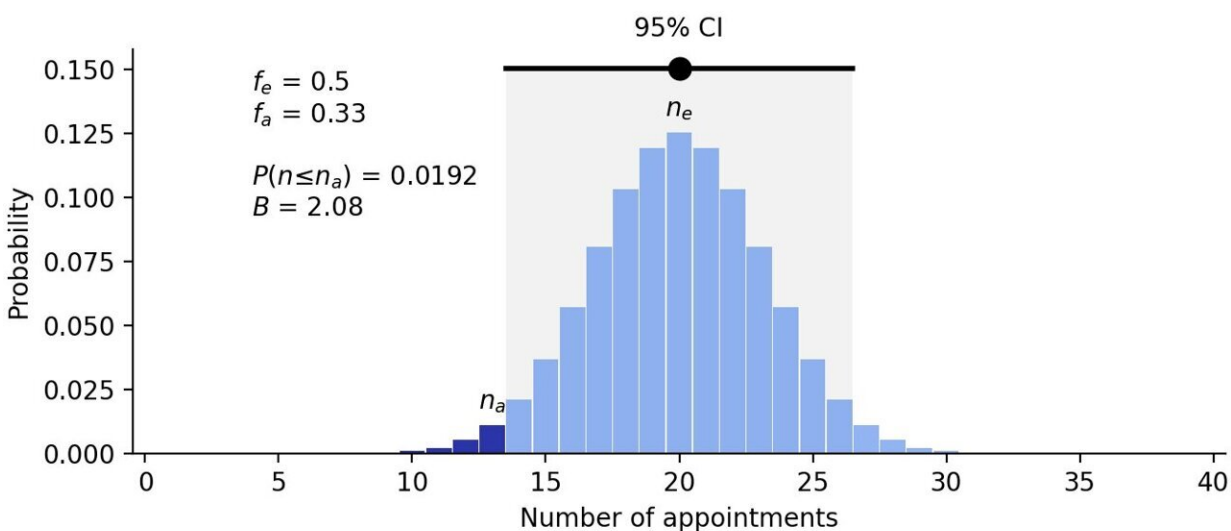


# Gender and racial discrimination uncovered in leadership positions at Australia's leading universities

March 15 2024, by Bob Yirka

(a) Expected ( $n_e = 20$ ) vs. actual ( $n_a = 13$ ) out of  $n_t = 40$  appointments



(b) Predicted distribution of future appointments



Sex discrimination in Australian VC selection. (a) Probability of different numbers  $n$  of female appointees out of 40 VCs, assuming women represent 50% of the pool of qualified applicants and the process is unbiased. Dark shading shows cases where  $n$  is less than or equal to the actual number ( $n_a = 13$ ) of women appointed. (b) Inferred distribution of the number  $N$  of women who would be appointed if multiple fresh selections of 40 VCs were made using the

same procedures, given that they actually chose 13, also showing its 95% CI with a dot at na. Credit: *PLOS ONE* (2024). DOI: 10.1371/journal.pone.0299870

A professor and a complex systems researcher at the University of Sydney has found, through the use of a quantitative measurement statistical tool, that instances of gender and racial discrimination occur in leadership positions at Australia's most influential universities.

In their study, [posted](#) on the open access site *PLOS ONE*, Peter Robinson and Cliff Kerr used a [statistical tool](#) to make estimates of the likelihood of the percentage of university vice chancellor positions compared to the actual numbers.

Recently, an article was published in the newspaper *The Australian* claiming that of the 40 vice chancellor positions held at Australia's top universities, only 13 were female and only one was not of European ancestry. That led the researchers to look into the claim to determine whether it was accurate and then to determine if the ratio could be due to merit or chance, or whether, as was claimed in the article, it was due to discrimination.

To start their effort, the researchers noted a lack of an objective analysis by the reporter, suggesting the findings were up to conjecture. Thus, it was not clear if the results were examples of bias.

They then noted that discrimination and bias in the university appointment process are the type of activities that can be quantified statistically using binomial distribution procedures. Such procedures have been automated and made available to the casual user—the web app *BinomialBias*, for example. In their work, they used *BinomialBias* to calculate the chance of the number of vice chancellors matching the

actual numbers.

They found, as one example, that if half of the qualified pool of applicants for a vice chancellor position were women and that if gender was not allowed to be a deciding factor, then at least 20 women should be appointed on average. They then found that the chance of there being only 13 positions filled by women would be just 2% if there were no bias or discrimination involved. They also found that the chance of there just being one non-European vice chancellor, if the process was nondiscriminatory, to be 1 in 27 billion.

**More information:** P. A. Robinson et al, Quantitative measures of discrimination with application to appointment processes, *PLOS ONE* (2024). [DOI: 10.1371/journal.pone.0299870](https://doi.org/10.1371/journal.pone.0299870)

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