Australian Bureau of Statistics

Information Paper

Experimental Estimates: Australian Industry

a State Perspective

Australia

1998–99

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New Issue

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C O N T E N T S

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PREFACE

The Australian Bureau of Statistics (ABS) is committed to improving the range of information it produces. This information paper is part of an important initiative by the ABS in response to ongoing user demand for more State dissections of industry data. These statistics are experimental in nature and are the first part of an ongoing program to make State estimates available for the full range of industries.

The ABS has been working with the Australian Taxation Office (ATO) for many years to achieve this aim. This information paper expands on work already done in the area of using data sets obtained from ATO data, in combination with ABS data, in the production of industry performance measures.

The methodology outlined in this paper explains the process used to combine information from the ABS annual Economic Activity Survey, other ABS business collections and ATO data to produce State estimates of operating income and expense measures across selected industries.

The ABS plans to continue this work for 1999–2000 estimates and to release estimates for subsequent years on a regular basis. The ABS will continue to improve methods of providing more detailed information using ABS business income tax data.

The ABS welcomes feedback from readers regarding the usefulness, range and quality of the data presented and explanations provided. Please send any comments to : The Director, Economy Wide Statistics Section, Australian Bureau of Statistics, PO Box Belconnen ACT 2616. Alternatively, email <merry.branson@abs.gov.au>.

Dennis Trewin
Australian Statistician

INTRODUCTION

CONTEXT

There is long-standing interest among users of ABS industry statistics for State dissections of these data. The statistics in this information paper represent a new initiative to improve the range of State and Territory data available. While this new range of statistics is still experimental at this stage, the ABS is committed to improving their quality and range in future releases.

For a number of years, the ABS has been expanding the range of data sources it uses in order to decrease the statistical reporting load placed on providers, while continuing to increase the range of information available. A major alternate source of data is the Australian Taxation Office (ATO) which collects key economic data for business income tax purposes and which, under taxation law, may be passed by the Commissioner for Taxation to the ABS for statistical purposes. The data in this information paper is the result of combining ATO business income tax data with data that has been directly collected by the ABS in its Economic Activity Survey (EAS).
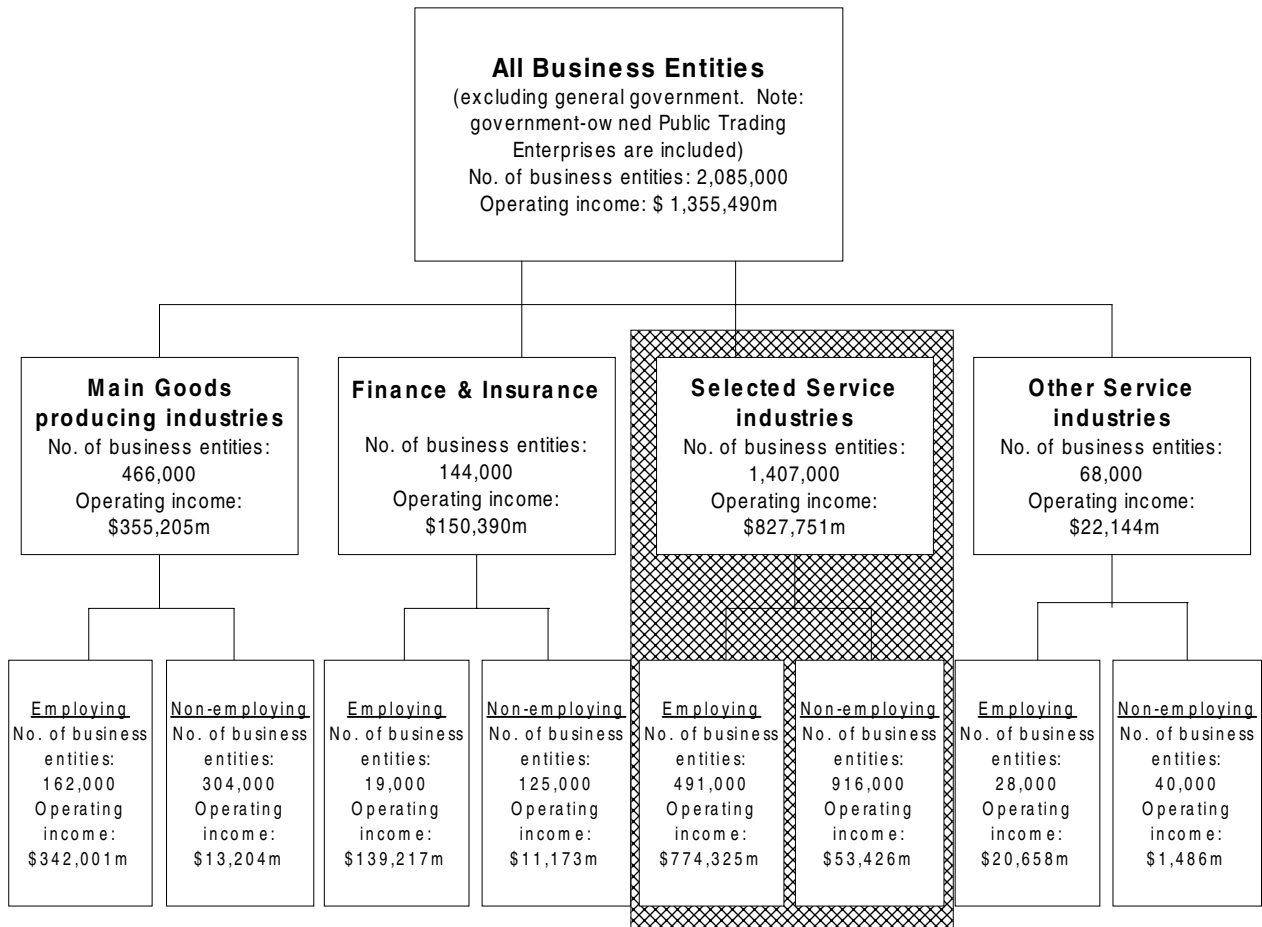
The estimates presented are part of the ongoing EAS/Tax program and are based on the methodology used to produce Australian level EAS/Tax estimates. The most recent EAS/Tax estimates were released in March 2001 in *Australian Industry* (Cat. no. 8155.0) for the 1998–99 financial year.

In this publication, 'Selected industries' includes: Construction, Wholesale Trade, Retail Trade, Accommodation, Cafes and Restaurants, Transport and Storage, Communication Services, Property and Business Services, Cultural and Recreation Services, and Personal and Other Services. Both employing and non-employing business entities are included. The service industries not included in this publication are Finance and Insurance, Education, Community Service and Religious Organisations, Interest Groups (trade unions, industry associations etc.) and Public Order and Safety Services. It is intended that the range of industry estimates available will be expanded over time with the longer term objective of providing estimates across the whole Australian economy. Detailed State information is currently available from the Mining and Manufacturing ABS collections and it is expected that the scope of EAS/Tax will encompass these industries in the future.

The term 'businesses' has been used throughout this paper to describe 'business entities'. Business entities include business units from the EAS and those recognised by the ATO. Please see Explanatory notes, paragraph 14 for further explanation.

The following diagram summarises the basic structure of the Australian business sector, with regard to the scope and coverage of the EAS/Tax program. The shaded area represents the current EAS/Tax scope.

All Business Entities
(excluding general government. Note:
government-owned Public Trading
Enterprises are included)
No. of business entities: 2,085,000
Operating income: $ 1,355,490m

**Main Goods
producing industries**
No. of business entities:
466,000
Operating income:
$355,205m

Finance & Insurance

No. of business entities:
144,000
Operating income:
$150,390m

**Selected Service
industries**
No. of business entities:
1,407,000
Operating income:
$827,751m

**Other Service
industries**
No. of business entities:
68,000
Operating income:
$22,144m

Employing
No. of business
entities:
162,000
Operating
income:
$342,001m

Non-employing
No. of business
entities:
304,000
Operating
income:
$13,204m

Employing
No. of business
entities:
19,000
Operating
income:
$139,217m

Non-employing
No. of business
entities:
125,000
Operating
income:
$11,173m

Employing
No. of business
entities:
491,000
Operating
income:
$774,325m

Non-employing
No. of business
entities:
916,000
Operating
income:
$53,426m

Employing
No. of business
entities:
28,000
Operating
income:
$20,658m

Non-employing
No. of business
entities:
40,000
Operating
income:
$1,486m

METHODOLOGY

State dissections of industry aggregates have not been available from the EAS/Tax program in the past. The methodology used to produce the estimates in this paper is inexpensive compared to traditional methods which involve collecting additional data on a large scale. Furthermore, State dissections for some data items are not readily available for some businesses. For the majority of multi-State businesses, State dissections for some items were available from existing ABS business collections or from the ATO and were used to dissect the variables included in this publication by State. The vast majority of businesses (approximately two thirds by value) belong to a single State.

Sales data obtained for multi-State businesses was used to dissect total income, total expenses and operating profit before tax (OPBT). Wages data was used to dissect labour costs. More details of the methodology and assumptions used to identify and allocate State dissections in this information paper are outlined in detail in the Technical Note 1: Methodology commencing on page 24.

CAVEATS

The estimates are considered experimental and should be used with caution. The estimates shown in this paper are to illustrate the level of detail available and to give readers an indication of future possibilities. Some of the assumptions that have been relied upon in the production of these estimates cannot easily be directly tested. Users are advised to review the assumptions and methodology for themselves before deciding on fitness for purpose. Details regarding the quality of the estimates and assumptions can be found in the Explanatory and Technical notes on pages 16 and 24 respectively

CAVEATS *continued*

and in the tables of relative standard errors on pages 13-15. The assumptions have been italicised.

Differences between data presented in this paper and other ABS publications may be due to differences in scope, reference period, statistical unit and the definition of data items. It is hoped that the methodology to produce these experimental estimates can be continually improved to a point when the ABS can remove the 'experimental' tag. The work so far has focused on the estimates at the industry level with further analysis to be undertaken to produce finer level industry data and expansion of the industry coverage. The Communication Services and Accommodation, Cafes and Restaurants industries have already been identified as areas requiring further investigation. Increasing the quality of labour cost State dissections for multi-State businesses will also be a major focus.

FUTURE PLANS

At any given time, the ABS is undertaking many streams of development work in order to improve the quality and range of information available. Changes in the external environment provide additional opportunities to improve the national statistical service. The recent changes under The New Tax System have the potential to offer the ABS many opportunities, although it may be some time before the benefits of these are realised. Some of these opportunities are outlined in Appendix 1.

The coverage of the EAS/Tax estimates is to be expanded to incorporate the goods producing industries and eventually to provide a complete picture across the whole economy. In addition, the ABS will continue to refine the methods outlined in this paper to expand the range, detail and quality of information provided at a State level. Producing the estimates annually will provide opportunities for time series analysis. The ABS will be continuing to improve the quality and reliability of the information provided.

Beyond the EAS/Tax development work, the ABS released another publication on July 19 this year entitled *Information Paper: Business Income Tax Data for Regional Small Business Statistics – Experimental Estimates, Selected Regions, Australia* (Cat. no. 5675.0). That information paper outlines an investigation the ABS is undertaking into the use of ATO business income tax data to improve the range of regional economic statistics. This work is aimed at meeting the demand from users for regional business indicators. This investigation has progressed to a stage where the ABS has produced experimental estimates of regional business economic activity for selected regions for 1995–96, 1996–97 and 1997–98.

Other initiatives regarding State estimates are taking place within the ABS. The Survey of Inventories, Sales and Services collects State dissections for two items – income from sales of goods and services; and wages and salaries. Subject to a current investigation into the quality of the data, State estimates for these items will be released in current price terms in *Business Indicators, Australia* (Cat. no. 5676.0) for the December quarter 2001. From the Survey of Employment and Earnings the ABS releases a quarterly publication *Wages and Salary Earners* (Cat. no. 6248.0) in which State estimates of earnings and wages and salaries are available. (This latter publication will be superseded by *Business Indicators, Australia* (Cat. no. 5676.0) at the end of 2001.)

A list of other relevant publications is provided for your reference in Appendix 2 of this information paper.

SUMMARY OF FINDINGS

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NOTE

This summary of findings for selected service industries is based on experimental data sets and therefore should be treated with caution. Assumptions made in the production of the estimates have been italicised in the Explanatory and Technical notes on pages 16 and 24 respectively.

EMPLOYER AND
NON-EMPLOYER
ESTIMATES

Employing businesses in New South Wales and Victoria account for 70.8% of Operating Profit Before Tax (OPBT) of employing businesses across Australia while the non-employing businesses in New South Wales and Victoria account for 56.8% of the OPBT of the non-employing businesses across Australia.

In contrast, for Queensland, South Australia, Western Australia, Tasmania and the Northern Territory the OPBT of non-employing businesses as a percentage of total non-employing businesses is higher than OPBT contributions of employing businesses.

INDUSTRY CONTRIBUTION
ACROSS STATES

New South Wales accounts for 37.1% of the total Australian operating income for all selected industries. Equivalent percentages for other States are; Victoria 27.4%, Queensland 16.3%, South Australia 6.0%, Western Australia 9.3%, Tasmania 1.5%, Northern Territory 0.8% and the Australian Capital Territory 1.5%.

Of the total Australian operating income for Cultural and Recreational Services, 41.1% and 31.5% is attributed to New South Wales and Victoria respectively.

Operating income from the Property and Business Services industry contributes 40.4% of total Australian operating income to New South Wales, 28.3% to Victoria, 12.7% to Queensland and 10.1% to Western Australia.

Personal and Other Services and Property and Business Services contributes 3.6% and 3.2% of the total Australian operating income to the Australian Capital Territory.

The percentage contributions for labour cost by State for all selected industries as a percentage of total Australian labour cost are: New South Wales 39.4%; Victoria 25.1%; Queensland 16.5%; South Australia 5.8%; Western Australia 9.0%; Tasmania 1.6%; Northern Territory 0.9% and Australian Capital Territory 1.7%.

INDUSTRY CONTRIBUTION
WITHIN STATES

When examining the operating income activity within each State, Wholesale Trade is the largest contributor in New South Wales (27.3%) and Victoria (27.1%). For all other States, Retail Trade is the largest contributor with the exception of the Australian Capital Territory where Property and Business Services is the highest contributor.

In all States except South Australia, Property and Business Services make the highest contributions to total State labour costs. This industry also makes the highest contribution to each States OPBT except in Queensland and Northern Territory where the Construction industry makes the highest contribution.

SUBDIVISION ESTIMATES

The estimates at the subdivision level illustrate ABS plans to produce finer dissections of State data in the future. Users should be aware that these data should be used with extreme caution and should refer to the relative standard error table (Table 5 on pages 14–15). Further work will be undertaken on the estimates to improve the quality and accuracy of these data.

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1 EXPERIMENTAL ESTIMATES, Selected items by employing status—1998–99

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
	$m	$m	$m	$m	$m	$m	$m	$m	$m

EMPLOYERS

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total operating income	288 780	213 761	125 278	45 753	71 234	11 669	5 989	11 862	774 325
Total operating expenses	274 588	197 855	120 639	43 420	67 399	11 194	5 722	11 129	731 946
Operating profit before tax	15 590	16 160	5 167	2 096	4 205	574	282	764	44 838
Labour costs	50 995	32 492	21 431	7 533	11 601	2 017	1 211	2 219	129 500

NON EMPLOYERS

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total operating income	18 453	13 171	9 877	3 829	5 954	933	431	778	53 426
Total operating expenses	14 029	10 045	7 511	2 824	4 153	701	303	569	40 134
Operating profit before tax	4 424	3 126	2 366	1 006	1 800	232	128	209	13 292
Labour costs	..	..	..	..	..	..	..	..	..

TOTAL SELECTED BUSINESSES

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total operating income	307 233	226 932	135 154	49 583	77 187	12 602	6 420	12 639	827 751
Total operating expenses	288 617	207 900	128 150	46 243	71 552	11 895	6 025	11 698	772 080
Operating profit before tax	20 015	19 286	7 533	3 101	6 006	806	410	973	58 130
Labour costs	50 995	32 492	21 431	7 533	11 601	2 017	1 211	2 219	129 500

.. not applicable

EXPERIMENTAL ESTIMATES, Selected items by industry division—1998–99

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
	$m	$m	$m	$m	$m	$m	$m	$m	$m

TOTAL OPERATING INCOME

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total selected service industries	307 233	226 932	135 154	49 583	77 187	12 602	6 420	12 639	827 751
Construction	36 085	19 552	19 024	5 584	9 251	1 076	948	2 039	93 559
Wholesale Trade	83 940	61 596	34 121	12 944	20 057	3 190	1 022	1 181	218 052
Retail Trade	71 619	50 929	36 721	15 077	20 539	3 581	1 761	3 344	203 570
Accommodation, Cafes and Restaurants	12 039	6 655	6 839	3 013	3 034	1 154	792	536	34 061
Transport and Storage	26 146	18 071	11 858	4 290	6 469	1 513	623	257	69 226
Communication Services	np	np	1 086	401	508	114	48	343	29 743
Property and Business Services	49 509	34 664	15 536	4 669	12 361	1 076	882	3 975	122 673
Health Services(a)	8 245	6 119	5 380	1 976	2 473	515	107	480	25 294
Cultural and Recreational Services	9 631	7 376	3 073	921	1 834	227	159	193	23 415
Personal Services(b)	np	np	1 516	707	661	157	79	292	8 159

TOTAL OPERATING EXPENSES

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total selected service industries	288 617	207 900	128 150	46 243	71 552	11 895	6 025	11 698	772 080
Construction	33 143	17 450	16 953	4 709	8 072	939	812	1 841	83 920
Wholesale Trade	81 794	59 124	33 118	12 506	19 577	3 146	975	1 153	211 394
Retail Trade	69 669	49 722	35 655	14 714	19 847	3 445	1 714	3 258	198 023
Accommodation, Cafes and Restaurants	11 391	6 379	6 758	2 852	2 851	1 209	765	486	32 691
Transport and Storage	24 407	17 101	11 155	4 007	5 728	1 392	582	220	64 591
Communication Services	np	np	969	360	452	104	48	313	23 550
Property and Business Services	43 546	29 778	14 801	4 071	10 645	917	846	3 545	108 150
Health Services(a)	7 137	5 281	4 752	1 618	2 157	415	95	439	21 897
Cultural and Recreational Services	8 175	6 841	2 615	771	1 645	187	115	168	20 516
Personal Services(b)	np	np	1 374	635	578	140	73	274	7 348

OPERATING PROFIT BEFORE TAX

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total selected service industries	20 015	19 286	7 533	3 101	6 006	806	410	973	58 130
Construction	3 064	2 122	1 963	485	1 168	136	138	190	9 264
Wholesale Trade	2 587	2 071	1 041	436	715	76	52	37	7 014
Retail Trade	2 324	1 804	1 270	492	813	137	55	103	6 998
Accommodation, Cafes and Restaurants	668	297	98	169	199	3	26	51	1 512
Transport and Storage	1 781	939	829	286	745	125	40	36	4 780
Communication Services	np	np	122	43	60	11	1	32	6 233
Property and Business Services	6 290	5 024	980	612	1 718	160	38	442	15 264
Health Services(a)	1 107	843	631	356	316	99	11	40	3 404
Cultural and Recreational Services	1 408	532	452	151	187	41	43	25	2 839
Personal Services(b)	np	np	146	72	85	17	6	18	821

LABOUR COSTS

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Total selected service industries	50 995	32 492	21 431	7 533	11 601	2 017	1 211	2 219	129 500
Construction	5 281	2 965	2 557	752	1 446	159	113	265	13 537
Wholesale Trade	7 180	4 959	2 602	1 027	1 489	262	92	147	17 758
Retail Trade	7 757	5 523	3 851	1 670	1 962	376	209	357	21 706
Accommodation, Cafes and Restaurants	2 911	1 744	1 570	600	719	256	192	130	8 123
Transport and Storage	5 379	3 680	2 740	798	1 193	227	157	102	14 276
Communication Services	np	np	778	336	372	100	47	195	5 461
Property and Business Services	14 904	8 366	4 207	1 333	3 035	388	311	752	33 296
Health Services(a)	3 049	2 278	2 195	687	974	187	40	147	9 559
Cultural and Recreational Services	1 718	996	554	168	251	33	33	42	3 795
Personal Services(b)	np	np	377	162	159	29	16	82	1 989

np   not available for publication but included in totals where applicable, unless otherwise
      indicated
(a)   Excludes ANZSIC subdivision 87.
(b)   Excludes ANZSIC subdivisions 96 and 97.

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
	$m	$m	$m	$m	$m	$m	$m	$m	$m

TOTAL OPERATING INCOME

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
TOTAL SELECTED SERVICE INDUSTRIES	307 233	226 932	135 154	49 583	77 187	12 602	6 420	12 639	827 751
Construction	36 085	19 552	19 024	5 584	9 251	1 076	948	2 039	93 559
41 General Construction	20 564	10 208	10 905	2 874	4 957	537	479	1 249	51 773
42 Construction Trade Services	15 521	9 345	8 119	2 710	4 294	539	469	790	41 787
Wholesale Trade	83 940	61 596	34 121	12 944	20 057	3 190	1 022	1 181	218 052
45 Basic Material Wholesaling	25 791	20 193	11 853	4 262	6 679	1 247	372	323	70 720
46 Machinery and Motor Vehicle Wholesaling	30 799	21 510	11 818	3 992	7 365	1 089	299	718	77 590
47 Personal and Household Good Wholesaling	27 349	19 892	10 451	4 691	6 013	854	350	141	69 742
Retail Trade	71 619	50 929	36 721	15 077	20 539	3 581	1 761	3 344	203 570
51 Food Retailing	22 085	13 735	11 364	5 824	6 228	883	648	1 023	61 791
52 Personal and Household Good Retailing	26 210	20 516	13 276	4 820	6 797	1 569	485	1 222	74 895
53 Motor Vehicle Retailing and Services	23 324	16 677	12 081	4 434	7 513	1 129	628	1 098	66 884
Accommodation, Cafes and Restaurants	12 039	6 655	6 839	3 013	3 034	1 154	792	536	34 061
Transport and Storage	26 146	18 071	11 858	4 290	6 469	1 513	623	257	69 226
61 Road Transport	7 718	5 915	3 733	1 697	2 456	409	117	89	22 133
62 Rail Transport	2 379	1 352	np	154	np	np	—	—	6 230
63 Water Transport	498	np	660	np	265	36	np	3	2 926
64 Air and Space Transport	np	np	np	np	np	np	np	np	np
65 Other Transport	405	np	181	np	305	np	np	np	1 475
66 Services to Transport	7 709	6 137	2 727	996	1 637	166	326	118	19 816
67 Storage	np	np	np	np	np	np	np	np	np
Communication Services	np	np	1 086	401	508	114	48	343	29 743
Property and Business Services	49 509	34 664	15 536	4 669	12 361	1 076	882	3 975	122 673
77 Property Services	9 207	5 445	4 176	1 110	2 645	309	150	630	23 672
78 Business Services	40 302	29 219	11 360	3 559	9 717	766	733	3 345	99 001
Health Services(a)	8 245	6 119	5 380	1 976	2 473	515	107	480	25 294
Cultural and Recreational Services	9 631	7 376	3 073	921	1 834	227	159	193	23 415
91 Motion Picture, Radio and Television Services	4 932	1 882	871	273	np	37	27	np	8 300
92 Libraries, Museums and the Arts	927	582	242	121	np	15	11	np	2 049
93 Sport and Recreation	3 772	4 912	1 960	526	1 510	175	120	90	13 065
Personal Services(b)	np	np	1 516	707	661	157	79	292	8 159

np   not available for publication but included in totals where applicable, unless otherwise indicated

—   nil or rounded to zero (including null cells)

(a)   Excludes ANZSIC subdivision 87.

(b)   Excludes ANZSIC subdivisions 96 and 97.

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
	$m	$m	$m	$m	$m	$m	$m	$m	$m

TOTAL OPERATING EXPENSES

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
TOTAL SELECTED SERVICE INDUSTRIES	288 617	207 900	128 150	46 243	71 552	11 895	6 025	11 698	772 080
Construction	33 143	17 450	16 953	4 709	8 072	939	812	1 841	83 920
41 General Construction	19 634	9 588	10 193	2 378	4 638	505	453	1 188	48 577
42 Construction Trade Services	13 509	7 863	6 759	2 331	3 434	434	359	654	35 343
Wholesale Trade	81 794	59 124	33 118	12 506	19 577	3 146	975	1 153	211 394
45 Basic Material Wholesaling	25 016	18 802	11 310	4 109	6 474	1 215	354	319	67 598
46 Machinery and Motor Vehicle Wholesaling	30 038	20 800	11 543	3 860	7 232	1 090	293	698	75 555
47 Personal and Household Good Wholesaling	26 740	19 522	10 265	4 538	5 871	841	329	136	68 242
Retail Trade	69 669	49 722	35 655	14 714	19 847	3 445	1 714	3 258	198 023
51 Food Retailing	21 364	13 408	11 085	5 717	6 051	846	641	994	60 105
52 Personal and Household Good Retailing	25 451	19 894	12 801	4 687	6 484	1 503	465	1 189	72 475
53 Motor Vehicle Retailing and Services	22 854	16 419	11 769	4 310	7 311	1 097	608	1 075	65 443
Accommodation, Cafes and Restaurants	11 391	6 379	6 758	2 852	2 851	1 209	765	486	32 691
Transport and Storage	24 407	17 101	11 155	4 007	5 728	1 392	582	220	64 591
61 Road Transport	7 165	5 492	3 415	1 583	2 163	374	99	76	20 367
62 Rail Transport	2 309	1 289	np	169	np	np	—	—	5 967
63 Water Transport	475	np	625	np	241	32	np	2	2 780
64 Air and Space Transport	np	np	np	np	np	np	np	np	np
65 Other Transport	301	np	146	np	165	np	np	np	1 045
66 Services to Transport	7 384	5 989	2 623	955	1 550	152	312	113	19 078
67 Storage	np	np	np	np	np	np	np	np	np
Communication Services	np	np	969	360	452	104	48	313	23 550
Property and Business Services	43 546	29 778	14 801	4 071	10 645	917	846	3 545	108 150
77 Property Services	7 865	4 494	4 424	906	2 072	263	130	379	20 535
78 Business Services	35 681	25 284	10 377	3 165	8 573	655	715	3 166	87 615
Health Services(a)	7 137	5 281	4 752	1 618	2 157	415	95	439	21 897
Cultural and Recreational Services	8 175	6 841	2 615	771	1 645	187	115	168	20 516
91 Motion Picture, Radio and Television Services	4 005	1 717	768	266	np	35	25	np	7 081
92 Libraries, Museums and the Arts	816	508	214	108	np	13	10	np	1 795
93 Sport and Recreation	3 354	4 616	1 633	397	1 333	138	81	89	11 641
Personal Services(b)	np	np	1 374	635	578	140	73	274	7 348

np   not available for publication but included in totals where applicable,
unless otherwise indicated

—   nil or rounded to zero (including null cells)

(a)   Excludes ANZSIC subdivision 87.

(b)   Excludes ANZSIC subdivisions 96 and 97.

RELATIVE STANDARD ERRORS, Selected Items by industry division

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
	%	%	%	%	%	%	%	%	%

TOTAL OPERATING INCOME

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
Total selected Service industries	1	1	2	3	3	7	8	8	1
Construction	3	4	4	11	4	9	11	16	2
Wholesale Trade	3	3	3	6	4	11	9	7	2
Retail Trade	3	4	4	8	7	12	13	13	2
Accommodation, Cafes and Restaurants	7	7	13	14	14	49	34	15	4
Transport and Storage	2	3	3	5	5	5	16	7	1
Communications Services	np	np	4	7	5	13	1	10	1
Property and Business Services	3	2	5	4	9	13	38	21	2
Health Services(a)	4	5	8	9	13	21	45	36	2
Cultural and Recreational Services	5	3	5	6	20	7	5	13	3
Personal Services(b)	np	np	6	8	7	27	14	8	3

TOTAL OPERATING EXPENSES

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
Total selected Service industries	1	2	2	4	3	7	9	9	1
Construction	4	4	3	13	4	10	11	17	2
Wholesale Trade	3	3	4	6	4	11	9	7	2
Retail Trade	3	5	4	9	7	12	13	13	2
Accommodation, Cafes and Restaurants	7	7	12	15	14	51	36	15	4
Transport and Storage	2	3	3	5	5	5	17	8	1
Communications Services	np	np	4	7	5	13	1	9	1
Property and Business Services	2	2	5	4	11	13	41	24	2
Health Services(a)	5	5	8	8	14	21	46	41	2
Cultural and Recreational Services	3	3	5	8	22	7	7	14	2
Personal Services(b)	np	np	7	8	7	30	14	8	3

LABOUR COSTS

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
Total selected Service industries	1	1	2	3	3	8	14	6	1
Construction	3	4	4	12	5	16	12	32	2
Wholesale Trade	4	4	4	5	5	10	10	8	2
Retail Trade	3	4	4	10	7	16	18	13	2
Accommodation, Cafes and Restaurants	7	9	10	12	15	45	35	16	4
Transport and Storage	2	2	2	5	4	9	16	5	1
Communications Services	np	np	1	2	1	1	—	5	1
Property and Business Services	3	3	4	4	7	16	46	8	2
Health Services(a)	5	5	11	9	19	26	46	34	3
Cultural and Recreational Services	4	6	7	9	10	14	6	24	2
Personal Services(b)	np	np	9	12	11	24	19	10	3

— nil or rounded to zero (including null cells)

(a) Excludes ANZSIC subdivision 87.

(b) Excludes ANZSIC subdivisions 96 and 97.

RELATIVE STANDARD ERRORS, Selected Items by industry subdivision

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
	%	%	%	%	%	%	%	%	%

TOTAL OPERATING INCOME

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
TOTAL SELECTED SERVICE INDUSTRIES	1	1	2	3	3	7	8	8	1
Construction	3	4	4	11	4	9	11	16	2
41 General Construction	6	5	4	17	5	8	7	5	3
42 Construction Trade Services	3	5	6	13	6	17	21	41	2
Wholesale Trade	3	3	3	6	4	11	9	7	2
45 Basic Material Wholesaling	5	6	6	11	8	14	15	20	3
46 Machinery and Motor Vehicle Wholesaling	7	4	5	7	5	25	11	8	3
47 Personal and Household Good Wholesaling	4	7	6	10	8	14	19	17	3
Retail Trade	3	4	4	8	7	12	13	13	2
51 Food Retailing	5	3	6	20	16	32	27	35	3
52 Personal and Household Good Retailing	5	9	8	8	12	21	27	15	3
53 Motor Vehicle Retailing and Services	5	8	6	7	10	9	9	15	3
Accommodation, Cafes and Restaurants	7	7	13	14	14	49	34	15	4
Transport and Storage	2	3	3	5	5	5	16	7	1
61 Road Transport	4	5	7	10	11	18	14	16	3
62 Rail Transport	—	1	np	—	np	np	—	—	—
63 Water Transport	7	np	5	np	25	10	np	49	4
64 Air and Space Transport	np	np	np	np	np	np	np	np	np
65 Other Transport	5	np	5	np	2	np	np	np	2
66 Services to Transport	3	6	5	10	7	6	28	10	3
67 Storage	np	np	np	np	np	np	np	np	np
Communications Services	np	np	4	7	5	13	1	10	1
Property and Business Services	3	2	5	4	9	13	38	21	2
77 Property Services	3	7	7	8	11	22	10	11	3
78 Business Services	3	3	6	5	11	15	46	25	2
Health Services(a)	4	5	8	9	13	21	45	36	2
Cultural and Recreational Services	5	3	5	6	20	7	5	13	3
91 Motion Picture, Radio and Television Services	9	8	15	5	np	12	25	np	6
92 Libraries, Museums and the Arts	6	8	7	20	np	14	15	np	3
93 Sport and Recreation	4	3	5	9	24	9	4	27	3
Personal Services(b)	np	np	6	8	7	27	14	8	3

— nil or rounded to zero (including null cells)

(a) Excludes ANZSIC subdivision 87.

(b) Excludes ANZSIC subdivisions 96 and 97.

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
	%	%	%	%	%	%	%	%	%

TOTAL OPERATING EXPENSES

	NSW	Vic	QLD	SA	WA	Tas	NT	ACT	Aust
TOTAL SELECTED SERVICE INDUSTRIES	1	2	2	4	3	7	9	9	1
Construction	4	4	3	13	4	10	11	17	2
41 General Construction	6	5	4	21	5	8	8	6	3
42 Construction Trade Services	4	5	7	15	7	19	24	48	3
Wholesale Trade	3	3	4	6	4	11	9	7	2
45 Basic Material Wholesaling	6	7	7	11	8	14	15	19	4
46 Machinery and Motor Vehicle Wholesaling	7	4	5	6	6	25	11	8	3
47 Personal and Household Good Wholesaling	4	7	7	10	8	14	19	17	3
Retail Trade	3	5	4	9	7	12	13	13	2
51 Food Retailing	5	3	6	20	16	32	27	35	3
52 Personal and Household Good Retailing	5	9	7	8	11	20	27	15	3
53 Motor Vehicle Retailing and Services	5	9	6	7	10	9	9	15	3
Accommodation, Cafes and Restaurants	7	7	12	15	14	51	36	15	4
Transport and Storage	2	3	3	5	5	5	17	8	1
61 Road Transport	4	5	7	11	11	19	16	17	3
62 Rail Transport	—	1	np	3	np	np	—	NA	—
63 Water Transport	7	np	5	np	24	11	np	57	4
64 Air and Space Transport	np	np	np	np	np	np	np	np	np
65 Other Transport	7	np	6	np	4	np	np	np	2
66 Services to Transport	3	6	5	11	7	7	28	10	3
67 Storage	np	np	np	np	np	np	np	np	np
Communications Services	np	np	4	7	5	13	1	9	1
Property and Business Services	2	2	5	4	11	13	41	24	2
77 Property Services	3	7	8	8	8	23	10	12	3
78 Business Services	2	3	6	5	13	15	49	26	2
Health Services(a)	5	5	8	8	14	21	46	41	2
Cultural and Recreational Services	3	3	5	8	22	7	7	14	2
91 Motion Picture, Radio and Television Services	4	8	11	5	np	15	26	np	3
92 Libraries, Museums and the Arts	6	8	8	22	np	15	17	np	3
93 Sport and Recreation	5	4	7	14	27	9	6	27	3
Personal Services(b)	np	np	7	8	7	30	14	8	3

— nil or rounded to zero (including null cells)

(a) Excludes ANZSIC subdivision 87.

(b) Excludes ANZSIC subdivisions 96 and 97.

EXPLANATORY NOTES

. . . .

INTRODUCTION

1 The statistical results presented in this information paper have been derived using a combination of data from the Australian Bureau of Statistics (ABS) annual Economic Activity Survey (EAS) and business income tax data provided to the Australian Taxation Office (ATO). This combined dataset was matched to a number of ABS collections to obtain State dissections.

2 EAS/Tax estimates have been produced since 1996–97. Australian level estimates have been included in the publication *Business Operations and Industry Performance, Australia,* (Cat. no. 8140.0) and from March 2001 these estimates were incorporated into the publication *Australian Industry,* (Cat. no. 8155.0). This latter publication also contains experimental estimates produced at the ANZSIC class level. The present publication contains the first release of experimental State EAS/Tax estimates. The ABS intends to continue to provide annual State dissections of EAS/Tax estimates in the publication *Australian Industry,* (Cat. no. 8155.0) subject to a continued improvement in the quality of the estimates.

3 The EAS/Tax State estimates presented in this publication are considered to be experimental and should be used with caution. The quality of these estimates is discussed in the paragraphs below. The estimates at the subdivision level are presented to demonstrate a commitment to producing finer dissections of State data in the future. Users should be aware that these data should be used with extreme caution and should refer to the relative standard errors (RSEs) in Tables 4 and 5 on pages 13–15. Further work will be undertaken on the estimates to improve the quality and accuracy of the data.

4 The estimates provided are for selected industries, primarily service industries. They have been sourced from both employing and non-employing business entities and supplement the relatively small scale survey the ABS conducts in respect of the selected industries.

REFERENCE PERIOD

5 The statistical results presented in this paper are based, where possible, on a June financial year.

6 The EAS results are from details of profit and loss statements and balance sheets collected from selected businesses, mainly by mail out questionnaires. For 1998–99, businesses were asked to provide data in respect of the financial year ending June 1999. In a minority of cases, where businesses did not account on a June-year basis, details were reported in respect of the accounting year which ended between October 1998 and September 1999.

7 The ATO results are based on business taxation returns lodged for the financial year ended June 1999.

SCOPE AND COVERAGE

8 The scope of the EAS/Tax statistics in this publication consists of all business entities in the Australian economy, except for:
- Finance and Insurance businesses;
- Businesses predominantly involved in 'goods' producing industries including: Agriculture, Mining, Manufacturing, and Electricity, Gas and Water Supply;
- Businesses classified as Education, Community Service, Religious Organisations, Interest Groups (trade unions, industry associations etc.) and Public Order and Safety Services, and
- Businesses classified to the General Government sector (note: government-owned Public Trading Enterprises are included).

9 For further information refer to the diagram in the Introduction on page VI.

. . . .

STATISTICAL UNIT

10   The business unit about which information is collected and published for the EAS is termed the management unit. This is the highest level unit within a business, for which a set of management accounts is maintained. In most cases it coincides with the legal entity owning the business (i.e. company, partnership, trust, sole operator, etc.). However, in the case of large diversified businesses there are often a number of management units, each coinciding with a 'division' or 'line of business'. A division or line of business is recognised where separate and comprehensive accounts are compiled for it.

11   For the ATO, business income tax returns are submitted for legal entities. Management units are generally made up of one or more legal entities, but it is possible for legal entities to be made up of one or more management units.

12   The ABS Business Register provided the population frame from which management units were selected for inclusion in the EAS and it also provided a multi-State indicator which was used as a starting point for the State dissections. See Technical note 1: Methodology, for more details about the State indicator.

13   *For non-employing businesses, which are not included on the ABS Business Register, ATO business income tax records are used as the population frame and all of these businesses are assumed to operate in a single State.*

14   Since the data in this publication are the result of combining ABS directly collected data with ATO data, the statistical unit has been referred to as a 'business entity'. The ABS unit and the ATO unit are not always comparable, therefore to provide a count of the number of business entities is not simply a matter of summing the legal entities in the ABS collected data and the ATO data. Any legal or other entities that are not included in ABS or ATO data files (e.g. shelf companies) are not included in the estimates shown in this publication. The term "businesses" has been used throughout this paper to describe "business entities".

15   The 2,085,000 business entities referred to in the diagram on page VI, comprise 1,385,000 non-employing business entities sourced directly from the ATO and 700,000 employing business entities sourced from a combination of ABS and ATO records.

16   Data in this paper from the directly collected businesses have been adjusted to allow for lags in processing new businesses to the ABS Business Register, and the omission of some businesses from the register.

SAMPLING

17   Approximately 4,500 management units were selected for the directly collected part of the EAS/Tax estimates. Stratified random sampling techniques were used. All management units with employment of 200 or more persons were automatically selected in the sample. A further sample of 72,000 employing businesses was selected from the ATO tax file to supplement the estimates from the 4,500 directly collected businesses.

18   As the EAS/Tax sample was not selected on the basis of State for single State businesses, increased sampling error in some States may be present as a result of this approach. This has been offset to some extent by the expanded use of Income Tax data which provides a large increase in sample size across each State. The sampling error may become more significant at division and subdivision levels depending on the number of businesses that each business in the sample is representing in that particular State. Please refer to Technical note 2: Sampling Variability for further details.

CLASSIFICATION BY INDUSTRY

19   This paper presents statistics classified according to the *Australian and New Zealand Standard Industrial Classification, 1993* (Cat. no. 1292.0). Each

CLASSIFICATION BY
INDUSTRY *continued*

business unit is classified to a single industry even where it operates across more than one State. The industry allocated is based on an estimate of the primary activity of the management unit irrespective of whether a range of activities or a single activity is undertaken by the unit. For example, a management unit which derives most of its income from construction activities would have all operations included in the aggregates for the Construction industry division, even if significant secondary activities (e.g. quarrying) were undertaken. This is different from the approach that might be taken to the collection of statistics on an activity basis.

CONFRONTATION OF THE
ESTIMATES

20 The experimental EAS/Tax State estimates presented in this publication have been compared with the following other data sources:
- Survey of Inventories, Sales and Services;
- Survey of Employment and Earnings;
- Australian National Accounts: State Accounts; and
- ABS Business Register.

21 In the main, results at the ANZSIC division level by State were reasonably comparable to these other ABS sources. The ABS is continuing to investigate those areas of large discrepancy. In particular, differences were noted in estimates for the Accommodation, Cafes and Restaurants, Transport and Storage and Communication Services industries.

STATE PROPORTIONS

22 Please refer to the Technical note 1: Methodology for further information regarding State proportions. A key methodological issue is how the estimates were dissected by State and the underlying assumptions.

23 There were differences in scope, coverage and business classifications from the ABS collections used to obtain State dissection information for businesses. In some instances State dissections were based on quarterly rather than annual data due to the unavailability of annual State estimates.

24 Multi-State businesses account for 35% of total income. For large businesses 90% of State dissections were obtained from ABS directly collected sources. Refer to the diagram on page 28 in Technical note 1: Methodology.

25 Sales proportions obtained for each multi-State business were used to allocate EAS/Tax total income, total expenses and OPBT data across the States for that business. Wages proportions were used to allocate labour costs.

26 ABS collections used to obtain State proportions for multi-State businesses were not always consistent in the wording of the State based questions. For instance, the Wholesale Industry Survey collected estimates of income from the sales of goods and services on the basis of the State or Territory from which the goods were despatched while the Retail Industry Survey collected estimates of income from the sales of goods and services on the basis of where the final purchase occurred. These different treatments were necessary depending on the industries in scope of the collection. Wherever possible the State dissections for a particular industry used a data source best suited to that industry. In some cases employment was used as a proxy for obtaining State proportions.

27 Due to the nature of their activity, some businesses found it difficult to respond to State questions. Examples include businesses in the Communication Services industry, and to a lesser extent the Transport and Storage industry, where the nature of the business is not necessarily bounded by State.

28 For some businesses, income based State proportions sourced from one collection were used in conjunction with wages based State proportions sourced from another collection.

STATE PROPORTIONS *continued*

29   Significant contributors to each industry were reviewed to check the consistency and reliability in relation to State proportions. The accuracy of State proportions reported by many of these businesses appeared reasonable. In some instances proportions were amended where better information was available.

30   At this stage, there is less confidence in dissecting labour costs than in the other data items as businesses were able to provide sales estimates by State more readily than labour costs by State. Some businesses placed all wages in a particular State due to a centralised payroll. Further work will be undertaken to determine the effects of such reporting practices and in improving the quality of estimates.

31   As much State information as possible was collected for each selected business, however, it is recognised that some identified single State businesses may actually operate across more than one State. *For most industries the effect on the estimates due to this factor is minimal* - refer to the diagram on page 28 in Technical note 1: Methodology.

RELATIVE STANDARD ERROR

32   One of the measures of quality is the relative standard error (RSE). Tables 4 and 5 on pages 13–15 show the RSEs at the division and subdivision State level for total income and total expenses and at the division State level for labour costs. The incorporation of ATO business income tax data has made it feasible to produce State estimates. The relatively small sample size of the EAS (ABS directly collected) does not allow for the compilation of reliable State estimates. However, the use of the very large tax based sample makes it possible to produce estimates dissected at the State level. Some of the RSEs at the State level are relatively large and therefore the estimates to which they relate should be used with extreme caution. Please refer to the Technical note 2: Sampling variability on page 31 for further elaboration of RSEs.

ROUNDING

33   Where figures have been rounded, discrepancies may occur between the sums of the component items and totals. Published percentages are calculated prior to rounding of figures and therefore some discrepancy may occur between those percentages and those that could be calculated from rounded figures.

REVISIONS

34   There are small changes in totals from those in *Australian Industry* (Cat. no. 8155.0) published in March 2001 due to revisions in estimates.

LIMITATIONS OF FINANCIAL DATA ANALYSIS

35   This publication presents a range of data that can be used to analyse business and industry performance. It is important that any analysis be based upon a range of data presented rather than focusing on one variable.

36   Differences in accounting policy and practices across businesses and industries also lead to some inconsistencies in the data input to the statistics. While much of the accounting process is subject to standards, there is still a great deal of flexibility available to businesses in the accounting policies and practices they adopt.

37   Due to the timing of this release, detailed analysis of estimates could only take place after the publication of Australian level estimates. For future releases State estimates will be produced in conjunction with Australian level estimates.

38   As previously mentioned, this Information Paper contains experimental estimates only. The subdivision estimates are to be used with extreme caution. Improving these estimates with a time series will progress the verification of both the data and methodology. This is not to imply that analysis based on this data should be avoided, only that the limitations should be borne in mind when interpreting the experimental data presented in this paper.

EXPLANATORY NOTES *continued*

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ANA	Australian National Accounts
ANZSIC	Australian and New Zealand Standard Industrial Classification
ATO	Australian Taxation Office
Aust.	Australia
billion	thousand million
EAS	Economic Activity Survey
EAS/Tax	Economic Activity Survey data supplemented with business income tax data
NSW	New South Wales
NT	Northern Territory
QEWS	Quarterly Economic Activity Survey
Qld	Queensland
RSE	Relative standard error
SA	South Australia
Tas.	Tasmania
Vic.	Victoria
WA	Western Australia

A BRIEF HISTORY

The ABS has been using ATO data to compile economic statistics for many years. The use has varied as a consequence of such things as changes to international statistical standards, changes to the Australian economic statistics strategy, and changes to Australian taxation law and administration. Following is a brief history of the changes and uses which have occurred from the 1960s to the present.

During the 1960s, the ABS used business income tax data, in aggregated form, for compiling and benchmarking some of the series that make up the Australian National Accounts (ANA). In 1968–69, the ABS began a program of integrated economic censuses and surveys aimed at covering most of the statistically significant sectors of the Australian economy on a regular basis. During the 1970s and 1980s, this mainly involved annual censuses for goods producing industries (i.e. Agriculture, Mining, Manufacturing, and Electricity, Gas and Water Supply) with periodic censuses/surveys for other significant industries (i.e. Construction, Wholesale Trade, Retail Trade, Transport).

In 1986, an amendment to the *Income Tax Assessment Act 1936* enabled the ATO to provide the ABS with identifiable information in respect of businesses to be used for the purposes of the *Census and Statistics Act* (1905). Since this time, identifiable ATO data has flowed to the ABS on a regular basis in two main and distinct streams:
- basic information about the composition of the Australian business population;
- financial data for Australian businesses.

Basic information about the Australian business population has been used to maintain and update the ABS Business Register. The ABS Business Register has been used as the framework for most ABS business collections.

Financial data in respect of companies have been used for many purposes including:
- to distinguish data relating to public enterprises (excluded as ABS public finance data are used for these enterprises);
- to enable adjustments to capital expenditure on equipment to fully account for finance leasing;
- to estimate balance date adjustments;
- to estimate for significant missing returns; and
- to adjust for large extraordinary losses and/or gains for particular enterprises.

The growing interest in, and significance of, service industries in the 1980s resulted in a number of changes to the ABS economic statistics strategy. Since 1990–91 the ABS has conducted an annual Economic Activity Survey (EAS) to include goods producing industries and service industries. The EAS has included, on average, between 10,000 and 15,000 employing businesses in the service sector each year. Its primary purpose is to provide information for annual benchmarking of the Australian National Accounts (ANA), but it is also used to monitor business operations and comparative industry performance over time.

Since the early 1990s, the ABS has been improving and extending the ANA through the adoption of new international standards and the full integration of input-output tables with national income, expenditure and production accounts. The move to compiling national income, expenditure and production accounts using an input-output approach required a finer level dissection of income and expense data items and finer industry classification of the data than previously available from surveys such as the EAS. To meet these additional requirements, significant changes in approach were made for both employing businesses in the service industries and for non-employing businesses generally, including the

A BRIEF HISTORY *continued*

expanded use of income tax data. In November 1998, an information paper entitled Information Paper: *Upgraded Australian National Accounts* (Cat. no. 5253.0) was the first release of national accounts estimates based on the expanded use of income tax data.

EAS/TAX

Since 1996–97 the ABS has combined data from the Economic Activity Survey and the ATO Business Income Tax to produce industry estimates at the national level. This information is available in *Business Operations and Industry Performance, Australia* (Cat. no. 8140.0).

In response to ongoing demand for more detailed information regarding industry performance the ABS has also produced a range of experimental estimates to show business characteristics at a detailed industry level. This information is contained in a new publication which was released in March 2001 titled *Australian Industry* (Cat. no. 8155.0). These estimates were derived using a combination of data from the ABS annual Economic Activity Survey (EAS) and business income tax data provided to the ATO. It is only through the incorporation of ATO business income tax data that it has been feasible to produce estimates at this level of detail.

THE NEW TAX SYSTEM

In April 2000, the ABS released an information paper entitled Information Paper: *ABS Statistics and The New Tax System* (Cat. no. 1358.0). This paper describes the impacts and opportunities afforded to the ABS as a result of The New Tax System. It is hoped that The New Tax System will offer the ABS opportunities to improve the range and quality of data it provides to users, while at the same time reducing the reporting load it places on businesses.

The New Tax System is expected to deliver a range of potential opportunities for the ABS including:
- access to a more comprehensive and up to date register of businesses and other organisations with economic activity;
- using data from the Business Activity Statement (BAS) to substitute information currently collected directly from respondents by the ABS or using BAS data to estimate for units which have not yet responded or to check the consistency of reported data;
- improving the quality of ABS information through data supplementation, for example, deriving benchmarks from the BAS data and using a smaller direct collection from businesses; and
- investigating the use of BAS information for producing State estimates, particularly on a quarterly basis.

APPENDIX 2 FURTHER INFORMATION

RELATED PUBLICATIONS

Users may wish to refer to the following publications:

National estimates
- *Business Operations and Industry Performance, Australia, Preliminary, 1999–2000* (Cat. no. 8142.0)
- *Business Operations and Industry Performance, Australia, 1998–99* (Cat. no. 8140.0)
- *Summaries of Industry Performance, 1998–99* (Cat. no. 8140.0.40.002)
- *Industry Concentration Statistics, 1998–99* (Cat. no. 8140.0.40.001)
- *Australian Industry* (Cat. no. 8155.0)
- *Australian National Accounts: National Income, Expenditure and Product* (Cat. no. 5206.0)
- *Inventories and Sales, Selected Industries, Australia* (Cat. no. 5629.0)

State estimates
- *Australian National Accounts: State Accounts, 1999–2000* (Cat. no. 5220.0)
- *Information Paper: ABS Statistics and The New Tax System, 2000* (Cat. no. 1358.0)
- *Information Paper: Business Income Tax Data for Regional Statistics – Experimental Estimates, Selected Regions, Australia* (Cat. no. 5675.0)
- *Information Paper: Improvements to Australian Bureau of Statistics Quarterly Business Indicators* (Cat. no. 5677.0)
- *Occasional Paper: Australian Business Register – A Snapshot* (Cat. no. 1369.0)
- *Wholesale Industry, Australia, 1998–99* (Cat. no. 8638.0)
- *Retail Industry, Australia, 1998–99* (Cat. no. 8622.0)
- *Electricity, Gas, Water and Sewerage Industries, Australia, 1997–98* (Cat. no. 8208.0)
- *Manufacturing Industry, Australia, 1998–99* (Cat. no. 8221.0)
- *Mining Operations, Australia, 1997–98* (Cat. no. 8415.0)

A range of individual service industry publications are also produced by the ABS. In general, these publications contain considerable detail about the employing sector of each industry.

1 The methodology outlined here is divided into two main sections:

- the methodology for producing EAS/Tax estimates at Australia level and
- the methodology for producing State EAS/Tax estimates.

PRODUCING EAS/TAX
ESTIMATES AT AUSTRALIA
LEVEL

2 The ABS has been working closely with the ATO for many years in an effort to improve the quality of Australia's economic statistics. While the legislation under which the ABS operates (the Census and Statistics Act 1905) prohibits the ABS from providing the ATO with data reported by individual businesses, the Income Tax Assessment Act 1936 enables the ATO to provide the ABS with such data for statistical purposes.

3 Statistics for the service industries have been improved by the use of ATO data to:

- extend the coverage to include the non-employing business sector;
- improve the quality of data available regarding small and medium employing businesses;
- improve the quality of data available regarding the inputs of all sizes of business; and
- produce finer dissections of data, such as State estimates .

4 The main financial data items on business income tax forms are conceptually similar to items collected on the EAS forms. With some minor adjustments, business income tax data are suitable for use in producing economic statistics for both employing businesses and for non-employing businesses. However, not all business activity data required for ABS purposes (e.g. detailed information about business inputs and outputs for the past year) are available from business income tax returns. Additionally, it is not possible to obtain data for all types of businesses from business income tax returns. The diagram below is a summary of the different sources and methods used for different types of businesses.

PRODUCING EAS/TAX
ESTIMATES AT AUSTRALIA
LEVEL *continued*

Summary of Data Sources

Type of business	Large businesses	Complex small & medium employing businesses	Simple small & medium employing businesses	Non employing businesses
The source used to identify businesses of each type	ABS Business Register	ABS Business Register	ABS Business Register	ATO income tax files
The number of each type of businesses	1 500	110 500	482 000	916 000
The number of businesses that are selected to provide data	1 500	3 000	72 000	916 000
Source of data	ABS survey	ABS survey	ATO business income tax returns(a)	ATO business income tax returns
Contribution to total business income for service industries	34%	14%	46%	6%

(a) Approximately 9,000 of these businesses also receive an EAS survey form.
Source: ABS, Economic Activity Survey, 1998-99; ATO, Business Income Tax Files, 1998-99

Statistical Unit and Population Frame

5   The statistical unit for the EAS direct collection is the management unit. This is the primary statistical unit on the ABS Business Register. Business income tax returns are submitted for Legal Entities. Management units are generally made up of one or more legal entities, however it is also possible for legal entities to be made up of one or more management units.

6   The ABS Business Register is used to provide the population frame for the EAS direct collection as well as for the businesses that were matched to the ATO business tax file (see paragraphs 14–15).

7   The reasons for using the ABS Business Register include:
- it is simpler if a consistent frame is used for all employing businesses;
- to achieve greater consistency with other ABS economic collections;
- for statistical purposes, the Business Register currently better represents the business population of the two sources;
- it is not currently possible to identify all legal entities for large management units on the business income tax files and;
- for statistical purposes, the industry classification coding on the Business Register is preferred to the coding on the business income tax files.

8   For non-employing businesses, which are not included on the ABS Business Register, ATO business income tax information is used as the population frame.

Large businesses

9   The majority of large employing businesses (management units with 200+ employees) have more than one legal entity, making it difficult to identify all legal entities for that business on the tax file. Additionally, business income tax data do not include all of the detailed information that the ABS requires from large businesses. As a result, and since large businesses with more than 200 employees are relatively few in number, business financial data for these units is sourced from the EAS collection.

Complex small and medium employing businesses

10   It is not appropriate to source business financial data from ATO business income tax returns for all small and medium employing businesses as:
 ▪ some small and medium businesses have more than one legal entity and;
 ▪ 'tax exempt' businesses (such as charities) are not required to complete business income tax returns.

11   For this paper, these types of businesses are collectively termed 'Complex small and medium employing businesses' and are both sourced from the EAS direct collection.

Simple small and medium employing businesses

12   The small and medium employing businesses that have simple structures (i.e. management units with one legal entity) have their data sourced from their business income tax returns.

13   There were approximately 482,000 simple small and medium employing businesses on the ABS Business Register as at June 30, 1999. Of these, 72,000 were selected to have their data sourced from their business income tax returns.

14   The selected businesses have to be matched on the business income tax files to obtain their business financial data. *With the introduction of the Australian Business Number we expect an increase in the number of records that are matched in future.* Given the complex nature of reconciling businesses on the income tax files with the ABS Business Register, a complete match for all businesses is highly unlikely in the future.

15   For matched businesses we then extract the information required from the business income files.   In an effort to produce timely data, the ABS uses business income tax files that are generated 12 months after the end of the financial year. Not all businesses would have provided their income tax returns by that date (indications are that income tax returns for 5% of businesses would still be outstanding). In addition, a proportion of businesses that are included on the ABS Business Register would not have traded for the year in question. For these, and other reasons, the ABS was able to identify 72 % of selected businesses on the ATO business income tax files. The sampling and estimation methods used by the ABS take into account selected businesses that were not able to be identified on the ATO business income tax files. *A key assumption is that a portion of these businesses did not operate.*

16   Estimates for the entire population of simply structured small and medium employing businesses (i.e. 482,000) are produced from the selected businesses.

Non-employing Businesses

17   The business income tax files include non-employing businesses, which provide a rich source of data for the non-employing sector. Most economic collections that use the ABS Business Register as a frame, including the EAS collection, exclude non-employing businesses. The business income tax files include non-employers.

18   It is not currently possible to identify all of those businesses that are not on the ABS Business Register via a matching process. *The ABS uses a set of defining characteristics (i.e. based on reported values for wages and salaries, employee*

Non-employing Businesses
continued

superannuation expenses and size of reported income and expenses) to identify non-employing businesses on the business income tax files. These characteristics, along with the industry classifications provided on the business income tax returns, are used to identify non-employing businesses for each of the selected industries.

19   It is recognised that the current set of defining characteristics means that some businesses may be included both in the population of employing businesses as well as the population of non-employing businesses. Other businesses could be excluded from both of these populations. *However, due to the criteria applied in order for a business to be classified as a non-employer, the indications are that these overlaps and gaps are not statistically significant.* The ABS will continue to review the set of defining characteristics to further reduce the effect of these overlaps and gaps on these estimates.

20   Estimates for the non-employing sector of the selected industries are produced by aggregating unit record data obtained using the above methodology.

Aggregating estimates

21   Estimates for the whole of the selected industries are produced by adding together the components for each of the business types (Employing – Large, Complex small and medium, Simple small and medium and Non-employing).

PRODUCING EAS/TAX STATE
ESTIMATES

22   The methodology for producing State estimates was implemented following the finalisation of the EAS/Tax data for 1998–99. The importance of collating these data over time for a time series analysis in the future was also taken into account.

23   The methodology used separated the EAS/Tax units into two groups. The first was those businesses identified as operating in only one State (single State businesses) and the second was those identified as operating across more than one State (multi-State businesses).   For employing businesses, an indicator present on the ABS Business Register was used to identify the multi-State businesses. The quality of this indicator could not be guaranteed due to the fact that it is not regularly updated and it was altered if more up-to-date information regarding a business's State activities was obtained from other ABS collections. *All businesses fitting the criteria of a non-employer were assumed to operate in a single State.*

24   The diagram and text following illustrates the method in which businesses were allocated to State in more detail. For employing businesses, the business counts in the diagram dissect the 63,652 EAS/Tax selections for which data was obtained (from both ABS and ATO sources). The non-employing business count is the entire non-employing population.

PRODUCING EAS/TAX STATE
ESTIMATES *continued*

	MULTI-STATE **on ABS business register***	**SINGLE STATE** **on ABS business register***
STATE PROPORTIONS OBTAINED FROM DATA REPORTED TO AN ABS COLLECTION	**Q1-**(allocated to multiple states) No of Businesses : 1,271 % contribution to Income : 32.5	**Q3-**(allocated to multiple states) No of Businesses : 678 % contribution to Income : 4.8
NO STATE PROPORTIONS AVAILABLE FROM ABS COLLECTIONS	**Q2.1-**(allocated to multiple states) **Business contacted for an estimate** (Total Income > = $100m) No of Businesses : 37 % contribution to Income : 1.5 **Q2.2-**(allocated to a single state) **Postcode used to allocate data to a State** (Total Income < $100m) No of Businesses : 574 % contribution to Income : 1.1	**Q4-**(allocated to a single state) **Postcode used to allocate data to a State** Employers No of Businesses : 61,092 % contribution to Income : 53.7 Nonemployers No of Businesses: 916,000 % contribution to Income: 6.4

* Identified using the multi-State indicator on the ABS Business Register

Single State Businesses

25 Non-employing businesses (Q4) were allocated to a single State using the mailing address postcode obtained from the ATO Income Tax files. Allocating a postcode to a State was achieved by using the latest information obtained from Australia Post. Out of the 916,000 identified non-employers, only 300 of these had illegal or missing postcodes. This remainder were allocated on a proportional basis.

26 Those employing businesses identified as only operating in one State (Q4) were allocated using their mailing address postcode on the ABS Business Register. Although other indicators are present on the Register relating to State activity, postcode is the most up-to-date indicator. In most cases, the ABS postal address is the Head Office of larger businesses or the physical location of the business for smaller and medium businesses. *An identified risk was that the mailing address is not necessarily the State in which the business operates (for instance the accountant for the business). The impact of this is not considered to be substantial.*

27 To understand the impact of using postcode as an allocator for employing businesses, it was measured against one of the other State indicators on the ABS Business Register. The effect on total income when using Postcode compared with this other State indicator was less than 0.1% for the large States and less than 0.4% for the small States. As a result, the decision to use postcode as the allocator was implemented. This decision will also ensure consistency over the longer term given the move by the ABS to the Australian Business Register which may result in the loss of other State indicators.

Multi-State businesses

28   One of the most complex issues relating to the production of State statistics is how to treat businesses that receive income or pay wages in more than one State. In the case of the EAS/Tax collection, 1,882 businesses were identified as multi-State businesses (Q1. Q2.1 and Q2.2) out of the 63,652 employing businesses. These businesses contributed 35% of Total Income at the Australian level.

29   Once these businesses were identified, dissections of both sales and wages for each business from each State were obtained and were then applied to the EAS/Tax data for that business (Q1). A variety of State based questions are already asked of businesses in ABS collections. Data from other economic based collections with similar concepts to the EAS survey were gathered to obtain information for each employing business to determine State proportions.

30   The collections used (in priority order) to obtain State proportions for Sales and Wages for employing businesses were:
- Survey of Inventories, Sales and Services (SALES);
- Retail Industry Survey (RIS);
- Wholesale Industry Survey (WIS);
- Service Industries Survey (SIS);
- Economic Activity Survey (EAS);
- Business Expectations Survey (BES); and
- Survey of New Capital Expenditure (CAPEX).

31   Due to the current EAS/Tax scope (i.e. selected service industries), no data were utilised from the detailed set of State information available from the Mining and Manufacturing ABS collections. The Survey of Employment and Earnings (SEE) was also investigated as a data source for wages proportions but the methodology employed by SEE in selecting its sample made it unsuitable for this purpose.

32   From the EAS/Tax collection approximately 63,650 employing businesses were matched to the data files of the ABS collections listed above. If matched to more than one collection, the highest priority dissection information was used. This did not mean that collections of a lower priority were seen as being less accurate but that they were less relevant to this process.

33   Identified multi-State businesses numbered 1,882. The matching process identified State dissections for 1,271 (68%). Of the matches, 44% of units were matched to the SALES collection. Approximately 19% of units matched to the WIS collection and 11% of units were matched to the RIS and EAS collections. The remaining units matched across the other collections.

34   Of the large multi-State businesses, 90% of these units were matched. Approximately 50% of the large business State dissections were matched to the SALES collection. *Some bias may be present in relation to obtaining State dissections from various ABS collections with different reporting periods, definitions and scope.* Please refer to the Explanatory notes for further information.

35   Those businesses identified as being multi-State operators which we were not able to match to ABS collections were split into two further categories (see diagram on page 28). Q2.1 were those contributing a total income greater than or equal to $100m and Q2.2 were those contributing less than $100m. An ABS investigation found $100m to be the level at which information could be allocated to the main State of operation without impacting significantly on the estimates.

Multi-State businesses
continued

36   All businesses in Q2.1 where matches were not obtained were contacted to obtain estimates of their current activity across the various States. This was a small number of businesses (37) and nearly all of these businesses had estimates of State activity at hand. This left 620 multi-State businesses contributing 2% to Total income at the Australian level for which no reported State proportions were available; these were allocated by postcode (Q2.2). Some further analysis at the State and subdivision level resulted in a small number of additional businesses being contacted for State splits to improve the quality of the estimates.

37   Sales proportions obtained for each business were used to allocate EAS/Tax total income, total expenses and OPBT data across the States for that business. Wages proportions were used to allocate labour costs.

QUALITY ASSURANCE

38   Editing on the significant contributing businesses for total income, OPBT and labour costs was then carried out at the State and Industry levels to ensure that data had been proportioned or allocated correctly. In some instances, the State of allocation was changed for single State businesses or proportions for multi-State businesses were reallocated due to these procedures. The estimates and editing procedures will be further refined over time.

Data Comparisons

39   Proportioned or single State allocated estimates for each business in the EAS/Tax collection were aggregated to industry and sub-industry levels by State for analysis and publication purposes.   State data already produced within the ABS from collections such as SALES, SEE and State Accounts were used for comparison purposes. Analysis has been carried out for division level estimates but further investigation is required for some industries. The subdivision estimates have yet to be fully scrutinised. In the main, results at the division level by State were comparable to the other sources. The ABS is continuing to investigate areas of larger discrepancy. For further detail please see the Explanatory notes on page 16.

TECHNICAL NOTE 2 SAMPLING VARIABILITY

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SAMPLING ERROR

1 Since the estimates in this publication are based on information obtained from a sample drawn from units in the surveyed population, the estimates are subject to sampling variability. That is, they may differ from the figures that would have been produced if all units had been included in the survey.

2 One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of units was included. The relative standard error (RSE) provides an immediate indication of the percentage errors likely to have occurred due to sampling, and thus avoids the need to refer to the size of the estimate. Tables 4 and 5 on pages 13–15 provide RSEs for a selection of estimates presented in this publication.

3 There are about 2 chances in 3 that the difference between the estimate shown and the true value will be within one SE, and about 19 chances in 20 that the difference will be within two SEs. Thus, for example, if the estimated value of a variable is $12,000m and its RSE is 5%, its quality in terms of sampling error can be interpreted as follows. There are about 2 chances in 3 that the true value of the variable lies within the range $11,400m to $12,600m (i.e. ± 5%), and 19 chances in 20 that it lies within the range $10,800m and $13,200m (i.e. ± 10%).

4 The EAS/Tax sample was not selected on the basis of State and this could have an impact on the size of the sampling error at State level. *To some extent, this is offset by the expanded use of income tax data which increases the sample size resulting in a much broader coverage of units for each State.*

5 The size of the RSE may be a misleading indicator of the quality of some of the estimates for operating profit before tax and therefore have been excluded from the RSE table. This situation may occur where an estimate may legitimately include positive and negative values reflecting the financial positions of different business entities. In these cases the aggregate estimate can be small relative to the contribution of individual business entities resulting in a SE which is large relative to the estimate.

NON-SAMPLING ERROR

6 The imprecision due to sampling variability, which is measured by the SE, is not to be confused with inaccuracies that may occur because of inadequacies in available sources from which the population frame was compiled, imperfections in reporting by providers, errors made in collection such as in recording and coding data, errors made in processing data and the procedures used to allocate data to State. Inaccuracies of this kind are collectively referred to as non-sampling error and they may occur in any enumeration, whether it be a full count or a sample.

7 The methodology employed to create State EAS/Tax estimates may have increased the effect of non-sampling error due to differences in definitions used by collections used to gather State dissections. ABS collections used to obtain the State proportions for multi-State businesses were not always consistent in the treatment and definition of the State based questions. In some instances, income based State proportions were based on one collection while labour cost based proportions were based on another for a particular business. The identification of businesses that operate across more than one State is the subject of an ongoing review and will be improved over time. For further details, refer to Technical note 1: Methodology and the Explanatory notes in this paper.

8 While it is not possible to quantify non-sampling error, every effort is made to reduce it to a minimum. Collection forms are designed to be easy to complete and assist businesses to report accurately. Efficient and effective operating procedures and systems are used to compile the statistics.

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NON-SAMPLING ERROR
continued

9 There are also non-sampling errors associated with the ATO business income tax file. For example, the ABS accounts for non response in the tax file by either bringing forward the previous year's data or leaving the data as zero if the business does not have an ATO history.

GLOSSARY

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Business Entities	A term used to describe the combination of business units from the Economic Activity Survey and the business units provided by the ATO. Please see Explanatory notes, paragraph 14 for further explanation.
Business Register	A list of businesses maintained by the ABS and used for creating survey frames for ABS business surveys.
Economic Activity Survey (EAS)	An annual business survey which is one of the sources of the statistics presented in this publication.
EAS/Tax	Estimates derived by combining the ABS Economic Activity Survey in respect of selected industries with business income tax data provided by the ATO.
Labour Costs	Wages and salaries plus employer contributions to superannuation funds plus workers' compensation costs.
Management Unit	This is the largest type of unit within an enterprise group which controls its productive activities and for which accounts are kept.
Multi-State businesses	Refers to those businesses with operations in more than one State.
Operating profit before tax (OPBT)	A measure of profit before extraordinary items are brought into account and prior to the deduction of income tax and appropriations to owners (e.g. dividends paid) and is broadly defined as follows.
	Total Operating Income
	less Total Operating Expenses
	less Opening Stocks
	plus Closing Stocks
	equals OPBT
Profit Margin	The percentage of operating income available as operating profit i.e.

$$\frac{OPBT \times 100}{operating\ income}$$

Selected service industries	Comprises Construction, Wholesale Trade, Retail Trade, Accommodation, Cafes and Restaurants, Transport and Storage, Communication Services, Property and Business Services, selected Health, Cultural and Recreational Services and selected Personal and Other Services.
Single State businesses	Refers to those businesses with operations in one State only.
Total operating expenses	The total expenses of a business, excluding extraordinary items.
Total operating income	The total income of a business, excluding extraordinary items.

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