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Higher education enrolments and graduate labour market statistics



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Introduction

This fact sheet provides information about the gender imbalances in higher education, graduation and after entering the workplace. It focuses on pay inequality, particularly the gender pay gap within study areas and industries.

Australian women outnumber men in higher education completion rates, yet gender pay gaps in graduate salaries persist in the majority of industries.

This fact sheet classifies fields of study, occupations and industries according to their gender dominance using the number of employees/students:

- 'Female-dominated' (60% or more women)
- 'Male-dominated' (40% or less women)
- 'Mixed' (41% to 59% women)

Key findings:

- Gender imbalance in higher education enrolments and course completions is in favour of women.
- Seven out of 13 fields of study are highly gender segregated. This includes Engineering and Related Technologies, where males comprise 84.4% of enrolments, and Education where females comprise 75.0% of enrolments.
- The proportion of women and men entering the labour market on a full-time basis is relatively high and gender balanced.
- Gender pay gaps are higher amongst individuals with postgraduate qualifications, with a pay discrepancy that reflects the average national gender pay gap.
- Salary data shows that a gender pay gap exists in favour of men across 17 out of 19 fields of study and across nine out of 13 industries.
- In economic terms, lower salaries mean that women receive lower rewards from investing in their tertiary education than men.

Higher education enrolments

Women's participation in higher education is expanding in Australia and women are more highly represented in overall enrolments.

- In 2001, women represented 55.9% of enrolled domestic students across all universities or other institutions that award some but not all of these degrees: Diplomas, Bachelors, Masters and Doctorate.
- By 2016, this had risen to 57.5%.¹

This means that there is gender imbalance in higher education in favour of women. However, women and men have different educational paths.

Table 1 displays the imbalance between women and men across fields of higher education:

- Women dominate in areas such as Education, Health, Creative Arts and Society and Culture.
- Men dominate in areas such as Information Technology and Engineering Related Technologies.

The data also shows that gender segregation across educational fields has not improved since 2001:

- Women's representation declined substantially in the male-dominated fields, particularly in Information Technology.
- Women's participation increased significantly in the field of Agriculture Environmental and Related Studies.
- Men's representation in female-dominated fields remained unchanged in most fields except in Creative Arts, where the representation of men has increased by 5.1 percentage points.

Table 1: Gender Composition of domestic enrolments by field of study, 2001 and 2016

Dominance (2016)	Field of Study	2001		2016		Change
		Female (%)	Male (%)	Female (%)	Male (%)	Female (pp.)
Female dominated	Creative Arts	66.1	33.9	61.1	38.9	-5.1
	Society and Culture	65.3	34.7	64.8	35.2	-0.6
	Education	75.3	24.7	75.0	25.0	-0.4
	Health	73.0	27.0	73.0	27.0	-0.1
Mixed	Management and Commerce	48.7	51.3	46.7	53.3	-2.1
	Natural and Physical Sciences	51.8	48.2	49.9	50.1	-1.8
	Agriculture Environmental and Related Studies	46.1	53.9	52.7	47.3	6.6
Male Dominated	Information Technology	25.7	74.3	16.4	83.6	-9.4
	Architecture and Building	38.5	61.5	38.9	61.1	0.4
	Engineering and Related Technologies	15.7	84.3	15.6	84.4	-0.1
Total		55.9	44.1	57.5	42.5	1.6

Source: Department of Education and Training (2017), Higher Education Statistics Data Cube (uCube)². Agency calculations.

Higher education award course completions

The Australian award course completion rate shows a gender imbalance where female graduates are outnumbering male graduates. The gender composition of higher education award course completions in 2016 show that a higher proportion of women graduated than men. Women currently represent 59.3% of all completed undergraduate and postgraduate higher degree courses.

Table 2: Award course completion for domestic undergraduate and postgraduate students by gender, 2016

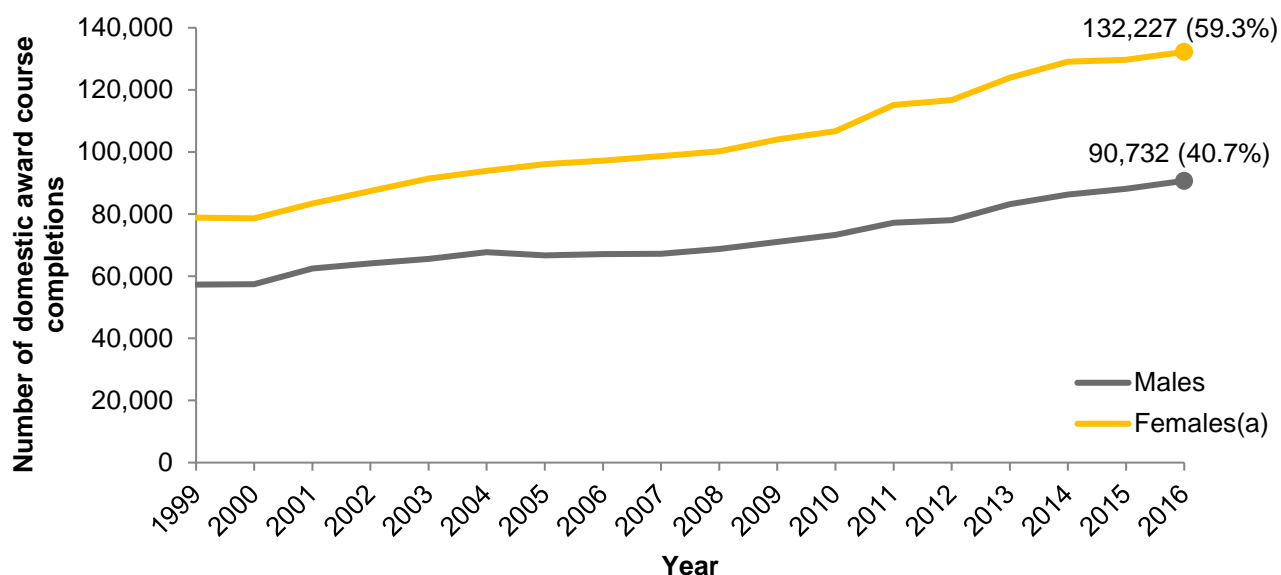
Award course completion by gender, 1999		Award course completion by gender, 2016	
Female	Male	Female	Male
57.9%	42.1%	59.3%	40.7%

Source: Department of Education and Training (2017), 2016 Full-Year Domestic Award Course Completions.³ Agency graph.

Figure 1 shows the number of students completing award courses by gender:

- Between 1999 and 2016, the higher education gender completion gap increased by 1.4 percentage points from 57.9% to 59.3% in favour of women.

Figure 1: Award course completion for all domestic students by gender, 1999-2016



Source: Department of Education and Training (2017), Full-Year Award Course Completions, Agency graph

- Note: (a) May include students who have requested their gender to be recorded as neither male nor female.

Undergraduate and postgraduate employment

The percentage of graduates entering the labour market within four months of leaving university is relatively high (90%). Table 3 shows a fairly gender balanced proportion of graduates entering the labour market and that:

- Full-time employment is higher after postgraduate study (coursework and research).
- Slightly more women than men entered full-time employment after undergraduate study.
- Slightly more men than women entered full-time employment after postgraduate coursework and postgraduate research.

Table 3: Undergraduate and postgraduate employment outcomes (within a year of graduating), 2016

	Undergraduate (3-year degree)		Postgraduate (Coursework)		Postgraduate (Research)	
	Female	Male	Female	Male	Female	Male
Full-time employment	72.1	71.2	85.2	87.3	80.3	80.5
Overall employment	87.7	84.2	93.1	91.8	90.7	90.6

Source: Quality Indicators for Learning and Teaching (QILT) (2017), Graduate Outcome Survey National Report.⁴ Agency graph.

Undergraduate gender pay gap by study area

This section explores median undergraduate starting salaries and the gender pay gap based on fields of education. It uses data from the National Graduate Outcome Survey, conducted by the Social Research Centre, Quality Indicators for Learning and Teaching.

The gender pay gap is the difference between women's and men's average weekly full-time equivalent earnings. The equal pay legislation, such as the Federal industrial legislation (the *Workplace Relations Act 1996* and the *Sex Discrimination Act 1984*) provide a legal requirement for employers to pay women and men equal remuneration for work of equal or comparable value.

Differences in methods

Hourly earnings refer to the level of payment an employee receives for one hour's worth of work. This measure may compare individuals working full-time, part-time and casually, based on their hourly earnings.

Average weekly earnings refers to the earnings of an employee based on a working week. To ensure fair comparisons, this measure is generally produced based on all employees as well as separately for full-time employees only.

Annualised earnings refer to earnings that have been converted to the equivalent of a full-time, full-year salary. This allows for the fair comparison between employees who work part-time or for part of the year and employees who work for full-time for the entire year.

Gender pay gaps are commonly calculated on **mean** (average) or **median** earnings values.

Median is the middle figure in a list of a numbers.

Mean is the average of a list of numbers (all the numbers being added together, and then divided by how many numbers there were).

There are many factors that impact on the gender pay gap, and legislation cannot control events over the life course of a working woman. Contributing factors to women's pay disadvantage include taking time out of the workforce or working part-time while caring for others.

The data evidence from 2017 confirms that graduate gender pay gaps exist in favour of men in most fields of study. Men's undergraduate median starting salaries were greater than women's in 17 out of 19 fields of education.

- The mixed study area of Dentistry had the largest gender pay gap, with men earning 20.6% more than women.
- The male-dominated study fields of Architecture and Building Environment, and Science and Mathematics had the large differences in starting salaries, with men earning 13.0% and 3.9% more than women.
- The smallest differences in starting salaries were in Medicine, Social work and Communications.
- In the male-dominated study area Engineering the gender pay gap slightly favours women.
- Women face a 5.2% gender pay gap in Business and Management, yet enrolments in Management and Commerce are relatively gender balanced.

**Table 4: Undergraduate median full-time salaries and gender pay gaps by study area, 2017
(sorted by largest to smallest gender pay gap)**

Study area	Female (\$,000)	Male (\$,000)	Difference (\$,000)	GPG (%)
Dentistry	75.1	94.6	19.5	20.6
Architecture and built environment	52.2	60.0	7.8	13.0
Law and paralegal studies	58.0	63.0	5.0	7.9
Humanities, culture and social sciences	55.1	59.6	4.5	7.6
Tourism, hospitality, personal services, sport and recreation	51.8	55.0	3.2	5.8
Psychology	56.6	60.0	3.4	5.7
Business and management	55.0	58.0	3.0	5.2
Creative Arts	47.2	49.6	2.4	4.8
Pharmacy	43.8	45.9	2.1	4.6
Agriculture and environmental studies	55.0	57.4	2.4	4.2
Science and mathematics	56.9	59.2	2.3	3.9
Health services and support	60.5	62.6	2.1	3.4
Rehabilitation	60.5	62.6	2.1	3.4
Computing and information systems	58.0	60.0	2.0	3.3
Nursing	60.0	62.0	2.0	3.2
Teacher education	63.4	65.0	1.6	2.5
Engineering	65.0	63.5	-1.5	-2.4
Medicine	70.0	71.0	1.0	1.4
Social work	62.5	63.2	0.7	1.1
Communications	50.0	50.0	0.0	0.0
All study areas	59.0	60.1	1.1	1.8

Source: Quality Indicators for Learning and Teaching (QILT) (2017), Graduate Outcome Survey National Report, Agency calculations.

Postgraduate gender pay gap by study area

This section explores median postgraduate salaries and the gender pay gap based on fields of education. It uses data from the National Graduate Outcome Survey, conducted by the Social Research Centre, Quality Indicators for Learning and Teaching.

Postgraduate study links to improved employment outcomes. The postgraduate employment rate is higher than the undergraduate employment rate (Table 3). Median wages amongst postgraduates are substantially higher than the undergraduate median wages.

The data from 2017 confirm that postgraduate gender pay gaps exist in favour of men in most fields of study. In fact, the median overall postgraduate gender pay gap of 16.5% reflects Australia's full-time gender pay gap of 15.3% in 2017.⁵

Men's postgraduate median salaries were greater than women's in 17 out of 19 fields of education.

- The male-dominated study fields of Architecture and Building Environment, Engineering and Computing and Information Systems had the largest differences in postgraduate salaries, with men earning 19.7%, 16.7% and 14.8% more than women.
- Dentistry and Pharmacy have gender pay gaps in favour of women, with women earning 12.4% and 9.4% more than men.
- Women face a 16.5% gender pay gap in Business and Management, yet enrolments in Management and Commerce are relatively gender balanced.

Table 5: Postgraduate (coursework) median full-time salaries and gender pay gaps by study area, 2017 (sorted by largest to smallest gender pay gap)

Study area	Female (\$,000)	Male (\$,000)	Difference (\$,000)	GPG (%)
Agriculture and environmental studies	70.0	87.2	17.2	19.7
Engineering	75.0	90.0	15.0	16.7
Business and management	98.0	117.4	19.4	16.5
Computing and Information Systems	78.0	91.5	13.5	14.8
Medicine	77.5	89.0	11.5	12.9
Health services and support	81.4	93.0	11.6	12.5
Dentistry	112.0	100.0	-12.0	-12.0
Humanities, culture and social sciences	74.0	83.5	9.5	11.4
Pharmacy	67.8	62.0	-5.8	-9.4
Psychology	75.0	82.1	7.1	8.6
Teacher education	73.0	79.2	6.2	7.8
Architecture and built environment	59.3	64.0	4.7	7.3
Law and paralegal studies	70.0	75.1	5.1	6.8
Science and Mathematics	76.0	81.0	5.0	6.2
Social work	68.0	71.9	3.9	5.4
Nursing	79.3	83.5	4.2	5.0
Communications	65.0	67.8	2.8	4.1
Rehabilitation	65.0	66.6	1.6	2.4
Creative Arts	65.0	65.8	0.8	1.2
All study areas	76.0	91.0	15	16.5

Source: Quality Indicators for Learning and Teaching (QILT) (2017), Graduate Outcome Survey National Report, Agency calculations

Graduate program gender pay gap by industry

Based on total remuneration, the gender pay gap for a graduate trainee exists in all industries and data also reveals pay differences across all industry categories. The Agency's data-set classifies 'graduates' as any person employed in a formal graduate program. This means that 'graduates' does not refer to all individuals who have recently graduated from a tertiary education institution.

The starting remunerationⁱ for graduate trainees reveals some stark differences across industries:

- The lowest graduate trainee remuneration salaries for women and men are in the industries of Wholesale Trade and Information Media and Telecommunications.
- The highest graduate trainee remuneration salaries for women and men are in Mining and Electricity, Gas, Water and Waste Services industries.

The evidence shows that a graduate remuneration gender pay gap, in favour of men, exists in nine out of 13 industries.

- The female-dominated Health Care and Social Assistance sector has the largest graduate trainee gender pay gap, of 8.7% in favour of men.
- The male-dominated Construction industry and the mixed-industry of Professional, Scientific and Technical Services have the highest graduate gender pay gap in favour of women (-4.9% and -1.1% respectively).
- The mixed-industry of Financial and Insurance Services and the male-dominated Transport, Postal and Warehousing industry have the second and third highest gender pay gaps in favour of men, 7.1% and 6.7% respectively.
- While a high proportion of women are enrolled in Business and Management at university, women do face a significant graduate gender pay gap of 7.1% when working in the Financial and Insurance services.

Table 6: Median remuneration and gender pay gaps for professional graduates by industry, 2016

2015-16					
Industry		Female (\$,000)	Male (\$,000)	Difference (\$,000)	GPG (%)
Women earn more	Construction	71.0	67.5	-3.5	-4.9
	Professional, Scientific and Technical	65.7	65.0	-0.7	-1.1
	Mining	105.1	104.1	-1.0	-0.9
	Rental, Hiring and Real Estate Services	70.9	70.5	-0.3	-0.5
Women earn less	Health Care and Social Assistance	65.0	71.2	6.2	8.7
	Financial and Insurance Services	65.0	70.0	5.0	7.1
	Transport, Postal and Warehousing	70.0	75.0	5.0	6.7
	Manufacturing	71.1	75.3	4.3	5.7
	Information Media and Telecommunications	60.7	63	2.3	3.6
	Electricity, Gas, Water and Waste Services	78.7	81.3	2.6	3.2
	Public Administration and Safety	64.2	65	0.8	1.2
	Wholesale Trade	63.5	64.3	0.8	1.2
	Education and Training	71.3	71.6	0.3	0.5
	Total	68.5	70.0	1.5	2.1

Source: BCEC|WGEA, Gender Equity Insights (2017).⁶

ⁱ Total remuneration includes base salary, superannuation, performance pay, bonuses, allowances and other discretionary pay.

Conclusion

Gender segregation starts at a young age and in many cases before young people even enter the employment market.

- Higher education enrolments are highly gender segregated. More men study architecture, engineering and information technology, while more women study health and education.
- Women outnumber men in higher education course completions.
- Gender pay gaps exist at the entry level of the labour market with men's starting salaries higher than women's in 17 out of 19 fields of education.
- Gender pay gaps surge amongst postgraduates, with men's salaries higher than women's in 17 out of 19 fields of education.
- Graduate trainee gender pay gaps by industry show that one female-dominated industry has a gender pay gap in favour of men (Health Care and Social Assistance), while some male-dominated industries have a gender pay gap in favour of women (Construction and Mining).

While more women than men graduate from higher education institutions and receive the same education as men, women continue to be undervalued in the majority of study fields and industries at the start of their career. The data confirms stark graduate and postgraduate gender pay gaps across the majority of study fields and industries in Australia.

In economic terms, lower salaries mean that women receive lower rewards from investing in their tertiary education than men.

¹ Department of Education and Training (2016), Domestic Enrolments Inclusive of Undergraduate and postgraduate enrolments, commencing and continuing students, accessed 6 February 2018, <http://highereducationstatistics.education.gov.au/>. Sorted by % female enrolments in 2016.

² Department of Education and Training (2016), Domestic Enrolments Inclusive of Undergraduate and postgraduate enrolments, commencing and continuing students, accessed 6 February 2018, <http://highereducationstatistics.education.gov.au/>. Sorted by % female enrolments in 2016.

³ Department of Education and Training (2015), Full-year Award Course Completions, Accessed 20 February 2017, <https://www.education.gov.au/selected-higher-education-statistics-2015-student-data>.

⁴ Quality Indicators for Learning and Teaching (QILT) (2017), Graduate Outcome Survey National Report, Accessed 8 February 2018, https://www.qilt.edu.au/docs/default-source/gos-reports/2017/2017_gos_national_report_final_accessiblea45d8791b1e86477b58fff00006709da.pdf?sfvrsn=ceb5e33c_4

⁵ WGEA (2017), Australia's gender pay gap statistics, available: <https://www.wgea.gov.au/sites/default/files/gender-pay-gap-statistics.pdf>

⁶ Quality Indicators for Learning and Teaching (QILT) (2017), Graduate Outcome Survey National Report, accessed 8 February 2018, https://www.qilt.edu.au/docs/default-source/gos-reports/2017/2017_gos_national_report_final_accessiblea45d8791b1e86477b58fff00006709da.pdf?sfvrsn=ceb5e33c_4