VOORBURG GROUP ON SERVICE STATISTICS

THIRTEENTH MEETING

ROME, 21 - 24 SEPTEMBER 1998

Session 3 : CROSS CUTTING ISSUES: A FRAMEWORK OF ANALYSIS FOR ICT ISSUES OF SUPPLY

ABS Experience with Supply Side Surveys of Information Technology and Telecommunications (IT&T)

W. Pattinson
D. McGeachie
Australian Bureau of Statistics

Abstract

This paper aims to outline the current ABS strategy for the collection and compilation of ICT sector supply side statistics. It also sets out to provide some statistical evidence for the approach taken and raises some issues for consideration.

Introduction

This paper aims to outline the current ABS strategy for the collection and compilation of ICT sector supply side statistics. It also sets out to provide some statistical evidence for the approach taken and raises some issues for consideration.

Current ABS Strategy

2 The current ABS strategy is to conduct surveys of the ICT sector every two years, as part of its program of regular industry surveys. The ICT sector surveys are fully integrated into the program of surveys for the services sector, with the detailed development and processing of the surveys being undertaken within the same organisational unit within the ABS. To a large extent, the surveys themselves look just like any other ABS structural survey of industry ie the survey is aimed at a sample of one or more industry classes of the Australian and New Zealand Standard Industrial Classification (ANZSIC) and that sample of businesses provides information about the activities of the businesses as a whole and about the commodities (goods or services) that are produced or distributed. However, there are some differences and these are outlined below.

Definition of Scope

3 The definition of the scope of the ICT sector surveys has not been based on any particular conceptual model of the ICT sector. Rather, the scope has been derived by responding to specific government and industry policy needs. The imperative of these policy uses and for the ABS, has been to focus on the technologies which underpin the spread of general purpose computing and telecommunications into business, government and the general population. Therefore the ABS surveys have been restricted to the production and distribution of selected information technology and telecommunications (IT&T) goods along with supporting services. A list of the goods and services to be included has been developed in association with key users.

4 Technologies used in specialised fields such as in medical and scientific applications, navigation or in factory production lines and similar processes, have not been part of that key user focus. Similarly, there has been negligible user demand for information in calculating devices, process controllers and similar devices in which the presence of microprocessors is for the control of equipment operations. While calculators and the like are certainly widely used throughout business and society, they have not been of prime interest to the wide body of IT statistics users in Australia.

5 As component manufacture feeds into industries which produce finished IT&T goods, there is interest in the performance of businesses which produce components including printed circuit boards. Computer sub assemblies are also produced by some businesses in the components industry. Refinements to the survey, to specifically include components and the like, was undertaken prior to the 1995-96 survey.

6 A further major area of interest concerns one of the fruits of the information revolution, namely new digital media (including multimedia) and the goods and services associated with their production and delivery (content services). The ABS recognises that this area needs to be

included in future surveys, or compilations of data, but has not yet finalised precisely what needs to be included.

7 As stated above, the definition of the ICT sector surveys in Australia have been developed in conjunction with the major users. At a recent Conference held in New Zealand between the statistical agencies, policy makers and industry associations of both Australia and New Zealand there was general agreement to proceed with the development of Australian surveys with a similar scope to that defined above but with the inclusion of the content industries being seen as a major priority for inclusion.

8 For 1995-96, the industries (ANZSIC classes) covered in the ABS surveys were:

2841 Computer and Business Machine Manufacturing*
2842 Telecommunication, Broadcasting and Transceiving Equipment* Manufacturing
2849 Electronic Equipment Manufacturing n.e.c.*
2852 Electric Cable and Wire Manufacturing*
4613 Computer Wholesaling
4614 Business Machine Wholesaling*
4615 Electrical and Electronic Equipment Wholesaling n.e.c.*
7120 Telecommunication Services
7831 Data Processing Services
7832 Information Storage and Retrieval Services
7833 Computer Maintenance Services
7834 Computer Consultancy Services

9 Other industries such as the Radio and Television industries are already covered within the general framework of the service industries surveys conducted by ABS, and it has not been seen as essential to include them in the surveying program in the year that the ICT sector surveys are undertaken.

10 Some of the industry classes listed above are very broad and contain significant numbers of businesses which are not relevant when calculating industry performance measures in the context of information technology and telecommunications. Such business earn most of their revenue from other activities (eg the manufacture or sale of alarm systems, hearing aids, microphones, etc). To overcome this contamination (and to get a more accurate count of relevant businesses) each of the above industries is divided (classified) into specialist IT business and the remainder. Most analysis of results is then concentrated on specialist IT business (ie those whose total turnover is 50% or more in IT sales).

11 In this way the ABS is essentially forming sub industry classes as part of its surveying work (referred to in some other ABS papers as part classes). The ABS selects a sample from the whole of an industry as defined within its standard industrial classification, collects information from all that sample, and then decides whether each firm is in the scope of the resultant statistics on the basis of its reported data. Those industry classes listed above, marked with an asterisk (*) are those for which only part of the businesses are included in the statistics.

12 It is important to note that standard rules for the classification of businesses to classes are used and that this is not some way to arbitrarily split data reported by businesses. The ABS approach is to determine whether or not a firm earns the majority of its income from its ICT activities and to then define that firm as being included wholly, or not included at all, on the basis of this information.

13 Some industries which are partly relevant were not included in the survey, mainly because they were thought to contain very few IT specialist businesses in proportion to the total number in the industry. To survey such industries would be quite costly and would be an inefficient use of scarce resources. IT retailing is a prime example. It is not that ABS believes that specialist IT retailers do not exist; rather it is just too costly to try and determine which retailers are specialist IT retailers out of the very many businesses that are coded to the retailing industry.

14 With respect to IT Retailing, the ABS strategy will be to try to estimate a proportional split the next time the Retail industry is included in the ABS program of services industries surveys, which is currently scheduled for 1998-99.

Data Item Content

15 The ABS surveys collect a range of measures which provide an indication of the performance of businesses in the sector as well as a range of data about the specific goods and services produced by the industry. The business performance measures are:

- the number of businesses specialising in IT&T,
- employment levels
- gross incomes
- turnover
- IT&T revenues
- wages and salaries
- total expenses
- earnings before interest and tax
- operating profit before tax
- capital expenditure
- sales of goods and services (own production vs onselling) by commodity

16 The table below shows some of these statistics from the 1995-96 survey. The table is further classified into IT&T specialist businesses and those which are not IT&T specialists. Hence it shows the proportion of the industry classes that are not considered to be in scope of the surveys and the proportion that are in scope.

17 As can be seen from the table, IT&T specialist businesses employed 209,000 people at June 30 1996 and had a total turnover of just over $48 billion. If ABS had include all of the businesses coded to the relevant industries listed above, it would have added a further 28,000 to the estimate of employment ie an increase of 13%. Turnover would have also been increased by 17%.

18 The table further shows the importance of including Wholesaling industries within the definition of the ICT sector. They contribute about 20-30% of the total activity of the ICT sector in Australia for all of the variables in the table.

1. SELECTED ITEMS, IT & T Specialists and Other Businesses, 1995-96

	SELECTED ITEMS, IT & T Specialists and Other Businesses, 1995-96			
	Businesses at end June no.	Employment at end June no.	Turnover $m	Wages and salaries $m
IT & T SPECIALISTS				
Manufacturing				
Computer and business machines	246	6 770	1 902.6	227.6
Telecommunication, broadcasting and transceiving equipment	140	8 051	1 823.6	386.4
Electronic equipment n.e.c.	*51	750	96.5	26.4
Electric cable and wire	*45	3 312	1 068.3	154.5
Total	*483*	*18 883*	*4 891.0*	*794.7*
Wholesale trade				
Computers	2 357	26 605	11 946.7	1 282.7
Business machines	4	n.p.	n.p.	n.p.
Electrical and electronic equipment n.e.c.	659	13 115	n.p.	586.3
Total	*3 019*	*n.p.*	*16 991.8*	*n.p.*
Telecommunication services				
Telecommunication	395	n.p.	17 908.2	n.p.
Computing services				
Data processing	379	5 906	1 045.9	253.6
Information storage and retrieval	*31	997	177.0	44.6
Computer maintenance	422	4 898	830.6	202.2
Computer consultancy	8 840	46 376	6 299.5	2 176.4
Total	*9 671*	*58 177*	*8 353.1*	*2 676.8*
Total	**13 569**	**208 707**	**48 144.1**	**9 439.7**
OTHER BUSINESSES				
Manufacturing				
Computer and business machines	n.p.	n.p.	n.p.	n.p.
Telecommunication, broadcasting and transceiving equipment	6	105	10.9	3.6
Electronic equipment n.e.c.	*142	2 917	493.7	98.6
Electric cable and wire	21	2 160	964.2	89.2
Total	*n.p.*	*n.p.*	*n.p.*	*n.p.*
Wholesale trade				
Computers	–	–	–	–
Business machines	419	7 268	1 580.6	258.6
Electrical and electronic equipment n.e.c.	1 153	15 404	4 911.0	522.1
Total	*1 572*	*22 673*	*6 491.6*	*780.7*
Telecommunication services				
Telecommunication	–	–	–	–
Computing services				
Total	*n.p.*	*n.p.*	*n.p.*	*n.p.*
Total	**1 772**	**28 236**	**8 049.4**	**984.1**

Commodity Outputs

19 ABS also collects commodity data (or data about specific goods and services produced) as part of its industry surveys. Generally ABS starts developing the commodity items that it intends to use in an industry economic survey by referring to the CPC, at the 3 digit level. These commodities are then reviewed on the basis of the availability of data from ICT businesses and of their relevance for policy and research work. Should this review indicate that the 3 digit level of the CPC is not appropriate, ABS will vary from that standard.

20 In forming commodity items which measure domestic outputs it is also important to devise items which can be used to make comparisons with imports and exports statistics at an appropriate level. This is an objective in many other statistics and is not restricted to IT&T.

21 The commodity detail in the ABS IT&T industry survey figures for 1995-96 enabled such a comparison to be made at a very broad level; the importance of this can be seen by the figures in the table below show a large trade deficit on IT&T goods and services, now in the order of $7 billion (up from about $4 billion in 92-93) with local production of IT&T goods and services at $32 billion.

22 Computer hardware imports of $5.5 billion accounted for just over half of total imports of goods and services. Telecommunications hardware imports added a further $1.9 billion.

2. PRODUCTION, IMPORTS AND EXPORTS OF SELECTED IT & T GOODS AND SERVICES, 1995-96

"PRODUCTION, IMPORTS AND EXPORTS OF SELECTED IT & T GOODS AND SERVICES, 1995-96			
	Revenue from domestic production $m	Imports(a) (Customs value) $m	Exports(a) (f.o.b.) $m
Computer hardware			
Digital computers	1 165.7	1 575.0	299.6
Laser and other printer systems and other input/output devices	*25.9	1 824.6	82.4
Other computer hardware	*98.6	2 051.6	1 326.1
Unspecified	216.0	_	_
Total	*1 506.2*	*5 451.2*	*1 708.1*
Communication/telecommunication hardware			
Telephonic or telegraphic switching equipm	*1219.5	41.4	71.5
Coaxial communication cables and other coaxial electrical conductors	n.p.	54.9	14.9
Optical fibre cables	309.9	28.7	36.1
Other communication cables	524.1	22.3	6.9
Other communication equipment	710.8	1 769.2	477.4
Unspecified	n.p.	_	_
Total	*3 184.2*	*1 916.5*	*606.8*
Other hardware			
Printed Circuit Boards	332.3	68.7	7.9
Electronic components, storage media and other computer and communication	146.2	1 448.5	121.9
Unspecified	n.p.	_	_
Total	*n.p.*	*1 517.2*	*129.8*
Packaged software	876.2	645.2	99.6
Computing services			
Selected computer services	6 348.2	137.1	184.3
Computer training and education	128.7	2.5	5.6
Residual computing services	1 311.8	_	_
Total	*7 788.7*	*139.6*	*189.9*
Telecommunication services	n.p.	1040.3(b)	860.6(b)
Total	**31 574.1**	**10 710.0**	**3 594.8**

(a) Import and export data are compiled by the ABS from information submitted by exporters, importers or their agents to the Australian Customs Service. Exports include both exports of Australian produce and re-exports of goods of foreign origin. Because of the sheer volume of transactions involved, it is inevitable that there will be some errors, misclassifications and approximations in the statistics.
(b) Includes both postal and telecommunication services trade. Telecommunication services are not separately available for publication.

23 There is considerable interest in Australia's share of the export market in relation to other countries. These statistics are currently compiled by external agencies such as the International Data Corporation (IDC), the World Trade Organisation and others. The WTO indicated that in 1995 Australia's relative share of the (US $595 billion) export market for IT&T equipment was just 0.3% while Japan and the USA accounted for 18% and 16.5% respectively.

24 On the basis of these figures, it is not surprising that there is considerable current interest by the Commonwealth and State governments in Australia's international competitiveness. This underscores the need for compatible local production, imports and exports data.

Non Marketed Goods and Services

25 In most industry surveys, the only outputs measured are those in respect of marketed

goods and services. This is because these are the goods and services for which data can be reliably measured straight from normal business financial accounts. However in measuring the output of the ICT sector, there is a considerable amount of service activity which is non marketed, and which may not, in fact, be produced by the ICT sector. Computing activity is one which is carried out as an in-house activity in many businesses and Government organisations. Failure to adequately measure this activity will mean that any total picture of the activity will be understated and that changes in the extent to which businesses utilise outsourced functions will affect apparent growth in the ICT sector.

26 Non-marketed goods and services need to be measured in an economy wide approach, rather than as a narrow industry survey. ABS therefore measured this in its 1993-94 survey on the Business Use of Information Technology. The cost of such in-house services was estimated to be in the order of $A 4.5 billion which is about 10% of the value of the turnover of the ICT sector. However, if the value of non-marketed computer services was related to the output of the computer services industry, it is much more significant, at around 50% of the turnover. There is no reason to assume that similar proportions would not be applicable in other countries.

Discussion Points

27 ABS believes that there are many aspects of supply side surveys which need further consideration. Some of these aspects are being picked up in the work of the Statistical Panel of the OECD's ICCP Division. The industry definitional issues discussed briefly in this paper have been discussed within that forum and will be raised again in the paper for this session prepared by the OECD. Of particular importance are the issues related to

(a) the specific industries to be included in the definition,
(b) the need to disaggregate existing industry classes of ISIC as part of that definition, and
(c) the need to move quickly to incorporate the collection of statistics about the content industries within the general body of statistics about ICT (even if not included in the general definition of ICT).

28 The ABS believes that the definitional issues associated with a commodity definition of ICT, which will need to be mapped back to the industry definition is also of great importance. The Voorburg Group, with its expertise in commodity definitional work, may feel inclined to take up consideration of this issue.