of changing patterns of inputs).

The technical features of the index do not concern us in this note. What I wish to raise are the particular features of the treatment of services in the index.

Services in GDP(O)

GDP(O) is concerned with the output, including intermediate output, of different industries, not with final expenditure. Services therefore feature much more than in consumers' expenditure. For example, distribution is assessed separately. The 1980 weights for GDP(O) were as follows:-

Division	Industry	Weight (%)
0	Agriculture	2
1-5	Production and Construction	42
6	Distribution etc	13
7	Transport and communications	7
8	Banking, business services etc	12
9	Other services	22
Other	Ownership of dwellings	6
	less financial services adjustment	(4)

Thus more than half of the measure is concerned with services.

A great number of different indicators are used for services and these are listed in reference 3 - "Industry statistics". An example is given in Annex 1. The aim, as with consumers' expenditure is to find a volume indicator if one exists. This, is successful for groups such as transport and communication. For business services and many other services no suitable volume indicator is available.

When no volume indicator is available, deflation of some suitable value indicator is used where one is available.

In both cases some units of output need to be defined: either to be totalled directly in the volume measure, or to be priced and used as a deflator in constructing the volume measure from the value series.

When all else fails it may be possible to proxy outputs by inputs, for example through employment series. This is the conventional treatment of government services. Outside government this is the least satisfactory of measures, since it takes no account of productivity changes. An arbitrary annual increase in productivity is assumed in some areas of the calculation: though better than an implicit assumption of no increase in productivity, this remains very arbitrary.

In the remainder of the note we mention two areas of current UK interest - new surveys and the use of VAT data.

New surveys

Some areas of the service sector have been badly covered by existing statistical sources and, in the UK, new surveys have been mounted recently to improve coverage, albeit on a very small scale. These surveys cover professional and scientific services, including legal services. In addition, existing surveys into business services have been modestly expanded. Information is collected on turnover and capital expenditure. A list of the services covered is at Annex 2.

To make use of these surveys in constructing a constant price measure of GDP the turnover information needs to be deflated. In the absence of a specific deflator, deflation will be done by an earnings index, which is not specific and is not wholly appropriate - it does not allow, for example, for increases in productivity which are translated into increases in earnings.

For the professions - legal services, opticians etc - it may be that the professional bodies will be able to supply some information relevant to the construction of a price index. For the regular business services - advertising, computer services, employment agencies etc - a price index is hard to construct, but is necessary to make the best use of the material becoming available. The Central Statistical Office will be studying possible indicators over the coming months. In the case of advertising, for example, it is possible to obtain a number of price indicators, such as newspaper advertising rates or commercial television rates. There remain problems on how to combine these and of the relation between these rates and the charges made by advertising agencies to their clients.

The use of VAT data

There exists already a huge amount of administrative information on turnover - that available from the Value Added Tax system. Firms supply quarterly information on turnover to the VAT authorities and this is classified, in the UK, by "VAT code", which is a useful industrial indicator even though based on a superseded SIC. (The new SIC, however, is likely to be closer to the old VAT trade code than the present SIC.)

This VAT information is already used for 5% of the quarterly estimates of GDP(O) (rather less for the annual estimates). If the VAT information could be improved it would be useful immediately for another 5%. The data difficulties relate to the fact that the VAT information is collected for taxation purposes and there is no reason from the tax authorities' point of view for effort to be put into obtaining accurate statistical data for the many cases where the tax position is not in doubt. Annex 3 shows the industries where VAT is currently used and where extensions could usefully be made.

Again there is a lack of good deflators. Existing deflators may be used, from the RPI and the consumers' expenditure calculations, but these are rarely ideal. Hotels and restaurants etc, for example, form nearly 3% of GDP(O) but a fair proportion of output here is for the business sector and the existing price indicators are not geared to business expenditure. This may not be critical in the very short term, but is likely to be more important in the longer term.

Final observation

Leaving aside the thorny technical questions involved in considering banking and insurance, for business services - advertising, accounting, computing etc - and legal services, units of output should be clearly definable and, to some extent, measurable either in terms of volume or of price. If so, progress might be made. It would be interesting to hear what other countries have managed to achieve in these service industries.

CENTRAL STATISTICAL OFFICE

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References

1. A short guide to the Retail Prices Index, Department of Employment, Her Majesty's Stationery Office, 1987.

2. United Kingdom National Accounts: Sources and Methods. 3rd edition. Central Statistical Office, Her Majesty's Stationery Office, 1985.

3. Industry Statistics: Occasional Paper No 20 (2nd edition). Series and weights used in the output-based estimate of gross domestic product at constant factor cost (1980 = 100) Central Statistical Office, 1987.

Example of detail of calculation of GDP(O) in the service sector

Standard Industrial Classification Codes	Description	Annual Series used	Weight per 1,000	Quarterly Indicator (if different)
Group 834	House and estate agents	Numbers of particulars concerning transfer of property or land delivered to Inland Revenue	2.5	
Group 835	Legal services	Conveyancing:		
		Number of building society mortgage advances	2.1	
		Number of bank and local authority mortgage advances, including allowance for sales of dwellings by local authorities and new towns(1)	0.3	
		Magistrates courts proceedings	1.2	)
		Proceedings in first instance courts	0.4	)
		Crown court disposals	0.5	) Jointly
		Grants applied for by solicitors concerning non-contentious proceedings	0.6	) interpolated
		Employees in employment(2) with output per head adjustment(3)	0.8	)
			5.8	
Group 836	Accountants, auditors and tax exports	VAT turnover of accountants, deflated by index of average salaries of full-time male non-manual service sector employees	5.5	VAT turnover, deflated by Index of Average Earnings
Group 837	Professional and technical services, not elsewhere specified	Employees in employment(2) with output per head adjustment(3)	9.6	
Group 838	Advertising	Employees in employment(2) with output per head adjustment(3)	1.5	
MH 8394	Computer services	Turnover derived from Computer Services Inquiry, deflated to 1980 prices	4.5	Employees in employment(2) allowing for observed past trend in output per head

(1) Local authority and new town data relate to England and Wales only.
(2) Great Britain. Part-time female employees counted as one-half.
(3) See introduction

New and expanded service sector enquiries in the UK

TABLE 1

Business Services

Industry	Existing Sample	New Sample
Advertising and Market Research	)	870
Industrial and Commercial Valuers, Auctioneers and Transfer Agents	)	740
Chartered or Company Secretaries	)	40
Computer Services	) 2890	1340
Contract Cleaning	)	810
Management Consultants	)	910
Staff Bureau and Employment Agencies	)	710
Duplicating, Calculating and Type-writing Agencies	)	190
Other Business Services	)	1320
Sub Total	2890	6930

TABLE 2

Professional and scientific services

Industry	Existing Sample	New Sample
Accountancy Services	0	1000
Research and Development Services	0	120
Surveying (Various Kinds)	0	590
Architects (Private Practice)	0	470
Draughtsmen (Private Practice)	0	340
Consultant Engineers	0	1010
Artists, Sculptors, Designers, Authors, Journalists (Free-Lance), Composers	0	500
Other Professional and Scientific Services	0	1280
Sub Total	0	5310

TABLE 3

Personal and Miscellaneous Services

Industry	Existing Sample	New Sample
Cinemas Theatres, Radio and TV Services, Film and Recording Studios Performers and Performing Groups Radio and TV Relay Services	470	560
Dance Halls and Dancing Schools Sport Other Recreations Betting and Gaming	630	630
Laundrettes Laundries Hire of Towels, Linen, Industrial Clothing Dry Cleaning, Job Dyeing, Carpet Beating Photography and Photographic Processing	450	450
Men's Hairdressing Women's Hairdressing Repair of Boots and Shoes Funeral Direction, Cemetries and Crematoria	0	330
Other Services	1220	1220
Sub Total	2760	3190

TABLE 4

Activity	Existing Sample	New Sample
Legal Services		
- barristers	0	1300
- solicitors/others		
Private Health		
- opticians	0	800
- private hospitals etc	0	450
Private Education		
- other private education establishments	0	350
Other Services		
- technical service activities	0	200

Use of Value Added Tax figures in GDP(O)

(i) Currently used

Industry	Weight in GDP(O) (parts per thousand)
Taxis and private hire cars	1
Shipping agents and forwarding agents Travel agents Driving instruction Other miscellaneous transport services and storage	6
Car parks, toll roads and toll bridges	1
Accountancy services	5
Theatres, music halls and recording studies Performers and performing groups Radio and TV relay services	10
Hotels and other residential establishments Holiday camps, camping, caravan sites	8*
Restaurants, cafes etc (on premise consumption only), canteens Fish and Chip Shops etc (on/off premise consumption only)	10*
Public houses	5*
Clubs (excluding sports and gaming clubs)	3*
Launderettes Laundries Hire of towels, linen and industrial clothing Dry cleaning, job dyeing, carpet beating etc	3
Total	52

*VAT figures used for quarterly extrapolations only.

(ii) Possible future use

Industry	Weight in GDP(O) (parts per thousand)
Builders' Merchants	1
Leasing industrial and office machinery	1
Advertising and Market research	1
Valuers, Auctioneers Management consultants Staff Bureaux Other Business services	up to 9
Contract cleaning	2?
Educational services	11
Medical services Veterinary services	5
Legal services	6
R and D services	5
Surveying Architects Draughtsmen Consultant engineers Research chemists Other professional and scientific	up to 10
Artists	2?
Professional and scientific bodies Welfare and charities Trade Associations and Unions	up to 15
Other Services	?