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**MEASUREMENT OF SERVICES: RECENT ABS EXPERIENCE**

Invited paper submitted by Australian Bureau of Statistics

**INTRODUCTION**

1. It is well recognised that measurement of services is an important area of statistics. There is a wide variety of work currently underway in various national statistical offices and there are a large and growing number of international expert groups active in the field. This paper describes recent work undertaken by the ABS in services measurement, with particular focus on price and volume measurement.

2. ABS prepared a comprehensive review of statistics on services for the 2003 United Nations Statistical Commission meeting. This review provided a good basis for moving forward on services statistics; the current seminar on price and volume measurement in the services sector is another important step forward.

3. The first section of this paper discusses new ways of presenting services statistics developed in recent years to better highlight services activity. The second section discusses ABS work on direct measurement of volumes of output in service industries. The third section discusses developments in measuring price indexes for service industry outputs. The paper concludes with a discussion of likely future directions for ABS in measuring services.

**NEW PRESENTATIONS OF SERVICES STATISTICS**

4. Measures of services have traditionally been presented according to defined industry classifications. However, as the service sector is quite diverse and produces a wide range of outputs, the grouping of outputs according to industry classifications can be restrictive. One

way of improving this situation is to review the industry classifications. Such a review is well underway both in Australia and internationally, which will likely result in different groupings of current outputs.

5. Another way to improve the situation is to focus on particular and/or related activities irrespective of where they are classified in an industry classification. Development of satellite accounts, conceived in SNA93 to expand the core national accounts for selected areas of interest, while using relevant concepts and structures of the core accounts, is perhaps the most sophisticated presentation of this type. The following outlines recent ABS work on developing satellite accounts and other new presentations of services statistics.

### Satellite accounts

#### **Tourism satellite account**

6. 'Tourism' is broadly defined in the international standards to include visitors whose primary purpose is private or government business, as well as the more familiar tourism for leisure purposes. Tourism is not an industry in the traditional sense because industries are generally classified in accordance with the goods and services that they produce, whereas tourism depends on the status of the customer.

7. A Tourism Satellite Account (TSA) involves identifying tourism activities within the national accounting framework so that a comprehensive set of economic data on tourism can be compiled. A TSA is recognised internationally as the best method for measuring the economic contribution of tourism and as an important information base for the calculation of its economic effects. ABS has published three TSAs for Australia - 1997-98, 2000-01 and 2001-02 (see *Australian National Accounts: Tourism Satellite Account* (ABS cat. no. 5249.0)). The concepts and methods used in the Australian TSA are based on international standards published in *Tourism Satellite Account: Methodological References* by the Inter-Secretariat Working Group on Tourism Statistics.

8. The emphasis in the TSA is on measurement of tourism consumption and the size of the tourism industry, including its contribution to key macro-economic variables and employment. Overall, the TSA provides a valuable policy and research tool with a wide range of applications.

#### **Unpaid work**

9. Within the national accounts, the production account excludes services produced by households on their own account (other than services from owner-occupied dwellings). Notwithstanding this, users are interested in understanding the production of own-account household services, both for analysis in its own right and for understanding how the boundary between own-account and purchased services might change over time.

10. To assist in this analysis, the ABS has released two studies into unpaid work – the most recent being in 2000 in respect of 1997 (see *Unpaid Work and the Australian Economy* (ABS cat. no. 5240.0)). These studies were based on time use surveys conducted by the ABS, and it is planned to repeat the studies as future time use surveys are conducted (the next is scheduled

for 2005-06).

11. Studies of unpaid work only measure one aspect of own-account household services. The other aspect is the use of assets (i.e. consumer durables) in the production of these services. The ABS has sketched out plans for a more comprehensive household satellite account that would take account of all aspects of the production of own-account household services and to integrate this with “core” national accounts estimates of production.

#### **Non-profit institutions satellite account**

12. Non-profit institutions (NPIs) play an important role in the provision of welfare, social and other services in Australia. An NPI satellite account involves identifying non-profit activities within the national accounting framework so that a comprehensive set of economic data on non-profit institutions can be compiled.

13. ABS published *Australian National Accounts: Non-Profit Institutions Satellite Account, 1999–2000* (ABS cat. no. 5256.0) in 2002. The NPI satellite account represents the first ABS estimates of the direct contribution that NPIs make to the Australian economy and, in particular, the contribution of NPIs to key macro-economic variables such as GDP. The concepts and methods used are based on international standards described in the United Nations *Handbook on Non-Profit Institutions in the System of National Accounts*.

#### **Information and communication technology satellite account**

14. Strong and continuing growth in the use of information and communications technology (ICT) has been a feature of the recent history of western economies. It is widely supposed that the growth in the use of ICT assets is a strong contributor to the strong, low-inflationary economic growth experienced recently in Australia and elsewhere.

15. In response to increasing demand for information on the economic impact of ICT, the ABS developed an experimental ICT satellite account for Australia for 1998-99. The ABS is currently developing a comprehensive ICT satellite account for the year 2002-03, to be published in early 2005. As for the satellite accounts already produced by ABS, the ICT satellite account involves identifying ICT activities within the national accounting framework so that a comprehensive set of economic data on ICT can be compiled.

#### **Sport and physical recreation satellite account**

16. There is growing awareness of the importance of sport and physical recreation (S&PR) in Australia, both in social and economic terms. Producers involved in S&PR activities contribute to the economy through employment opportunities, the output they produce and the income they generate. There are also significant health and social benefits from the production and consumption of S&PR goods and services.

17. Economic statistics relating to S&PR activities in Australia are currently fragmented, coming from a wide and often disparate range of sources. ABS is well advanced towards developing a framework for presentation of a core set of S&PR satellite accounts to be linked to the Australian System of National Accounts.

### International trade in services statistics

18. The ABS's main focus in this area is to compile good quality trade in services statistics in accordance with the Balance of Payments Manual 5th edition and the Extended Balance of Payments Classification (EBOP) requirements. Aggregate level (Freight, Other transportation, Travel and Other services) monthly data for service exports and imports are released within four weeks of the reference month. Quarterly data for 24 more detailed services aggregates are released within 9 weeks of the reference quarter, while still more detailed annual data (including by partner country and State) are released within four months of the reference year.

19. Even so, ABS has faced increasing demand for more detailed trade in services statistics in recent years, for example, by service type, by partner country, by state, and for cross classifications of these. There has also been increasing demand for statistics on alternative views, generally as outlined in the Manual of Statistics on International Trade in Services, including for foreign affiliate trade, modes of supply, and GATS sectors. ABS has also been asked to consider producing an indicator of international trade in 'tourism services'. While ABS compiles standard trade in services statistics in accordance with the detailed EBOP categories, confidentiality and data quality concerns limit the amount of data that can be released. Notwithstanding these concerns, the ABS has developed plans for enhancing its international trade in services statistics, although without an additional injection of resources in this area progress will only be incremental.

### Globalisation statistics

20. During the past year, ABS conducted a study of foreign investment in the Australian economy that covered the economic activities of identified majority foreign-owned businesses in all industries except agriculture, forestry and fishing. Data were published for the following variables: number of operating businesses, employment, income, expenses, operating profit before tax, assets, liabilities, gross fixed capital formation and industry value added. We expect to release a study of the ownership characteristics of Australian exporters and importers of goods and services in June 2004. ABS plans to repeat this study each year.

21. ABS conducted a survey of outward foreign affiliates trade (SOFAT) for reference year 2002-03. This survey sought information about the delivery of goods and services through foreign affiliates of Australian resident companies, both majority Australian-owned and foreign-owned (ownership details were collected). Information was sought about the number of affiliates, employment, wages and salaries, sales of goods and services, and trade activities including trade with affiliates, by country and by industry. Preliminary results of the survey are expected to be released in June 2004, with more detailed and final data published later in the year.

### Knowledge-based economy and society statistics

22. The term 'knowledge-based economy' was coined by the OECD and is defined as an economy that is 'directly based on the production, distribution and use of knowledge and information' (OECD 1996). A framework for knowledge-based economy and society statistics (KBE/S) was presented in the ABS Discussion Paper *Measuring a Knowledge-based Economy and Society - An Australian Framework*, (cat. no. 1375.0).

23. The framework for measuring a KBE/S is structured around the following five dimensions that allow the KBE/S statistics to be organised and logically grouped. A range of characteristics describes each dimension with each characteristic then containing a variety of indicators that provide quantitative measures of the dimension's characteristics.

- i) Innovation and entrepreneurship
- ii) Human capital
- iii) Information and communications technology.
- iv) Context
- v) Economic and social impacts.

24. The aim of the framework is to enable assessment, through use of relevant statistics, of the degree to which Australia is a knowledge-based economy and society. The framework also enables presentation of statistics from different industries subject to different classifications within an overarching concept. The service industries, for example, are represented in each dimension though indicators for each dimension are based on differing classifications. ABS published an electronic compendium of KBE/S statistics: *Measures of a knowledge-based economy and society, Australia* (cat. no. 1377.0), in September 2003.

## **DIRECT VOLUME MEASUREMENT OF SERVICE INDUSTRY OUTPUT**

25. Direct estimates of output volumes for health and education are used in the Australian System of National Accounts. These measures were introduced in 2001 and have become an ongoing part of national accounts estimation. The measures cover both private and public sector output of these services. A summary of the methods is presented below. ABS has also investigated development of direct output volume estimates for other non-market service industries, particularly relating to other forms of government output. While not yet incorporated into the core accounts there is a reasonable likelihood that they will be in future. These areas are also discussed below. The direct volume output measures for non-market services have replaced previous measures based on the deflation of input costs.

26. While the ABS is seeking to assess the potential of direct volume measurement for outputs, it is likely that for some areas of government output such an approach might not be feasible - for example, policy formation or defence services. These are areas characterised by outputs that (i) are difficult to specify in a way that enables them to be amenable to direct measurement; (ii) are very heterogeneous; or (iii) where changes in quality are both important and difficult to measure. While this may appear to be limiting, improved measurement in key areas can result in significant coverage of government output - for example, in health and education which represent just under 50% of government output on their own.

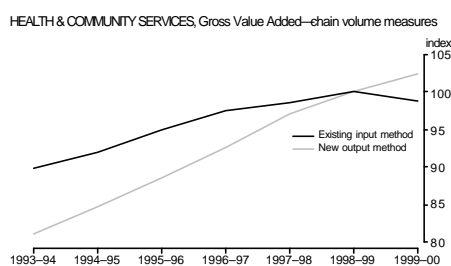
### Health services

27. The health industry is about 6.5% of GDP, and government expenditure on health services represents around 28% of total government final consumption expenditure. Components of the health industry have been subject to substantial technological change in recent years and thus there was an expectation that input methods were more than likely understating the rate of volume growth due to expected productivity improvements from the use of technology. The availability of suitable output data made this industry an obvious starting point to investigate alternative methods for non-market services.

28. Within the Australian industry classification health services are part of the industry Health and community services although health services make up 90% of the total value added for the industry. It has not been possible to develop output indicators for the community services component so it remains measured using input-based techniques. The output measure for health services has a number of components:

- Hospital services are measured using information from the Department of Health and Aged Care on detailed treatments data from all government and private acute care hospitals in accordance with the Australian National Diagnostic Related Groups Classification (AN-DRGs). The current version of the classification consists of over 660 separate diagnostic related groups. The number of episodes (separations) for each group represents the volume of services. This information on separations are weighted together using average cost weights per separation for each diagnostic related group which are calculated from detailed cost studies undertaken by the Department of Health and Aged Care. ABS has used these cost weights to derive a chain weighted volume index from 1995–96. Cost weights for prior years have a fixed base year of 1995–96.
- Measuring outpatient services provided by hospitals remains a problem. Outpatient services are currently excluded from the index because data of satisfactory quality are not available. This is not expected to have an appreciable impact on the quality of the overall estimates.
- The output of nursing homes is measured using the number of patient days categorised by level of care. Nursing home patient days are further classified according to the level of care required by a patient. Data are also available on the cost per patient per day for each of the categories, based on a care component and an infrastructure component. An annual chain weighted volume index has been constructed using these cost weights.
- Detailed data available from the Medicare system (this is the Australian government health care scheme) are used to estimate the output of medical services. Output of general practitioners and medical specialists (for example, in obstetrics, anaesthetics, diagnostic imaging and surgical operations) is measured by the numbers of attendances weighted together by fees charged. For pathologists, the number of tests is used as the output volume indicator.
- Volume estimates for the remaining health services components—dental, optometry and optical dispensing, community health centres, paramedical, veterinary and ambulance services—are based on administrative data deflated using relevant price indexes.

29. The effect of the change from the former input-based method to the method outlined above is demonstrated in the graph below. It shows an average growth in the chain volume measure of the gross value added of health and community services between the years 1993–94 to 1999–2000 of 4.0% per annum, compared to 1.6% under the former method.



30. ABS believes the new method is a significant advance on the previous one. It captures much of the anticipated increased productivity one would expect from technological improvements in the industry. Using a fine level of detail helps to capture compositional quality changes, namely any shift to new and more advanced medical treatments being offered. It does require that cost data be regularly updated to properly weight these new treatments and diagnostic techniques. However, the new method fails to detect quality changes occurring within a particular medical treatment category. By undertaking detailed analyses of changes in the quality of treatments it may be possible to develop better indicators of output within AN-DRG categories at some time in the future.

### Education services

31. Education makes up around 5% of GDP and expenditure on education makes up 19% of government final consumption expenditure. Like health it is a significant industry although it has not gone through the same technological revolution in recent years. Its significance and the availability of output measures made this another good industry to investigate early on.

32. The volume estimates of education output are based mainly on annual student enrolments. Enrolments for each level of education are weighted together by the cost of providing those services. Student numbers for primary schools and secondary schools are converted to full time equivalents, with part-time students counted as 0.5 of a full time student. Module hours are available for vocational education, and are used in preference to student numbers.

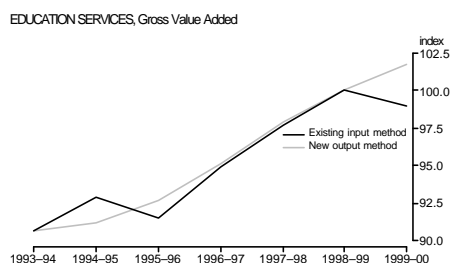
33. Full-time equivalent student numbers enrolled in each of eleven discipline groups are used as output indicators for the tuition component for universities. In the absence of actual cost data, weights from the government administered Higher Education Contribution Scheme are used as a proxy to weight student numbers in each discipline group. The university research component is estimated by weighting together data for the number of publications and student research completions.

34. Volume estimates for the remaining education services—pre-schools and other education services—are derived using suitable input price indexes.

35. In the main, the new output indicators simply capture changes in the number of students enrolled adjusted for compositional change between the various levels of education, and subjects in the case of universities. They do not capture any quality change over time in the education services provided. A number of national statistical offices and international agencies, including the ABS, have investigated ways of incorporating quality adjustment factors into the education output measure. For example, class sizes and public examination results have been considered as indicators of change in the quality of the education service. Adjusting for class size has been widely rejected on the grounds that there does not appear to be an observable relationship—certainly not a linear one—between class size and the quality of services provided. Public examination results are useless unless the same test standards are maintained over time, and while results from standardised tests provide a better prospect, changes in scores over time could also reflect external factors—such as changes in the quality of home life—as well as changes in the quality of education services. Nevertheless, once a sufficient time series of such data becomes available, and, after taking external factors into account, it may be possible to at least discern the direction of change in quality.

36. Despite this shortcoming, ABS considers the output volume indicator for education is conceptually superior to the previous input-based method, and yields more plausible results for Australia. This view is consistent with the recommendations in the Eurostat *Handbook on Price and Volume Methods in National Accounts*. It is also consistent with how output would generally be measured if education were predominantly provided in the market. In that case the volume of output would be based either on the number of fee paying students adjusted for changes in the quality of the service provided or equivalently, current price output deflated by a constant-quality price index. Although the output indicator method is not quality adjusted, neither was the previous input method.

37. A comparison of results for gross value added under the new and old methods is shown in the graph below. It shows an average annual growth in education gross value added between the years 1993–94 to 1999–2000 of 1.9% per annum, compared with 1.5% under the existing method. While the new method did not result in a significant change in the growth rates it did provide a more stable pattern of growth than the old one.



### Justice sector

38. In 2001 ABS produced a discussion paper, *Experimental Output Measures for the Australian Justice Sector* that outlined recent ABS work on developing new measures of the output of the Australian Justice Sector. This sector is substantially smaller than health and education, representing around 6% of government final consumption expenditure. Output measures for three areas were considered:

- *Police* - suitable data for deriving an index of police services output was very limited. The current input-based measures of police output volumes will be retained, unless a satisfactory output indicator can be compiled in the future. Given the nature of police services, output indicators are likely to be contentious.
- *Justice Services* - an index of the output of justice services was calculated using data for number of cases finalised by court level and civil/criminal jurisdiction and number of counselling sessions provided.
- *Corrective Centres* - an experimental corrective centres output index was developed using secure custody prisoner days.

39. The absence of a satisfactory output indicator for the dominant police sector means that there would only be minimal gains in moving to an output indicator for the justice and corrective services components. Consequently, the ABS has retained its input based measures for the justice sector. There are however, improvements to police statistics in train that may hold prospects for output measures to be developed for at least some forms of police activity.

The situation in Australia is complicated by the fact that policing is essentially a state responsibility and obtaining consistent measures across jurisdictions is challenging.

### Tax and social security

40. In 2003 ABS produced unpublished experimental estimates of new output measures for the Australian Taxation Office (ATO) and Centrelink (the Australian Government social security agency). The new measures were based on the services the organisations deliver to governments, businesses and community. For example, the services of ATO include minutes and briefings (for government), and registration and processing of tax claims (for business and individual tax payers). Similarly, the outputs of Centrelink include processing customer's claims for welfare benefits and providing on-going services to benefit recipients.

41. The initial results are promising. However, as data sources are at an early stage of development with a limited number of data points it was concluded that the behaviour of the data should be examined over a longer period of time before implementing the proposed output measures in the national accounts.

### **PRICE STATISTICS FOR SERVICES**

42. Pricing services is much more difficult than pricing goods because services are not tangible items that can be readily identified. For price indexes such as those for materials used in house building, it is possible to price a product like an ordinary house brick over time, with the brick not changing in quality during the life of the survey. The difficulties involved in identifying representative services to be priced mean that price indexes for services are costly to maintain because it is necessary to continually update specifications and respondents so they remain representative. Also, each service index can differ markedly from others, and so no single pricing method can be used across the collections.

43. Relative to producers of goods, service providers have an almost infinite capacity to tailor the final 'product' to the specific requirements of the final user. This generally results in a significantly larger number of discrete service products per dollar of revenue/expenditure than for goods. The addition of complex pricing plans and the increasing incidence of suppliers 'bundling' together into a single package what may previously have been regarded as a number of discrete products (for example, mobile phone businesses who virtually give away the handsets when providing telecommunication services), creates enormous conceptual and methodological problems for prices statisticians.

44. The problems encountered in compiling price indexes for services vary significantly from industry to industry or from service to service. Pricing to constant quality is particularly difficult to achieve because the characteristics of services being sold in the marketplace and their terms of sale frequently change over time. Pricing comparable services across countries is even more difficult as differences in market structures, industry maturity and regulatory arrangements serve to further differentiate products – services defined for pricing in temporal indexes can be totally inappropriate for spatial comparisons.

45. Depending on the services being provided, a variety of pricing methodologies can be employed. Because the price information collected is tailored to the respondent, there can be a

variety of methodologies used even within a single industry. Ideally, specification pricing is the ABS's preferred method, but data availability and industry pricing arrangements may result in a different method being selected. In some instances, input based pricing has to be used to approximate the output price.

46. A key requirement for the establishment of a sound suite of service price indexes is a reliable demand based commodity classification to assist in identifying the 'services' (or bundles of services) to be priced. The CPC and Classification of Individual Consumption according to Purpose (COICOP) are used as starting points by most countries but there is widespread recognition that they are deficient in many areas and not well suited to coping with the dynamic nature of service industries. The experience of the North American countries in trying to develop a demand-based product classification might provide a useful contribution.

47. ABS has adopted an incremental approach to producing price indexes for services. The aim has been to tackle those industries, such as transport, that were thought to be less difficult than others. The industry coverage of the price indexes has been gradually extended over time and those for the industries for which indexes were initially developed have been refined and expanded, based on the experience gained. In recent times indexes have been developed for legal services, advertising services, accommodation services and construction industry outputs. The following describes recent work in some key areas.

#### Financial and telecommunications services

48. Financial services are not currently included in the Australian CPI but for some years now there has been considerable community interest in Australia in the charges levied for financial services by financial institutions. A review in the late 1990s led to ABS commencing a research program aimed at adding a major new commodity group "financial services" to the CPI. Although ABS could have moved quickly to include direct fees and charges for financial services in the Australian CPI this option was rejected on the grounds that it was likely to lead to an upwards bias in the CPI. This view was based on an assessment that the Australian financial services sector has embarked on a long-term restructuring that is resulting in a shift towards direct fees and charges at the expense of the indirect (the equivalent of financial intermediation services indirectly measured (FISIM) in the national accounts).

49. The approach being developed relies on sampling customers' bills to acquire information on their transactions with the service providers over a twelve month period and to price monthly changes in each of the sampled bills as a result of prices for any of the component transactions being changed by the financial institutions. This approach effectively requires the ABS to build a system capable of replicating the billing systems used by the financial institutions, including the ability to apply discounts or exemptions based on a particular level of funds being held by a customer in the financial institution concerned. It is referred to within the ABS as the "bills approach". The current plan is to update the sample of bills every 12 months. Although it is still very much work in progress, results to date are promising.

50. A similar approach is being investigated to handle the rapidly changing structure of telecommunications services and the increasing use of "bundling" telecommunications services. The problem facing prices statisticians is that traditional methods of pricing such services no longer work because:

- mobile phone plans change regularly making it impossible to track the same one for any length of time
- the costs of the service and the phone itself are incorporated into plans to varying degrees (e.g., a phone being free or sold for a nominal amount on the condition that a consumer signs up to a plan for a specified period)
- rapid technological advances make it impossible to track the same phone/service over time
- phone services (mobile and/or fixed line) can be bundled into a package that also incorporates one or more other services such as broadband Internet, Internet service providers (ISPs), and/or cable television.

51. Initial investigations into using the “bills approach” for telecommunications are also promising.

### Computer software

52. Computers are clearly an area of growing importance to the Australian economy. Expenditure on computers and peripherals accounted for about 1.5% of GDP in 2002 and the expenditure on software was approximately the same. Over the past couple of decades a considerable amount of research has been undertaken into developing price indexes for computer hardware, with particular emphasis being placed on hedonic techniques to derive these price indexes. Far less attention has been placed on developing price indexes for computer software even though the limited amount of research that has been done indicates that, like hardware prices, software prices are also declining significantly over time, albeit at a slower rate than hardware prices.

53. In 2003, ABS started research into developing price indexes for software using “function point” analysis. (Function points provide a means for software developers to estimate the complexity and therefore the likely cost of developing software to provide a firmer basis for tenders for one-off, specific-purpose, software.) Although the preliminary results are promising, it is too early at this stage to be confident that a viable method can be developed. The ABS will report on the outcome of this research as soon as some definitive results are available, which should be within the next year or so.

## **FUTURE DIRECTIONS**

### New presentations of services statistics

54. In the area of satellite accounts the ABS will continue to develop accounts in those areas for which strong policy links can be identified. More generally, ABS is committed to further development of NPI statistics. Articulating a separate NPISH sector in the national accounts would be a necessary part of further development of NPI satellite accounts. Apart from the desirability of measuring an NPISH sector, households need to be separated from the existing combined households/NPISH sector to facilitate development of micro-macro studies of households, more specifically, the development of household social accounting matrices.

55. On household services, the ABS will continue to produce estimates of unpaid work based on time use surveys and will continue to investigate the development of a comprehensive household satellite account.

56. On tourism, the ABS is developing a new quarterly indicator of Tourism Gross Value Added (TGVA) modelled using TSA information and sales data from the ABS Quarterly Business Indicators Survey. The ABS plans to produce an Information Paper in the second half of 2004 outlining the first quarterly TGVA results together with the methodology. The ABS is also considering how a 'trade in tourism' indicator could be developed, using data compiled from standard trade in services estimates rather than adopting tourism satellite account concepts, to support broader and alternative views of trade in services.

57. Further on trade in services statistics, ABS is planning to address a number of unmet user requirements in the area of international trade in services through a range of initiatives, subject to securing external funding. Improvements are planned in frame coverage for the Survey of International Trade in Services (SITS) as well as redeveloping the survey to provide the increased level of detail sought, at least on an annual basis. ABS is also planning to re-benchmark several series not derived from SITS and to undertake periodic reviews of these estimates. It is also undertaking empirical investigations into the data available to support analysis by modes of supply and GATS sectors.

58. ABS is also looking to improve the range and frequency of globalisation statistics, especially foreign affiliated trade statistics (FATS). Activities planned for 2004-05 include a study of the labour costs of foreign-owned businesses in Australia and developing a survey of inward foreign affiliates trade (SIFAT). The SIFAT is expected to be conducted in 2005-06 for the 2004-05 reference year. In addition, globalisation statistics based on matching trade in goods and services and other datasets with foreign ownership information are expected to be released in the future. Again, subject to securing external funding, measures of inward and outward FATS will be released annually or biennially.

#### Direct volume measurement of service industry output

59. The experimental results for ATO and Centrelink (tax and social security) look promising and should offer an improved output measure for these services. They will be incorporated in the national accounts once a sufficient time series are available, possibly in the next 2-3 years.

60. There are unresolved issues with the measurement of the police component of the justice sector. The justice services and custodial services components are straightforward by comparison. In the absence of suitable indicators for police services, the largest component of the justice sector, it is likely that input deflation will be retained for the whole sector.

61. The ABS is not proposing to develop output indicators for other areas of general government output (mainly defence and policy formation functions) and input deflation techniques will be retained unless there are significant breakthroughs in methods to measure these difficult components.

#### Price statistics for services

62. ABS's immediate aim is to finalise development of price indexes for financial services, including the indirectly charged component of such services, so that they can be incorporated into the CPI and PPI and be used as deflators for deriving volume estimates in the national

accounts. An information paper on this development is expected to be released by the middle of 2004.

63. Work is proceeding on adopting the bills approach for telecommunications services and the ABS hopes to be able to release the results of this work in the next year or so. Developing the price index for computer software is a medium-term project; at this stage it is hard to predict with any confidence whether or not viable results will ultimately be obtained. Extending and improving the PPIs for service industries is an ongoing process that is expected to continue for many years. In the next year or so, focus will be on developing indexes for retail and wholesale trade margins, travel agencies, and postal and courier services. In addition, investigations will be undertaken into improving some of the indexes developed during the 1990s.

## **CONCLUSION**

64. The range of work being undertaken reflects the significance that ABS places on improving measurement for service industries. However, in all areas of work significant challenges remain at both a conceptual and practical level. The continuing change in service industry outputs and their increasing economic importance also suggests that this field of statistics will remain at the forefront of statistical development in the years ahead.

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