

Public-private sector wage differentials in Australia: What are the differences by State and how do they impact GST redistribution decisions

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Abstract

This study contributes to the understanding of the public-private sector wage differentials in Australia. Using data from the 2001-2013 waves of the Household, Income and Labour Dynamics in Australia survey, we show that on average, public sector employees earn higher hourly wages than their counterparts in the private sector. This wage gap is highest in the ACT, TAS and the NT.

The Commission observes that:

“Some theories may predict wage levels will eventually equalise. However, from the perspective of HFE we are not concerned with long term equilibria, but rather, markets as they operate in given assessment years.” (CGC, Wage Costs Assessment, Staff Discussion Paper CGC 2015-03S, p. 5)

Our study provides data on the outcomes of markets as they have operated over the past decade or so.

The paper investigates how hourly wages are determined in the public and private sectors in Australia as a whole and within each state/territory. We employ the Oaxaca-Blinder decomposition to identify the two components of the average wage gap between the two sectors: an explained/composition part attributable to the differences in workers’ measured productive characteristics, and an unexplained/coefficient effect attributable to the differential wage returns to these characteristics.

Results to date find that the composition part contributes more to the public-private wage gap than the coefficient part in Australia and in each state/territory. Detailed decomposition results show which individual variables (or sets of related variables) are responsible for the wage gap between the two sectors and how these factors vary by jurisdiction.

We also examine the extent of wage dispersion (as a measure of inequality within each jurisdiction in the two sectors), and we show that the dispersion of raw/unconditional wages is larger in the private sector than in the public sector. Using a regression method, we find evidence that that this difference in wage dispersion is mainly attributable to the public-private sector differences in employees’ characteristics and that it varies by jurisdiction.

Furthermore, we examine how the public-private wage gap changed over time. We focus on two periods: 2001-2007 (pre global financial crisis) and 2008-2013 (post global financial crisis). We examine the raw wage gaps between the two sectors and also perform decompositions along the same lines as in the previous sections.

1. The data

This study uses data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, which is the first and only large-scale, nationally representative household panel survey in Australia. Starting from 2001, HILDA collects annually rich information on people's demographics, education, labour market dynamics and health status (Wooden and Watson, 2007). The wave 1 panel consisted of 19,914 individuals in 7,682 households. In wave 11 this was topped up with an additional 5,477 individuals in 2,153 households. We use the first 13 waves of HILDA from 2001 to 2013 for this analysis.

Of the 247,826 observations (pooled across all waves) in the raw data, 113,363 reported to have a job in either the public or private sector. Among them, 96,099 are employees, 5,913 are employees of own business, 10,826 are employers or self-employed workers, and 525 are unpaid family workers. We focus only on employees in this study. After dropping observations with incomplete information on variables of interest, our final sample consists of 92,373 observations for 18,275 individuals between the years 2001 and 2013.

These individuals reported to work for six different types of employers in HILDA: (1) Private sector “for profit” organisation; (2) Government business enterprise or commercial statutory authority; (3) Other commercial; (4) Private sector “not-for-profit” organisation; (5) Other government organisation, such as a public service department, local councils, schools and universities; (6) Other non-commercial. We consider (1) and (4) as the private sector, and (2) and (5) as the public sector. Those reporting employers to be (3) or (6), which only account for around 0.6% of observations, are dropped due to the insufficient information to make the distinction between the public and private sectors. In our final sample of 92,373 observations, 26% of them are public sector employees and 74% are working in the private sector.

2. Raw differences between the states/territories

Tables 1-3 show the main characteristics of the national and state/territory workforces, in total and with a comparison between the private and public sectors. The figures are computed using the HILDA and are weighted in order to provide population representative statistics. For Australia, the average public sector hourly pay is \$6.27 higher than for the private sector. This wage gap is highest for the NT and ACT (respectively \$13 and \$8.7) and lowest, by a substantial margin, for VIC (\$4.77). When looked at in absolute terms, SA, TAS and QLD pay their public sector workers the lowest average pay and ACT pays the highest (\$39.62 compared with \$31.22 for SA). Four states (VIC, QLD, SA and TAS) have very similar average pay, within the range \$31.22 to \$32.02. Three other jurisdictions (NSW, WA and NT) have average pay that lies within the range \$34.53 to \$36.48¹.

We have chosen a set of worker characteristics that both theory and the literature suggest affect individual productivity, and hence pay. We are aware that these are not a comprehensive account of the sources of productivity differences between workers. As we show in the wages regression below, we explain about one third of the variance in wages. Nonetheless, they represent important and quantifiable indicators of individual productivity and are widely used as such in the literature.

The tables show how the workforces of the states/ territories align on these characteristics. For every jurisdiction, public sector workers are older on average than private sector workers, by 6-7 years. For Australia as a whole, half of the employee workforce is female. But in all jurisdictions other than the ACT, a majority of up to 62 per cent (Vic) was female in the public sector. The public sector workforce is more highly educated: for Australia, 28 per cent of the private sector employees had year 11 or less as their highest qualification compared with 13 per cent for the public sector. The comparable figures for university graduates are 21 per cent and 46 per cent: that is, almost half of public sector employees are graduates compared with a fifth for the private sector. The ACT, at 59 per cent, has the highest proportion of public sector graduates (this compares with 31 per cent in the ACT private sector), followed by Vic at 50 per cent (23 per cent in the private sector). While there are not large differences between the public and private sectors in the proportion of the workforce that has a long term health

¹ The ABS provides measures of the average weekly earnings (AWE) distinguishing between private and public sector. Some differences are expected to arise between the ABS and the HILDA measures since they are obtained through different surveys and methodologies. The ABS figures are obtained from a survey of 5,500 employers where the weekly earnings are derived from estimates of both the weekly total earnings and the total number of employees. In contrast, the HILDA figures presented used in this study are reported hourly wages (and hours worked) from a sample of over 18,000 people interviewed repeatedly over 13 years. Making both surveys comparable in terms of weekly earnings, we observe that the average wage differences between private and public sector (referred to as 'raw gap' henceforth) are quite similar (respectively 19.9% using the ABS data and 18.3% using HILDA).

condition, or is born overseas, there are larger differences between the jurisdictions. It is notable that in the ACT, 37 per cent of public sector employees are born overseas. This compares with 24 per cent for Australia. Finally, public sector employees have much longer tenure (9.8 years on average in Australia) than do private sector workers (4.8 years). In WA and the NT, the difference is respectively 6.1 and 7.8 years. Public sector workers are also much more likely to be union members and to be married than their private sector counterparts.

We have highlighted the characteristics that are both different between the public and private sector workforces, and likely to affect wages. The fact that public sector workers are more highly educated, older, have longer tenure, are more likely to be married and be union members, suggests that they will have higher wages. The only countervailing factor is that they are also more female.

Table 1: Summary statistics (Australia, NSW and VIC), Population weighted

	Australia			NSW		VIC	
	All	Public	Private	Public	Private	Public	Private
Hourly wage	28.69	33.46	27.19	34.53	28.02	32.00	27.23
Log (wage)	3.23	3.42	3.16	3.46	3.19	3.38	3.17
Age	37.31	42.05	35.82	42.92	35.87	41.82	35.85
Male	0.52	0.43	0.55	0.43	0.57	0.41	0.54
Below year 11	0.24	0.13	0.28	0.14	0.26	0.12	0.26
Year 12	0.19	0.12	0.21	0.11	0.19	0.13	0.22
Certificate	0.21	0.17	0.22	0.18	0.21	0.14	0.20
Diploma	0.09	0.12	0.08	0.11	0.09	0.11	0.09
University	0.27	0.46	0.21	0.47	0.25	0.50	0.23
Never married	0.32	0.19	0.37	0.19	0.38	0.22	0.38
Married/widowed	0.60	0.73	0.56	0.73	0.55	0.70	0.55
Separated/divorced	0.07	0.08	0.07	0.08	0.07	0.08	0.07
Family size	3.21	3.11	3.24	3.12	3.32	3.14	3.27
Union member	0.27	0.52	0.19	0.62	0.19	0.47	0.21
Long term health condition	0.15	0.16	0.14	0.17	0.13	0.17	0.14
Born overseas	0.24	0.21	0.25	0.22	0.32	0.21	0.25
Major city	0.72	0.68	0.73	0.73	0.78	0.72	0.81
Job tenure	6.04	9.82	4.85	10.54	4.93	9.25	5.09

Table 2: Summary statistics (QLD, SA and WA), population weighted

	QLD		SA		WA	
	Public	Private	Public	Private	Public	Private
Hourly wage	32.02	26.04	31.22	24.81	34.92	28.90
Log (wage)	3.39	3.13	3.35	3.10	3.44	3.20
Age	41.05	35.79	40.96	36.27	42.49	35.39
Male	0.45	0.55	0.42	0.53	0.44	0.55
Below year 11	0.16	0.31	0.11	0.31	0.16	0.27
Year 12	0.12	0.21	0.13	0.22	0.13	0.22
Certificate	0.20	0.26	0.19	0.25	0.15	0.23
Diploma	0.12	0.08	0.17	0.07	0.12	0.07
University	0.40	0.15	0.40	0.16	0.44	0.20
Never married	0.16	0.33	0.21	0.37	0.19	0.38
Married/widowed	0.75	0.59	0.72	0.55	0.71	0.57
Separated/divorced	0.08	0.08	0.08	0.08	0.10	0.06
Family size	3.16	3.15	2.98	3.13	3.05	3.23
Union member	0.57	0.18	0.42	0.21	0.42	0.18
Long term health condition	0.14	0.14	0.21	0.19	0.13	0.14
Born overseas	0.13	0.19	0.18	0.18	0.27	0.27
Major city	0.55	0.58	0.75	0.77	0.76	0.76
Job tenure	9.37	4.45	9.52	5.54	10.40	4.25

Table 3: Summary statistics (TAS, NT and ACT), population weighted

	TAS		NT		ACT	
	Public	Private	Public	Private	Public	Private
Hourly wage	31.74	23.68	36.48	23.39	39.62	30.89
Log (wage)	3.39	3.06	3.50	3.06	3.61	3.23
Age	42.57	37.06	45.09	35.93	40.66	32.81
Male	0.38	0.53	0.36	0.53	0.56	0.52
Below year 11	0.18	0.41	0.10	0.41	0.06	0.24
Year 12	0.06	0.17	0.15	0.20	0.11	0.26
Certificate	0.15	0.23	0.10	0.15	0.14	0.11
Diploma	0.11	0.06	0.21	0.09	0.10	0.08
University	0.50	0.13	0.44	0.15	0.59	0.31
Never married	0.12	0.31	0.19	0.29	0.16	0.41
Married/widowed	0.76	0.60	0.67	0.58	0.79	0.55
Separated/divorced	0.13	0.09	0.15	0.13	0.06	0.04
Family size	3.07	3.01	3.19	3.26	3.03	3.30
Union member	0.59	0.25	0.36	0.12	0.35	0.13
Long term health condition	0.20	0.19	0.18	0.11	0.16	0.14
Born overseas	0.11	0.07	0.38	0.35	0.37	0.27
Major city	0.00	0.00	0.00	0.00	1.00	1.00
Job tenure	9.70	6.08	11.33	3.49	8.41	3.34

3. Estimations and decompositions of the hourly pay

Table 4 presents the estimation results for log hourly wages in Australia, first for all paid employees and then for each of the public and the private sectors separately. The regression identifies those individual worker characteristics that have a significant association with the wage paid, and estimates the size of this association. The choice of a parsimonious model (that is, a model that includes few and carefully chosen core human capital variables) serves to provide a statistically robust analysis of the wage gaps between the public and private sectors.²

Table 4: Regression results for Australia: dependent variable is real log hourly wage

	Public+Private		Public		Private	
	Coef.	SE	Coef.	SE	Coef.	SE
Public sector	0.06***	(0.01)				
Age	0.05***	(0.00)	0.03***	(0.00)	0.05***	(0.00)
Agesq/100	-0.05***	(0.00)	-0.03***	(0.00)	-0.05***	(0.00)
Male	0.14***	(0.01)	0.11***	(0.01)	0.15***	(0.01)
Education (reference: year 11/below)						
Year 12	0.15***	(0.01)	0.17***	(0.02)	0.15***	(0.01)
Certificate	0.14***	(0.01)	0.12***	(0.02)	0.14***	(0.01)
Diploma	0.23***	(0.01)	0.25***	(0.02)	0.22***	(0.01)
University	0.41***	(0.01)	0.38***	(0.02)	0.42***	(0.01)
Marital status (reference: never married)						
Married/ Widowed	0.14***	(0.01)	0.10***	(0.01)	0.14***	(0.01)
Separated/ Divorced	0.05***	(0.01)	0.07***	(0.02)	0.04***	(0.01)
Family size	-0.02***	(0.00)	-0.01***	(0.00)	-0.02***	(0.00)
Union member	0.05***	(0.01)	0.01	(0.01)	0.07***	(0.01)
Long term health condition	-0.07***	(0.01)	-0.05***	(0.01)	-0.08***	(0.01)
Born overseas	-0.02***	(0.01)	-0.00	(0.01)	-0.03***	(0.01)
Living in a major city	0.08***	(0.01)	0.07***	(0.01)	0.08***	(0.01)
Tenure on the current job/100	0.48***	(0.05)	0.43***	(0.06)	0.56***	(0.07)
Wave (reference: Wave 2001)						
Wave 2002	-0.00	(0.01)	0.02**	(0.01)	-0.01	(0.01)
Wave 2003	0.01*	(0.01)	0.02**	(0.01)	0.01	(0.01)
Wave 2004	0.02***	(0.01)	0.03***	(0.01)	0.02***	(0.01)
Wave 2005	0.04***	(0.01)	0.04***	(0.01)	0.04***	(0.01)
Wave 2006	0.05***	(0.01)	0.07***	(0.01)	0.04***	(0.01)
Wave 2007	0.10***	(0.01)	0.09***	(0.01)	0.09***	(0.01)
Wave 2008	0.10***	(0.01)	0.11***	(0.01)	0.09***	(0.01)
Wave 2009	0.12***	(0.01)	0.15***	(0.01)	0.11***	(0.01)
Wave 2010	0.13***	(0.01)	0.16***	(0.01)	0.12***	(0.01)
Wave 2011	0.13***	(0.01)	0.16***	(0.01)	0.12***	(0.01)
Wave 2012	0.14***	(0.01)	0.15***	(0.01)	0.13***	(0.01)
Wave 2013	0.14***	(0.01)	0.15***	(0.01)	0.13***	(0.01)
Constant	1.84***	(0.03)	2.25***	(0.06)	1.78***	(0.03)

² The HILDA is a very rich data set and contains much further information which is associated with wages. However, the use of a large number of explanatory variables does not add much more explanatory value to the model after the core human capital variables have been included. Further, since the focus of the analysis is on the combination of States and sector, the limited number of observations available for Tasmania and the Northern Territory could be problematic.

	Public+Private		Public		Private	
	Coef.	SE	Coef.	SE	Coef.	SE
Observations	92,373		23,652		68,721	
R-squared	0.35		0.25		0.34	

Note: ***denote statistical significance at $p < 0.01$, ** at $p < 0.05$, and * at $p < 0.1$. The dependent variable is the natural log of real hourly wages in \$2013.

The regression of hourly wages against a range of explanatory factors is the mainstay of our analyses, hence we need to look at the results in Table 4 carefully, noting that Table 4 estimates are Australia-wide averages. The overall explanatory power of the estimations is between 25% for the private sector, 34% for the public sector and 35% for all paid employees in Australia. This is satisfactory and in line with the explanatory power found in the national and international literature. The first point to note is that, for workers with the same observed productivity characteristics, public sector workers receive a 6% higher wage than their private sector counterparts.

An additional year of age is associated with an average of 5% higher wages over the life cycle of Australians. The low value of the quadratic term (Agesq) suggests that this increase slows down only marginally as workers get closer to retirement³. The age-related wage progression is more pronounced in the private sector, at 5% against only 3% in the public sector, while the *rate of pay progression* with age also slows more rapidly in the private sector. This means that younger workers are paid relatively well in the private sector while older workers are paid relatively well in the public sector. Men are paid about 14% more than their women comparators, the difference being 11% in the public and 15% in the private sector.

Educational qualifications are associated with higher pay. In comparison with those employees whose highest attainment is Year 11 or below, those with Year 12 are paid 15% more, Certificate III and IV holders 14% more, Diploma holders 23% more and University graduates 41% more. There do not appear to be any pronounced differences between the way the private and public sectors reward qualifications. Those in stable relationships (presently married or widowed) enjoy higher earnings than singles or those in other relationships. A larger family size is associated with marginally lower pay. Union membership has no significant effect on pay in the public sector and is associated with 7% higher pay in the private sector. We note that the public sector union membership coefficient is one of the few coefficients that do not reach any statistical significance in these regressions. A long term health condition comes with a 7% lower pay (5% in the public and 8% in the private sector) and having been born overseas comes with 3% lower pay, but only in the private sector. Those who live in a major city

³ Besides providing useful information about the relationship between wages and age, including age in the models (and allowing for possible non-linearity of age through the use of a quadratic form) allows to correct for potential bias related to the ageing sample.

are paid 8% more than those who do not, with no discernible difference between public and private sector pay. Tenure on the job is rewarded with a 0.43% higher pay for each year in the public sector and 0.56% for the private sector. The Wave indicators show the general rise of (real) wages in Australia in the last decade: to illustrate, the coefficient of 0.14 on Wave 2013 for Australia says that the real value of the average wage in 2013 was 14% higher than in 2001. The Wave indicators can also be used to show the differences between how public and private sector pay responded to the GFC. In the six years from 2001 to 2007, when economic growth was strong prior to the GFC, average real wages rose by 9%. In the six years after the GFC, real wages rose by only 4%. Public and private sector wages rose at the same pace (by 9%) up to 2007. But post GFC, the momentum of public sector pay rises continued longer than that of the private sector. By 2011, public sector pay had increased by 7% from 2007 levels but private sector pay had risen by only 3%. There was little growth in real pay in either sector in the two years after 2011. On this evidence, private sector pay responded more rapidly to the sharp slowdown in the economy after 2007 than did public sector pay, but the public sector did eventually slow down to match the private sector rates of growth (though at a higher level because of the delay in the slowdown). The experience by jurisdiction is in the appendix. It is important not to over-interpret the detail, and overall a similar pattern is apparent for the individual states. But the resources states of WA and Qld are a little different. They had rapid growth in private sector wages prior to the GFC, and above average public sector wage growth. WA in particular retained the public sector wage momentum up to 2011 (a 10% growth) as its private sector pay growth slowed—to 4%. The ACT is the big exception, with no growth in public sector pay from 2008-2011.

4. Hourly pay decompositions: Estimation results

Regression estimation results are used in order to produce the decompositions shown in Table 5 for the hourly pay of all Australians in paid employment between 2001 and 2013. The decomposition calculates the gap in hourly pay between the public and private sectors. It then estimates what portion of this gap is attributable to the different qualities (as set out in Table 1) of the two workforces and what portion is attributable to the fact that the same qualities are rewarded with different rates of pay in the public and the private sectors (the ‘premium’ or ‘coefficient effect’). The first column shows the Australia-wide results for benchmarking purposes. The remaining columns are each based on separate estimations performed using the State/Territory specific sample (detailed decomposition results are in the Appendix).⁴

Table 5: Public-Private pay gap – overall decomposition, 2001-2013

	Australia	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Public sector									
Log average pay	3.43	3.47	3.39	3.38	3.36	3.44	3.40	3.51	3.61
Private sector									
Log average pay	3.17	3.20	3.18	3.12	3.10	3.21	3.06	3.18	3.19
Total gap	0.26***	0.27***	0.20***	0.26***	0.26***	0.23***	0.34***	0.33***	0.41***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.03)	(0.02)
	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]
Composition	0.22***	0.24***	0.19***	0.23***	0.18***	0.21***	0.25***	0.094**	0.31***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.04)	(0.02)
	[85%]	[89%]	[95%]	[88%]	[69%]	[91%]	[74%]	[28%]	[76%]
Premium	0.042***	0.033***	0.017**	0.039***	0.075***	0.025*	0.087***	0.24***	0.099***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.05)	(0.03)
	[15%]	[11%]	[5%]	[12%]	[31%]	[9%]	[26%]	[72%]	[24%]
Observations	92,373	27,031	23,152	19,807	8,060	8,390	2,813	863	2,257
Public sector	23,652	6,913	5,482	4,787	2,045	2,009	775	389	1,252
Private sector	68,721	20,118	17,670	15,020	6,015	6,381	2,038	474	1,005

Note: *** p<0.01, ** p<0.05, * p<0.1. The statistical tests show a) that the total public/private sector pay gap is significantly different from zero for all jurisdictions and b) that both the composition of the workforces and the premium paid make a statistically significant contribution to the pay gap. The ratios of effects over raw gaps are reported in squared brackets.

⁴ Before we examine Table 5 in detail, we should note the small sample sizes used for the Northern Territory and the Tasmanian estimates. Estimates should be interpreted with caution, especially for the NT. The ACT estimates are also based on a small sample, but the fact that the sample is split almost 50/50 between the two sectors in the ACT, partly alleviates the problem, as neither sector has a very small sample size.

The total pay gap is 26 log points for the whole of Australia, with State and Territory differences as shown in the Total Gap Row in Table 5. The small jurisdictions of TAS, NT and ACT have the highest pay gaps while VIC has the lowest. The differences are large. The ACT pays its average public sector worker 41 log points more than the average ACT private sector worker, while in Vic the public sector pay gap is half that at 20 log points (see Tables 1-3 for the absolute values and –Box 1 for the definition of log points). The pay gap for the other jurisdictions (NSW, QLD, WA, SA) are similar to each other and to the national average.

Figures 1 and 2 give an illustration of the above decomposition results. Figure 1 reports the absolute values of the composition and ‘premium’ components of the log wage differences between public and private sector in each State. Figure 2 gives a clearer illustration of the relative difference between the two components after normalising the log wage difference to 1 for each State. Hence, in the second figure we see the relative contribution of the ‘composition’ and ‘premium’ effects.

Figure 1: Estimated composition and ‘premium’ effects in the difference between public and private hourly wages (in natural logs) by State; Absolute differences

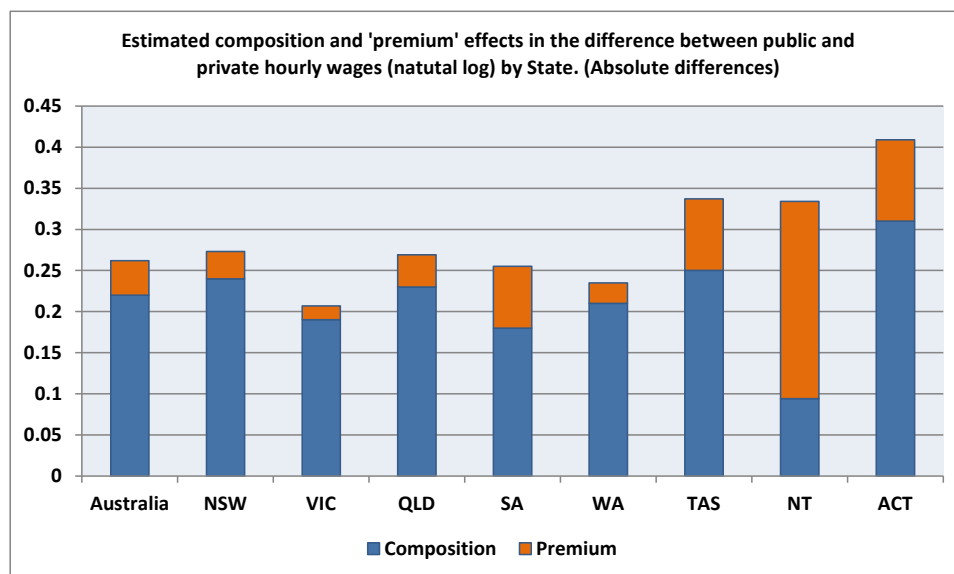
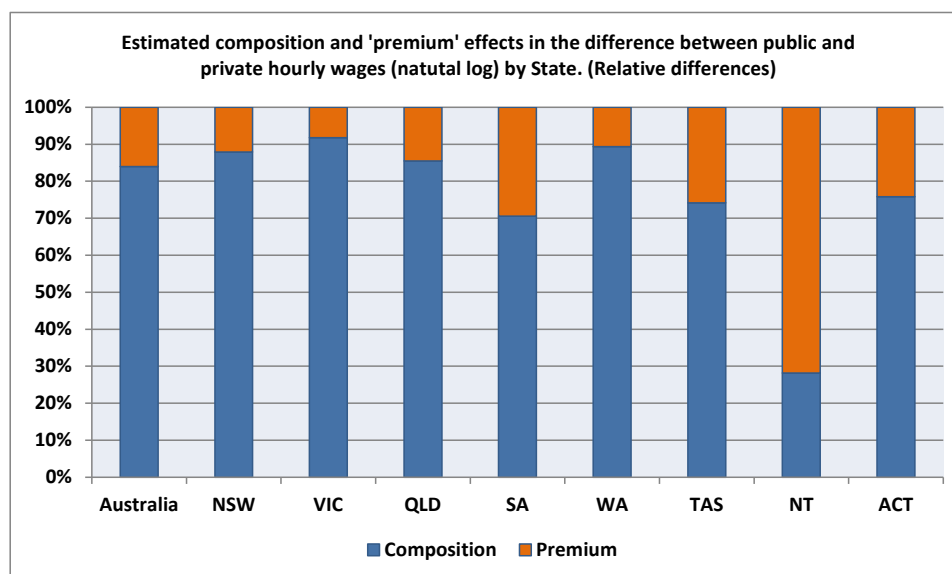


Figure 2: Estimated composition and 'premium' effects in the difference between public and private hourly wages (in natural logs) by State; Absolute differences



The Composition estimate measures the degree to which the (positive) public-private pay gap is due to higher human capital characteristics within the public sector. The overall positive and large composition estimate suggests that the public sector workers in Australia possess human capital of higher market value than their private sector counterparts. This difference amounts to approximately 22 log points higher public sector pay on average in Australia. Above average are NSW, QLD, TAS and ACT (at 24, 23, 25 and 31 log points respectively) and below average are VIC, SA, WA and NT (at 19, 18, 21 and 9 log points respectively). We note that despite the very small NT sample size, the 9 log points estimate is statistically significant at the 5% level. The NT result agrees with anecdotal evidence that suggests there are significant problems in attracting highly qualified public sector workers in the Territory.

The Premium estimate measures the degree to which the public sector pays higher wages than the private sector without receiving commensurate higher quality (observed) human capital. The average premium for Australia is estimated at 4.2 log points, which is close to the 6% public sector pay premium estimated in Table 4. The main outliers in these estimates are the NT with a premium of 24 log points and then ACT, TAS and SA with 9.9, 8.7 and 7.5 log points respectively. The lowest public sector pay premium is offered by VIC at 1.7 followed by NSW at 3.3 and QLD at 3.9. If we leave aside the distinctive feature of the ACT public sector, then it is plausible to suggest that there are two external factors that lead to a relatively high public sector premium. One is remoteness (NT). The other is a relatively low private sector pay (SA and TAS), which makes it harder to attract and retain constant quality workers. We note that the public sector has a particularly high proportion (45%) of professionals (especially education and health) in its workforce compared with the private sector (16%). These professionals are likely to be geographically mobile, in a way that means that individual states are competing with each

other as much as or more than with the private sector to recruit and retain them. Table 6 shows that the jurisdictions with above average private sector pay have a below average public sector premium and conversely for the states with below average private sector pay.

Table 6: Private sector pay and public sector premium

Jurisdiction	Private sector pay (\$) (sample based)	Public sector premium over private pay, log points	Public sector pay (\$) (sample based)
Australia	27.32	.042	33.68
WA	28.98	.025	35.07
NSW	28.52	.033	35.15
Vic	27.98	.017	32.33
QLD	25.62	.039	31.98
SA	24.83	.075	31.39
Tas	23.45	.087	32.00
NT	26.56	.24	36.55
ACT	29.61	.099	39.50

Note: Rows WA, NSW, Vic, QLD, SA, Tas are ordered with the highest private sector pay at the top (WA at \$28.98) and the lowest at the bottom (Tas at \$23.45).

The jurisdictions have been listed in order of their level of private sector pay (leaving the NT and ACT to the end, as we think they are special cases). WA, NSW and Vic each have above average private sector pay and a below average public sector premium. SA and TAS have private sector wages that are well below the national average and public sector premiums that are well above the average. The only state that does not fit this pattern is QLD, with below average private sector wages and below average public sector premium. The correlation between the private sector pay and the public sector premium is 0.89. The two states with the lowest private sector wages (SA and TAS) also have the lowest public sector wages and by far the highest public sector premium.

Table 6 provides some evidence that the states are competing in a national market for their public sector workers and cannot diverge too much from the national norms as they all need very similar and specific types and quality of workers. The view that the higher public sector premium in the low wage states is a result of the need to compete, rather than of just of excessive generosity, is supported by the fact that in these states the average public sector pay is also relatively low. Those states that have the lowest private sector wages also have the lowest public sector wages. The NT stands out as having both a relatively high public sector premium and a relatively high average public sector pay, even though its private sector pay is below average.

Inclusion of occupation as an explanatory variable in the wage regressions

The public and private sectors have quite different types of workforces when examined by the level of occupation. Table 7 shows the occupational distribution at the most aggregated (1 digit) level for the national public and private sectors.

Table 7: Distribution of Australian public and private sector employees by occupation

Occupation	Public sector %	Private sector %
Manager	8.3	10.8
Professionals	45.0	16.1
Technicians and trades	6.6	14.7
Community, personal service	15.5	9.7
Clerical and admin	17.3	15.6
Sales	1.00	13.7
Machinery operators, drivers	2.5	7.4
Labourers	4.0	12.0

Source: HILDA data.

The outstanding difference between the two sectors is the high proportion of professionals and the low proportion of the bottom three categories (which are broadly ranked by skill level) in the public sector. It is clear from this simple table why on average public sector pay is higher than private sector pay—it employs a higher skilled workforce.

In our regressions we account for the different skill levels in the two workforces by reference to their different levels of qualification. There is an argument that the qualification levels have a diversity within them of distinct skills and ability, so that they are only a broad proxy for the level of human capital. For this reason, there can be an argument that wage regressions should also include level of occupation. The argument against this is that qualification and occupation are correlated, hence the independent effects of each are difficult to identify, and there is no theoretical reason why a given level of qualification should be differently rewarded in different occupations. In our view it is better not to include occupation in our wage regressions—both the total and the decomposition. But for the benefit of the reader, we replicate Table 4, but in this case include occupation as an explanatory variable. Table 8 below shows that the inclusion of occupation increases the overall explanatory power of the regression (but only marginally), while the strength of the associations of qualifications, tenure and other relevant variables is reduced.

Table 8: Regression results for Australia: dependent variable is real log hourly wage

	Public+Private		Public		Private	
	Coef.	SE	Coef.	SE	Coef.	SE
Public sector	0.04***	(0.01)				
Age	0.04***	(0.00)	0.03***	(0.00)	0.04***	(0.00)
Agesq/100	-0.04***	(0.00)	-0.03***	(0.00)	-0.05***	(0.00)
Male	0.14***	(0.01)	0.12***	(0.01)	0.14***	(0.01)
Education (reference: year 11/below)						
Year 12	0.12***	(0.01)	0.10***	(0.02)	0.12***	(0.01)
Certificate	0.12***	(0.01)	0.09***	(0.02)	0.12***	(0.01)
Diploma	0.16***	(0.01)	0.16***	(0.02)	0.15***	(0.01)
University	0.27***	(0.01)	0.22***	(0.02)	0.29***	(0.01)
Marital status (reference: never married)						
Married/ Widowed	0.12***	(0.01)	0.10***	(0.01)	0.12***	(0.01)
Separated/ Divorced	0.05***	(0.01)	0.07***	(0.02)	0.04***	(0.01)
Family size	-0.01***	(0.00)	-0.01***	(0.00)	-0.01***	(0.00)
Union member	0.06***	(0.01)	0.02**	(0.01)	0.08***	(0.01)
Long term health condition	-0.07***	(0.01)	-0.05***	(0.01)	-0.07***	(0.01)
Born overseas	-0.00	(0.01)	0.01	(0.01)	-0.01	(0.01)
Living in a major city	0.07***	(0.01)	0.07***	(0.01)	0.06***	(0.01)
Tenure on the current job/100	0.35***	(0.05)	0.30***	(0.06)	0.42***	(0.07)
Occupation (reference: Managers)						
Professionals	-0.01	(0.01)	-0.09***	(0.01)	0.02	(0.01)
Technicians and Trades Workers	-0.19***	(0.01)	-0.26***	(0.02)	-0.17***	(0.01)
Community and Personal Service Workers	-0.23***	(0.01)	-0.29***	(0.02)	-0.23***	(0.01)
Clerical and Administrative Workers	-0.14***	(0.01)	-0.22***	(0.02)	-0.13***	(0.01)
Sales Workers	-0.26***	(0.01)	-0.27***	(0.03)	-0.24***	(0.01)
Machinery Operators and Drivers	-0.20***	(0.01)	-0.33***	(0.03)	-0.18***	(0.02)
Labourers	-0.31***	(0.01)	-0.44***	(0.03)	-0.29***	(0.01)
Wave (reference: Wave 2001)						
Wave 2002	-0.00	(0.01)	0.02**	(0.01)	-0.01*	(0.01)
Wave 2003	0.01**	(0.01)	0.03**	(0.01)	0.01	(0.01)
Wave 2004	0.02***	(0.01)	0.03***	(0.01)	0.02**	(0.01)
Wave 2005	0.04***	(0.01)	0.05***	(0.01)	0.04***	(0.01)
Wave 2006	0.05***	(0.01)	0.08***	(0.01)	0.05***	(0.01)
Wave 2007	0.09***	(0.01)	0.10***	(0.01)	0.09***	(0.01)
Wave 2008	0.09***	(0.01)	0.11***	(0.01)	0.09***	(0.01)
Wave 2009	0.12***	(0.01)	0.16***	(0.01)	0.10***	(0.01)
Wave 2010	0.13***	(0.01)	0.17***	(0.01)	0.12***	(0.01)
Wave 2011	0.13***	(0.01)	0.16***	(0.01)	0.12***	(0.01)
Wave 2012	0.14***	(0.01)	0.16***	(0.01)	0.13***	(0.01)
Wave 2013	0.14***	(0.01)	0.16***	(0.01)	0.13***	(0.01)
Constant	2.14***	(0.03)	2.56***	(0.06)	2.07***	(0.03)
Observations	92,328		23,634		68,694	
R-square	0.38		0.29		0.37	

Note: ***denote statistical significance at $p < 0.01$, ** at $p < 0.05$, and * at $p < 0.1$. The dependent variable is the natural log of real hourly wages, in \$2013

5. The GFC and the public-private pay gap

The GFC in 2008 caused a large adverse shock to the Australian economy. This was followed by first the peak and then the decline of investment in the resources sector and the prices it received for its product. The strong growth in the resources sector was concentrated in WA and QLD. These shocks, therefore, provide a strong empirical basis on which to explore a) whether there were factors external to State policy decisions that cause states to have to pay different wages for equivalent quality workers and b) whether these factors apply equally to the public and private sectors.

In interpreting the changes we see between the two periods, we need to be alert to the fact that the shocks are superimposed on trend changes. The pooled HILDA data that we are using reflects both. Two key trend changes are the aging of the workforce and the rising average levels of education. Table 7 shows how the main human capital variables differ in the two periods for the two sectors.

Table 7: Summary statistics by sector and period, population weighted

	2001-2007			2008-2013		
	Public	Private	Difference	Public	Private	Difference
Age	41.44	35.19	6.24	42.64	36.45	6.20
Proportion Male	0.45	0.55	-0.11	0.42	0.55	-0.13
Qualification:						
Year 11 or below	0.16	0.31	-0.15	0.11	0.24	-0.14
Year 12	0.12	0.21	-0.09	0.11	0.21	-0.09
Certificate	0.15	0.21	-0.06	0.18	0.23	-0.05
Diploma	0.12	0.08	0.03	0.12	0.09	0.03
University	0.44	0.19	0.26	0.48	0.23	0.25
Years of schooling	13.28	12.04	1.23	13.52	12.38	1.14
Job tenure	9.71	4.61	5.10	9.93	5.08	4.85

In the second period, both the public and private sector employees are older and have longer tenure. But most striking is the decline in the proportion of employees whose highest qualification is Year 11 or below—from 16% to 11% in the public sector and from 31% to 24% in the private sector. The proportion of graduates has risen by 4 percentage points in each sector. We cannot properly distinguish the trend from the shock effects, but overall, the differences in the human capital of the two sectors has narrowed somewhat. The human capital of both sectors has risen, but that of the private sector has risen faster than that of the public sector. The largest relative gains are in years of schooling and job tenure (the latter probably caused by a greater decline in the rate of hiring in the private sector).

Tables 8 and 9 split the decomposition estimations presented earlier in Table 5 between pre- and post-GFC by State and Territory. The public-private sector pay gap was almost the same in both periods, for

Australia as a whole—at 26 and 27 log points. The decomposition however, shows that there was considerable change in the causes of the pay gap. The contribution to the Australia-wide pay gap made by the higher levels of human capital of public sector employees was reduced (from 23 to 21 log points) while the premium the public sector paid for its employees doubled (from 3 to 6 log points).

The following Figure 3 summarises and illustrates the results displayed in Tables 8 and 9. We display the composition and ‘premium’ effects in the differences between public and private sectors by State, pre and post GFC. Since we display the absolute values, the figure also shows the extent to which the total pay gaps between the two sectors have changed pre and post GFC.

Figure 3: Estimated components of the public and private log hourly wage gaps by State pre and post GFC

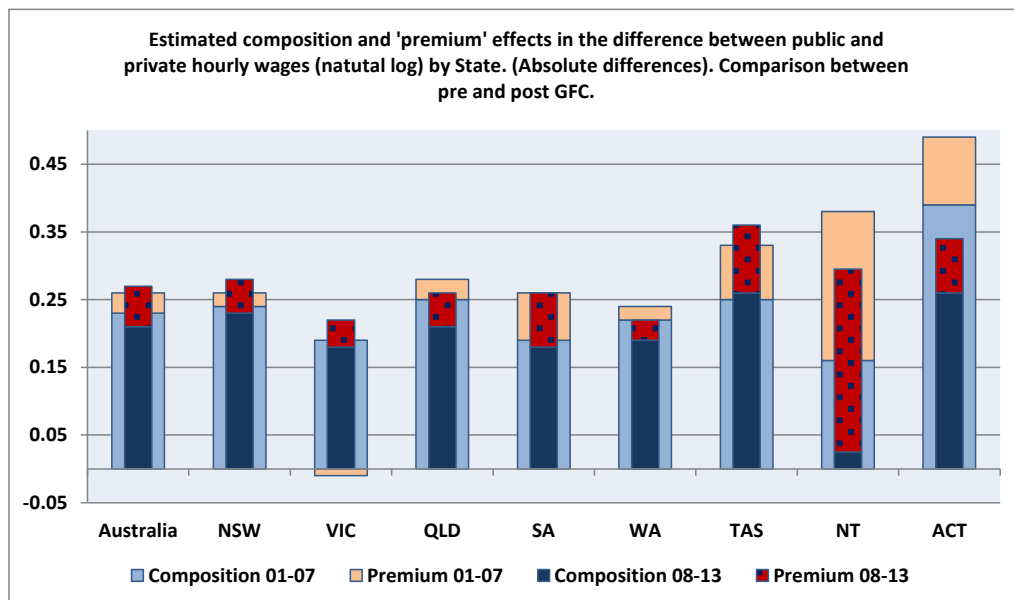


Table 8: Public-Private pay gap – overall decomposition, 2001-2007 (pre-GFC)

	Australia	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Public sector									
Log pay	3.37	3.42	3.33	3.32	3.29	3.36	3.34	3.45	3.55
Private sector									
Log pay	3.11	3.16	3.15	3.04	3.04	3.12	3.01	3.07	3.06
Total gap	0.26*** (0.00)	0.26*** (0.01)	0.18*** (0.01)	0.27*** (0.01)	0.26*** (0.02)	0.24*** (0.02)	0.33*** (0.03)	0.37*** (0.04)	0.49*** (0.03)
	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]
Composition	0.23*** (0.00)	0.24*** (0.01)	0.19*** (0.01)	0.25*** (0.01)	0.19*** (0.01)	0.22*** (0.02)	0.25*** (0.02)	0.16** (0.06)	0.39*** (0.04)
	[88%]	[92%]	[106%]	[93%]	[73%]	[92%]	[76%]	[43%]	[80%]
Premium	0.03*** (0.01)	0.02 (0.01)	-0.01 (0.01)	0.03*** (0.01)	0.07*** (0.02)	0.02 (0.02)	0.08*** (0.03)	0.22*** (0.07)	0.10** (0.04)
	[12%]	[8%]	[-6%]	[7%]	[27%]	[8%]	[24%]	[57%]	[20%]
Observations	44,821	13,180	11,275	9,516	3,886	4,178	1,320	389	1,077
Public sector	11,571	3,445	2,680	2,320	996	992	377	170	591
Private sector	33,250	9,735	8,595	7,196	2,890	3,186	943	219	486

Note: *** p<0.01, ** p<0.05, * p<0.1. The statistical tests show a) that the total public/private sector pay gap is significantly different from zero for all jurisdictions and b) that the composition of the workforces are significantly different: with the exceptions of NSW, Vic and WA, so too are the premiums paid. The ratios of effects over raw gaps are reported in squared brackets.

Table 9: Public-Private pay gap – overall decomposition, 2008-2013

	Australia	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Public sector									
Log pay	3.49	3.52	3.44	3.44	3.42	3.52	3.45	3.56	3.66
Private sector									
Log pay	3.22	3.24	3.22	3.19	3.16	3.30	3.10	3.27	3.32
Total gap	0.27*** (0.00)	0.28*** (0.01)	0.22*** (0.01)	0.26*** (0.01)	0.26*** (0.02)	0.22*** (0.02)	0.35*** (0.02)	0.29*** (0.04)	0.34*** (0.03)
	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]	[100%]
Composition	0.21*** (0.00)	0.23*** (0.01)	0.18*** (0.01)	0.21*** (0.01)	0.18*** (0.01)	0.19*** (0.02)	0.26*** (0.02)	0.025 (0.06)	0.26*** (0.03)
	[78%]	[82%]	[82%]	[81%]	[69%]	[86%]	[74%]	[86%]	[76%]
Premium	0.06*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.08*** (0.02)	0.03 (0.02)	0.10*** (0.03)	0.27*** (0.07)	0.08** (0.03)
	[22%]	[18%]	[18%]	[19%]	[31%]	[14%]	[26%]	[14%]	[24%]
Observations	47,552	13,851	11,877	10,291	4,174	4,212	1,493	474	1,180
Public sector	12,081	3,468	2,802	2,467	1,049	1,017	398	219	661
Private sector	35,471	10,383	9,075	7,824	3,125	3,195	1,095	255	519

Note: *** p<0.01, ** p<0.05, * p<0.1. The statistical tests show a) that the total public/private sector pay gap is significantly different from zero for all jurisdictions and b) that in almost all cases both the composition of the workforces and the premium paid are significantly different. The ratios of effects over raw gaps are reported in squared brackets.

Tables 8 and 9 show similarities in the way the States and Territories responded to the GFC. With the exception of Tasmania, the public sector responded to the GFC by hiring (or retaining) slightly higher human capital labour, and, with the exception of the ACT, by paying more for each human capital unit. The private sector responded with a larger rise in the quality of its human capital but a reduction in their relative pay. As discussed above, the private sector reduced its rate of growth of wages after the GFC

rapidly and substantially. The public sector took several years longer to come to a similar position, and by doing so raised public sector wages relative to private sector wages.

Notwithstanding these similarities, Tables 8 and 9 show that the (Australian average) 1% increase in the pay gap between the periods 2001-2007 and 2008-2013 conceals substantially different responses to the GFC by each State and Territory. For example, the Victorian public sector followed the national rise of approximately 12%, whilst its private sector only rose by 7%. Thus the VIC public sector pay gap increased by 4%. Further decompositions showed that this increase was due to (i) a -1% relative deterioration of the public sector quality of employees (relative to the private sector) and (ii) a 5% increase in the premium paid by the public sector for equally qualified workers.

Table 10: Summary of jurisdiction differences in response to post-2007 economy

State	Change(Total gap)	Ch(Comp)	Ch(Premium)	Comment
VIC	+4%	-1%	+5	Public followed national, but private did not. Big premium increase, but from low base
NSW	+2	-1	+3	Similar as Vic, only a bit milder
QLD	-1	-4	+2	Mining state: had fall in gap and composition. Private unaffected by GFC
SA	0	-1	+1	Little change
WA	-2	-3	+1	Mining state: had fall in gap and composition. Private unaffected by GFC
Tas	+2	+1	+2	Similar to NSW, but with some quality improvement
NT	-8	-14	+5	Number of observations are small
ACT	-15	-13	-2	Big falls in gap and quality

All jurisdictions, except TAS, saw a decline in the relative (to the private sector) quality of their workforces. This was mainly driven by a faster rise in the quality of the private sector workforce, and was particularly pronounced in the mining states. Each jurisdiction also saw a rise in the premium it paid for its constant-quality workforce, relative to the private sector. We believe that this was caused by a slower public sector response to the wage consequences of a softening labour market.

We carried out further estimations through detailed jurisdiction regressions in order to examine the Wave (year) coefficients. Tables A5 and A6 in the Appendix report these coefficients for each State. We observe the following pattern. In the two mining states (WA and QLD), the private sector wages kept growing during the GFC. The rest of Australia's private sectors responded in a way reflecting their relative strengths and exposure to the crisis. This is reflected in the very diverse coefficients after the year 2007. In contrast, the whole of the Australian public sector started slowing down between one and

two years after the start of the GFC (around 2010). The picture is one of a diverse and more swiftly responsive private sector and a homogenous, less swiftly, but equally responsive public sector.

6. Variation in wages by region

We examine whether public and private sector wages vary by region within a jurisdiction by dividing people working in each jurisdiction into those employed in a major city and the rest. For each jurisdiction, we repeat the decomposition to see how much of the public sector pay gap is attributable to differences in the human capital of the public sector workforce and how much is attributable to a different rate of pay for an equivalent quality workforce. We then do the same for the private sector workforce. The definition of ‘major city’ in the HILDA means that there are no major cities in TASs and NT, and ACT is only a major city. Hence this decomposition cannot be performed for TAS, NT and ACT. Results are reported in Tables 11a and 11b.

Table 11a: Pay gap decomposition by major city or not, public sector

	NSW	VIC	QLD	SA	WA
Major city					
Log pay	3.51	3.43	3.43	3.37	3.48
Not major city					
Log pay	3.40	3.30	3.34	3.33	3.34
Overall gap	0.11***	0.13***	0.09***	0.04*	0.14***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
	[100%]	[100%]	[100%]	[100%]	[100%]
Composition	0.02***	0.04***	0.04***	0.00	0.08***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
	[18%]	[31%]	[44%]	[0%]	[57%]
Coefficient	0.09***	0.09***	0.05***	0.03**	0.06**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
	[82%]	[69%]	[56%]	[100%]	[43%]
Observations	6,913	5,482	4,787	2,045	2,009
Major city	4,686	3,689	2,466	1,414	1,510
Not major city	2,227	1,793	2,321	631	499

Note: *** p<0.01, ** p<0.05, * p<0.1. The ratios of effects over raw gaps are reported in squared brackets.

Table 11b: Pay gap decomposition by major city or not, private sector

	NSW	VIC	QLD	SA	WA
Major city					
Log pay	3.26	3.22	3.16	3.12	3.22
Not major city					
Log pay	3.06	3.06	3.08	3.06	3.18
Overall gap	0.19*** (0.01)	0.16*** (0.01)	0.08*** (0.01)	0.06*** (0.01)	0.05*** (0.02)
	[100%]	[100%]	[100%]	[100%]	[100%]
Composition	0.09*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.01 (0.01)	-0.01 (0.01)
	[47%]	[31%]	[50%]	[17%]	[-20%]
Coefficient	0.11*** (0.01)	0.11*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.06*** (0.02)
	[53%]	[69%]	[50%]	[83%]	[120%]
Observations	20,118	17,670	15,020	6,015	6,381
Major city	14,244	13,511	7,823	4,225	4,697
Not major city	5,874	4,159	7,197	1,790	1,684

Note: *** p<0.01, ** p<0.05, * p<0.1. The ratios of effects over raw gaps are reported in squared brackets.

Table 11c: Summary of differences in pay gap between major city and the rest

Overall gap	NSW	VIC	QLD	SA	WA
public	0.11 [100%]	0.13 [100%]	0.09 [100%]	0.04# [100%]	0.14 [100%]
private	0.19 [100%]	0.16 [100%]	0.08 [100%]	0.06 [100%]	0.05 [100%]
Composition					
Public	0.02 [18%]	0.04 [31%]	0.04 [44%]	0.00# [0%]	0.08 [57%]
private	0.09 [47%]	0.05 [31%]	0.04 [50%]	0.01# [17%]	-0.01# [-20%]
Coefficient					
public	0.09 [82%]	0.09 [69%]	0.05 [56%]	0.03 [100%]	0.06 [43%]
private	0.11 [53%]	0.11 [69%]	0.04 [50%]	0.05 [83%]	0.06 [120%]

Note. This table is constructed from tables 11a and 11b. #- not statistically significantly different from zero at 5% confidence level. The ratios of effects over raw gaps are reported in squared brackets

In each state, the average rate of pay is higher in major cities than elsewhere, in both the private and public sectors, with a substantially larger gap in NSW and Vic than in the other states. WA stands out. It has the largest public sector gap and the smallest private sector gap. Most of the public sector gap is explained by the payment of a premium to city workers, with the exception of WA where the higher quality workforce is also important. For the private sector, the higher quality workforce explains more of the overall gap than it does for the public sector, and a similar premium as with the public sector is paid for city workers. Here both WA and SA are the exceptions: there is no measured difference in private sector workforce quality in the regions compared with the major cities: the modest pay gap is due entirely to paying a higher amount for a given quality workforce in the cities.

Our summary view is that both the public and private sectors pay more for city workers and the premium each sector pays for a constant quality workforce is about the same within each jurisdiction. However, it varies between jurisdiction, with WA being notable for its high public sector regional gap and NSW being notable for its high private sector regional gap. NSW and Vic have the highest city wage gap and wage premium for both their private and public sector workforces⁵. We believe the most likely explanation is the relative size of Sydney and Melbourne, where large city size confers both higher costs of living and higher productivity.

An added perspective on how wages vary within sector and region is obtained by examining the degree of dispersion of wages for each jurisdiction. For this purpose we use the Gini coefficient, which takes values from 0 to 1: higher values of the Gini coefficient indicate higher levels of inequality in the dispersion of wages. The GINI coefficient is shown by sector and major city or not for each jurisdiction in Table 12. The average wage values are also reported to give more context and the table begins by showing the Australian values which can be used as a benchmark of comparison.

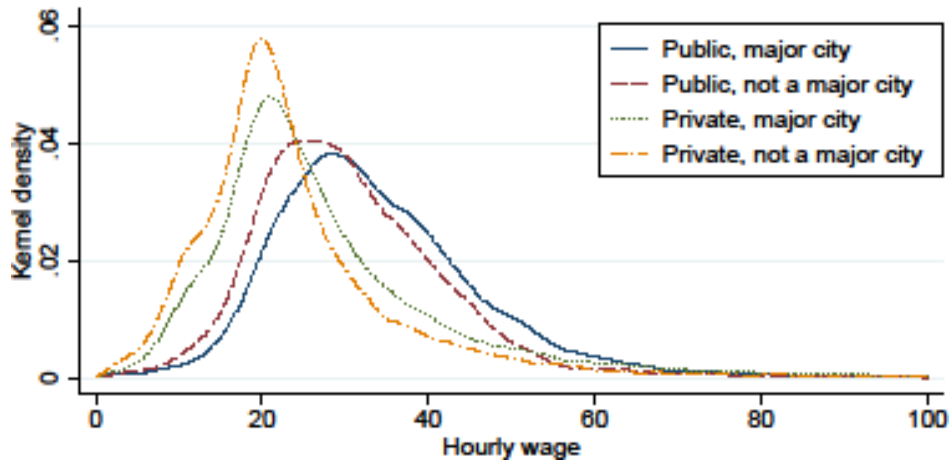
⁵ With the exception that WA has a larger public sector wage gap, but not wage premium.

Table 12: Summary mean values of wages (expressed in \$2013) and Gini coefficients of wages by public/private and major city/other

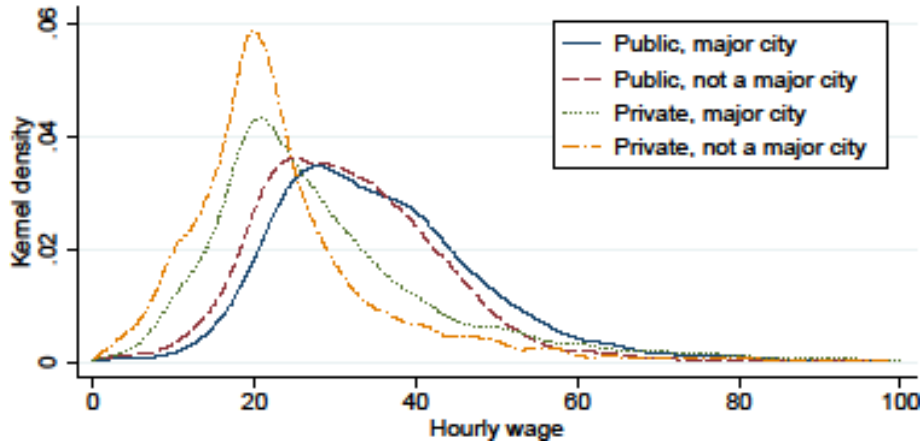
		Major city		Not a major city	
		Public	Private	Public	Private
NSW	Mean	35.26	28.82	32.55	25.14
	Gini	0.21	0.28	0.22	0.29
VIC	Mean	33.19	27.95	28.88	24.14
	Gini	0.22	0.28	0.20	0.27
QLD	Mean	33.18	26.95	30.58	24.76
	Gini	0.21	0.28	0.20	0.27
SA	Mean	31.34	24.77	30.87	24.93
	Gini	0.21	0.24	0.23	0.26
WA	Mean	35.94	29.10	31.68	28.24
	Gini	0.25	0.31	0.22	0.30
TAS	Mean			31.74	23.68
	Gini			0.19	0.24
NT	Mean			36.48	23.39
	Gini			0.24	0.23
ACT	Mean	39.62	30.89		
	Gini	0.19	0.34		
Australia	Mean	34.47	28.02	31.32	24.95
	Gini	0.22	0.28	0.21	0.27

Table 12 shows that in every jurisdiction, the dispersion of wages is higher in the private than in the public sector. Within each sector, the levels of inequality are quite similar across the states, although WA stands out as having higher inequality in both sectors in its major city. The ACT is not deemed to have a 'region'. But as a major city, it has low dispersion in its public sector and high dispersion in its private sector wages. Density plots are presented below to show how wages are dispersed in the four different categories by jurisdiction. The pattern that arises is that the difference in the shape of the dispersion is primarily following the sector and not the location. Public sector wage dispersion looks alike in the major city with that not in the major city. The same applies to private sector wages.

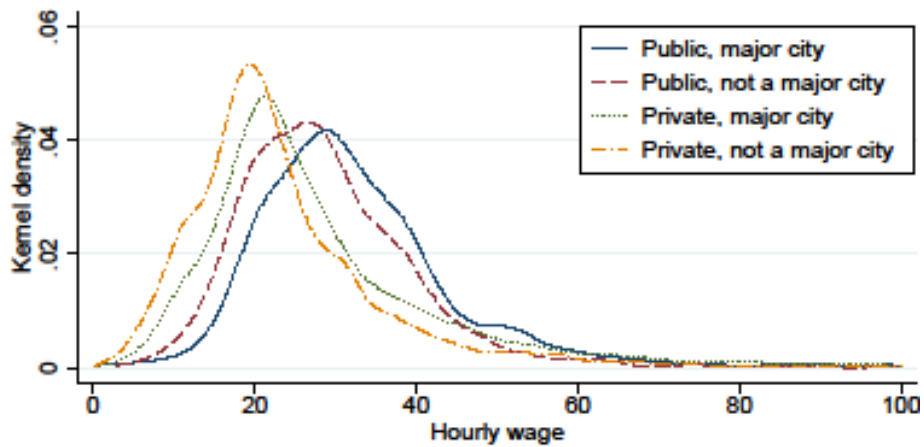
Australia

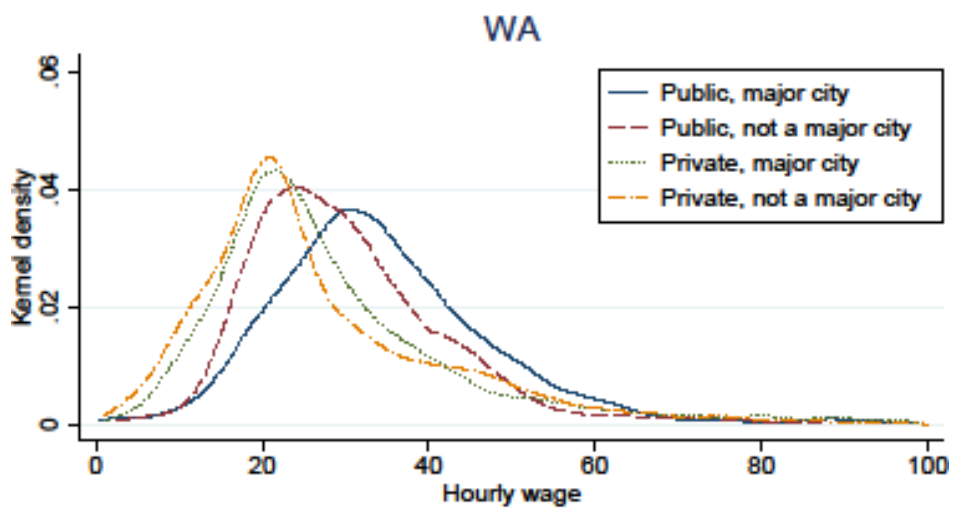
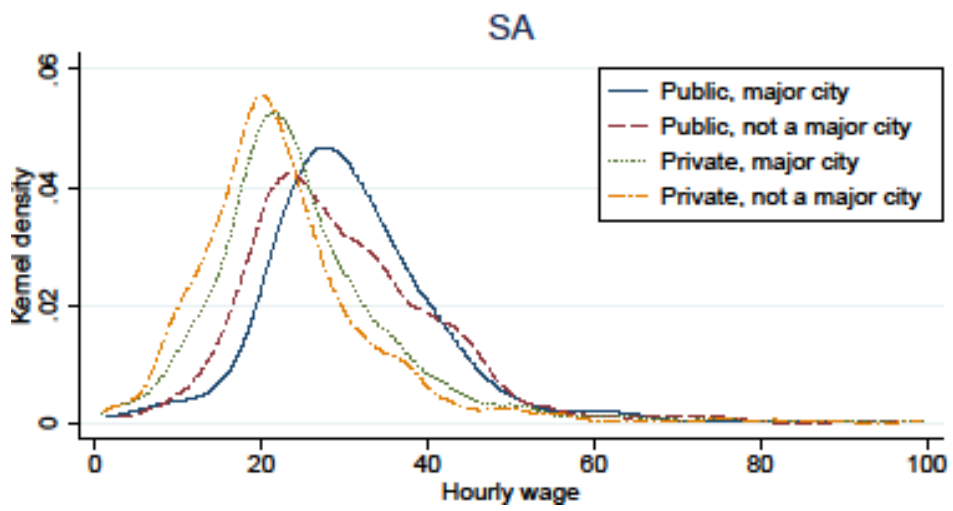
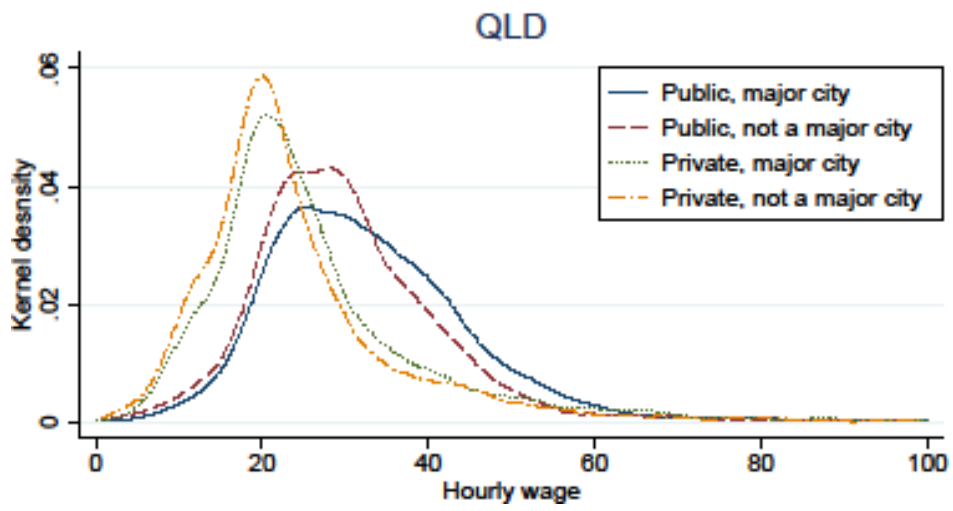


NSW



VIC





7. Conclusions

We have presented evidence that the jurisdictions do pay at different rates to attract the same quality of labour. The key evidence is the public sector premium identified in the decompositions. The evidence supports the view that the states compete for workers in two labour markets simultaneously. One is the national labour market for public sector workers. In this case they must pay attention to the pay of comparable public sector workers in other jurisdictions. The other is the local labour market. In this case, they must pay attention to the pay of private sector workers in their own state.

We suggest that the ACT and the NT be treated as special cases, but for different reasons. The ACT public sector has a high proportion of Commonwealth public sector workers and these seem to be relatively high quality and high paid. To include them confounds the story for the states. The NT is remote and exceptional in other ways. It is also small, so we think the broader story is best seen if we focus on the main game and note the distinctive nature of the NT. In saying this, all the relevant material is provided for the ACT and NT.

When public sector pay is compared across jurisdictions (we make this comparison relative to NSW), VIC, SA and QLD pay less for a given quality workforce and the ACT and NT pay more. WA and TAS pay about the same as NSW. With the exception of TAS, which has a relatively low paid private sector, a similar pattern is found in the private sector workforces, but the differences are smaller.

When public sector pay is compared with private sector pay in the same jurisdiction, SA and TAS pay premiums that are above the national average premium while Vic in particular pays a premium that is well below this average. Those states (SA and TAS) that have the lowest private sector wages (\$24.8 and \$23.4) also have the lowest public sector wages (\$31.4 and \$32.0) *and* also pay the highest public sector premium (0.075 and 0.087).

There is a case that those that are less prosperous (SA, TAS) have to pay more, relative to their private sectors, to attract the quality of worker that is needed. SA and TAS pay a low wage compared with other public sectors, but a high wage relative to their private sectors. They do so in an environment where their private sector pay is relatively low. It is likely that part of the market that they are competing with to obtain and retain their public sector workforce is not the local private sector labour market, but the local and national public sector market for the skills they want, e.g. for police, teachers, nurses, prison officers. Victoria is the outlier. It has relatively low pay compared both with other jurisdictions and with its own private sector. We note that it also has the most female-intensive public sector workforce. While this might 'explain' part of the VIC low public sector wage, the difference in female-intensity is not large enough to be the whole explanation.

The analysis of the pre and post 2007 picture tells an interesting story. There is clear evidence that the private sector pay responded more rapidly than did public sector pay to the slow down in the economy and the rises in unemployment. That is, the public sectors (in all jurisdictions) did not seem to be immediately affected by the more subdued overall economic environment. But after about three years, the growth in public sector pay did start to match quite closely that which was occurring in the private sector. It seems that the market forces did affect the public sector as expected, but with a lag of several years. All the public sector jurisdictions displayed roughly the same lagged response. In contrast, the private sectors responded in line with their own jurisdiction's strengths and weaknesses. The private sectors of the mining states remained largely unaffected and those of the remaining states responded faster than their public sectors and according to their unique circumstances.

The GFC response evidence suggests that the competition for public sector workers happens at the national level as well as at the local level. Comparing the occupational structure between the public and private sectors offers one possible explanation: 45% of all public sector employees are professionals against 16% of private sector employees. The high level of public sector to public sector job mobility may indicate competition for workers between different parts of the public sector within each jurisdiction, which may be the result of highly transferable skills between similar organisations in the public sector. The GFC evidence also shows that the public sector responded more slowly to the GFC, but its response caught up with the private sector relatively quickly.

Question 1: Do Australian State governments have to pay different wages to their respective workers to attract the same quality of labour? If so, what factors external to State policy decisions could cause such differences?

Our answer to the first part of this question is yes. We cannot be sure that they *have to* pay different amounts, but we can be confident that *they do*. The same levels of labour quality are remunerated differently by State governments. The external factor that we believe could cause this is the need to pay higher wages (relative to their private sector and to the public sector national norms) in remote or relatively low wage jurisdictions. The states differ in the wages typically earned by same quality private sector workers. If they competed only with their own private sectors, we would see greater differences in the public sector premium paid. But they also compete with the public sectors in other states, and this leads to some convergence in public sector wages across the country.

The evidence from decompositions in Tables 7 and 8 suggest that the states were influenced by the events of the GFC and resource sector changes, but with a lag. This is evidence that they do respond, to some degree, to changes in the private sector labour market, as theory would suggest.

Question 2. Are these factors likely to apply equally to public and private sectors?

Wages in the private sector appear to be more sensitive and responsive to pressures from the labour market. But these pressures also have the expected effects on the public sector, though moderated in timing and perhaps also in degree.

Question 3. Do State government wages vary between regions within a State to the same extent as the private sector?

The answer to this question is yes. The direction of variation is the same, and the regional wage premium for a constant quality worker is very similar between the public and private sectors, although it varies by jurisdiction.

Question 4. Would any State be fully or partially exempt from such pressures?

We see no evidence that any state is exempt, but we see evidence that some states may come under more pressure to depending on the position of their private sector. SA and TAS with the lowest private sector wages pay the highest private sector premium and still end up with the lowest public sector wages. The implication is that, despite paying a much higher public sector premium than the richer states, SA and TAS states do not manage to attract as high quality public sector workers as the rest of Australia.

Question 5. Do State wage setting mechanisms actually respond to the theoretical pressures?

Yes, with a lag. The GFC gives evidence that the state wage setting mechanisms responded to the GFC pressures, across the nation, with wage restraint exercised also in the mining states where the private sector wages continued to grow during the GFC. The lags were diverse, between one and three years.

Table A1: Regression results, full model including interaction between States and public employment. OLS and Random effects models

VARIABLES	Pooled OLS estimates	Panel Random effects estimates
Public sector	0.0688*** (0.0108)	0.0792*** (0.00938)
Age	0.0455*** (0.00172)	0.0560*** (0.00125)
Agesq/100	-0.0491*** (0.00226)	-0.0598*** (0.00163)
Male	0.138*** (0.00556)	0.130*** (0.00521)
<i>Education (reference: year 11/below)</i>		
Year12	0.155*** (0.00820)	0.165*** (0.00724)
Certificate	0.139*** (0.00753)	0.155*** (0.00715)
Diploma	0.227*** (0.0112)	0.211*** (0.00954)
University	0.406*** (0.00891)	0.349*** (0.00815)
<i>Marital status (reference: never married)</i>		
Married/ Widowed	0.136*** (0.00751)	0.0774*** (0.00541)
Separated/ Divorced	0.0527*** (0.0119)	0.0182** (0.00894)
Family size	-0.0176*** (0.00170)	-0.0147*** (0.00142)
Union member	0.0460*** (0.00592)	0.0363*** (0.00409)
Long term health condition	-0.0720*** (0.00684)	-0.0240*** (0.00391)
Born overseas	-0.0250*** (0.00764)	-0.0365*** (0.00716)
Living in a major city	0.0758*** (0.00594)	0.0608*** (0.00561)
Tenure on the current job	0.00478*** (0.000473)	0.00307*** (0.000338)
<i>Wave (reference: Wave 2001)</i>		
Wave 2	-0.00305 (0.00596)	0.00140 (0.00541)
Wave 3	0.0119** (0.00607)	0.0131** (0.00558)
Wave 4	0.0232*** (0.00614)	0.0274*** (0.00557)
Wave 5	0.0437*** (0.00654)	0.0476*** (0.00598)
Wave 6	0.0537*** (0.00648)	0.0614*** (0.00592)
Wave 7	0.0913*** (0.00656)	0.104*** (0.00600)
Wave 8	0.0950*** (0.00660)	0.111*** (0.00605)
Wave 9	0.119*** (0.00650)	0.138*** (0.00601)
Wave 10	0.133*** (0.00661)	0.155*** (0.00620)
Wave 11	0.129***	0.155***

	(0.00652)	(0.00617)
Wave 12	0.140***	0.172***
	(0.00650)	(0.00613)
Wave 13	0.138***	0.171***
	(0.00655)	(0.00624)
<i>State (reference: NSW)</i>		
VIC	-0.0293***	-0.0248***
	(0.00868)	(0.00784)
QLD	-0.0361***	-0.0351***
	(0.00860)	(0.00812)
SA	-0.0707***	-0.0613***
	(0.0119)	(0.0111)
WA	0.0225*	0.0105
	(0.0127)	(0.0113)
TAS	-0.0564***	-0.0628***
	(0.0164)	(0.0172)
NT	0.0345	0.0529*
	(0.0366)	(0.0282)
ACT	0.0213	0.0153
	(0.0251)	(0.0242)
<i>State*Public (reference: NSW*Public)</i>		
VIC*Public	-0.0481***	-0.0461***
	(0.0148)	(0.0132)
QLD*Public	-0.0123	-0.0192
	(0.0148)	(0.0135)
SA*Public	-0.00921	0.0104
	(0.0215)	(0.0177)
WA*Public	-0.0324	-0.0106
	(0.0239)	(0.0190)
TAS*Public	0.0332	0.0124
	(0.0248)	(0.0255)
NT*Public	0.103*	0.0420
	(0.0545)	(0.0379)
ACT*Public	0.0649**	0.0312
	(0.0291)	(0.0280)
Constant	1.861***	1.667***
	(0.0281)	(0.0220)
Observations	92,373	92,373
R-squared	0.357	

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A2: Full decomposition results for Australia, NSW and VIC

VARIABLES	Australia		NSW		VIC	
	Composition	Coefficient	Composition	Coefficient	Composition	Coefficient
Age	0.067*** (0.0014)	-0.34*** (0.033)	0.069*** (0.0029)	-0.38*** (0.063)	0.072*** (0.0029)	-0.25*** (0.069)
Male	-0.017*** (0.00067)	-0.017*** (0.0024)	-0.016*** (0.0012)	-0.019*** (0.0046)	-0.021*** (0.0015)	-0.0055 (0.0047)
Year 12	-0.014*** (0.00059)	0.0018 (0.0012)	-0.016*** (0.0011)	-0.0045** (0.0020)	-0.015*** (0.0012)	-0.000016 (0.0028)
Certificate	-0.0093*** (0.00051)	-0.0036** (0.0016)	-0.0064*** (0.00088)	-0.0058* (0.0032)	-0.0084*** (0.00095)	-0.0046 (0.0030)
Diploma	0.0068*** (0.00054)	0.0037*** (0.0013)	0.0033*** (0.00096)	0.0038* (0.0023)	0.0021** (0.0010)	-0.0036 (0.0025)
University	0.12*** (0.0020)	-0.019*** (0.0043)	0.12*** (0.0039)	-0.041*** (0.0080)	0.12*** (0.0041)	-0.033*** (0.0099)
Married/ Widowed	0.019*** (0.00078)	-0.028*** (0.0064)	0.021*** (0.0015)	-0.020 (0.013)	0.017*** (0.0015)	-0.065*** (0.013)
Separated/ Divorced	0.00064*** (0.00014)	0.0022* (0.0012)	0.0011*** (0.00035)	0.0055** (0.0022)	0.00032 (0.00023)	-0.0070*** (0.0022)
Family size	0.0017*** (0.00021)	0.018*** (0.0065)	0.0017*** (0.00038)	0.013 (0.012)	0.0016*** (0.00043)	0.052*** (0.014)
Family size	0.023*** (0.0014)	-0.031*** (0.0034)	0.032*** (0.0034)	-0.047*** (0.0078)	0.015*** (0.0022)	-0.028*** (0.0062)
Long term health condition	-0.0017*** (0.00024)	0.0051*** (0.0013)	-0.0035*** (0.00060)	0.011*** (0.0026)	-0.0021*** (0.00049)	0.0043 (0.0027)
Born overseas	0.00026*** (0.000094)	0.0027* (0.0014)	0.0015*** (0.00037)	0.0073*** (0.0028)	0.00084*** (0.00029)	-0.0015 (0.0027)
Living in a major city	-0.0021*** (0.00029)	-0.0024 (0.0042)	-0.0035*** (0.00078)	-0.023*** (0.0081)	-0.0093*** (0.0010)	-0.0039 (0.0090)
Tenure on the current job/100	0.028*** (0.0015)	-0.015*** (0.0041)	0.035*** (0.0032)	-0.013 (0.0084)	0.019*** (0.0023)	-0.023*** (0.0078)
VIC	0.00076*** (0.00015)	-0.012*** (0.0018)				
QLD	0.00055*** (0.00013)	-0.0033** (0.0017)				
SA	0.000075 (0.00015)	-0.0018* (0.00096)				
WA	-0.00019*** (0.000070)	-0.0038*** (0.00094)				
TAS	-0.00018** (0.000083)	0.0011** (0.00057)				
NT	0.00035* (0.00019)	0.0012*** (0.00046)				
ACT	0.00095*	0.0031***				

VARIABLES	Australia		NSW		VIC	
	Composition	Coefficient	Composition	Coefficient	Composition	Coefficient
	(0.00052)	(0.00094)				
Wave 2002	-0.000028	0.0023**	-0.00011	0.0051**	-0.000075	0.0029
	(0.000030)	(0.0011)	(0.00011)	(0.0020)	(0.00011)	(0.0022)
Wave 2003	0.000019	0.00098	-0.000023	0.0042**	-0.000088	0.0015
	(0.000025)	(0.0011)	(0.000092)	(0.0020)	(0.00013)	(0.0022)
Wave 2004	0.000017	0.00069	2.8e-06	0.0042**	-0.000022	-0.00071
	(0.000040)	(0.0010)	(0.000034)	(0.0019)	(0.000068)	(0.0022)
Wave 2005	-0.000011	0.000085	-0.000031	0.0061***	0.000025	-0.00035
	(0.000084)	(0.0011)	(0.000063)	(0.0020)	(0.000065)	(0.0022)
Wave 2006	-0.000028	0.0015	4.2e-07	0.0063***	2.1e-06	0.0017
	(0.000094)	(0.0011)	(0.000070)	(0.0020)	(0.00013)	(0.0022)
Wave 2007	-0.00021	0.00024	-0.00017	0.0035*	-0.00018	0.00100
	(0.00018)	(0.0011)	(0.00021)	(0.0019)	(0.00022)	(0.0022)
Wave 2008	-0.000063	0.0011	0.000025	0.0053***	-6.9e-06	0.0027
	(0.00018)	(0.0011)	(0.00015)	(0.0020)	(0.00019)	(0.0022)
Wave 2009	-0.000068	0.0034***	-0.000093	0.0071***	-0.000046	0.0048**
	(0.00021)	(0.0011)	(0.00020)	(0.0020)	(0.00024)	(0.0022)
Wave 2010	0.00019	0.0034***	-0.000077	0.0094***	0.000072	0.0060**
	(0.00024)	(0.0012)	(0.00024)	(0.0021)	(0.00029)	(0.0023)
Wave 2011	-0.000090	0.0040***	-0.00021	0.0098***	-0.00022	0.0097***
	(0.00026)	(0.0014)	(0.00026)	(0.0026)	(0.00028)	(0.0028)
Wave 2012	-0.00014	0.0014	-0.00036	0.0086***	0.00035	0.0047
	(0.00030)	(0.0014)	(0.00032)	(0.0025)	(0.00041)	(0.0029)
Wave 2013	-0.00049*	0.0021	-0.00029	0.0088***	-0.00022	0.0070**
	(0.00029)	(0.0013)	(0.00029)	(0.0025)	(0.00034)	(0.0028)
Constant		0.46***		0.47***		0.35***
		(0.033)		(0.063)		(0.069)
Observations	92,373	92,373	27,031	27,031	23,152	23,152
Public	23,652	23,652	6,913	6,913	5,482	5,482
Private	68,721	68,721	20,118	20,118	17,670	17,670

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A3: Full decomposition results for QLD, SA and WA

VARIABLES	QLD		SA		WA	
	Composition	Coefficient	Composition	Coefficient	Composition	Coefficient
Age	0.068*** (0.0029)	-0.48*** (0.067)	0.050*** (0.0041)	-0.31*** (0.11)	0.055*** (0.0047)	-0.39*** (0.12)
Male	-0.017*** (0.0015)	-0.018*** (0.0053)	-0.017*** (0.0021)	-0.027*** (0.0079)	-0.027*** (0.0029)	-0.037*** (0.0092)
Year 12	-0.011*** (0.0011)	0.0014 (0.0028)	-0.015*** (0.0020)	0.012*** (0.0044)	-0.013*** (0.0020)	0.015*** (0.0046)
Certificate	-0.0100*** (0.0011)	-0.00035 (0.0037)	-0.012*** (0.0020)	0.0055 (0.0065)	-0.017*** (0.0023)	0.00019 (0.0054)
Diploma	0.0077*** (0.0011)	0.0049* (0.0028)	0.018*** (0.0027)	0.016*** (0.0057)	0.014*** (0.0024)	0.014** (0.0059)
University	0.11*** (0.0043)	-0.015* (0.0079)	0.099*** (0.0064)	0.056*** (0.014)	0.10*** (0.0067)	0.029* (0.015)
Married/ Widowed	0.016*** (0.0015)	-0.027** (0.013)	0.020*** (0.0026)	-0.023 (0.020)	0.025*** (0.0031)	0.018 (0.023)
Separated/ Divorced	0.00028 (0.00024)	-0.0034 (0.0027)	-0.000080 (0.00026)	0.0033 (0.0038)	0.0035*** (0.0012)	0.028*** (0.0055)
Family size	0.00082* (0.00049)	-0.0023 (0.014)	0.0035*** (0.00098)	0.022 (0.021)	0.0020** (0.00085)	0.038 (0.025)
Family size	0.033*** (0.0035)	-0.025*** (0.0077)	0.013*** (0.0029)	-0.024** (0.0095)	0.014*** (0.0039)	-0.010 (0.011)
Long term health condition	-0.00043 (0.00036)	0.0015 (0.0025)	-0.0011 (0.0010)	0.0031 (0.0049)	0.0016* (0.00090)	-0.0047 (0.0040)
Born overseas	-0.000054 (0.00031)	0.00014 (0.0022)	-0.00053 (0.00039)	0.0014 (0.0044)	-0.00050 (0.00041)	-0.0035 (0.0069)
Living in a major city	-0.00020 (0.00029)	0.0083 (0.0063)	-0.00051 (0.00056)	-0.0052 (0.015)	0.00028 (0.00029)	0.020 (0.019)
Tenure on the current job/100	0.029*** (0.0032)	0.0018 (0.0083)	0.027*** (0.0040)	-0.065*** (0.013)	0.047*** (0.0068)	-0.027* (0.016)
Wave 2002	0.000023 (0.000083)	-0.00024 (0.0021)	0.00014 (0.00026)	0.0022 (0.0035)	0.00021 (0.00033)	-0.0032 (0.0041)
Wave 2003	0.00019 (0.00019)	-0.0043* (0.0023)	-0.00015 (0.00024)	-0.0012 (0.0034)	-0.00035 (0.00044)	-0.000045 (0.0037)
Wave 2004	0.000051 (0.00021)	-0.0024 (0.0022)	0.000045 (0.00013)	0.0011 (0.0036)	-0.000084 (0.00049)	0.00038 (0.0037)
Wave 2005	-0.000020 (0.00038)	-0.0052** (0.0023)	0.000061 (0.00032)	0.00014 (0.0036)	-0.000024 (0.00066)	-0.0033 (0.0038)
Wave 2006	-0.000016 (0.00039)	-0.0053** (0.0024)	0.000075 (0.00020)	-0.0011 (0.0038)	-0.0010 (0.00086)	-0.0010 (0.0036)
Wave 2007	-0.00085 (0.00061)	-0.0039* (0.0023)	0.00054 (0.00062)	-0.0040 (0.0038)	-0.0011 (0.0013)	-0.0038 (0.0036)
Wave 2008	-0.0011 (0.00073)	-0.0047** (0.0023)	0.000056 (0.00067)	-0.00036 (0.0037)	0.000061 (0.0011)	-0.0025 (0.0038)

Wave 2009	-0.00045	-0.0032	-0.00024	-0.0012	0.00053	0.0049
	(0.00078)	(0.0024)	(0.00091)	(0.0037)	(0.0013)	(0.0040)
Wave 2010	0.0012	-0.0033	0.00019	-0.0041	0.00076	0.00094
	(0.00087)	(0.0026)	(0.0011)	(0.0040)	(0.0016)	(0.0041)
Wave 2011	0.00089	-0.0046	-0.00038	-0.0025	0.00044	-0.00086
	(0.00095)	(0.0029)	(0.0011)	(0.0047)	(0.0018)	(0.0049)
Wave 2012	-0.00023	-0.0088***	-0.00060	-0.0032	0.00068	-0.0032
	(0.0010)	(0.0029)	(0.0012)	(0.0046)	(0.0021)	(0.0050)
Wave 2013	-0.0013	-0.0061**	0.000013	-0.00022	-0.0014	-0.0083*
	(0.00099)	(0.0028)	(0.0011)	(0.0046)	(0.0021)	(0.0048)
Constant		0.64***		0.42***		0.36***
		(0.067)		(0.11)		(0.12)
Observations	19,807	19,807	8,060	8,060	8,390	8,390
Public	4,787	4,787	2,045	2,045	2,009	2,009
Private	15,020	15,020	6,015	6,015	6,381	6,381

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A4: Full decomposition results for TAS, NT and ACT

VARIABLES	TAS		NT		ACT	
	Composition	Coefficient	Composition	Coefficient	Composition	Coefficient
Age	0.077***	-0.22	0.038***	-0.21	0.12***	-0.64***
	(0.0076)	(0.20)	(0.015)	(0.28)	(0.016)	(0.19)
Male	-0.015***	-0.038***	-0.013**	0.049**	0.0029	0.013
	(0.0032)	(0.011)	(0.0058)	(0.022)	(0.0023)	(0.018)
Year 12	-0.012***	0.0026	-0.0018	0.034***	-0.023***	0.00028
	(0.0028)	(0.0041)	(0.0026)	(0.013)	(0.0067)	(0.0084)
Certificate	-0.0074***	-0.0016	-0.0020	-0.017	-0.00081	-0.0045
	(0.0023)	(0.0071)	(0.0036)	(0.015)	(0.0015)	(0.0092)
Diploma	0.0070**	0.0086	0.019**	0.0057	0.012**	-0.013
	(0.0028)	(0.0060)	(0.0085)	(0.019)	(0.0054)	(0.0081)
University	0.13***	0.019	0.058***	-0.041	0.13***	-0.066*
	(0.012)	(0.021)	(0.014)	(0.034)	(0.016)	(0.035)
Married/ Widowed	0.015***	-0.020	0.0057	-0.019	0.038***	0.0043
	(0.0037)	(0.039)	(0.0044)	(0.048)	(0.0095)	(0.041)
Separated/ Divorced	0.0033	-0.0038	-0.00038	-0.022*	0.00078	0.013**
	(0.0021)	(0.0092)	(0.0015)	(0.012)	(0.0013)	(0.0061)
Family size	-0.0016	-0.031	-0.00031	-0.13**	-0.00047	-0.029
	(0.0011)	(0.040)	(0.0015)	(0.057)	(0.0023)	(0.040)
Family size	0.042***	-0.051**	-0.012	0.042*	-0.0023	-0.011
	(0.0073)	(0.020)	(0.012)	(0.023)	(0.0089)	(0.016)
Long term health condition	-0.00096	0.015**	0.0022	0.0031	0.00082	-0.0069
	(0.0014)	(0.0076)	(0.0039)	(0.014)	(0.0010)	(0.0080)
Born overseas	0.0026	-0.016***	-0.0051	0.062***	-0.0061	0.017
	(0.0016)	(0.0059)	(0.0052)	(0.018)	(0.0047)	(0.013)
Tenure on the current job/100	0.012**	0.0053	0.0016	0.050	0.039**	-0.018
	(0.0054)	(0.020)	(0.033)	(0.054)	(0.017)	(0.030)
Wave 2002	0.00010	0.0035	-0.00076	-0.0065	-0.00046	0.0099
	(0.00033)	(0.0047)	(0.0019)	(0.0097)	(0.0013)	(0.0064)
Wave 2003	-6.4e-06	0.0053	-0.00021	0.0012	0.00020	0.0028
	(0.000078)	(0.0049)	(0.0016)	(0.0088)	(0.00062)	(0.0061)
Wave 2004	0.000071	0.0013	0.0015	0.00086	0.00011	0.0020
	(0.00028)	(0.0054)	(0.0030)	(0.0075)	(0.00074)	(0.0055)
Wave 2005	0.00051	0.0050	-0.00025	-0.0054	-0.0012	-0.0093
	(0.00079)	(0.0062)	(0.0011)	(0.0089)	(0.0014)	(0.0058)
Wave 2006	-0.00011	0.010*	-0.00076	-0.0090	-2.1e-06	0.0078
	(0.00035)	(0.0056)	(0.0023)	(0.010)	(0.000094)	(0.0068)
Wave 2007	0.000093	0.0075	0.00053	-0.0038	0.00096	0.0015
	(0.00060)	(0.0058)	(0.0014)	(0.012)	(0.0013)	(0.0070)
Wave 2008	0.00014	-0.0023	0.0013	0.0015	0.0016	-0.0015
	(0.0012)	(0.0057)	(0.0023)	(0.012)	(0.0020)	(0.0070)
Wave 2009	0.0010	0.010	-0.00084	-0.0024	0.00013	-0.0013
	(0.0012)	(0.0063)	(0.0031)	(0.011)	(0.0023)	(0.0069)

Wave 2010	-0.000025	0.0059	-0.00012	-0.016	-0.0023	-0.0039
	(0.00098)	(0.0060)	(0.0031)	(0.013)	(0.0023)	(0.0066)
Wave 2011	0.00015	0.0028	0.00091	-0.020	-0.00056	-0.012
	(0.0015)	(0.0075)	(0.0031)	(0.014)	(0.0034)	(0.0083)
Wave 2012	-0.0023	0.0033	0.00087	-0.010	0.00088	0.0017
	(0.0018)	(0.0063)	(0.0030)	(0.014)	(0.0020)	(0.0084)
Wave 2013	-0.0027	0.0028	0.0012	-0.014	0.0021	-0.0036
	(0.0019)	(0.0062)	(0.0043)	(0.014)	(0.0025)	(0.0087)
Constant		0.36*		0.52*		0.84***
		(0.19)		(0.28)		(0.18)
Observations	2,813	2,813	863	863	2,257	2,257
Public	775	775	389	389	1,252	1,252
Private	2,038	2,038	474	474	1,005	1,005

Table A5: Estimated coefficients for each wave variables in models restricted to public sector observations.

Wave (reference: Wave 2001)	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Wave 2002	0.05**	0.02	0.02	0	0	0.03	-0.15*	0.03
Wave 2003	0.05**	-0.01	-0.02	0.01	0.06**	0.08	-0.08	0.10***
Wave 2004	0.07***	-0.02	0.01	0.03	0.08***	0.03	-0.04	0.02
Wave 2005	0.10***	0.01	0.02	0.05	0.05	0.1	-0.06	-0.04
Wave 2006	0.11***	0.06**	0.02	0.01	0.11**	0.16**	0	0.09**
Wave 2007	0.11***	0.07***	0.09***	0.04	0.14**	0.15**	0.02	0.12***
Wave 2008	0.11***	0.08***	0.10***	0.10**	0.13***	0.08	0.12	0.15***
Wave 2009	0.15***	0.13***	0.13***	0.12***	0.26***	0.22***	0.13	0.19***
Wave 2010	0.19***	0.15***	0.15***	0.10**	0.25***	0.16**	-0.02	0.13***
Wave 2011	0.16***	0.16***	0.15***	0.11***	0.23***	0.14**	-0.04	0.15***
Wave 2012	0.17***	0.13***	0.11***	0.12***	0.24***	0.18**	0.04	0.17***
Wave 2013	0.17***	0.15***	0.14***	0.15***	0.19***	0.17**	0.07	0.16***

Table A6: Estimated coefficients for each wave variables in models restricted to private sector observations.

Wave (reference: Wave 2001)	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Wave 2002	-0.02	-0.03**	0.02	-0.04	0.05*	-0.03	-0.05	-0.12
Wave 2003	0	-0.03**	0.04***	0.03	0.06***	-0.01	-0.1	0.05
Wave 2004	0.01	-0.01	0.05***	0.02	0.08***	0.01	-0.05	-0.01
Wave 2005	0.02	0.02	0.09***	0.05*	0.10***	0.03	0.03	0.10*
Wave 2006	0.02	0.03**	0.09***	0.03	0.13***	0.02	0.13	-0.01
Wave 2007	0.06***	0.05***	0.14***	0.09***	0.20***	0.05	0.06	0.1
Wave 2008	0.04***	0.05***	0.16***	0.10***	0.17***	0.11**	0.1	0.17**
Wave 2009	0.06***	0.06***	0.17***	0.14***	0.19***	0.10**	0.16*	0.20***
Wave 2010	0.07***	0.07***	0.19***	0.16***	0.24***	0.09*	0.16*	0.18***
Wave 2011	0.06***	0.06***	0.19***	0.14***	0.24***	0.11***	0.15*	0.27***
Wave 2012	0.08***	0.09***	0.21***	0.15***	0.27***	0.14***	0.14	0.15**
Wave 2013	0.07***	0.07***	0.21***	0.15***	0.28***	0.14***	0.21**	0.19***

Box A1: Using and interpreting the natural log (ln) of wages in estimation

Economics appreciates that as the absolute level of wages and income increases, the appreciation of every additional unit of wage or income reduces in value for the income recipient. In jargon, this is the diminishing marginal utility of money. In practice this amounts to making an assumption that an increase of \$100 in the weekly wage of someone who earns \$500 a week (a 20% weekly wage rise from \$500 to \$600) will be less appreciated by someone who earns \$2000 a week (a 5% weekly wage rise from \$2000 to \$2100). As it is harder to accept this assumption for each individual wage recipient, the assumption made is that on average this will be the case. That is, when we observe the average response of many wage recipients we would assume that on average those with lower incomes will appreciate an increase of \$100 more than those with higher incomes, or that on average an increase of \$500 dollars will be perceived as being a less than five times improvement than a \$100 increase.

When we compare the wage gap between two groups using the log of hourly wage we note that the difference between the logs is a scale-free measure, which is a very useful property when we make comparisons. For example, take two hypothetical wages of \$100 and \$125, then $\ln(100) = 4.605$ and $\ln(125) = 4.828$ and note that 125 is 25% larger than 100. Then take $\ln(10,000) = 9.2103$ and $\ln(12,500) = 9.433$ and (note that again 12,500 is 25% larger than 10,000. Note that $\ln(125) - \ln(100) = \ln(12,500) - \ln(10,000) = 0.223$. The *scale-free* property of “log points” is very useful in the context of this work. What is also useful is that the difference of 0.223 in “log points” is very similar to the 25% difference in the numbers (125 is 25% larger than 100). In the context of comparing public with private sector wages, where we are accustomed to talking about the Public-Private wage differential, we use the log points as these can be readily found in the estimation results. This is a convention often used for ease and simplicity of calculation and exposition and we follow this here.