

Complex Descriptive Representation: Disproportionality and the Professional Backgrounds of Australian Politicians

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The descriptive representation literature has not yet settled on an effective method to describe and summarize under-representation among multiple subgroups of the population simultaneously. I propose a method based on the Gallagher index (used in measures of proportionality of electoral systems) to measure multigroup representation as disproportionality from population benchmarks. I then apply the measure to the representation of professional experience in the Australian Parliament (1985-2020) to show that, while the representation of women has improved significantly since the 1980s, the representation of professional experience has declined slightly. The method and findings contribute to a nascent literature that is concerned with the consequences of complex descriptive representation (for example, the interplay of gender and occupation) for the quality of democratic outcomes.

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Recent scholarship on the prior experience of politicians has demonstrated emphatically that professional background matters for policy advocacy (Lowande, Ritchie and Lauterbach, 2019; O’Grady, 2019; Barnes, Beall and Holman, 2021). These are particularly important findings if class-based marginalisation across parliaments is severe. To this end, studies show the decline in the proportion of manual workers in national parliaments (Rush, 1994; Best and Cotta, 2000; Carnes, 2012, 2016; Allen, 2013; Evans and Tilley, 2017; Lamprinakou et al., 2017; Allen, 2018; Henn, 2018). Equivalently, studies have shown the predominance of ‘talking professions’ (in law, media or otherwise politics adjacent fields) in national politics (King, 1981; Cairney, 2007; Bonica, 2020).

However, I argue that this foundational literature on the descriptive representation of professional experience is incomplete in three important areas: representativeness, complexity, and the definition of social class. First, with very few exceptions, studies do not focus on representativeness, i.e. the correspondence between the proportion of a social class in both the population and in the legislature. This is significant because we should not assume that class cleavages remain constant over time – without population level data, we cannot know with any degree of precision how certain classes are under or over represented.

A second concern is that analysis tends to explain the representation of one specific class category (lawyers, for example) to the exclusion of others, simplifying away complexity in the class cleavages of legislatures and populations. This focus occludes the extent to which the representation of professional experience is both multifaceted (there are many more professions than are typically selected for study) and zero-sum (increasing representation for one class means decreasing representation in another). Rather, descriptive representation is “a matter of accurate resemblance or correspondence” to the whole population (Pitkin, 1967, 82) and so a more faithful measure of the concept would be to capture the extent to which all categories of professional experience are represented in the legislature.

Finally, studies tend to focus on outmoded conceptions of social class, usually defining the working class as those employed in manual labour (Wauters, 2012; Carnes, 2012, 2016; Evans and Tilley, 2017; O’Grady, 2019). This narrow focus on one aspect of the representation of professional experience ignores the numerous changes to the labour market in Western countries over the past 100 years, not least the increased labour market participation among women, who are more likely to take so called ‘pink-collar’ occupations (Barnes, Beall and Holman, 2021).

In this research letter, I adapt an existing measure of electoral proportionality introduced by Gallagher (1991). The measure captures representativeness by benchmarking to the working population, measures complexity by estimating disproportionality from all class categories simultaneously, and is agnostic with respect to which class group drives disproportionality. It is also intuitive to interpret, compatible with existing measures of descriptive representation, and replicable wherever measures of pre-parliamentary experience may be harmonised with labour statistics classifications.

The analysis supports what is often taken by assumption, that there is indeed severe under-representation of professional experience in Australian legislative politics, and that the disproportionality is slowly rising. Further, the results suggest that representational disproportionality from industry of occupation has become more severe (at least numerically speaking) than the gender gap in the Australian Parliament.

Measuring Complex Descriptive Representation

Researchers wishing to study complex descriptive representation have only limited tools at their disposal. Ross’ method (later referred to by Norris and Lovenduski (1995) as the index of electoral bias) takes the ratio of the percentage of societal group in the population over the percentage of that group in the legislature. Another measure typically employed elsewhere in

the literature is the representation gap — the percentage point difference between the proportion in the population and the proportion elected (Wauters, 2012; Carnes, 2012, 2016; Carnes and Lupu, 2015; Lamprinakou et al., 2017). While these methods are sound ways to compare population and political representation, they only allow for binary distinctions (for example men and women or labourers versus non-labourers).

To answer question of descriptive representation for multiple groups simultaneously, I apply Gallagher’s (1991) disproportionality index (d), which expresses disproportionality as a number between 0 and 100, with 0 implying a perfectly representative system and 100 representing a party with no votes holding all available seats. It is calculated as the square root of half the sum of squared differences between a party’s share of the votes and seats in percentage terms:

$$d = \sqrt{\frac{1}{2} \sum_{i=1}^n (V_i - S_i)^2}$$

The principle mathematical advantage of adapting this disproportionality measure for studies of descriptive representation is that it is simply a generalisation of a percentage point representation gap for more than two groups. For example, the gender gap is a commonly used measure of the descriptive representation of women in legislatures. Its operationalisation as disproportionality using the Gallagher method is equivalent to the gender gap itself. If women account for 50 per cent of the population and 25 per cent of the legislature, then the gender gap would be 25 percentage points from parity, with a Gallagher index score of 25.¹ It is also reasonably insensitive to the number of possible groupings, neither over-penalising two-party systems with a small number of large seat-vote discrepancies, nor multiparty systems with a larger number of minor discrepancies (Gallagher, 1991, 47). Further, the measure does not discount or exclude from the analysis groupings below a given threshold of vote share, useful when adapting to occupation in the case of relatively uncommon industries or occupations.

There are also several practical advantages of the proposed method in studying professional representation in parliaments. First, by including a wide range of professional classifications, the researcher does not make deductive decisions about the likely drivers of disproportionality. Rather, disproportionality is determined inductively and exhaustively from the universe of given classifications. Second, the summarizing Gallagher index allows for a comprehensive

¹ This is so because for two groups, the representational gap is always symmetrical (in our example, women are under-represented by 25 points and men are over-represented by the same amount) and because $\sqrt{\frac{1}{2}2g^2} = g$ where g is the representation gap ($V_i - S_i$) in percentage points.

time series identification of trend in the representation of professional experience. While previous analyses might account for the decline in MPs with experience in manual labour relative to the population, these findings could easily be confounded if Parliament were becoming more representative of other professions. In sum, the present study is the first to assess the descriptive representation of profession in a comprehensive manner.

Disproportionality of professional experience in the Australian Parliament

Australia is a good test case for the analysis of the descriptive representation of professional experience for two reasons. Australia is relatively unencumbered by the conventional framework of a strictly hierarchical three-class structure. Instead, according to Sheppard and Biddle (2017), there is a widespread scholarly and public view that “Australians’ political allegiances cut across conventional class lines”. Although vote choice was once characterised by a sharp division between manual and non-manual labour, this link was substantially weakened in the post-war years as with many other democracies (Benedetto, Hix and Mastroiocco, 2020). Second, exceptionally high turnout induced by compulsory voting means that an assumption for descriptive representation — that the workers *are* the electorate and that the voting electorate is not composed disproportionately of those in relatively privileged professions. The application of the disproportionality index to professional representation is simple and may be summarised in a four-step process:

1. Find a suitable data source for general population labour force characteristics.
2. Find a suitable coding scheme for professional experience.
3. Code the prior professional experience of MPs according to the same code.
4. Calculate disproportionality for the representations of occupational/industrial classification over time.

In Australia, a ready data source for population level labour statistics may be found in the Labour Force Survey (LFS). Since 1984, the LFS has provided an uninterrupted quarterly report on the population level proportions of industry of occupation and occupational classification, according to internationally comparable classification coding structures, based on a multi-stage area sample of approximately 26,000 private and non-private dwellings and covers approximately 0.32% of the civilian population of Australia aged 15 years and over (ABS, 2021).

While a high-quality survey, there are some caveats to the suitability of the data made available by the LFS. Firstly, as a survey (as opposed to census data), there are the usual caveats to be made about sampling bias and population coverage, summarised by Dixon (2001).

Secondly, the data provided includes those aged between 15-17, eligible to work but not to vote. It also does not differentiate between voting eligible citizens and non-citizens who may not vote in federal, state or territory elections. This implies some bias to the estimate of the workforce who are eligible to vote, as non-citizens and pre-adults are likely to work in different industries and occupations than the adult-citizen population.

However, LFS remains more useful than its potential alternatives. The census, taken every 5 years, does not provide time-series sufficiently regularly (necessary at least more often than federal elections in Australia, scheduled within three years of the previous election or sooner). Further, while election studies and polling may provide conceptual benefits in terms of intended coverage, they have a comparatively small sample size. Further, they are not collected with the intention of accurately recording the changing composition of the workforce — coding schemes for industry and occupation, as well as survey design have changed over the decades. With relatively large numbers of possible industrial and occupational classifications, the dedicated design of the LFS is a superior data source to minimise error of estimation, provided researchers take the caveats listed above into consideration.

The next step is to choose an appropriate classification of prior professional experience to benchmark against the population. In Australia, the LFS provides the researcher two options. The first is the Australian and New Zealand Standard Classification of *Occupations* (ANZSCO) and the second is the Australian and New Zealand Standard *Industrial Classification* (ANZSIC). At face value, the appropriate choice might be the *occupational classification* (ANZSCO). However, given the opportunity to do so, politicians are likely to emphasise some aspects of their professional experience to seem more representative of the typical worker than they really are. This is because politicians know that voters prefer candidates with relatable credentials to politics adjacent ones (Campbell and Cowley, 2014; Vivyan and Wagner, 2015). A classic example of this from Australian politics is for an MP to give their principle prior occupation as “grazier”, implying perhaps that they were engaged in manual agricultural labour. Of course, such MPs were usually owners and managers of large cattle rearing estates — their actual occupation might be closer to the director or owner of a large company or an advocate for an agricultural peak body association (Halpin, 2004). Given the incentive for MPs to ‘spin’ their prior experience as representative, it is incumbent on the researcher to find a classification that is less easy for politicians to game, and more straightforward for coders to classify.

For these reasons, our study focuses instead on *industrial classification* (ANZSIC) — a coding scheme with 19 industry classes at its highest level and detailed sub-classifications to help disambiguate possible classifications of MPs who might sit in more than one industry. While it is relatively easy for politicians to massage the details of the roles they held prior to entering Parliament, it is more difficult to intentionally misrepresent their industry of occupation. This of course implies a trade-off between data reliability and specificity since industrial classification only captures a narrow aspect of the true prior careers of politicians (even if it does so more accurately). Even so, as the results section demonstrates, industrial classification provides ample information for meaningful conclusions about the descriptive representation of professional experience in Australia.

Data on prior professional experience were gathered from various sources, including biographical profiles on the Australian government’s ‘[parlinfo](#)’ website, wikipedia, and newspaper reports. Professions were then classified according to ANZSIC industry category. As with previous studies (Dowding and Dumont, 2008; Dowding and Dumont, 2015), I take the principle prior occupation as the occupation in which an MP spent the greatest period of time. Where this was difficult to discern, the most recent position prior to election was chosen for classification.

Results

The findings provide strong evidence that there is a great deal of disproportionality in the prior careers of politicians compared with the labour market of the general population. Table 1 gives the average proportion of the labour force in the general population, the House of Representatives and the Senate since 1985, by industrial classification. The industry groups are ordered with over-represented categories in the House at the top and under-represented at the bottom. Over the period studied, the average disproportionality score was approximately 25, comparable with highly disproportional elections or a typical gender gap (25% women, 75% men) in western legislatures.

Table 1: Descriptive representation of professional experience in Australia, 1985-2019

	Workers (%)	Senators (%)	MPs (%)	Senators - Workers	MPs - Workers
Public Administration and Safety	6.0	17.9	32.1	12.0	26.1
Professional, Scientific and Technical Services	6.5	15.0	16.8	8.5	10.3
Other Services (inc. interest groups and unions)	4.4	27.3	13.0	22.9	8.6
Agriculture, Forestry and Fishing	4.2	7.8	7.3	3.7	3.1
Education and Training	7.3	12.7	9.3	5.4	1.9
Information Media and Telecommunications	2.2	1.3	3.6	-0.8	1.4
Arts and Recreation Services	1.6	0.2	1.5	-1.4	-0.1
Rental, Hiring and Real Estate Services	1.6	1.2	1.0	-0.5	-0.7
Mining	1.4	1.4	0.5	0.0	-0.9
Electricity, Gas, Water and Waste Services	1.3	0.1	0.0	-1.1	-1.3
Financial and Insurance Services	3.9	2.1	2.0	-1.8	-1.9
Administrative and Support Services	3.0	0.9	0.6	-2.1	-2.4
Wholesale Trade	4.3	1.3	1.0	-3.0	-3.4
Transport, Postal and Warehousing	5.2	0.5	0.9	-4.7	-4.3
Health Care and Social Assistance	10.1	5.7	4.6	-4.4	-5.5
Accommodation and Food Services	6.5	0.7	0.5	-5.8	-6.0
Construction	8.0	1.8	1.4	-6.2	-6.6
Retail Trade	11.0	0.3	1.2	-10.7	-9.8
Manufacturing	11.4	1.6	1.4	-9.7	-9.9

Note: Sum of Squares/2 = 624.2. Disproportionality = 25.0.

Notable is the over-representation of public administration and safety, where all workers in the public service and those working for political parties are situated. Included in this category are lawyers working in a public capacity, either in the justice system or otherwise working in government. Lawyers working in the private sector are also included in the second most overrepresented category, along with advertising, research, accounting and veterinary services. ‘Other Services’ are over-represented because this category includes those working in interest groups, while Agriculture Forestry and Fishing is over represented because of the prevalence of National Party MPs with farming backgrounds (noting the prior caveat on the meaning of agricultural work for the majority of elected officials in Australia).

Under-represented are industry groups with negative scores on the right column of Table 1. Among the most under-represented, in line with expectations, are industries that typically employ ‘blue-collar’ workers, such as manufacturing, construction and transport services. However, joining them are service industries such as retail and accommodation and catering services, sometimes considered pink-collar work (Barnes, Beall and Holman, 2021). Perhaps

most notable is the under-representation of the healthcare industry, also a majority female industry. Given the extent of public expenditure in health, one might expect a greater supply of political candidates from this sector.

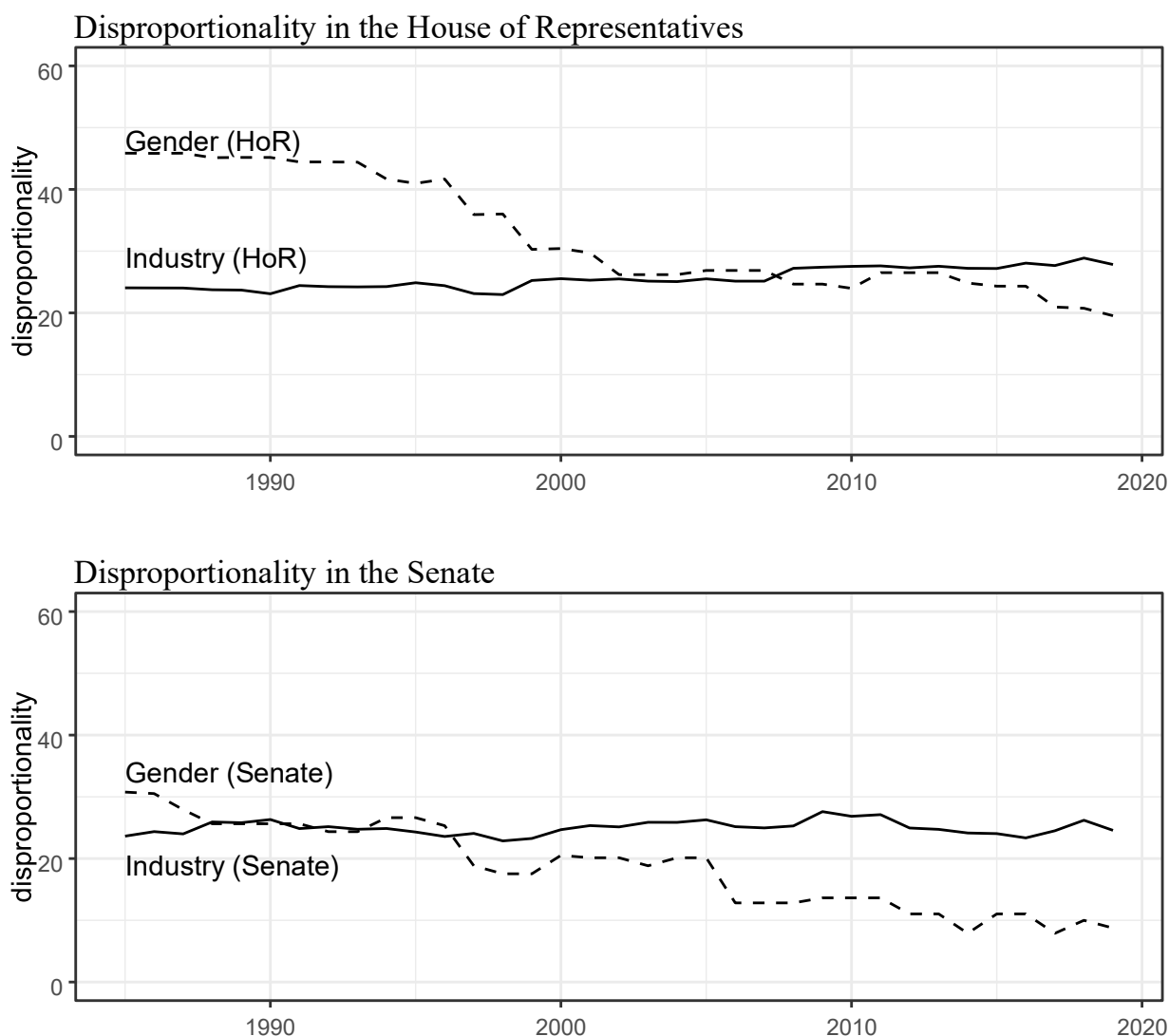


Figure 1: Top: disproportionality of descriptive representation and gender in the House of Representatives. Bottom: disproportionality of descriptive representation and gender in the Senate.

Figure 1 (top panel) plots the gender gap in the Australian House of Representatives alongside the disproportionality of professional experience, calculated annually from 1985 to 2019. The gender gap has narrowed from 46 percentage points from parity in 1985 (4% female, 96% male), to 20 in 2019 (30% female, 70% male). In the same period, the representation of industrial categories has become slightly less representative, moving from a disproportionality score of 24 in 1985 to 29 in 2019. The lower panel plots a similar trend in the Senate. While the gender gap in 1985 is less severe at 31 percentage points from parity (19% female, 81%

male) and decreases to 9 percentage points in 2019 (41% female, 59% male), the disproportionality of professional experience remains relatively constant, increasing slightly from 24 in 1985 to 25 in 2019.

Discussion

While not in sharp decline, there remain serious and prolonged skews in the representation of professional experience in the Australian Parliament. The over representation of people in the industrial grouping of public administration and safety — including of those working full time in political party organisations — accounts for around 57 per cent of all the disproportionality across industries. Indeed, the correlation between the yearly trend measure of disproportionality with our own measure of the percentage of professional politicians in the House stands at 0.85, indicating that these trends are very close to being the same measure. While the ‘end goal’ of improving the descriptive representation of professional experience is difficult to quantify, it is clear that significant improvements might be made in the recruitment of political candidates from traditionally blue and pink-collar industries, as well as in medical services.

There are some caveats when interpreting these results. It is important to note that given the coverage of the data, with the inclusion of those aged 15 and older and non-citizens, it is possible that I overstate the under-representation of professional experience, especially when the average age of politicians upon entry to Parliament is around 40 years old. On the other hand, the labour force is much smaller than the electorate. If I were to include those out of the labour force due to unemployment, child care responsibilities or disability, disproportionality would appear to be far more severe.

Further, numerical equivalence of gender and industrial representation does not necessarily equal normative equivalence. It is hard to understate the importance of women’s representation and it is not immediately clear that under-representation of professional experience represents a societal failing of the same degree. Given sufficient opportunity, people may easily self-select into different occupations and industries but not into different gender identities. This implies an element of choice on the part of workers in how politics-adjacent they want their careers to be. Further, while an equal number of men and women in legislatures is the primary goal of women’s descriptive representation, proportional representation of professional experience may not be the ideal end point. Perhaps it is ultimately necessary for some over-representation from fields that provide a politically relevant skillset, though research on the abundance of

lawyers in the US House of Representatives suggests that it is not facilitating skills, but networks that ensure electoral success (Bonica, 2020).

Lastly, the findings provoke new avenues for future research. Further study of Australian political backgrounds could look deeper into the gendered nature of the labour force, analysing descriptive representation by industry of occupation and sex, perhaps explaining patterns in the analysis such as the under-representation of workers from the health industry. Since the disproportionality method is limited only by the intersections of data available through national statistics agencies, many richer conceptualisations of the representation of social class are measurable.

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