

ATO Innovation Analysis: where are the jobs (changing)?

Australian Employee DATA by detailed occupation, location and year (2002-14); (plus Sole Traders)

Alternate format: [simple](#), [pretty](#).

Research agenda at my blog: [Value Management: Innovation 2.0](#) | See my other data at [Figshare](#) | Who am I? ([LinkedIn](#))

Introduction

The Australian Tax Office (ATO) has kindly [made available](#) 2014 ([open](#)) data on employees (10M, \$580B earned) and sole traders (1m, \$96B sales) across all Australia (by 100 SA4 regions). The data shows over 1,000 occupations ranging from Nurses, to Nut Growers to Policy Analysts; where they live, how many people are in that occupation, what that occupation earns in total in each of the 100 (SA4) regions of Australia. Comparison data is also available for 2010. Earlier comparisons in 2006, 2002 use a different job classification system. Further details below.

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Research Questions

- Where is the economy growing/shrinking?
- Where are jobs growing/shrinking?
- Where are average wages growing/shrinking? - in which jobs?

Data: Value Audience

Question	Audience
Where is the economy growing/shrinking?	Innovation policy makers, Government planners, Innovation academics
Where are jobs growing/shrinking?	University Recruitment, University/School Students choosing courses
Where are average wages growing/shrinking? - in which jobs?	Economists, Students

1. Where is the economy growing / shrinking?

[2. Detailed Data Description](#) | [3. Sample Data Output](#) | [4. Data Totals](#)

1.1 By region

1.1.1 Australia

(% change in job numbers)

[Data at Figshare](#) (with new 12 colour rainbow maps)

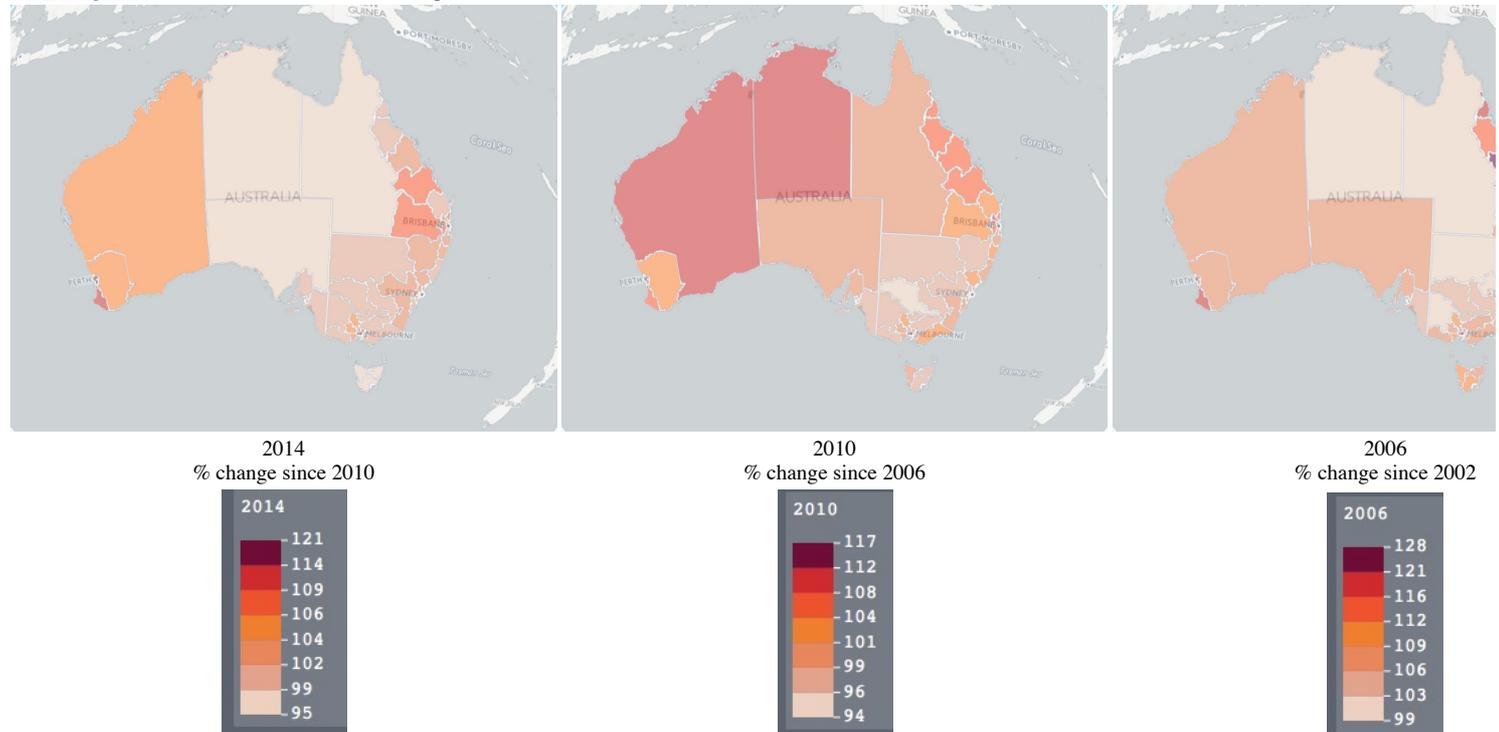


Figure 1: Aust. % Change in Employee numbers by SA4 region; 2002 - 2014.

How To To view on National Map. eg to Zoom in on Victoria
1. Save [data](#) as csv. 2. Open <http://nationalmap.gov.au>. 3. Click 'Add Data'.
4. Drag csv file onto map. 5. Click Done.
6. Select Year in control panel (lower left of screen). Raw shows count of jobs. Year shows % change from four years earlier.

1.1.2 Victoria

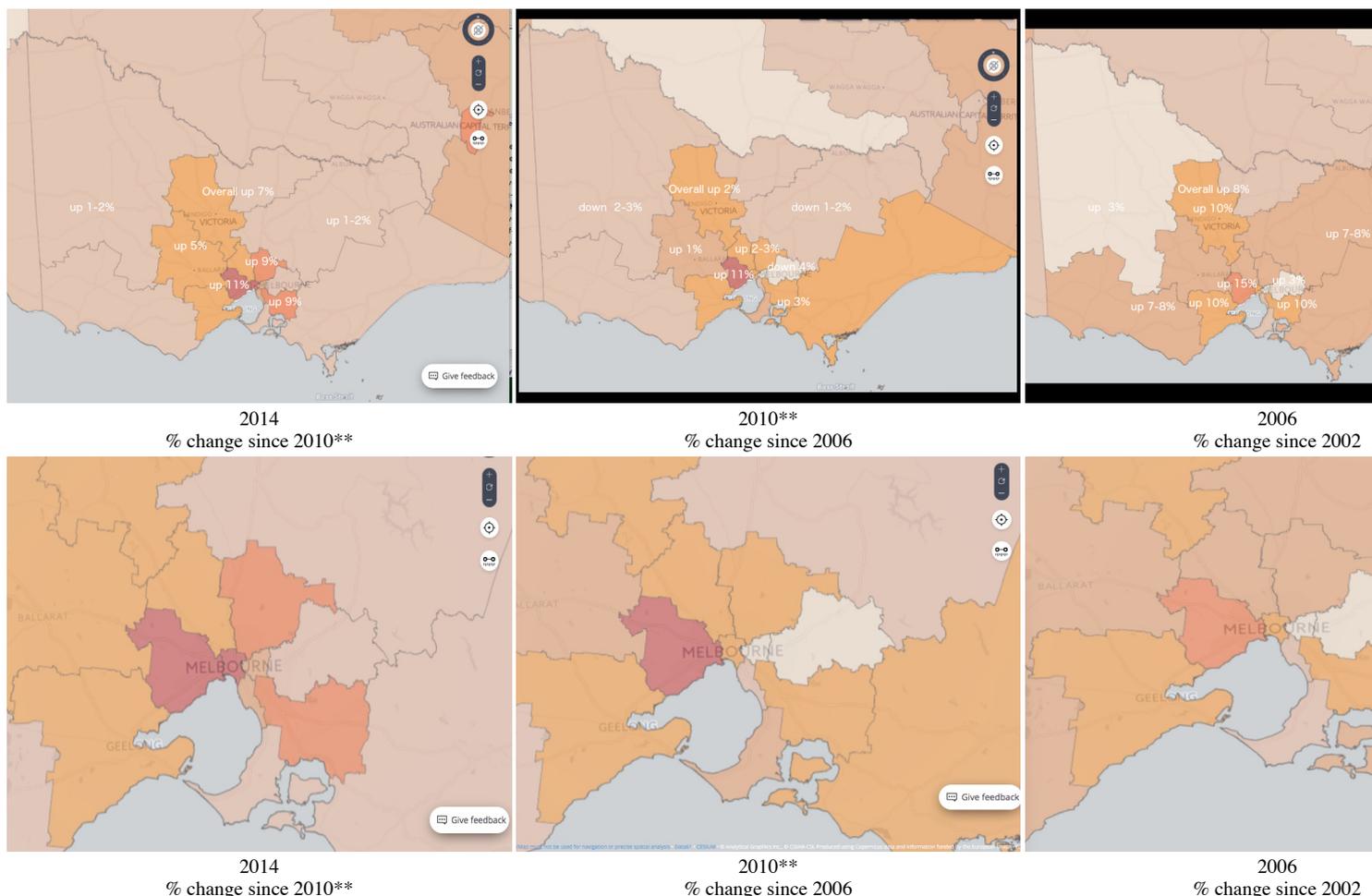


Figure 1a: Vic. % Change in Employee numbers by SA4 region; 2002 - 2014. [Data](#) (csv) at [figshare](#). Colour codes - see Figure 1 above, or click on Vic maps to zoom in for captioned regions.

NB(1):** The 2010 figures include 670,000 jobs unallocated to State, which could significantly affect some % change figures. Vic pro rata impact is 7% higher 2010, therefore 7% lower 2014 change.

Therefore 2010 up 2%, could be instead up 9%. And 2014 instead of up 7%, could be down 0%.

NB(2): See List of SA4 Regions - [abs.gov.au](#) (zip, csv) | [ABS Download](#). More on SA4 at [2.Detailed Data Description](#).

1.1.3 Changing Jobs: Total Jobs and Detailed list Occupations - Victorian Regions

SA4	Region Name	2010	2014	Detailed list of changing jobs 2010-14
201	Ballarat	59,948	63,228	Link
202	Bendigo	58,524	61,602	Link
203	Geelong	108,625	115,609	Link
204	Hume	67,997	69,938	Link
205	Latrobe - Gippsland	103,401	105,628	Link
206	Melbourne - Inner	269,332	303,625	Link
207	Melbourne - Inner East	160,003	165,150	Link
208	Melbourne - Inner South	165,209	172,576	Link
209	Melbourne - North East	194,328	211,055	Link
210	Melbourne - North West	136,204	145,251	Link
211	Melbourne - Outer East	229,713	233,918	Link
212	Melbourne - South East	285,808	313,331	Link
213	Melbourne - West	268,332	299,824	Link
214	Mornington Peninsula	112,261	115,405	Link
215	North West	58,324	60,018	Link
216	Shepparton	52,626	53,342	Link
217	Warrnambool and South West	50,761	51,275	Link
Total		2.38M	2.54M	See Other States/Terr.

Table 1.1: Victorian Count of Jobs: 2010-2014 with link to detailed breakdown. [Data](#) (csv) at [figshare](#).

NB(3): Some 160,000 2010 jobs are unallocated to SA4 region, so if distributed pro-rata would decrease 2014 gains by 7%. See more under Figure 1a.

1.1.4 All States / Territories - by SA4 Regions

All States/Terr.: [Full list](#) of all SA4 regions: Tas | WA | SA | Qld | NSW | NT | ACT - with 2010-14 job counts, and link to detailed list of changing jobs (2010-14).

1.2 By Detailed Occupation 2010 - 2014

[Full list](#) | [Data](#) (1162 lines, csv) [ordered by largest change]

Total 2014: 10.3M | Total 2010: 10.2M | 1.8M jobs affected by rising/falling occupation count. Net adds: 68,000.

Total rises: 620 occupations | Total falls: 540 occupations

Un-named occupations: about 200.

Top Ten Growing Occupations**	2010	2014	Diff
Sales Assistant (General)	235,449	273,104	37,655
Corporate General Manager	162,899	198,595	35,696
Office Manager	145,522	172,883	27,361
Primary School Teacher	121,599	147,589	25,990
Child Care Worker	73,496	92,813	19,317
Aged or Disabled Carer	103,196	121,359	18,163
Labourers nec	72,007	89,238	17,231
Program or Project Administrator	81,640	94,905	13,265
Registered Nurse (Aged Care)	29,605	42,581	12,976
Machine Operators nec	18,764	31,263	12,499

Table 1.2: Top Ten Growing Occupations

Top Ten Shrinking Occupations**	2010	2014	Diff
Practice Managers nec	131,480	73,434	68,722
General Clerk	361,094	326,118	34,976
Earthmoving Labourer	33,313	13,585	19,728
Sales Representatives nec	90,840	74,679	16,161
Nurse Practitioner	35,031	21,767	13,264
Secretary (General)	46,570	33,800	12,770
Farm	33,781	21,038	12,743
Hospitality Workers nec	40,256	28,725	11,531
Clerical and Administrative Workers nec	44,280	32,874	11,406
Checkout Operator	65,242	54,294	10,948

Table 1.3: Top Ten Shrinking Occupations NB(4)**: excludes unnamed occupations.

1.3 By Occupation Groups 2010 - 2014

Total 2014: 10.3M | Total 2010: 10.2M | 1.8M jobs affected by rising/falling occupation count. Net adds: 68,000.

[Summary by Group](#) (N=44)

[Detailed list](#) (N=1209) | [Data](#) (csv, 1209 lines) | [PDF](#)

Top 5 - Growing Major Occupations	Job Gains 2010-14
Sales Assistants	74,488
Health Professionals	50,224
Business, HR, Marketing Professionals	44,395
Carers and Aides	38,378
General Managers	33,263

Table 1.4: Top Five Major Growing Occupations

Top 5 - Shrinking Major Occupations	Job Losses 2010-14
Other Clerical	-198,864
General Clerical	-48,826
Factory Process Workers	-21,856
Personal Assistants and Secretaries	-18,191
Clerical and Office Support Workers	-15,055

Table 1.5: Top Five Major Shrinking Occupations

1.4 By Occupation - State and Terr - 2010 - 2014

[Detailed list](#) | [Data](#) (1164 line csv) - but 680k jobs in 2010 have unknown State/Terr.

TO include here is calculation...

2. Detailed Data Description:

Data Source: data.gov.au

Data Description: [data.gov.au Ideascale](http://data.gov.au/Ideascale)

Data format: Year | Occupation | Location (SA4) | Count of Workers | \$ of Workers

* **Year:** [2002, 2006, 2010, 2014]

* **Salary and Wages:** 200,000 lines

* **Sole Proprietors:** 100,000 lines

* **Occupation:** Description at [Australian Bureau of Statistics](http://www.abs.gov.au). (3,216 lines)

Search Occupation Name (in data):

e.g. Manager, Writer, Analyst, Electric, Mech. (Leave blank to see all occupations.)

* **SA4 Location** descriptions at: <http://stat.abs.gov.au/itt/r.jsp?databyregion#/>.

Select State to see SA4 regions | Click for: population, Median age | wage.

Search SA4 location (all Occupations; 2014, sort by \$) :

Search SA4 location (change in Occupations; 2010-2014) :

e.g. NSW: 101 - 128, Vic: 201 - 217, Qld: 301 - 319, SA: 401 - 407, WA: 501 - 509, Tas: 601 - 604, NT: 701, 702, ACT: 801.

See total count of jobs by SA4 at [data file](#) for National Map below.

3. Sample Data Output

- List of [Salary/Wages by Occupation: Total Sales desc](#) (2014) | [Average Wage](#) (2014) - Click Occ no. for list of Occupations
- List of [Sole Trader by Industry by Total Sales desc](#) (2014)
- Change in [Sole Trader: Count of / Sales for one Industry, over Time - 95110 Hairdressing](#) (2014)
- List of locations for 95110 Hairdressing and Beauty Services (N=30,820; Sales \$1.9B Profit \$511M; 2014).
Sample csv: [95110 Hairdressing and Beauty Services](#) to link to [National Map](#).

4.Data Totals

Year	Workers (M)	Earnings (\$B)	GDP (\$B)
2002	8.5	285	754
2006	9.4	372	998
2010	10.2	481	1298
2014	10.3	584	1590

Table 4.1: Aust. Salary and Wages 2002 - 2014.

Year	Workers (M)	Sales (\$B)	Earnings (\$B)
2002	0.9	61	13
2006	1.0	88	19
2010	1.1	112	26
2014	1.1	96	30

Table 4.2: Aust. Sole Traders Sales and Earnings 2002 - 2014.

Year	Workers (M)	NSW \$B	Vic \$B	Qld \$B	WA \$B	Other; SA, Tas, NT, ACT	Total Earnings (\$B)
SA4 code	n/a	1XX	2XX	3XX	5XX	4,6,7,8XX	n/a
2002	8.5	102	72	48	26	34	285
% of total		61%		27%		12%	
2014	10.3	185	137	115	77	70	584
% of total		55%		33%		12%	

Table 4.3: Aust. Salary and Wages 2002 - 2014; by State/Terr. ([Data](#)).

Year	Total (M)	NSW	Vic	Qld	WA	Other Subtotal; SA, Tas, NT, ACT	Other Sub; (no locn.) (M)	SA	Tas	NT	ACT
		M	M	M	M	M	M	M	M	M	M
SA4 code	n/a	1XX	2XX	3XX	4XX	4,6,7,8XX	0,9XX	4XX	6XX	7XX	8XX
2002	8.5	2.85	2.16	1.59	0.83	1.08	0.014	0.64	0.19	0.087	0.17
% of total		59%		28%		13%		7.4%	2.2%	1.0%	2.0%
2006	9.4	3.05	2.34	1.87	0.96	1.18	0.033	0.69	0.21	0.094	0.18
2010	10.2	3.03	2.38	1.95	1.03	1.18	0.670	0.68	0.21	0.105	0.18
2014	10.3	3.21	2.54	2.07	1.19	1.23	0.069	0.71	0.21	0.112	0.20
% of total		56%		32%		12%		6.9%	2.0%	1.1%	1.9%

Table 4.4: Aust. Salary and Wages (Headcount) 2002 - 2014; by State/Terr. ([Data](#)).

Major Occp'n Category	Workers (M)	Earnings (\$B)	Workers (M)	Earnings (\$B)
	2010	2010	2014	2014
1. Managers	1.1	84	1.2	104
2. Professionals	1.9	126	2.2	158
3. Technicians and Trades Workers	1.2	59	1.2	73
4. Community and Personal Service Workers	1.0	32	1.1	40
5. Clerical and Admin Workers	1.5	63	1.4	67
6. Sales Workers	0.77	23	0.80	28
7. Machine Operators and Drivers	0.60	30	0.62	38
8. Labourers	1.04	32	1.0	38
9. Not defined	1.07	33	0.8	38

% Not defined	10.4%	6.8%	7.8%	6.5%
Total	10.2	481	10.3	584

Table 4.5: Aust. Salary and Wages - Major Occupations 2010 - 2014.(Data).

NB(5): All \$\$ rise 20-25% except Clerical 7%.

NB(6): Worker Count: Mgrs/Profs/Comm's up 8-10%, Sales/Machine Ops up 3-4%, Tech'n up 1%, Clerical/Labourers down 4-7%.

NB(7): A review of 9. Not Defined noted Occupations in Major categories: 1, 8 and 9. These will need to be correctly allocated against major categories. Some Occ no.s are not appearing in Occupation listing, and will need to be manually added.

Other Data Visualisation

Mapping relative size of Sole Trader Industries; 2014

1. See relative size of [Sole Trader Industries](#) (2014); mouseover for full names.

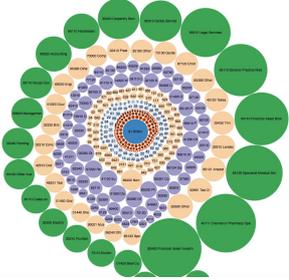


Figure 2: Bubble chart of Sole Trader Industries (2014)

Mapping change in regional job levels; 2002 - 2014

Data: percent change in jobs by location; 2006, 2010, 2014 - [Data processed for National Map](#) (csv 1k) | [Raw Data](#).

Headcount totals agree to Figure 1 above.

NB(8): Some workers not allocated to SA4 regions; not shown on map (SA4 = 0, 901, 902); 2002 - 13k, 2006 - 32k, 2010 - 670k (6.5%), 2014 - 68k (per ATO raw data).