

Applications, offers and acceptances of places in university entry level engineering courses: annual monitoring report 2017

Key Points

Engineers Australia believes that Australia needs to reduce its overdependence on migrant engineers by becoming more self-sufficient in educating its own engineers. With this in mind the organisation annually monitors applications for places in university engineering courses, offers of places made to these students and acceptances of places.

This Public Affairs Note is the 2017 report that reviews statistics up to 2016. These statistics contain good and bad news.

The bad news is that acceptances of places in university engineering courses are falling. For some years, acceptances have been stable with a falling trend in acceptances through the TAC process offset by increases in acceptances from direct applicants. In 2016, acceptances by the direct applicant group also fell, so that overall acceptances of 10,650 were below the level achieved in 2011. While acceptances fell for both genders, the key driver was a fall in acceptances by men.

The good news is that engineering continues to attract high standard students. Engineering has proportionally more applicants receiving offers of places in the highest ATAR brackets and proportionally fewer applicants in the lowest ATAR brackets than offers made across all subject areas. Women who received offers of places in engineering were particularly of high standard and there is untapped potential to do better. Although, proportionally, men receiving offers of places in engineering were also of high standard, recruiting more of them in the future will be much more challenging.

Objective

Since the 2011 census, the engineering profession in Australia has been majority overseas born. "Overseas born" is not precisely the same as "migration" but we know that about 84 per cent of the increase in overseas born engineers between 2006 and 2011 censuses were recently arrived migrants. The difference was entry to engineering by overseas born individuals who arrived in Australia before 2006 and either were newly graduated or re-joined the labour market attracted by the high demand for engineers at that time.

There are risks associated with an overdependence on migrant engineers and these are described in Engineers Australia's position statement on skilled migration. The situation for engineers is well out of line with professionals in other areas. The organisation's policy view is that Australia needs to develop more of its own engineers to reduce our overdependence. For this reason, Engineers Australia annually monitors trends in applications for places in engineering at Australian universities, the offers made by universities in response and the subsequent acceptances of offers by prospective students. This Policy Note reports on trends up to and including 2016.

Background

Universities receive applications for places from two groups: first, students completing year 12 the year prior to commencing their university courses apply for places through Tertiary Acceptance Centres (TACs), and second, a growing number of students have been applying directly to universities for places. This group includes graduates in other fields, students with incomplete tertiary studies, year 12 graduates who put off their decision to go to university and mature age applicants. In past monitoring reports this distinction was not made because appropriate statistics were not available. This is no longer the case and it is now possible to analyse the interaction between the two sets of statistic.

Some of the statistics we rely on are published annually by the Department of Education and Training¹, however most are not. We acknowledge and thank the staff of the Performance and Analysis Section of the Department for making available unpublished statistics relating to places in engineering. These statistics include gender and statistics on Australian tertiary acceptance ranks (ATAR) for engineering.

Trends in applications, offers and acceptances

Trends in applications for places, offers made by universities in response and acceptances of these offers by students completing year 12 through TACs are shown in Table 1 for the period 2010 to 2016 inclusive. The trends in these statistics are illustrated in Figure 1.

Applications increased until 2013 and have since fallen. In 2016, there were 16,493 applications for places, 13,942 by young men and 2,541 or 15.4 per cent by young women. In 2016 applications for places in engineering fell below the level achieved in 2010. The main driver of this change was applications from young men which fell by 6.5 per cent and 7.1 per cent, respectively in 2014 and 2015. This situation stabilised in 2016 when the 2015 result was repeated. Applications of places from young women were more unpredictable; increasing to 2013 then alternating falls and increases in subsequent years. In 2016, applications from young women fell by 1.7 per cent, but were higher than in any year other than 2015.

Table 1: The TAC admission process for engineering courses

Applications for places

Year	2010	2011	2012	2013	2014	2015	2016
Women	2058	2117	2272	2524	2439	2584	2541
Men	14655	15042	15952	16046	15011	13944	13942
Cohort	16713	17159	18224	18570	17450	16528	16493

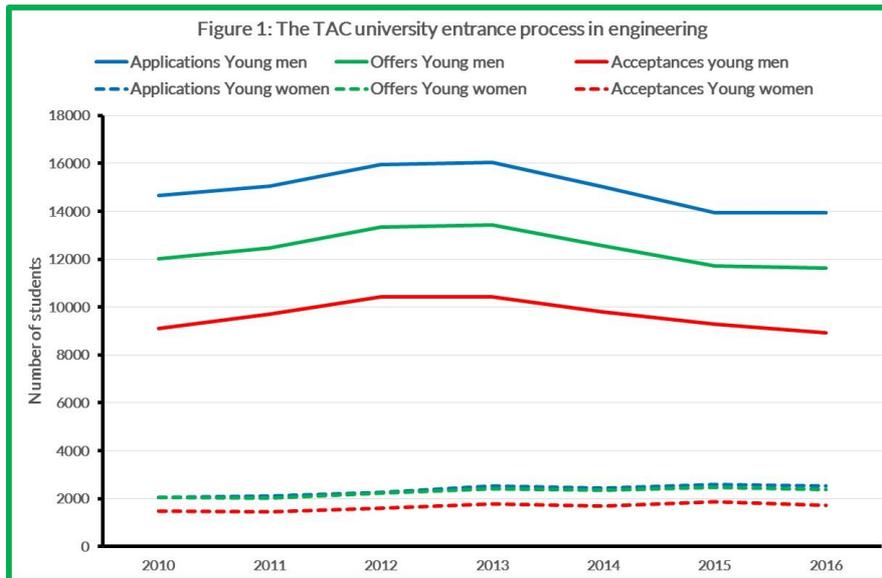
Offers made by universities

Young women	2050	2015	2242	2427	2339	2482	2375
Young men	12033	12474	13344	13424	12547	11729	11624
Cohort	14083	14489	15586	15851	14886	14108	14007

Acceptances of offers

Women	1492	1449	1608	1794	1696	1860	1722
Men	9099	9701	10438	10431	9807	9297	8920
Cohort	10591	11150	12046	12225	11503	11158	10650

¹ Department of Education and Training, Undergraduate Applications, Offers and Acceptances 2016, www.education.gov.au



About 85 per cent of applicants for places receive offers but there is some annual variability. For young men, the offer rate is in the low 80 per cents, it was 83.4 per cent in 2016, slightly lower than in 2015 and it resulted in a 0.9 per cent fall in offers. As can be seen in Figure 1, almost every young women applicants receive an offer of a place. The offer rate typically has been in the high 90 per cents but in 2016 was 93.5 per cent, somewhat lower than in past years. This resulted in a fall of 4.3 per cent of young women receiving offers in 2016 compared to 2015.

Typically, about two-thirds of applicants for places in engineering accept offers from universities. Overall acceptances have effectively flat-lined with the exception of 2012. Acceptances from young men have fallen since 2013 when there was a small fall of 0.1 per cent. In the subsequent three years, acceptances have fallen by 6.0 per cent, 5.2 per cent and 4.1 per cent, respectively. In 2016, there were acceptances of places from 8,920 young men, lower than any year since 2010.

Acceptances from young women have been unevenly trending upwards. In 2016, there were 1,722 acceptances from this group which partially offset the fall from young men. The result was that total acceptances of places in 2016 were 10,650, marginally higher than the 2010 level, but below the levels of all other years.

Table 2: Direct application admission process for engineering courses

Applications for places

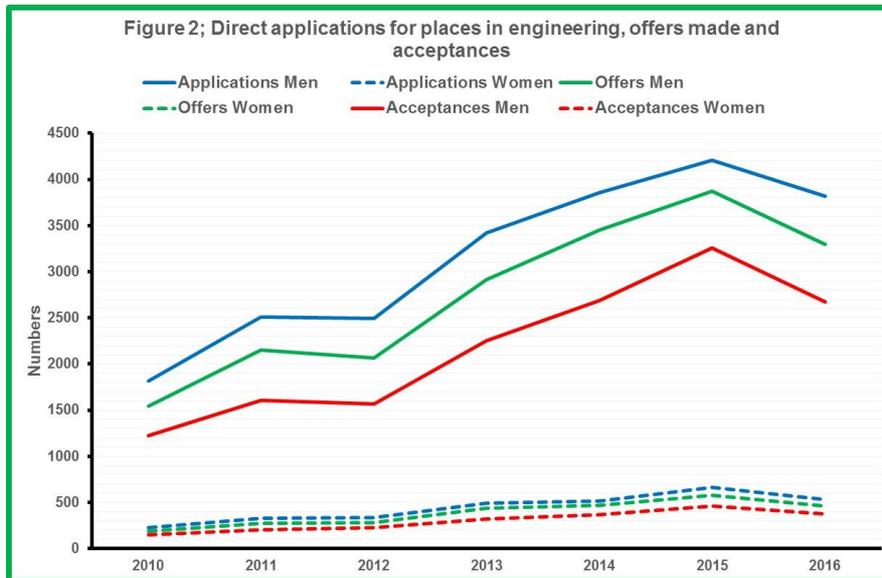
Year	2010	2011	2012	2013	2014	2015	2016
Women	226	325	338	492	517	664	533
Men	1812	2510	2497	3422	3857	4209	3819
Cohort	2038	2835	2835	3914	4374	4873	4352

Offers made by universities

Women	189	275	284	440	468	581	458
Men	1546	2153	2069	2914	3455	3872	3297
Cohort	1735	2428	2353	3354	3923	4453	3755

Acceptances of offers

Female	148	203	230	324	363	461	374
Male	1221	1606	1564	2249	2687	3254	2674
Total	1369	1809	1794	2573	3050	3715	3048

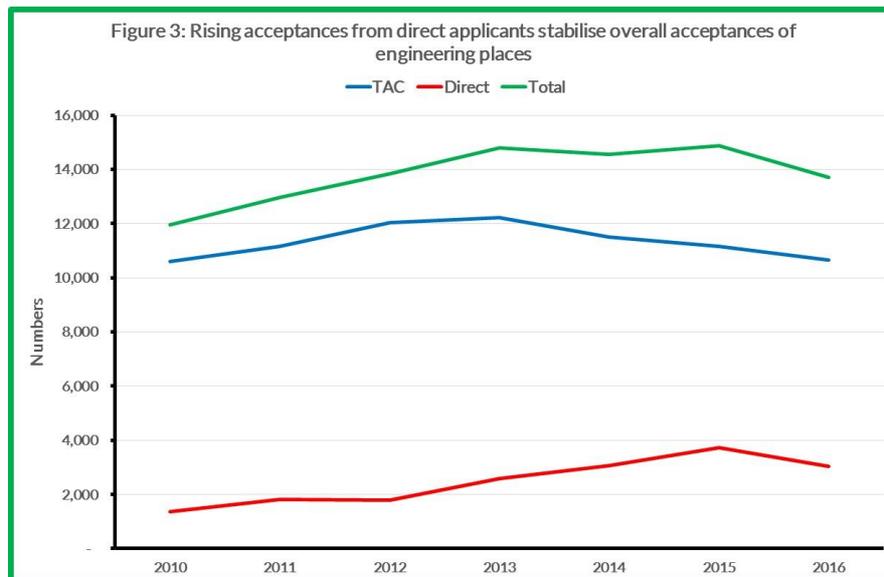


Direct applications for places in engineering, offers made in response and acceptances of these offers are shown in Table 2. The trends in these statistics are illustrated in Figure 2.

In 2010, there were 2,038 direct applications to universities for places in engineering, 10.9 per cent of all applications for places. Applications for places from this source have grown much faster than applications through the TACs, culminating in a peak of 4,873 in 2015, over twice the 2010 level. In 2016, this trend changed abruptly and direct applications for places in engineering fell by 9.3 per cent to 4,352 just below the 2014 level. Direct applications for places are more important for men than women. The 2016 figures represent 18.3 per cent of total applications and those from women 2.5 per cent of total applications.

Overall offer rates were slightly higher than in the case of TAC applicants driven mainly by higher offer rates to men. Offer rates to direct applicant women were well below those for the TAC group but comparable to direct applicant men. In 2016, 86.3 per cent of direct applicants received an offer, 86.3 per cent for men and 85.9 per cent for women.

Acceptance rates from direct applicants for places have generally been comparable to TAC applicants, but have been noticeably higher in the past three years. In 2014, 65.9 per cent of TAC applicants accepted places compared to 69.7 per cent of direct applicants. In 2015, the comparison was 67.5 per cent for TAC applicants and 76.2 per cent for direct applicants and in 2016 it was 64.6 per cent for TAC applicants and 70.0 per cent for direct applicants.



The interaction between the two application processes is illustrated in Figure 3 where we show the trends in acceptances from the two groups and overall acceptances. Acceptances through the TAC process peaked at 12,225 in 2013 and have steadily fallen since. In 2016, there were 10,650 acceptances from this source. In contrast, acceptances from direct applicants continued to grow with occasional annual falls to peak at 3,715 in 2015. The growth of direct applicants accepting places in engineering offset the falls from the TAC group stabilising the overall situation. However, in 2016, acceptances from both groups fell, ending three years of comparative stability.

The standard of applicants receiving offers of places

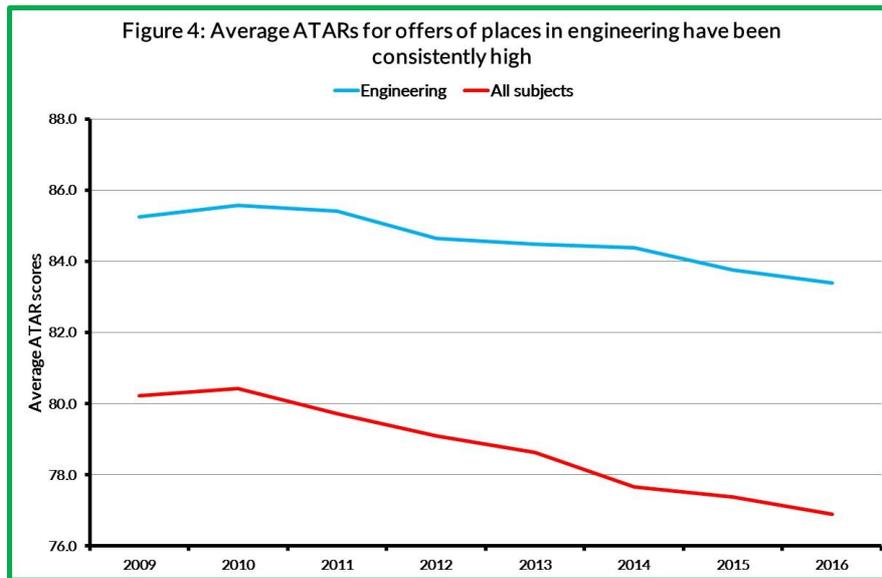
This section discusses the standard of applicants offered university places with reference to the average Australian tertiary acceptance rank (ATAR). ATAR scores are available only for applicants through the TAC process. Some limited information is available about the basis for offers made to direct applicants, but these statistics are about headcounts relating to applicant background and are not amenable as measures of standard. There are numerous critiques of ATAR as a measure, but at the moment it is the only consistent measure available.

Although the average ATAR for students offered places in university courses has fallen, there is a substantial gap between offers in engineering and offers generally. The lowest average for engineering, 83.4 in 2016, is some 3.4 higher than the highest average of 80.2 in 2009 for all offers. Further information about the reasons behind the downwards trends is necessary for further evaluation.

In 2016, the average ATAR for students offered a place in engineering was 83.4. This was 0.4 lower than in 2015 continuing a downwards trend since 2010, a trend illustrated in Figure 4. In comparison, the average ATAR for students offered places in all subjects in 2016 was 76.9, again the continuation of a falling trend illustrated in Figure 4. We observe that although both trends are in decline, the gap between them is getting larger with the trend reduction in ATAR for engineering less than across all subjects.

Another way to reflect on the standard of applicants offered places is to consider the proportion of them who fall into the highest bracket of ATAR ranks. The Department of Education and Training has provided statistics on the number of applicants offered places within six bands, the highest of which is ATARs of 90.05 or more. Applicants in this group have results that are ranked higher than 90.05 per cent of year 12 students. In Figure 5 we compare the proportion of applicants in this bracket offered

places in engineering compared to the proportion of applicants offered places in all subjects. This information was provided by gender.



In 2016, offers of places were made to 128,777 students through the TAC process and 26.9 per cent of them were in the top ATAR bracket. There were substantially more young women (20,118) than young men (14,504), but the proportions in the top bracket were fairly similar, 27.4 per cent of women and 26.3 per cent of men. Figure 5 traces these proportions since 2009 and shows a slight downwards trend but with the two genders closely together. In Figure 5 we also include the proportions of applicants offered places in engineering who were in the top ATAR bracket. We can make two observations about these trends:

- The proportions of applicants offered places in engineering who were in the top ATAR bracket is substantially higher than these proportions in all subjects. The gap between the engineering and all subject trends are large supporting the view that engineering continues to attract and offer places to proportionally more of the best students than is the case for offers generally.
- The second observation relates to the gender balance in engineering compared to offers generally. In engineering 1,077 women offered places were in the highest ATAR bracket. This was 5.4 per cent of all women offered university places in this ATAR bracket. The number of men in this bracket offered places in engineering was 3,155, almost three times as many women, but this group was 21.8 per cent of all men in this ATAR bracket.

Although a high proportion of women offered places in engineering (58.9 per cent) are in the top ATAR bracket, this group is only 5.4 per cent of women in this bracket. The proportion of men offered places in engineering who are in the highest ATAR bracket is also high (37.0 per cent) and is substantially higher than men (26.3 per cent) or women (27.4 per cent) offered places across all subjects, but this group constitutes 21.8 per cent of offers made in this ATAR bracket. The potential to recruit more women to engineering from the top ATAR bracket is high, providing the areas they studied are appropriate, but the potential to recruit more men is far more challenging.

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