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State influences on Australian federal voting, 1946-1998

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Abstract

The extent of state influences on federal voting behaviour in Australia has been debated for many years. In this paper, I address the issue by presenting results based on multilevel analyses from an extensive investigation of postwar Australian elections. This not only covers the complete postwar period, but also improves on previous research by using the most advanced analytical techniques (multilevel modelling) available for making use of survey data in this context. This makes it possible to draw some definitive conclusions.

In addition to examining the overall extent of state effects over the period, I also explore a possible explanation by suggesting why one particular aspect of the institutional framework (the representation entitlements of the states) would tend to give small state effects, and use the multilevel results to investigate some hypotheses that follow from this suggestion.

State influences on Australian federal voting, 1946-1998

Introduction

Given the natural interest in the working of Australian federalism, it is only to be expected that the extent and nature of state-level influences on voting in Australian federal elections are topics that have been addressed many times, and over a lengthy period. Some significant early instances (based on one or both of aggregate voting data and individual survey data) of detailed attempts to explore the topic are included in Alford (1963), Aitkin (1977), Austen (1977), Holmes and Sharman (1977) and Kemp (1978).

There was a rather extensive debate during the 1970s and early 1980s that was often framed in terms of the existence (or not) of uniform swings; the theme was revisited after the 1990 federal election by Bean and Butler (1991a; 1991b) and Sharman (1991), and these authors also summarise the main features of the earlier debates.

Although not many of the authors argued that state variations were large¹, and Kemp (1978: 257) used a variance components method to conclude that "...there had indeed been an increasing nationalization of mass political responses in Australia from 1940 to 1972, with a declining proportion of variance attributable to state and local factors", others (e.g. Holmes and Sharman) noted that regional variations do occur and might be important because of the small margins generally present in Australian elections. Possible explanations for state variations that could be (and have been) explored include the existence of regional political cultures (sometimes on the basis of being a residual consequence of the fact that the states originally were separate and independent colonies), having differing economic interests, industrial bases or social compositions, and institutional ones that derive from the institutional role of the states in the national federation.

On this last point, for example, it is a recurring theme of journalists and commentators that the popularity (or unpopularity) of state governments and politicians also have an impact on federal voting behaviour in the same state. The rationale for this belief primarily derives, of course, from the fact that the same political parties contest both federal and state elections. The fact that the organisational structures of the main national parties are federal ones is another obvious consideration, despite the

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existence of some variations in the strength of this between parties and also some changes over time. In a similar vein, despite his general emphasis on other explanations for the increasing nationalization he found, Kemp also suggests a significant mediating role for the major parties and argues that they are 'important integrating institutions' (Kemp 1978: 257).

Building on the contributions made by the earlier research, during the 1990s the topic was investigated with more conceptual and methodological sophistication. In terms of examining possible causes of state-level variations in federal voting, Denmark and Sharman (1994) used survey data to investigate differences in state political cultures and found few evident in 1993. They did, however, identify some differences in attitudes towards trust in federal and state governments that might have an impact in some circumstances. Charnock (1994) demonstrated that there was an extremely large amount of residential mobility between elections (in W. Australia, an average turnover at constituency level of about 30 per cent over a three year period). This makes drawing conclusions about changes in individual voting behaviour from aggregate voting swings in electoral divisions extremely problematic and subsequent work (Charnock 1996; 1997) applied the recently developed technique of multilevel analysis to individual survey data.

This technique allows for the simultaneous measurement of the extent of influences at different spatial levels (including the state level) after controlling for individual social characteristics. Among other things, use of this new method demonstrated that the extent of state level effects was relatively small at both the 1993 and 1996 elections, with divisional level effects being much more significant (though smaller than equivalent effects in Britain). Returning to the analysis of aggregate voting data, Leithner (1997) made use of an improved version of the technique used earlier by Kemp to produce an extended analysis for the period from 1900-1988. His analyses too demonstrated that components attributable to divisional level variations were consistently much larger than state level ones. He linked this to relatively low levels of partisan dealignment in Australia and contrasted this with the situation in the USA, where he says that partisan dealignment has led to an emphasis on individual candidates and local issues.

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To investigate the topic comprehensively, examinations of both aggregate and survey data are needed, because they can fulfil complementary roles. By their nature (being based on aggregate voting data), Leithner's conclusions suffer from the disadvantage that they cannot disaggregate down to the level of individual voters and are always potentially subject to difficulties resulting from differences in the social composition of electoral divisions². By being able to incorporate individual level influences as well as the aggregated-level ones (divisional and state) dealt with in Leithner's research, multilevel analyses of survey data for an extended period would help to finally complete the picture that has been developed during this very lengthy debate.

One of the main purposes of this article, therefore, is to report the results of applying this advanced analytical method to the full postwar period, in order to provide an assessment of how the relative extent of state-level influences on Australian federal voting has varied during the second half of the twentieth century.

As argued earlier by Holmes and Sharman (1977), even if state effects on federal voting are relatively small, they are nevertheless potentially significant because of the fact that margins in Australian elections are generally small. Furthermore, the federal structures of the main political parties necessarily make the state an important unit of analysis. Consequently, in addition to assessing the overall relative extent of state effects, some further exploration of explanations for these effects is desirable. Partly because of limitations in the available survey data, but also because of its apparently widespread acceptance, I will focus on the notion that state influences result (at least partially) from responses to state governments and political leaders.

Since surveys seldom ask direct questions about assessments of state governments and politicians, it is not possible to address this aspect directly. What is possible, however, is to examine whether state effects are still apparent after controlling for sociodemographic characteristics (since differences in social composition between states would be another major possible source of inter-state variations in voting). Of course, any such state effects that actually do remain would not completely be attributable to the influence of state governments, but it would give us a good indication of how large their effect on federal voting might be.

Investigating these sort of state effects can also be done within a multilevel modelling framework and I will also do this in some detail in this article.

Some hypotheses

In addressing the first of these questions (about the relative extent of state effects), it is the overall balance between various spatial levels that is being examined and so, while it is possible to identify the contributions of individual states to the state-level variation, this is not always necessary. However, in the case of the second question (about the impact of state governments), it is essential to identify states separately, since it is responses in particular states that are postulated as having some impact.

Because of this difference between the two questions, it will often be useful to adopt a way of thinking about the factors which might have an impact on state effects that is framed in institutional terms. This will also help in testing explanations of why state effects are small (if this is confirmed to be the case). In particular, I wish to consider the impact of one crucial aspect of the electoral system viz. the nature of the representation of the states in the House of Representatives.

At least 5 of the 6 states (Tasmania to a lesser degree) have a large enough number of seats in the House to have a reasonable chance of being significant in determining which party wins government. This is unlike the situation in the USA, with which comparisons of the extent of state effects have been made by both Kemp and Leithner. There, the state with the highest representation (and this by quite a large margin) in the US House of Representatives is California. However, even California has only about the same proportion of seats (10 per cent) as does W. Australia (the fourth most populous of the Australian states). Even looking at the position of Tasmania (which has easily the lowest representation of any of the Australian states), its relative representation is exceeded by fewer than 10 of the 50 states in the USA.

An immediate consequence is that the main political parties in Australia simply cannot afford to let divergences in voting behaviour between states become large. The consideration of state representation entitlements must inevitably be of major concern to any party wishing to form government, and I argue that it combines with the

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flexibility resulting from the federal structures of the main parties to introduce a self-correcting element into electoral competition. No major party can afford to suffer a consistently large deficit in any state and so will be obliged to act to avoid this situation arising.

Several consequences should follow from this observation and I offer the following hypotheses about what the postwar multilevel analyses would show if it were correct:

1. With the possible exception of isolated instances of short-term impacts, the overall extent of state-level effects would show no consistent changes over the period, because the main parties could not let this happen. Moreover,
2. The relative importance of state-level effects will be uniformly small during the period, possibly except at times of crisis in the party system, when party adaptation may be in train.
3. Any state effects that are present are more likely to be in less populous states, because their smaller representation entitlements mean they are less significant for winning government.

Methods of analysis and data

As outlined in Jones et al (1992) or Charnock (1996), for example, multilevel models have a number of advantages over single level ones when appropriate data are available, including that of being able to identify the extent of variations in voting at different spatial levels. However, because of the limited nature of the geographic identifiers available in many of the survey data sets for the early part of the postwar period, the most detailed multilevel modelling that is generally possible in the Australian context (incorporating electoral divisions as well as states) can only be carried out from 1966 onwards. It will therefore sometimes be necessary to use single-level models to ensure full direct comparability over the complete period. Where this has been necessary, I will also supplement the single-level results for the full postwar

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period by comparing the single- and multi-level results for the later period (1966 onwards) and noting the apparent consequences of using single-level models.

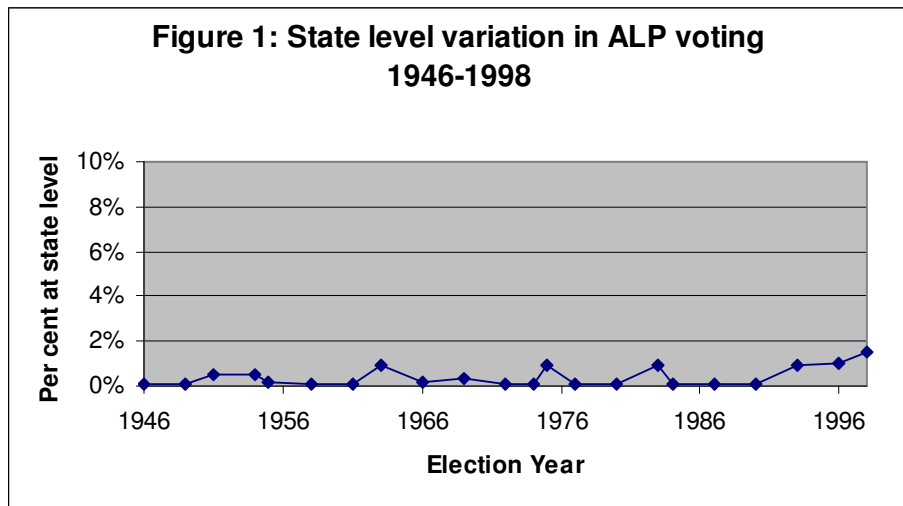
Analyses were mainly based on Gallup Polls (the only data source for the earliest part of the postwar period), though on occasions other sources such as the series of Australian Election Studies were used. Sample sizes were similar throughout (almost all in the range 1500 to 2000). To ensure comparability over the full period, vote for the ALP in the House of Representatives was used as the dependent variable and analyses reported here incorporated only ALP and Coalition voters³ (though, when possible, I also made comparisons with results obtained if voters for the DLP, Australian Democrats and One Nation were included, with no substantive differences to the results presented here).

Results

The first issue to be addressed is the overall extent of state-level effects over the period. I will approach this in two ways, first by using two-level models, with individuals as level 1 and states as level 2, and second by using single-level models where the state effects are directly modelled as individual-level fixed effects, rather than as random effects. The first of these approaches to studying regional effects is the one adopted in the earliest applications of multilevel analysis to voting, both in Britain and Australia (Jones et al 1992; Charnock 1996, respectively). The second formulation has been used more recently (e.g. Fisher 2000) and is more in accordance with the institutional effect approach that I outlined above in my hypotheses.

These earliest applications examined the extent of spatial variations by looking at the sizes of random effects at the various spatial levels but, to ensure comparability over time, results here are presented slightly differently, in terms of measures suggested by Snijders and Bosker (1999). In the case of measuring the proportion of variance attributable to state fixed effects, this is the multilevel equivalent of the most widely-used measure of explained variance in (single-level) logistic regression models⁴.

As Figure 1 clearly shows, the proportion of variance in voting for the ALP attributable to the state level in the two level models is uniformly trivial (mainly below 1 per cent). This certainly seems to support both Hypothesis 1 and Hypothesis 2. While it is possible to see minor fluctuations over time, the overall levels are so low that it would seem to be an over-interpretation to attach much significance to these variations.



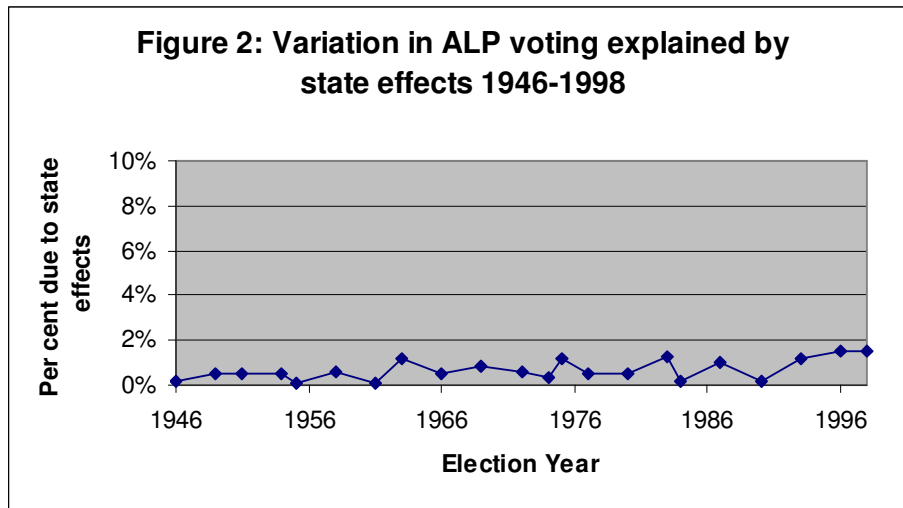
Note: quantities plotted are the percentages of total variance that are located at the state level in two level logistic regression null models for ALP voting, with individuals as level 1 and states as level 2 .

Adopting the alternative approach, where state effects are modelled as fixed individual-level ones in single-level models (see Figure 2), makes no difference to the conclusion reached; the overall relative significance of state effects in explaining variations in ALP voting is uniformly small (again, mainly below 1 per cent).

As explained earlier, Figure 2 is based on single-level models, since insufficient geographic information was available for the full postwar period to use multilevel models with electoral divisions as one level (and individuals as the other). However, for the period from 1966 onwards the data do make this possible, still adopting the formulation of state effects as fixed individual-level ones.

Does this alternative modelling strategy (which is, in principle, a superior one) alter the conclusion in any way? In fact, it does not. The overall extent to which variations

in voting for the ALP are explained by the state effects is almost identical to those shown in Figure 2; the details are not shown here because they are essentially indistinguishable from those in Figure 2.



Note: quantities plotted here are the percentages of total variance explained by state fixed effects in single-level logistic regression models for ALP voting, where states are the only fixed effects included.

As far as this aspect is concerned, therefore, the hypotheses that during the period there would be no consistent changes in observed state effects on voting for the ALP and that the extent of such effects would, in fact, be uniformly small are undoubtedly strongly supported.

To put the extent of state effects into some sort of additional perspective, for the period from 1966 onwards (for which it was also possible to model effects at the level of electoral divisions), the proportion of variance attributable to the divisional level was, on average, about ten times as large as for the state level (around 8 per cent, compared to 0.8 per cent).

Variations attributable to the individual-level are, in turn, of considerably more relative significance than electoral division ones, and it is difficult to conclude anything other than that observed state-level effects on ALP voting are relatively of

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very minor significance. Of course, as noted earlier, this is not to argue that the states do not play an important institutional role. In fact, if my argument is correct, it is probably because of federal organisational structures and party adaptation at the state level that we observe only minor state effects.

Particular state effects

It is probably the third hypothesis (about the presence of state effects being more likely to occur in less populous states) that gives the strongest test of my argument, because it gives a more detailed indication of where state effects should be found. However, in investigating this hypothesis for the complete postwar period I have, as explained earlier, had to use single-level modelling.

A priori, it is likely that the single-level models would exaggerate the extent of state effects. Since the divisional level is omitted from the single level models, it is probable that some portion of any divisional level effects that are actually present will be incorrectly attributed to the state level. Therefore, in order to see whether the conclusions from the single-level modelling might need to be modified, I will also present comparable results for the post-1966 period based on two-level models (individuals and electoral divisions).

TABLE 1 ABOUT HERE

The results of the single-level modelling are shown in Table 1, which identifies which state effects were found to be statistically significant in the full postwar period. The underlying measure is whether being in a particular state increased or decreased the log-odds of voting for the ALP (vis a vis the Coalition) compared to being in NSW, after individual social and economic factors are controlled for.

TABLE 1: Significant state effects 1946-1998, single-level models

Election Year	Victoria	Queensland	S. Australia	W. Australia	Tasmania
1946					
1949					* (+)
1951					
1954					
1955			* (+)		
1958					
1961					
1963			* (+)		
1966					* (+)
1969			* (+)		
1972					
1974	* (-)				
1975		* (-)			* (-)
1977					
1980		* (-)			
1983		* (-)			* (-)
1984					
1987					
1990				* (-)	
1993				* (-)	
1996		* (-)			
1998					* (+)

Note: * indicates a state effect significantly different from that in NSW at the 5% significance level; the sign indicates whether the corresponding state effect increased (+) or decreased (-) the log-odds of voting for the ALP compared to NSW. The models used are single level logistic regressions for ALP voting, incorporating ALP and coalition voters. These models control for several important socio-demographic variables (age, occupational class, sex, economic position, religious denomination, urban-rural residence) in order to measure state effects net of variations in the social structures of the respective state electorates.

The table clearly shows a fair number of (statistically) significant state effects, a total of 15 in the 22 elections that occurred during the period. However, the nature of statistical hypothesis testing means that this is not, by itself, a sufficient consideration. Even if there were, in reality, no state effects among the electorate as a whole (after controlling for the impact of differing social and economic characteristics), the necessity for using random samples as the basis for drawing conclusions means that we would nevertheless expect to find some apparently significant effects. When testing at a significance level of 5 per cent, if there actually were no state effects, we could still expect to incorrectly find 'significant' effects about 5 per cent of the time i.e. about one time in twenty.

In this case, however, one in twenty of the 110 comparisons (5 for each of the 22 elections) would be only 5 or 6, and the 15 actually observed are considerably more than that. It is, therefore, safe to conclude that in some states and at some elections state effects are present, even after controlling for variations in social composition.

Of course, this does not tell us directly what the causes of these effects are, and I proceed to consider the specific suggestion in Hypothesis 3 that state effects are more likely to be present in the less populous states. Table 1 certainly has much supporting evidence, but before commenting in detail on this I need to draw attention to another technical aspect of statistical significance testing. The one to which I refer is that known as the power of a test. This refers to the probability that a given effect that exists in the electorate as a whole will be detected when conclusions are based on only a random sample.

Without going into excessive detail, one of the most important relevant considerations here is that having a larger sample in a state will make it more likely that an effect of any given size will be correctly detected. In our particular context, since surveys were generally conducted with state samples roughly proportional to total state population sizes, this means that there is more chance of correctly identifying effects in the more populous states. Hence the highest chance would be in Victoria, the next highest in Queensland and the smallest in Tasmania.

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Bearing this in mind, the evidence in Table 1 clearly provides strong support for the hypothesis. Despite being the state for which effects are most likely to be correctly identified if present, only a single effect is found for Victoria⁵. At the other end of the scale of parliamentary representation, despite Tasmania being the state for which effects are least likely to be correctly identified, more significant effects (5) are identified for it than for any other state over the period as a whole.

The picture for the remaining states is not quite as clearcut, with the position of W.Australia being slightly anomalous. The position of Queensland from the mid-1970s to the mid-1980s also stands out somewhat. Nevertheless, even though the correspondence with relative levels of representation is not perfect, the overall tendency is clear and I think Hypothesis 3 would undoubtedly be judged to be strongly supported by this evidence.

The results in Table 1 might also be seen as having some bearing on Hypothesis 1, since there is something of an imbalance between the first 11 elections (during 1946-72) and the second group of 11 elections (from 1974-98). Only 5 of the significant effects occur in the first half, and one might tentatively suggest on this basis that there has been a small degree of increased interstate variation since the early 1970s. Nevertheless, as already observed, the overall level remains very low.

However, as explained earlier, the single-level models are likely to over-estimate the extent of state effects because they do not incorporate divisional effects. As far as possible, therefore, it makes sense to make comparisons with results from two-level models that do incorporate the electoral division level separately, in order to avoid reaching inaccurate conclusions. Indeed, this is one of the reasons for using multilevel models in preference to the customary single-level ones.

Such two-level modelling can be done for the period from 1966. As expected, fewer significant effects are apparent: only 8 significant effects are found in the resulting two level models (see Table 2), compared to 12 in the single level models for the same period. However, although this confirms that the extent of state effects identified in the single-level modelling is an overstatement, it is nevertheless true that 8 significant effects is a larger number than would have been expected to have been

found in testing at a 5 per cent significance level had there actually been no state effects present among the electorate as a whole⁶. So it is still reasonable to conclude that state effects were sometimes present, though certainly not as often as indicated by the single-level models.

TABLE 2: Significant state effects 1966-1998, two-level models

Election Year	Victoria	Queensland	S. Australia	W. Australia	Tasmania
1966					
1969			* (+)		
1972					
1974					
1975		* (-)			* (-)
1977					
1980					
1983		* (-)			* (-)
1984					
1987					
1990				* (-)	
1993				* (-)	
1996					
1998					* (+)

Note: * indicates an individual-level state fixed effect significantly different from that in NSW at the 5% significance level; the sign indicates whether the corresponding state effect increased (+) or decreased (-) the log-odds of voting for the ALP compared to NSW. The models used are two-level random intercept logistic regressions for ALP voting, with level 2 being electoral divisions and level 1 individuals. ALP and coalition voters are included. These models control for several important socio-demographic variables (age, occupational class, sex, economic position, religious denomination, urban-rural residence) in order to measure state effects net of variations in the social structures of the respective state electorates.

When the earlier comments about the relative power of tests in the various states are also taken into account, the evidence of Table 2 still provides quite strong support for

Hypothesis 3: it shows that state effects are more likely to be present in the less populous states. Tasmania has most and Victoria has fewest (none, in fact).

How many of these state effects that have been identified could reasonably be interpreted (partially, at least) as being related to the popularity or unpopularity of state governments or politicians? It is probable that this is so for many of them. Of course, there is no direct evidence for this, and there are many other instances where state governments were apparently equally popular (or unpopular)⁷ and yet no corresponding state effects have been found in these analyses. The number of statistically significant state effects that I have identified here is far less than one would have imagined given the nature of commentary on the issue.

Together with the findings in the earlier part of this article, this does all suggest that state effects are quite small, though they clearly cannot be ignored, given the existence of such small margins between parties in Australia. As far as explanations are concerned, the institutional effects hypotheses based on state representation entitlements that have been tested here seem to provide a reasonable account for why state effects are not often to be found, and the existence of temporary reactions to state governments and politicians seems to be a partial explanation for those that are found. Overall, however, while the states might help to structure the electoral competition at any particular election, the parties have successfully managed to avoid letting state differences become large or allowing differences to be maintained for anything more than quite short periods.

Conclusion

The conclusions of this work can be divided into two parts, one being primarily descriptive and the other being an attempt to move towards an explanation of the descriptive findings. Descriptively, these analyses add to previous ones by Leithner (and other earlier authors) to complete the picture of observed state-level effects on federal voting for the ALP as being relatively small and as having essentially been that way throughout the postwar period. Being able to be conclusive about this is important, since it means we can now focus on explaining why it is the case that state effects are small.

Within the limits of the available data, it was not possible for me to explore directly many of the possible explanations (such as those that suggest different political cultures or reactions to state governments and politicians) for the state effects that do exist. However, the formulation of state effects I adopted would be appropriate for studying most of these explanations if appropriate data were available. I have concentrated instead on something that seems to be a very simple aspect, but which still gives some reasonably powerful (albeit indirect) tests of why state effects are small.

Following up on some of the implications of Kemp's and Leithner's suggestions that the role of the main political parties is significant, I have suggested that it is actually the flexibility introduced into Australian electoral politics by the federal structures of the main parties (combined with having quite similar social structures in the various states) that is responsible for the fact that observed state effects are relatively small. The sizes of the parliamentary representation of the various states in Australia are such that any party that allowed itself to suffer a consistently large deficit in any state (possibly excepting Tasmania) would find winning government difficult. Together with the flexibility of the party system, I argued that this introduces a self-correcting element at the state level into electoral competition in the House of Representatives.

This is, of course, something of a 'black box' solution to the question, because it relies on an institutional element (the parties) to respond, without telling us exactly how they will respond, other than to increase their vote. One could obviously think of alternative explanations for any particular state effect that is found, but I think the advantage of my institutional approach is that it offers a simple and parsimonious explanation for the 'pendulum' effect. Also, without wishing to overstate its usefulness in understanding international comparisons, it is clearly the case that having few states, each with a reasonable degree of representation and relatively similar social and demographic structures, places different constraints on parties than would be there under other circumstances such as those in the USA.

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Based on these ideas, I proposed three hypotheses about what state effects would be observed over the postwar period and used the most advanced analytical methods available (mainly multilevel modelling of various kinds, depending on the nature of the data available for different sections of the period) to test the consequences of this suggestion. The results were generally quite strongly consistent with the hypotheses, and thus are supportive of the idea that representation entitlements are a primary driving force in keeping the size of state effects at a very low level.

My analyses confirm, therefore, that the overall observed extent of state effects is uniformly small and relatively insignificant compared to ones at either the divisional-level or the individual-level. However, this is not to argue that the states do not play an important institutional role, because my suggestions about the impact of the representation entitlements of the states depend crucially on the main political parties taking state factors into consideration (in order to avoid state differences becoming large or entrenched).

Reactions to state governments and politicians are presumably among the constituent components that parties need to consider when responding to state-level impacts on federal voting, but other issues (such as differential impacts of national policies because of varying economic bases) would also come into play. However, I would suggest that it is incumbent on proponents of the view that reactions to state governments play an important role in structuring federal voting to produce evidence to support this viewpoint and to assess its extent precisely, rather than merely assert the existence of the relationship. Apart from anything else, being able to measure the size of any such effect would be a valuable addition to our knowledge of Australian voting behaviour. It does, however, appear both from my research and that of Leithner that observed state-level effects on federal voting during the postwar period have been much smaller than one would have imagined from much of the commentary on Australian federal politics.

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Notes

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1. Aitkin (1977: 185) goes so far as to say that "Inter-state variations are a minor puzzle."
2. On the other hand, conclusions from survey data are potentially subject to sampling errors, which is why the two types of analyses can complement each other.
3. Leithner (1997) also analyses only ALP and Coalition voting; most earlier writers either did the same or analysed only two-party preferred votes.
4. Though many measures of explained variance in logistic regression models have been proposed, recent simulations reported in DeMaris (2001) suggest this (the McKelvey and Zavoina r-squared coefficient (e.g. Long (1997)) is the best one.
5. As pointed out earlier, this is no more than the 1 in 20 that would incorrectly occur by chance if no differences were actually present between the NSW and Victorian electorates as a whole.
6. There are a total of 70 tests, 5 in each of the 14 elections during the period, so one in twenty would be only around 3 or 4.
7. See Bean and Butler (1991a, Table 1) for an example of such possible interpretations for the 1990 election.