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Analysis of Vote Shares

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Chapter 5 Analysis of Vote Shares

5.1 Introduction

The analysis in the previous chapter focused on the effects of being an incumbent or a challenger on the probability of winning. An alternative mode of analysis would be to examine the effects of incumbency on vote share: regardless of whether they win or lose, are incumbent parties in a constituency, on average, more likely to get a larger vote share than parties that are challenging? In order to examine this hypothesis we estimated, using constituency data, two equations: the first had as its dependent variable the vote share of the INC in a constituency (that is, the votes received by the INC in the constituency as a percentage of the total votes cast in that constituency) and the second had as its dependent variable the vote share of the BJP in that constituency.

5.2. Estimating Vote Shares

The equations were estimated as a system of equations, using the method of *Seemingly Unrelated Regression Equations* (SURE). (Greene, 2003, chapter 14). SURE estimates are more efficient than those obtained from estimating each equation as a single regression equation because the correlation between the error terms of the two equations is explicitly taken into account. In addition, and more importantly for the purpose of this analysis, the fact that the equations are estimated as a system allows hypotheses to be tested *between* equations as well as *within* individual equations.

The conditioning variables in the two equations were as follows:

1. Whether the party was the winner in that constituency.
2. Whether the party held the constituency in the previous election (that is, it was the 'incumbent' party).
3. The percentage of the electorate voting in that election ("turnout").
4. The number of independent candidates in the election.
5. The number of 'other' (that is, other than the INC and the BJP) party candidates in the election.
6. The year of the election.

7. The state in which the constituency was located.

<Tables 5.1 and 5.2>

The coefficient on the ‘incumbent’ variable (item 2, above) was allowed to vary according to the year of the election: this meant that the ‘incumbent coefficient’ would be different according to the election that was being considered. The equations were estimated on data for the 2,684 constituencies contested by *both* the INC and the BJP in the eight *Lok Sabha* elections: 1989, 1991, 1996, 1998, 1999, 2004, 2009, and 2014. Table 5.1 shows the results from estimating the (two equation) SURE model with the equation statistics shown in Table 5.2.

Predictive Performance of the SURE model

The coefficients reported in Table 5.1 were used to predict the vote shares of the INC and the BJP, collectively over all the eight elections between 1989 and 2014 and, also, for each individual election. The predictions were made by applying the coefficient estimates (shown in Table 5.1) to the values of the variables as observed in the 2,684 constituencies, in the 20 major states, which were contested by both the INC and the BJP. This yielded 2,684 predicted vote shares (one for each constituency) for the INC and another 2,684 predicted vote shares for the BJP. The average of these 2,684 predicted shares for the INC and for the BJP is reported in this chapter.

A property of the estimated SURE equation – which is a general property of linear regressions – is that it “passes through the mean”. As a consequence of this property, the average *predicted* vote share for the INC and the BJP was identical to the mean of their *actual* vote shares in the 2,684 constituencies in the 20 major states which were contested by both parties.¹

The predictions for the vote shares for the INC and the BJP, for an individual election (say, the 2014 election), were made under the *hypothetical* scenario that *all* the 2,684 observations related to the 2014 election. In other words, in computing the predicted INC and BJP vote shares for this prediction, the coefficient pertaining to the 2014 election (shown in Table 5.1) was applied to *all* 2,684 observations, the coefficients pertaining to the other elections being ignored. Similarly, in computing the predicted INC and BJP vote shares for another election (say, the 2009 election) the

¹ Note that these are weighted means, the weights being the proportions of the constituencies’ vote to the total vote.

coefficient pertaining to the 2009 election (shown in Table 5.1) was applied to *all* 2,684 observations, the coefficients pertaining to the other elections being ignored. The difference between the predictions, of the INC and BJP vote shares, represents the *election effect* on vote shares: since these two sets of predictions differ *only* in the fact that the first set of predictions related to the 2014 election and the second set related to the 2009 election, without any change in the values of the explanatory variables underpinning the two sets of predictions, the difference between them must be *entirely* due to the effect of differences between the 2014 and 2009 elections, that is to the “election effect”.

<Table 5.3>

The predictions from the SURE model are compared to actual outcomes in Table 5.3. When the elections are considered in their entirety (row: ‘All Years’ in Table 5.3) the predictions and the outcomes are identical since the regression “passes through the mean”.² The predicted and observed outcomes differ in terms of the individual elections, but not substantially. The predicted INC vote share, in constituencies in the major Indian states contested by both the INC and the BJP, falls from a high of 39.6 percent [observed: 39.4 percent] in 1989 to a low of 28.4 percent [observed: 24.4 percent] while the predicted BJP vote share, in the same 2,684 constituencies, rises from a low of 25.4 percent [observed: 23.9 percent] in 1996 to a high of 37.7 percent [observed: 39.6 percent] in 2014.

5.3 Incumbent and Challenger Vote Shares

The SURE model also predicts the INC and BJP vote shares when they are incumbents and challengers. In making these predictions the methodology that was used took the following form. Using the coefficients of the INC equation (shown in the first panel of Table 5.1), the predicted INC vote share in each of these constituencies was computed and, then, averaged, first when it was supposed that all the INC candidates in the 2,684 constituencies were *incumbents* and next when it was supposed that all the INC candidates in the 2,684 constituencies were *challengers*. Since these two sets of predictions differ *only* in the fact that in the first prediction the INC was assumed to be the incumbent, and in the second it was assumed to be the challenger, the difference between these two

² Note that these predictions relate only to those constituencies, in the 20 major states, contested by both the INC and the BJP.

predictions must be due *entirely* to the incumbent-challenger effects for the INC. An identical exercise was then conducted for the BJP.

These predicted vote shares with respect to incumbents and challengers are shown in Table 5.4 and 5.5. (It is important to emphasise that, by the structure of the SURE equations from which they were derived, these predictions are made with respect to only those 2,684 constituencies that were contested by *both* the INC and the BJP). Table 5.4 compares the vote shares of INC incumbents and challengers and BJP incumbents and challengers: columns 2 and 3 of Table 5.4 show the predicted vote shares of, respectively, INC incumbents and challengers - and, in the row below, the predicted vote shares of BJP incumbents and challengers – first, aggregated over all elections and, then, for individual elections; the difference between the incumbent and challenger vote shares is recorded in column 4, column 5 shows the standard error of the difference, column 6 shows the z-value (computed as the difference divided by the standard error), and column 7 records the probability of obtaining, under the null hypothesis that the difference is zero, a value greater than the observed z.

<Table 5.4>

Table 5.4 shows that, considering all the eight elections between 1989 and 2014 collectively, the average predicted vote shares of INC incumbents and challengers were, respectively, 33.5 and 31.8 percent and, reading across the columns for that row, this difference of 1.7 points (column 4) was significantly different from zero.³ The next row does the same for the BJP: the average predicted vote shares of BJP incumbents and challengers were, respectively, 35.5 and 30.4 percent and, using the preceding argument, this difference, too, was significantly different from zero.

In terms of the individual elections, the vote share for BJP incumbents always exceeded that for BJP challengers, except in the 1998 and 1999 elections (in both of which the BJP did particularly well, relative to the INC, winning 182 seats in each election to the INC's 141 in 1998 and 114 in 1999) when the difference in vote shares between incumbents and challengers was not significantly different from zero. On the other hand, the vote share of INC incumbents was significantly smaller than that of INC challengers in the 1989 and 1996 elections and significantly larger in the 1998 and

³ Since dividing this difference by its standard error of 0.41 (column 6) yielded a z-value of 4.2 (column 6); the p-value of column 7 shows that the probability of observing a z-value of this magnitude, under the null hypothesis that the difference was zero, was absurdly small and, so, this hypothesis could be 'rejected'.

2014 *Lok Sabha* elections. This would suggest that in elections which went against the INC (for example, 1998 and 2014) it was left to the incumbent constituencies to produce the votes while, in elections that went in favour of the INC (1991 and 2009), incumbents and challengers were on an equal footing. A similar picture emerges with respect to the BJP: when it did well, as in 1998 and 1999, incumbents and challengers got similar vote shares; when it did badly as 1991 and 2009, BJP incumbents obtained a large vote share than BJP challengers.

<Table 5.5>

Table 5.5 compares the vote shares of INC and BJP candidates. In particular, Table 5.5 compares: (i) the predicted vote shares of *all* INC candidates with *all* BJP candidates (labelled I+C in Table 5.5); (ii) the predicted vote shares of INC and BJP incumbents; (iii) the predicted vote shares of INC and BJP challengers. Columns 2 and 3 show, respectively, the relevant INC and BJP vote shares with the difference in column 4 and the its standard error in column 5; column 6 shows the z-value (computed as the difference divided by the standard error), and column 7 records the probability of obtaining, under the null hypothesis that the difference is zero, a value greater than the observed z.

Aggregating over all candidates, incumbents and challengers, and over all eight elections from 1989 to 2014, there was no significant difference between the vote shares obtained by INC (32.3 percent) and BJP candidates (31.5 percent) in the 2,684 constituencies, in the 20 major states, contested by both parties. In terms of the individual elections, however, the vote share of INC, compared to that of BJP, candidates was significantly larger in the 1989, 1991, and 2009 elections and significantly lower in the 1998, 1999, and 2014 elections.

In terms of comparing the INC and BJP in terms of the vote shares of their incumbent and challenger candidates, aggregating over all eight elections from 1989 to 2014, with respect to the 2,684 constituencies (in the 20 major states) that were contested by *both* the INC and the BJP, the vote share of INC incumbents (33.5 percent) was significantly lower than that of BJP incumbents (35.5 percent); however, compared to that of BJP challengers (30.4 percent), the vote share of INC challengers (31.8 percent) was significantly higher. In terms of individual elections, BJP incumbents had a significantly higher vote share than INC incumbents.

5.4 Vote Shares in Hindi and non-Hindi-Speaking States

Chapter 3 pointed to the importance of Hindi-speaking (HS) states to the relative electoral fortunes of the INC and the BJP. To recapitulate: of the total of 543 *Lok Sabha* constituencies, 204 (or 37.6 percent) are – and have been since the 1996 *Lok Sabha* election - in the seven Hindi speaking (HS) states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand, and Uttar Pradesh and, of these 204 constituencies, respectively, 40 and 80 are in Bihar and Uttar Pradesh. The HS states are of particular importance for the BJP since a large number of its contested constituencies are from these states: in 2014, nearly 45 percent (192 out of 428) of the constituencies contested by the BJP were from the HS states. These states are also important for the INC but to a lesser degree: 34 percent (158 out of 464) of the constituencies contested by the INC in 2014 were from the HS states.

The relative importance of these states to the INC and the BJP is reflected in the vote shares that the two parties obtained from these two parts of India. In 2014, the INC had an average all-India vote share of 19.3 percent which was composed of 17.5 percent of the vote in the HS states and 20.4 of the vote in the non-HS states; the BJP, on the other hand, with a national vote share of 31 percent, obtained 44 percent of the total vote in the HS states but only 23.5 percent of the total vote in the non-HS states. To put it differently, two-thirds of the nearly 107 million votes obtained by the INC in 2014 were from the 306 constituencies it contested in the non-HS states and one-third came from the 158 constituencies it contested in the HS states; for the BJP, on the other hand, 48 percent of its total vote in 2014 was from the 236 constituencies it contested in the non-HS states and 52 percent came from the 192 constituencies it contested in the HS states.

<Table 5.6>

Table 5.6, which shows the vote shares of the INC and the BJP in HS and non-HS states, in each of the eight elections between 1989 and 2014, reinforces the point made earlier about the imbalance in support for the INC and the BJP between constituencies in the HS and non-HS speaking states. For example, in the 1989 *Lok Sabha* election, when the INC obtained a national vote share of nearly 40 percent, its vote share in the HS and non-HS states were, respectively, 33 and 44 percent; in

the 2014 *Lok Sabha* election, when the BJP obtained a national vote share of 31 percent, its vote share in the HS and non-HS states were, respectively, 44 and 24 percent. These are, of course, vote shares pertaining to *all* constituencies in the HS and non-HS states, some of which were not contested by one or both of the two parties: in the 2014 *Lok Sabha* election, the INC contested 158 of the 204 constituencies (77 percent) in HS states and 306 of the 339 constituencies (90 percent) in non-HS states; by contrast, in that same election, the BJP contested 192 of the 204 constituencies (94 percent) in HS states and 236 of the 339 constituencies (70 percent) in non-HS states.

In order to compare the performances of the INC and the BJP in the HS and non-HS states, in respect of the vote shares of incumbents and challengers, we estimated two *separate* SURE models (of the type described in the earlier section and controlling for the variables, noted in Table 5.1): the first SURE model was estimated on data for constituencies, which were contested by both the INC and BJP, in the 13 major non-HS states and the second SURE model was estimated on data for similar constituencies in the seven major HS states. In total, over the seven elections between 1989 and 2014, there were 1,456 such constituencies in the non-HS states and 1,228 constituencies in the HS states.⁴

<Tables 5.7 and 5.8>

Table 5.7 shows that, considered over all the elections between 1989 and 2014, for constituencies in HS states *which were contested by both the INC and the BJP*, the vote shares of INC and BJP incumbents (respectively, 29 and 40 percent) were significantly larger than that of their corresponding challengers (respectively, 25 and 37 percent). However, as Table 5.8 shows, for similar constituencies in non-HS state, INC incumbents did not have any advantage, in terms of significantly higher vote shares, over INC challengers; however, compared to BJP challengers, BJP incumbents continued to have a significantly higher vote share in constituencies in non-HS states contested by both the INC and the BJP.

<Table 5.9 and 5.10>

⁴ In presenting the results, the 1989 election was omitted since there were only two BJP incumbents in this election and both constituencies were in non-HS states: Hanamkonda in Andhra Pradesh (won by C.J. Reddy) and Mehsana in Gujarat (won by A.K. Patel).

Table 5.9 and 5.10 compare the vote shares of INC and BJP candidates in constituencies which were contested by both the INC and BJP in, respectively, HS and non-HS states. In particular, Tables 5.9 and 5.10 compare: (i) the predicted vote shares of *all* INC candidates with *all* BJP candidates (labelled I+C in Tables 5.9 and 5.10); (ii) the predicted vote shares of INC and BJP incumbents; (iii) the predicted vote shares of INC and BJP challengers. Columns 2 and 3 show, respectively, the relevant INC and BJP vote shares with the difference in column 4 and the its standard error in column 5; column 6 shows the z-value (computed as the difference divided by the standard error), and column 7 records the probability of obtaining, under the null hypothesis that the difference is zero, a value greater than the observed z.

Aggregating over all candidates, incumbents and challengers, and over all eight elections from 1989 to 2014, Table 5.9 shows that the average predicted vote share of BJP candidates was significantly larger than that of INC candidates in constituencies in HS states which were contested by both parties (38.2 percent versus 25.6 percent); this result was also true for a comparison of BJP and INC incumbents and BJP and INC challengers. In terms of the individual elections, too, BJP candidates were predicted to receive, on average, a higher vote share than their INC rivals in constituencies, in the HS states, which they both contested.

On the other hand, aggregating over all candidates, incumbents and challengers, and over all eight elections from 1989 to 2014, Table 5.10 shows that the average predicted vote share of INC candidates was significantly larger than that of BJP candidates in constituencies in non-HS states which were contested by both parties (36.2 percent versus 27 percent); this result generally held for a comparison of BJP and INC incumbents and was always true for a comparison of BJP and INC challengers. For the individual elections as well, except for the 2014 *Lok Sabha* election, INC candidates were predicted to receive, on average, a higher vote share than their BJP rivals in constituencies, in the non-HS states, which they both contested.

5.5 Concluding Remarks

The central contribution of this chapter was to undertake an econometric investigation of the vote shares of the INC and BJP, in constituencies, which they both contested, in the 20 major states. This investigation paid particular attention to whether, in these constituencies, the two parties were

incumbents or challengers. Aggregated over all eight elections between 1989 and 2014, the average predicted vote share for INC incumbents was higher than that for INC challengers and, similarly, the average predicted vote share for BJP incumbents was higher than that for BJP challengers. So, measured in terms of vote shares, there would appear to be a pro-incumbency effect towards both the INC and the BJP.

Compared to the average predicted vote shares for the BJP when it was the incumbent party, the INC did not do as well as the incumbent party. However, in terms of average predicted vote shares, the INC did better than the BJP when both were challenger parties. So, on this interpretation, in terms of a cross-party comparison, there would appear to be an anti-incumbency effect towards the INC but a pro-incumbency effect towards the BJP.