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Disproportionality under Alternative Voting: the Crucial – and Puzzling – Case of the Australian Senate Elections, 1919-1946

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Abstract

From 1919 to 1946, the Australian Senate was elected by the alternative-vote (AV) method in multi-member districts – the only empirical example of multi-member district AV in national-level elections. These elections provide a crucial test of the claim that AV is a more proportional system than the plurality method and of the proposal that it be applied in multi-member districts. The extreme disproportionality of the Australian Senate elections can be explained largely in terms of the small number of Senators chosen in each election, but also partly in terms of the use of multi-member districts. In single-member districts, AV's disproportionality does not differ significantly from that of plurality; in multi-member districts, its disproportionality increases substantially.

1 Introduction

The set of ten elections to the Australian Senate from 1919 to 1946 constitute a crucial case for analysis because, first of all, they are the only empirical example of the use of the alternative vote (AV) in multi-member districts for national-level elections. AV is rare in any form, but in all of the other instances it is applied in single-member instead of multi-member districts: the House of Representatives elections in Australia since 1919, the three pre-independence elections in Papua New Guinea from 1964 to 1972 (Reilly 1997a), parliamentary by-elections as well as presidential elections in Ireland, and presidential elections in Sri Lanka (Horowitz 1985: 639-41; 1991: 191-93).¹

Moreover, the case of the 1919-46 Australian Senate elections is especially significant for three reasons.

1. It provides crucial evidence in the continuing theoretical controversy – which is also a public policy debate – between “vote pooling” theorist Donald L. Horowitz, who recommends AV for ethnically divided societies, and the power-sharing advocates, including myself, who argue in favour of proportional representation (PR).

2. In particular, the extreme disproportionality of these elections is

puzzling, and hence deserves a thorough examination, in view of Horowitz's claim that AV is a less disproportional method than the plurality rule.

3. The case provides strong empirical support for the Taagepera Law – an improvement of the so-called Cube Law – which predicts the degree of disproportionality in plurality and majority elections.

The controversy between AV and PR has recently become even more interesting and animated as a result of the fact that both sides have scored a major practical victory. Both tried to influence the constitutional debate in South Africa by means of lengthy treatises (Horowitz 1991; Lijphart 1985, 1991); here the 1994 interim constitution made PR the winner. However, the South African example was not followed by the Fiji Constitution Review Commission. During 1995, the commission visited the United States and interviewed several academic experts, including both Horowitz and myself, at length. Its 1996 report recommends AV, and for the majority of the seats in the lower house it recommends AV in three-member districts; exactly the district magnitude of most of the multi-member districts in the Australian elections from 1919 to 1946 (Fiji Constitution Review Commission 1996: 253–364).²

2 The alternative vote versus proportional representation

AV used to be seen mainly as an attempt to remedy a weakness of the plurality rule or, as it is usually referred to in Britain, the first-past-the-post or FPTP method (Farrell 1997: 45–50). The plurality rule, applied in a single-member district, specifies that the candidate with the most votes wins, and this means, when there are three or more candidates, that a candidate can win without gaining a majority of the votes. For instance, when there are four candidates, it is theoretically possible for a candidate to win with slightly more than 25 percent of the vote, if the other three candidates each receive slightly less than 25 percent of the vote. AV, again assuming its use in a single-member district, guarantees that there will be a majority winner. Voters are asked to rank order the candidates; if a candidate receives an absolute majority of first preferences, he or she is elected; if not, the weakest candidate is eliminated and the ballots with that candidate as first preference are redistributed according to second preferences; this process continues until one of the candidates has reached a majority of the votes. A simple example may help to clarify how AV works: if there are three candidates – A, B, and C – who are supported by 40 percent, 35 percent, and 25 percent of the voters respectively, C will be eliminated and the ballots with C as first preference will be given to A or B according to the second preferences expressed on these ballots; if these ballots divide 15–10 in favour of A, A is the winner with 55 percent of the vote, but if the ratio is

18–7 in favour of B, B wins with 53 percent of the vote. (How AV works in multi-member districts will be explained later.)

In spite of its advantage of ensuring majority victories, AV has not become very popular, as noted above. However, Horowitz has recently succeeded in reviving scholarly and public interest in this unusual electoral system. The reason why Horowitz likes it, however, is not its majority guarantee but its alleged capacity to induce political moderation. The most important element in Horowitz's (1991: 171, 175) reasoning is that, while PR does have the useful tendency to create a multi-party system without a majority party, which means that multi-party coalitions have to be formed, "the mere need to form a coalition will not produce compromise. The incentive to compromise, and not merely the incentive to coalesce, is the key to accommodation". Without incentives to compromise, the only coalitions that will be formed are "coalitions of convenience that will dissolve". Here his recommendation of AV enters. In addition to "seat pooling" (forming government coalitions), AV encourages "vote pooling", that is, it encourages parties to appeal across ethnic boundaries. In the above example of candidates A, B, and C, supported by 40, 35, and 25 percent of the voters, A and B will have to bid for the second preferences of C's supporters in order to win, which, according to Horowitz, will reward moderation.

I have criticized Horowitz's AV proposal at length elsewhere (Lijphart 1991, 1995).³ Its main weakness is its tendency to produce disproportional results, a subject to which I shall return shortly. But let me also briefly indicate two other problems with Horowitz's reasoning. One is that Horowitz is wrong in claiming that, without AV, multi-party situations do not contain incentives for moderation and compromise. It is a basic assumption in political science that parties are interested in gaining power. In multi-party systems without a majority party, this means that they will want to enter and also to remain in coalition cabinets, which is also a basic and widely accepted assumption underlying coalition theory. This in turn logically means that they do have strong incentives to reach compromises with their coalition partners.

The second problem is that the available historical evidence – indirect but still highly relevant evidence – fails to support Horowitz's proposal. AV has not been used much, but it closely resembles the majority-runoff method, which has been used much more frequently.⁴ In the majority-runoff system, voters cast their ballots for one candidate only; if no candidate wins an absolute majority of the votes, a runoff election is held between the top two candidates. In the same hypothetical example used above, C is now eliminated in the first round, and A and B have to compete for the votes of C's supporters in the runoff election. AV merely accomplishes in one round of voting what requires two ballots in the majority-runoff system; the incentives for moderation appear to be roughly the same.

Probably its best-known contemporary example is the system for presidential elections in France. However, the majority-runoff was also commonly used in West European parliamentary elections until the early 20th century. In most cases, it was replaced with PR, and the main reason was its unsatisfactory operation in divided societies: "It was no accident," Stein Rokkan (1970: 157) writes, "that the earliest moves toward proportional representation (PR) came in the ethnically most heterogeneous countries ... In linguistically and religiously divided societies majority elections could clearly threaten the continued existence of the political system. The introduction of some element of minority representation came to be seen as an essential step ...".

3 How proportional or disproportional is the alternative vote?

The Achilles' heel of Horowitz's proposal is his claim that AV can produce reasonably proportional results. This aspect of AV is important to him because he actually agrees with the PR proponents on the value of electoral proportionality and on the deficiencies of the plurality method. For instance, he sympathizes with the PR advocates' fear of "the frequent tendency of plurality systems to underrepresent minorities and to produce legislative majorities from mere pluralities – or even less than pluralities – of voters," and he emphasizes, "the tendency of plurality elections and two-party systems to intensify conflict" in divided societies (Horowitz 1991: 164, 202). However, he argues that AV is quite different from plurality. He states that it is "perhaps [sic] better described" as a majority system than as a PR system, but then emphasizes that "like PR systems, AV mitigates the winner-take-all aspects of plurality systems and generally achieves better proportionality of seats to votes than plurality systems do" (Horowitz 1991: 166).⁵ Later on, he even argues that AV's proportionality is similar to that of the single-transferable-vote (STV) form of PR: they are "both considerably better at insuring proportionality than is first-past-the-post [plurality], although not quite as good at this as list-system PR is" (Horowitz 1991: 191).⁶

This claim runs counter to the generally accepted classification of AV, together with plurality and the majority-runoff, as a majoritarian electoral method and to the generally accepted dichotomy between majoritarian systems on the one hand and the various forms of PR on the other. Like plurality and the majority-runoff, AV is a majoritarian electoral system devoid of any mechanism that is explicitly aimed at a proportional allocation of seats.

Horowitz's claim becomes even more implausible when he proposes the application of AV in multi-member instead of single-member districts (Horowitz 1991, p. 195). His reason for preferring multi-member districts is

that, in order for AV's alleged moderating incentives to work, no party must have an absolute majority in a district: "If a party can win on first preferences, second preferences are irrelevant" (Horowitz 1991: 194). Therefore, election districts must be drawn in such a way that they are sufficiently heterogeneous: "To achieve this, [they] may have to be large, and they may therefore need to be multimember" (Horowitz 1991: 195). Horowitz is quite right that single-member districts are likely to be too homogeneous for second or lower preferences to come into play. In the Australian AV system for electing the House of Representatives, for instance, typically more than half of the seats are won on first preferences; in the 1974 election, Leon D. Epstein (1977: 31) reports, this was the case for three-quarters of the seats. In ethnically divided societies, groups tend to be territorially concentrated, and single-member districts are therefore likely to be ethnically homogeneous except in the unusual situation of extreme ethnic fragmentation as in Papua New Guinea (Reilly 1997a). If AV in single-member districts had been used in South Africa in 1994, 94 percent of these districts would have been won with absolute majorities (Reynolds 1995: 67).

But there is a major drawback to the use of multi-member districts: district magnitude – the number of representatives elected in a district – strongly affects the proportionality of the election outcome. In PR systems, proportionality increases as district magnitude increases, but the relationship between district magnitude and proportionality is the other way around for majoritarian election systems: proportionality tends to decrease when district magnitude is increased from single-member districts to increasingly large multi-member districts.⁷

The only evidence that Horowitz cites for his unorthodox claim of AV's proportionality is a study by John L. Old (1988) which reruns the 1987 British parliamentary election under a hypothetical single-member district AV system. Old indeed finds greater proportionality under AV than under the actually used single-member district plurality system. There are, however, two important qualifications to this finding. First, much of it can be explained in terms of two unusual features of the third party (the Alliance in 1987) in the British party system: its ideological location between the two large parties and its relatively large support, 22.6 percent nationwide in 1987, which made it the second largest party in many districts. In these districts, Old reckoned, the Alliance would become the beneficiary of most of the second preferences of voters whose first preference was for the eliminated Conservative or Labour candidate. The second qualification is that AV would have made the election result less disproportional, but far from really proportional. In Old's (1988: 10) words, "on a minority of the first preference votes, the Conservatives would still form a government with a working majority, while the Alliance would obtain only around 11 percent of the

seats", clearly better than the 3.4 percent they actually won, but less than half of the 22.6 percent of the seats under a fully proportional system.

Most other studies have found no substantial differences in the degree of disproportionality between plurality and AV. Andrew S. Reynolds (1995) conducted a series of hypothetical reruns of the 1994 South African election, similar to Old's study. The African National Congress (ANC) won the election with 62.6 percent of the votes and 63.0 percent of the seats under a national PR system. If single-member district plurality had been used, the ANC would have won 70.8 percent of the seats; under single-member district AV 69.2 percent; and under multi-member district AV 70.5 percent. The overall degrees of disproportionality are 0.3 percent for PR; 6.7 percent for plurality; 5.9 percent for single-member AV; and 7.2 percent for multi-member AV. (The measure of disproportionality used by Reynolds is the least-squares index; in the remainder of this analysis, I shall also cite comparisons that make use of the Loosemore-Hanby and two-major-parties indices.⁸)

A useful empirical comparison is between the Australian single-member district AV system for the election of the House of Representatives and the plurality systems of four Anglo-American democracies: the United Kingdom, the United States, Canada, and New Zealand. These five countries are attractively comparable cases because of their shared heritage of British political culture and their similar party systems with two dominant parties. Douglas W. Rae (1967: 108) made this comparison in his classic treatise, and he concluded that "the Australian system behaves in all its particulars," including its degree of disproportionality, "as if it were a single-member district plurality formula".

My own more recent comparative study (Lijphart 1994), covering the period from 1945 to 1990, arrives at a similar conclusion, as shown in the first column of Table 1: Australian AV is considerably more disproportional (8.9 percent, again using the least-squares index) than the American plurality system (5.4 percent), and only slightly less disproportional than the Canadian, New Zealand, and British plurality systems (with an average disproportionality of 10.8 percent). It is also illuminating to contrast these percentages of disproportionality with those in PR systems. Table 1 summarizes these for the 14 countries that held PR elections in the entire 1945-90 period (and all of which were also included in the other studies that I shall mention shortly).⁹ Both Australian AV and the plurality countries, with the exception of the United States, had much higher disproportionalities than the 14 PR countries: the latter ranged from 1.3 to 5.0 percent, with an average of only 2.8 percent.

Table 1 Disproportionality in single-member district alternative-vote, plurality, and double-ballot elections and in proportional representation elections in 20 democracies, measured by three indices and in three different periods

	Least-Squares-Index 1945-90 (%)	Two-Major-Parties-Index 1945-80 (%)	Loosemore-Hanby Index c. 1983 (%)	Loosemore-Hanby Index 1945-90 (%)
Alternative Vote				
Australia	8.9	5.6	11.5	12.6
Plurality				
Canada	11.3	8.1	24.9	13.9
New Zealand	10.7	6.3	19.0	12.5
United Kingdom	10.5	6.2	23.4	12.9
United States	5.4	5.6	6.7	5.9
Double-Ballot				
France	13.9	12.3	20.6	20.6
PR in 14 Countries				
Mean	2.8	2.0	4.5	4.7
Lowest	1.3 (Netherl.)	0.9 (Denmark)	0.8 (Germany)	2.9 (Netherl.)
Highest	5.0 (Norway)	3.2 (Luxemb.)	8.7 (Norway)	7.5 (Norway)

Note: The 14 PR countries are Austria, Belgium, Denmark, Finland, Germany, Iceland, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, Sweden, and Switzerland.

Sources: Based on data in Lijphart 1984:160; Lijphart 1994: 160-62; Taagepera and Shugart 1989: 106-07.

A dissenting voice was recently raised by Ben Reilly (1997a), who argues that "Horowitz's claim that AV is more proportional than FPTP [plurality] is entirely justifiable". Reilly bases this assertion on two sources. One is my book *Democracies* (Lijphart 1984: 160), where, Reilly states, "Lijphart found that ... AV sat around mid-way on an index of disproportionality of electoral systems: it was equally or more proportional than all non-PR systems such as FPTP [plurality] or the double-ballot, but less proportional than all PR systems". A closer look at the relative disproportionalities – measured in terms of the two-major-parties index, and shown in the second column of Table 1 – shows that this assertion is incorrect. The Australian 5.6 percent disproportionality is very similar to that of New Zealand, the United Kingdom, and the United States, ranging from 5.6 to 6.3 percent. Of the plurality systems, only the

Canadian 8.1 percent is substantially higher. The highest disproportionality among the 15 PR countries is only 3.2 percent, and the average only 2.0 percent. The only basis for claiming an intermediate position for Australian AV is the extreme disproportionality of the French double-ballot system: 12.3 percent.¹⁰ But when this comparison with France is added, it makes more sense to say that the French system and the PR systems are at the two extreme ends of disproportionality and proportionality, with all of the plurality systems and Australian AV in the middle.

Reilly also cites Rein Taagepera and Matthew S. Shugart's (1989: 106-07) *Seats and Votes*: these scholars "found that Australia, the only AV example, had one-half to one-third the deviation from proportionality of most FPTP [plurality] systems". Their figures, shown in the third column of Table 1, appear to support Reilly's assertion. The Australian disproportionality of 11.5 percent, measured in terms of the Loosemore-Hanby index, is higher than the 6.7 percent for the United States, but indeed considerably lower than the indices for the other three Anglo-American plurality systems, which range from 19.0 to 24.9 percent. Here the explanation is that Taagepera and Shugart's table is based on only one election, around the year 1983, in each of the countries, and that both plurality and AV systems, in contrast with most PR systems, tend to have widely varying disproportionalities from election to election. According to both the Cube Law and the Taagepera Law, to be discussed later, when the vote totals of the two major parties in such systems happens to be relatively close, the difference between their seat totals tends to be larger but not by a huge margin; hence the overall outcome will be reasonably proportional. However, as their vote totals diverge, their seat totals tend to diverge even more, and increasingly larger disproportionalities occur.

Especially for plurality and AV systems, therefore, it is important to measure disproportionality not just in one election but over as many elections as possible. When we do this for our 20 countries during the 1945-90 period, using the same index that Taagepera and Shugart used – presented in the last column of Table 1 – four of the five average disproportionalities for AV and plurality are very similar to each other: the Australian AV's 12.6 percent is very close to New Zealand's 12.5 percent and the United Kingdom's 12.9 percent; Canada's 13.9 percent is only a bit higher; the one deviant case is the United States with a disproportionality of only 5.9 percent. Australian AV's disproportionality is also considerably higher than that of any of the PR countries. The results of the elections around 1983 happened to be quite atypical: slightly more proportional than usual in Australia and much more disproportional than usual in Canada, New Zealand, and the United Kingdom.

4 The 1919-46 elections of the Australian Senate

The most interesting and relevant empirical evidence, however, is that of the operation of AV in multi-member districts: the set of ten elections to the 36-member Australian Senate from 1919 to 1946. The first and third columns of Table 2 show the overall disproportionality in each of the ten elections, according to the least-squares and Loosemore-Hanby measures of disproportionality.

Table 2 Disproportionality in the multi-member district alternative-vote elections of the Australian Senate, 1919-1946

Election Year	Unadjusted	Adjusted	Unadjusted	Adjusted
	Least- Squares Index (%)	Least- Squares Index (%)	Loosemore- Hanby Index (%)	Loosemore- Hanby Index (%)
1919	43.7	35.5	48.3	35.6
1922	13.4	14.0	18.1	15.8
1925	45.1	45.4	45.2	45.4
1928	12.4	8.9	12.7	9.0
1931	23.3	24.7	27.9	29.0
1934	42.9	40.8	51.8	46.8
1937	32.6	39.7	35.7	40.5
1940	28.9	10.3	33.8	11.0
1943	41.7	42.3	44.9	45.6
1946	30.0	32.5	32.1	34.3
Mean	31.4	29.4	35.0	31.3

Note: The unadjusted percentages are based on first-preference votes and seats won by each party. The adjusted percentages are based on final-count votes and on the assumption of perfectly equal apportionment.

Sources: Based on data in Hughes and Graham 1968: 320-79; Chief Electoral Office, Commonwealth of Australia 1920, which contains the data of the 1919 election; and the similar official Statistical Returns for the other nine elections.

As mentioned earlier, it is not surprising that the degrees of disproportionality in a majoritarian system like AV vary a great deal from election to election. In the ten Australian Senate elections, the percentages of the least-squares index ranged from a low of 12.4 percent to a high of 45.1 percent (shown in the

first column of Table 2); the corresponding Loosemore-Hanby percentages ranged from 12.7 to 51.8 percent (third column of Table 2). The respective averages are 31.4 and 35.0 percent. These are extremely high degrees of disproportionality compared not only with those in PR systems but also with those in single-member district AV, plurality, and double-ballot systems. The averages of the six systems of this kind in Table 1 (in the 1945-90 period) are 10.1 and 13.1 percent respectively. As expected, and contrary to Horowitz's claim, the disproportionality in the Australian Senate's AV elections is more like that in the other majoritarian systems than that in PR systems. The only surprise is that these AV elections resulted in so much greater disproportionality than the other majoritarian systems – two and a half to three times as much disproportionality, depending on the index used (see also Wright 1986).

Horowitz's puzzling claim of proportionality for multi-member AV is now solved – by being proven false. But we now face the new puzzle of much greater than expected disproportionality in these elections. How can this puzzle be explained?

4.1 Why such extreme disproportionality?

In addition to the use of AV in multi-member districts, there were several other possible sources of disproportionality in the Australian Senate elections between 1919 and 1946. For one thing, the percentages in the first and third columns of Table 1 are based on the differences between the first-preference vote and the seats won by each party. But, of course, these seats were allocated not on the basis of these first-preference votes but on the basis of the final count after all of the necessary transfers of votes had been made.

At this point, I should explain how votes are counted in a multi-member district AV system, which is somewhat more complicated than AV in single-member districts. Let us assume the most usual district in the 1919-46 Australian Senate elections: a three-member district. The ballots were first organized according to first preferences. If a candidate had an absolute majority of first preferences, he or she was elected. If not (as was usually the case), the weakest candidate was eliminated and this candidate's ballots were distributed according to second preferences. This procedure was repeated, using second or (if necessary) lower preferences, until one candidate had a vote majority and could therefore be given the first seat. For the second seat, the same procedure was followed with the exception that the candidate already elected was disregarded; this meant that, for instance, if candidate A was elected to the first seat, a ballot with a first preference for candidate A and a second preference for candidate B would now be allocated first to candidate B. For the third seat the two candidates already elected were disregarded.

Because first-preference and final-count votes can differ substantially, the index of disproportionality calculated on the basis of first-preference votes may present a distorted picture of the actual extent of disproportionality. It is therefore advisable to use the final-count percentages for the calculation of the index of disproportionality.

The second possible source of disproportionality was the malapportionment – the highly unequal numbers of voters – in the Senate districts. Australia's Senate was deliberately malapportioned, based on the federal principle that each state be equally represented in the Senate in spite of large population differences among the six states. Each state had six Senators, three of whom were normally elected in each election for staggered six-year terms. For instance, in all ten elections, New South Wales had more than ten times as many voters as Tasmania.

Two further, although probably less significant, sources of disproportionality were the following: Vacancies occurring before half of a Senator's six-year term had been served were filled by electing more than three Senators from the state in any particular election. For instance, it happened quite frequently that one or more states elected four instead of three Senators and, in 1925, New South Wales elected five Senators. Moreover, in any electoral system that uses districts instead of at-large elections, disproportionality can result from differential turnout rates in the different districts. For instance, voter turnout in the 1922 election in Queensland was 82.7 percent, but only 45.6 percent in Tasmania. However, turnout differences of this magnitude disappeared after the introduction of compulsory voting, beginning with the 1925 election.

The influence of all of the above sources of disproportionality can be neutralized by means of two adjustments. One is the use of final-count instead of first-preference votes. The other is to use the "weighted seats" instead of the actual seats won by each party. I calculated the number of seats to which each district (state) would have been entitled according to the standard of perfectly equal representation, and I assigned the appropriate weight to each of the seats in the district. For the first calculation I used the number of valid votes cast in each district (instead of the eligible voters) in order to control not only for malapportionment but also for unequal voter turnout (and for unequal numbers of invalid ballots). For instance, on the basis of the valid votes cast in New South Wales, Australia's most populous state, it should have had 7.6 seats instead of the 4 seats that had to be filled in 1946. Each of these four seats was therefore given a weight of 1.9 in order to obtain perfectly equal apportionment.

The results of these adjustments are shown in the second and fourth columns of Table 2. As expected, the average adjusted indices of disproportionality are lower than the unadjusted indices, but by only a small margin: 29.4 instead of

31.4 percent, and 31.3 instead of 35.0 percent. And when we look at the indices for each year separately, 11 of the 20 adjusted indices are actually higher than the unadjusted indices. The adjustments obviously explain only a small portion of the abnormally high degree of disproportionality in these multi-member district AV elections.

Yet another possible explanation of this phenomenon is the Senate's small size of 36 members and the fact that these members served staggered terms, which means that in the average election only about 19 Senators were elected in six districts. One of the earliest law-like generalizations in political science is the Cube Law; it was first formulated around 1910 to express the disproportionality in British elections (Taagepera and Shugart 1989: 158). The Cube Law states that cubing the ratio of votes received by two major parties A and B (v_A/v_B) yields approximately the ratio of seats (s_A/s_B) they win:

$$s_A/s_B = (v_A/v_B)^3.$$

However, Rein Taagepera (1973; see also Taagepera and Shugart 1989: 165) has shown that this magnification tends to be stronger when the number of voters is unusually large (or, which is the same thing, when the legislature is unusually small) and/or the number of districts is unusually small (for instance, when multi-member instead of single-member districts are used). The general relationship is that the exponent (n) equals the logarithm of the number of voters (V) divided by the logarithm of the number of election districts (E): $n = \log V / \log E$. The reason why the Cube Law fits so many plurality elections is that the size of the legislatures is often approximately the cube root of the electorate – the Cube Root Law (Taagepera 1972) – and that all districts are usually single-member districts.

Especially since I have been using final-count instead of first-preference votes, AV can be assumed to behave like plurality as far as this magnification of the largest party's strength is concerned. The exponent that the Taagepera Law predicts for the case of the Australian Senate elections, with less than two million voters in 1919 and more than four million in 1946, an average of about three million voters, and only six districts, is a very high 8.3 instead of the 3.0 suggested by the Cube Law. The actual average percentage of final-count votes won by the winner in the ten elections was 52.6 percent compared with an average vote of 45.2 percent received by the loser; the average adjusted seat percentages were 82.1 and 17.9 percent.¹¹ This is indeed an extraordinary magnification of the winner's advantage – in 1925, 1934, and 1943, the winner even won all of the seats at stake – and the actual exponent that these average vote and seat percentages imply is 10.1, roughly in line with the 8.3 that the Taagepera Law predicts.

There is no practical method to adjust the data further in order to

neutralize the small size of the Australian Senate – or, more accurately, the fact that only about 19 Senators were chosen in each election – as a source of disproportionality. But let us engage in a brief mental experiment. If the size of the Australian Senate had been in accordance with the Cube Root Law, it would have had 144 members; if all of these Senators had been elected simultaneously in three-member districts, there would have been 48 districts. The predicted exponent would then be 3.9 which is significantly higher than the Cube Law (close to a fourth-power rule rather than the cube rule), but quite a bit lower than the observed exponent. If the elections had taken place in single-member districts, the predicted exponent would be 3.0. The Taagepera Law makes clear that it is the use of multi-member districts that increases the degree of disproportionality.

5 Conclusion

To sum up, the puzzle of the extreme disproportionality in the Australian Senate elections from 1919 to 1946 can be explained largely in terms of the very small number of Senators elected in each election – a factor that is essentially unrelated to the AV method. However, it is also safe to conclude that the use of multi-member instead of single-member districts accounts for a small but significant portion of the extreme disproportionality. On the basis of comparative empirical evidence as well as the re-running of British and South African elections under alternative election rules, we know that disproportionality under single-member district AV does not differ significantly from that under single-member district plurality. Under multi-member district AV, or for that matter multi-member district plurality, disproportionality is bound to increase. Therefore, what we can clearly not expect, contrary to Horowitz's claim, is that multi-member district AV will be less disproportional than the usual plurality system in single-member districts.

Notes

I am grateful to Malcolm Mackerras, Ben Reilly, Andrew S. Reynolds, and Rein Taagepera for their advice and/or comments on earlier versions of this article.

1. When AV is used for presidential elections, it is probably more accurate to speak of single-office rather than single-member district elections. Sri Lanka's system is not AV in the strict sense, but may be regarded as a variant of AV: voters can number up to three preferences, which are distributed to the top two candidates in case no candidate receives an absolute majority of first preferences (Reilly 1997b).

2. It is by no means certain, however, that the commission's recommendation will actually be adopted in Fiji. And, of course, it is not certain either that South Africa's new democratic system will succeed in the long run. Not surprisingly, Horowitz fears that it "may ultimately break down" (Selinsky 1994: 1), while I am much more optimistic.

3. My summary of Horowitz's proposals and of my critique in this article relies heavily on these two earlier articles.

4. The majority-runoff is also often called the double-ballot or second-ballot system.

5. Two sentences later, Horowitz implies that AV can actually be described as a PR system: after mentioning AV and the single-transferable-vote form of PR, he discusses the list PR system and calls it the "third PR system" (Horowitz 1991: 166).

6. Actually, the only reason why STV appears to be more disproportional than list PR is that it is usually applied in districts with lower magnitude (i.e., fewer representatives to be elected per district) than list PR. When district magnitude is the same, STV and list PR are about equally proportional.

7. The extreme case is that of a single nationwide district, which maximizes proportionality when PR systems are used, but which maximizes disproportionality when majoritarian systems are used. Under plurality, for instance, the party winning the most votes would not just be overrepresented, but would actually win all of the seats in the legislature.

8. The index proposed by John Loosemore and Victor J. Hanby (1971) is the most widely used index. It has the great advantage of simplicity: it measures the total percentage by which the overrepresented parties are overrepresented, which is, of course, the same as the total percentage of underrepresentation. The two-major-parties index (Lijphart 1984: 160-64) is even simpler: it measures the difference between the vote and seat percentages of the two largest parties and takes the average of the two differences. Michael Gallagher's (1991) least-squares index is a more sensitive, and also more complex, measure. It registers the total amount of disproportionality, the total of the differences between each party's vote and seat percentage, weighted by the size of each deviation. This means that large deviations are counted much more strongly than small ones, and hence that a high index of disproportionality always reflects major vote-seat deviations instead of merely a lot of small deviations.

9. In my electoral-systems book (Lijphart 1994), I usually distinguish between different PR systems and different AV systems in the same country. Here, however, the percentage of disproportionality in each country is simply the average over all elections held under the same basic formula (AV, plurality, double-ballot, and PR, as the case may be).

10. The double-ballot system that France uses for National Assembly elections differs from the normal majority-runoff system in that more than two candidates may be on the second ballot and that a plurality instead of an absolute majority is sufficient to win on the second ballot.

11. In the 1931 and 1934 elections, I counted the Federal Labor Party and the New South Wales (Lang) Labor Party as a single party.

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The End of Empires: Developing a Comparative Research Agenda for Imperial Dissolution in the Modern Era

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Abstract

For justifiable reasons scholars have paid considerable attention to the pursuit of empire. Far less work has been done in developing generalizable causal explanations for the dissolution of empires. This essay is a step in that direction. I suggest a working definition of the concept of empire and go on to develop a taxonomy to distinguish between various types of empire. The essay then presents some possible explanations for imperial dissolution. These causal explanations fall into three categories: they can focus on changes in the imperial metropole; they may highlight changes in the dyadic relation of centre and periphery; or they tend to emphasize changes in the overall international system. In order to start evaluating the relative salience of each explanation I conclude by discussing several research strategies and suggest, given the large number of independent variables and the relatively large number of potential cases, that the method of "structured focused comparison" might be particularly appropriate.

1 Introduction

At the beginning of the 20th century vast tracts of the globe were controlled by great empires. The French and the British had largely carved Africa up between themselves, and possessed very significant holdings in Asia as well (India and Indo-China). Even the smaller European powers – the Netherlands, Belgium, and Portugal – had considerable possessions of their own. The eastern part of the great Eurasian landmass was part of the Russian and Chinese empires. Relative newcomers to the imperial game such as Germany and Japan hastened to catch up.

Less than a century later the great western empires have fragmented and have yielded dozens of new independent states. The Soviet Union, once perceived as a monolithic entity during the Cold War, has fractured in fifteen sovereign states, and shows signs of possible further dissolution. It is even possible that the 90 million strong minorities in China will pursue greater independence for particular regions such as Xin Jiang and Tibet (Gladney 1994).