

Gender Inequality in the Economics Profession in Aotearoa New Zealand

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1. Introduction

In this report we study the gender composition in Economics in Aotearoa New Zealand. This report follows the release of the NZAE's diversity and inclusion strategy and provides a stocktake of the gender composition at New Zealand Universities for the field of Economics. We do acknowledge that there are various other relevant dimensions of inequality and leave the investigation of these to the future. In the following, we will collect and present data on the gender composition and compare our results with corresponding information for the US, Australia, and think tanks in Aotearoa New Zealand as well as across disciplines. The analysis in this report is purely positive and no normative statements will be made, nor should they be drawn from this analysis.

The average woman's socio-economic outcomes have changed dramatically over past decades (e.g. Blau and Kahn, 2017). However, significant differences persist along various dimensions, including the labour market (Goldin et al. 2017; Charles et al. 2018). Gender differences also exist in academia (Ginther, 2002; 2003; Leslie et al., 2015; Huang et al., 2020), including Economics (Kahn, 1995; Buckles, 2019; Lundberg and Stearns, 2019).

Gender differences measured by the number of male and female authors, productivity (citations, publications, h-Index), or salaries are a persistent feature across time, countries, and disciplines (e.g. Ginther, 2002; 2003; Huang et al., 2020). In Economics, these differences have been documented as early as 1974 in a paper by Gordon et al. (1974), who showed that women earned about 11 percent less compared to men at an undisclosed University. Kahn (1995) documents similarities between men and women when it comes to undergraduate grades, admission rates to PhD programs, first job offers, and publication rates when controlling for rank of the PhD granting University or the current employer (see Hilmer and Hilmer, 2007 for contradicting results). Gender differences are found for application rates for PhD programs, drop-out rates from PhD studies, salaries, and promotions (cf. Ginther, 2003; Blackaby et al., 2005). Ginther (2002) and Buckles (2019) find that women are under-represented in the upper ranks and are less likely to receive tenure compared to men. Lundberg and Stearns (2019) argue that progress has stalled relative to other disciplines. They show that the proportion of women entering the economics market has stalled relative to other disciplines.

Various reasons for these findings have been put forward (see Huang et al., 2020 for an overview). Differences in job mobility have been shown by Blackaby et al. (2005) and Hilmer and Hilmer (2010). The former show that men receive more outside offers compared to women

in the UK and the latter show that women tend to move downward while men move horizontally or upward after graduating (with a PhD). Babcock et al. (2017) find that women are more likely to volunteer for service positions, are more likely to be asked to volunteer, and more likely to accept when asked compared to men. Since service positions reduce research time and are less valued relative to publications, this could affect career progression. Boustan and Langan (2019) argue that early career success of women depends on the number of women in the Department the student studies towards her Ph.D., advisor-student contact, and collegial research seminars. Abrevaya and Hamermesh (2012), Astegiano et al. (2019), and Card et al. (2020) present evidence that the publishing process does not show a bias against female authors.

An important driver of gender differences in academia appears to be networks. Overall, the number of co-authors has increased from 1.3 in 1970 to 2.3 in 2012 (Card and DellaVigna, 2013). Various papers have recently shown the increasing role of teams in the production of knowledge (Wuchty et al., 2007; Freeman and Huang, 2015). Networks are important because they improve the exchange of information, create various positive spill-over effects, allow specialisation, insure against risks, and increases the number and size of projects (Adams, 2013; Bosquet and Combes, 2017; Borjas and Doran, 2015; Bailey et al., 2018). Azoulay et al. (2010) use the death of a superstar economist as a source of exogenous variation in the co-authorship network. They find that after the death of the superstar, collaborators face a 5-8 percent drop in quality-adjusted publication rates. Besides the effect on productivity, Combes et al. (2008) find that networks increase the probability of being hired. Using data from the centralized hiring process for economics Professors in France, they show that not being linked to the jury requires a much better publication record as compensation. Gender differences in networks of economists were first documented by Ferber and Teiman (1980) and McDowell and Smith (1992). They find that economists tend to co-author with colleagues of the same gender. For women, this contributes to a lower number of publications and, consequently, to a lower probability of being promoted compared to men. McDowell et al. (2007) use data from the AEA directories. They find that women in the top departments are less likely to co-author. However, when they only consider top journals, they find that women are more likely to co-author. They argue that networks affect the joint decision to co-author and publish. Boschini and Sjögren (2007) and Ductor et al. (2018) both show that women are more likely to single-author and have less co-authors compared with men. Lindenlaub and Prummer (2020) also find that men have larger networks, but they show that women have denser networks. In Agarwal

et al. (2016) the authors show that women have more success when they network more with men.

The report is structured as follows. The next section presents data on gender diversity in New Zealand and section 2 discusses the data set construction, section 3 discusses the findings, and section 4 briefly concludes.

2. Data Set Construction

In April 2022, we collected information on the gender composition of academic staff members (Lecturer, Senior Lecturer, Associate Professor, Professor) at Ph.D. granting institutions in New Zealand. These are the following Universities: Auckland University of Technology, Lincoln University, Massey University, University of Auckland, University of Canterbury, University of Otago, University of Waikato, and Victoria University of Wellington.

Information are taken from the respective, publicly available Departmental webpages and are limited to Economics. For “joint” Departments, only researchers active in Economics are considered. We exclude Professor emeritus, honorary positions, research fellows, teaching fellows, and other non-PhD holding staff. Gender classifications are made by relying on gender name databases created by machine learning algorithms, as a survey with the required 100 percent participation rate is unlikely to be achieved.

For comparison purposes, we also collect information for the US, Australia, and think tanks and consultancies in New Zealand. Data for the US is taken from Minehan and Wesselbaum (2022) and is based on a data gathering exercise using individual researcher’s CVs. Data for Australia is collected for the Group of 8 Universities.² Information is taken from the respective Departmental webpages. The same restrictions as for New Zealand apply to the US and Australia. For think tanks and consultancies in New Zealand we also use publicly available information from their respective webpages. Data for students is obtained via requests to the Head of Schools/Departments of Economics Department. We appreciate the support we have received from them in collecting information.

3. Results

Table 1 presents the aggregate statistics across Universities and Table A.1 in the appendix presents statistics by University. The results show that, overall, 80% of Economists in the

² These are: ANU, Monash University, University of Adelaide, University of Melbourne, University of New South Wales, University of Queensland, University of Sydney, University of Western Australia.

sample are male. At the Professor level, 84% are male and at the Associate Professor level 96% are male. At junior levels, the data shows that 79% of Economists at the Senior Lecturer level are male and at the Lecturer level, we find that 43% are male. This is the only time in the data collection exercise in this report in academia, that we find more females than males.

Table 1: Aggregate Statistics

	Male	Female	<i>Total</i>	Ratio (Male)
Professor	38	7	45	84
Associate Professor	23	1	24	96
Senior Lecturer	38	10	48	79
Lecturer	6	8	14	43
<i>Total</i>	105	26	131	80

The numbers in Table 1 are meaningless without reference points. Therefore, Table 2 presents the gender breakdown of the Top 100 Universities in the United States (sourced from Minehan and Wesselbaum, 2022). The results show that the Universities in New Zealand have a similar gender distribution compared to the Top 100 US Departments. The overall male ratio is almost identical: 79% to 80%. In fact, New Zealand has the same gender ratio for Professors (84%) and Assistant Professors (71%). However, a larger share of Economists is male at the Associate Professor level in New Zealand compared to the US (96% vs. 75%).

Table 2: US – Top 100

	Male	Female	<i>Total</i>	Ratio (Male)	NZ Ratio (Male)
Professor	1,077	203	1,280	84	84
Associate Professor	364	120	484	75	96
Assistant Professor	499	208	707	71	71
<i>Total</i>	1,940	531	2,471	79	80

Notes: Assistant Professor in the US is equivalent to Senior Lecturer plus Lecturer.

In Table 3, we compare New Zealand with the Group of 8 Universities in Australia. We find that, overall, the male ratio is lower in Australia compared to New Zealand (71% vs. 80%). While at the Professor level the difference is the smallest (71% vs. 74%), it is largest at the Associate Professor level (71% vs. 96%). Further, we find a lower share of male Economists at the Senior Lecturer level in Australia compared to New Zealand (70% vs. 79%). Only at the Lecturer level do we find that New Zealand has a lower share of males (43% vs. 59%) compared to Australia.

Table 3: Australia – Group of 8

	Male	Female	<i>Total</i>	Ratio (Male)	NZ Ratio (Male)
Professor	83	20	103	81	84
Associate Professor	61	25	86	71	96
Senior Lecturer	68	29	97	70	79
Lecturer	47	33	80	59	43
<i>Total</i>	259	107	366	71	80

A different reference point is gender diversity outside of academia. Table 4 presents the statistics for selected think tanks and other consulting firms in New Zealand. We find that the male ratio in the seven think tanks is 67 percent on average. However, the ratio varies substantially between 100% to 44%. Overall, the gender share is similar to academia.

Table 4: Think Tanks and Consultancies

	Male	Female	<i>Total</i>	Ratio (Male)
NZIER	16	8	24	67
NZ Initiative	6	0	6	100
Motu	7	9	16	44
Sense Partners	7	2	9	78
Infometrics	10	2	12	83
m.e market economics	5	3	8	63
berl	9	5	14	64
<i>Total</i>	60	29	89	67

How do these numbers compare to other fields? Huang et al. (2020) compare over 3 million authors from 83 countries and 13 disciplines. They compute male ratios within disciplines and find the following values: 84.9% in Mathematics, 84.8% in Physics, 83.9% in Computer Science, 82.4% in Engineering, 69.6% in Health Science, and 66.8% in Psychology. Therefore, the 80% male ratio found in Economics for New Zealand is in line with other fields.

So far, I have focused on staff rather than students. Table 5 presents the gender breakdown of students at the Bachelor, Masters (and Honours), and Ph.D. level by University for the 2021 academic year. Generally, we find that the male ratio is similar across Universities (most equal at AUT, most unequal at Victoria). Interestingly, while males are the majority of Bachelor and Master students (except Massey), females are the majority at the Ph.D. level (except AUT).

Table 5: Male Share in 2021 (in Percent)

	Bachelor	Master	Ph.D.
Otago	66	75	50
Victoria	68	67	47
U Auckland	62	65	47
AUT	54	56	100
Massey	60	45	40

While the majority of students are male, the picture looks different when we look into the quality of students. First, Table 6 presents the male ratio of students on the Department of Economics' Honour Roll. Except for 2020, which was heavily affected by COVID-19, we find that there is an almost equal gender split on Honour Roll awards.

Table 6: University of Otago, Department of Economics, Honour Roll

	2017	2018	2019	2020	2021
Male Share	57	55	53	63	56

Similarly, when we look at the prizes and awards given by the NZAE, we find that females seem to dominate the quality dimension. From the awards and prizes given by the NZAE, we find the following male ratios: Bergstrom Prize (71%), Honours/Masters Prize (43%), Jan Whitwell Prize (Doctoral) (45%), Jan Whitwell Prize (Honours/Masters) (44%), and Seamus Hogan Prize (40%).

4. Conclusion

In this report, we have shown that the gender composition in academia in New Zealand is comparable to other countries and other fields. While we see inequality at senior ranks (SL and above) with about 80% of Economists being male, at the junior (or entry) level (Lecturer) we find more women than men.

The findings for the Economics profession in New Zealand are in line with the US, Australia, and other disciplines. Compared to Australia, it is worth highlighting that New Zealand has a larger share of females at junior levels. Finally, comparing academia in New Zealand to think tanks and consultancies, we find that these, on average, have a lower male ratio.

One needs to be careful in assuming that the inequality at the senior ranks will be reduced over time given the observation of more female Economists at the junior level. Huang et al. (2020) show that the academic system is losing women at a higher rate at every stage of their careers. This also implies that nurturing junior, female Economists might not be enough to reduce inequality. It also worth mentioning that the results do not constitute robust evidence of

discrimination (because we do not control for choice and productivity) and, hence, does not allow to make recommendations about (affirmative) actions (Sowell, 2004).

Finally, while we find that the gender composition in academia in New Zealand is comparable to other countries and other fields, we, as the NZAE, remain committed to our responsibility to foster participation and advancement by individuals from underrepresented groups.

The results in this report could be extended upon by considering research productivity and by studying how the gender composition is changing over time (while highlighting that the data collection is difficult and various selection problems arise). Of course, while this report is purely quantitative, qualitative studies of the underlying factors affecting the observed results could offer insights into New Zealand-specific drivers. Finally, as stressed above, we acknowledge that there are other relevant dimensions of inequality, which we leave for future research.

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Appendix

Table A.1: Individual Universities

	Male	Female	Total	Ratio (Male)
Otago				
Professor	7	0	7	100
AP	2	0	2	100
SL	3	2	5	60
L	2	1	3	67
<i>Total</i>	14	3	17	82
Victoria				
Professor	8	0	8	100
AP	3	0	3	100
SL	7	0	7	100
L	1	2	3	33
<i>Total</i>	19	2	21	90
U Auckland				
Professor	5	1	6	83
AP	2	0	2	100
SL	6	2	8	75
L	0	1	1	0
<i>Total</i>	13	4	17	76
AUT				
Professor	2	1	3	67
AP	2	0	2	100
SL	5	2	7	71
L	1	1	2	50
<i>Total</i>	10	4	14	71
Waikato				
Professor	5	1	6	83
AP	3	0	3	100
SL	6	1	7	86
L	0	0	0	
<i>Total</i>	14	2	16	88
U Canterbury				
Professor	2	0	2	100
AP	4	1	5	80
SL	3	0	3	100
L	0	0	0	
<i>Total</i>	9	1	10	90
Massey				
Professor	4	2	6	67
AP	2	0	2	100
SL	6	1	7	86
L	0	0	0	
<i>Total</i>	12	3	15	80
Lincoln				
Professor	5	2	7	71
AP	5	0	5	100
SL	2	2	4	50
L	2	3	5	40
<i>Total</i>	14	7	21	67

Notes: Victoria includes School of Government. All exclude Finance researchers, Professor emeritus, honorary positions, research fellows, teaching fellows, and non-PhD. Sourced: April 2022.