Polls, Incumbency, and the President: Forecasting Gubernatorial Elections

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Abstract

This paper presents a refinement of a gubernatorial election forecast model that was originally based on the DeSart and Holbrook presidential election forecast model. It examines a simple model with three variables: September pre-election polls, presidential approval, and incumbency. The model generates reasonable forecasts, but falls quite short of its presidential election counterpart. It shows that while gubernatorial elections appear to be somewhat less predictable than presidential elections, these national- and state-level variables are fairly predictive of gubernatorial election outcomes.

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Forecasting Gubernatorial Elections

Election forecasting has practically developed into a subfield in its own right within the general field of election studies. Election forecasters have been able to develop models that (usually) generate amazingly accurate predictions of the outcomes of presidential elections, months in advance of the election. (Rosenstone, 1983; Abramowitz, 1988; Lewis-Beck and Rice, 1992; Campbell, 1992; Holbrook, 1996; Lewis-Beck and Tien, 1996; Wlezien and Erikson, 1996; Campbell and Garand, 2000; Norpoth, 2000; Jones, 2001)

These forecast models have been largely based on a well-developed understanding of the determinants of such election outcomes. Thus, the enterprise of election forecasting is far more than a simple academic exercise for entertainment purposes (who will have the closest prediction?), but rather tests of alternative explanations of election outcomes.

However, this enterprise is largely limited to attempts to forecast national level elections: predicting presidential election outcomes or, occasionally, congressional seats gained/lost by the president’s party. Explanations of gubernatorial election outcomes abound in the literature examining such factors as incumbency and challenger quality (Squire, 1992; King, 2001), economic conditions (Chubb, 1988; Stein, 1990; Howell and Vanderleeuw, 1990; Leyden and Borrelli, 1995; Svoboda, 1995; Niemi, Stanley & Vogel, 1995; Atkeson and Partin, 1995; Carsey and Wright, 1998), issues (Kone and Winters, 1993; Cook, Jelen & Wilcox, 1994; Niemi, Stanley & Vogel, 1995; Lowery, Alt & Ferree, 1998), and the all-important question of the influence, or lack thereof, of national-
level forces (Holbrook, 1987; Chubb, 1988; Tompkins, 1988; Simon, 1989; Atkeson and Partin, 1995; Carsey and Wright, 1998).

This paper is part of an ongoing attempt to cut through the forest of literature on the explanations of gubernatorial elections and develop a simple forecast model designed to generate predictions of those election outcomes. In earlier work (DeSart 2006, 2007), I have developed a model that is based on a presidential election forecast model developed by Tom Holbrook and myself. (Holbrook and DeSart, 1999; DeSart and Holbrook, 2003, 2010). Our presidential election model generates state- and national-level predictions of the presidential election outcome by relying upon state-level trial-heat polling data. We have shown that polls conducted in each state during the September preceding the election do a remarkable job of generating fairly accurate forecasts of the actual presidential vote in those states. My work has shown that September polls also do a reasonably good job of forecasting the outcomes of gubernatorial elections but that there is much room for improvement (DeSart, 2006, 2007).

The lingering question in the literature on gubernatorial elections deals with whether, and how much, national-level forces matter in comparison to state-level forces. Some research seems to indicate that gubernatorial elections are relatively isolated events somewhat insulated from national-level factors like presidential approval and the condition of the national economy (Tompkins, 1988; Howell and Vanderleeuw, 1990; Atkeson and Partin, 1995), while others suggest just the opposite (Holbrook, 1987; Chubb, 1988; Simon, 1989, Carsey and Wright, 1998).
My own research suggests that both national and state forces appear to play a role. Previously, I have shown that presidential approval in the third quarter of the election year provides a significant contribution to the prediction of gubernatorial election outcomes (DeSart, 2006). This paper delves further into the national- v. state-forces debate by including an additional variable, incumbency, into the model. This will allow a more complete and direct test of the relative influences of each type of force, as well as produce a more accurate forecast model.

The Model

The presidential election forecast model originally developed by Tom Holbrook and myself (Holbrook and DeSart, 1999; DeSart and Holbrook, 2003) is very parsimonious with just two variables. The model generates the predicted Democratic share of the two-party presidential vote, \( VOTE_{it} \), in each state, \( i \), in each election year, \( t \), with the following equation:

\[
VOTE_{it} = \beta_1 \text{POLLS}_{it} + \beta_2 \text{PRIOR}_{it};
\]

where \( \text{POLLS}_{it} \) represents the average Democratic share of the two-party vote in each poll taken in September before the election, and \( \text{PRIOR}_{it} \) represents the average Democratic share of the two-party vote in each of the two preceding elections.

It is thus a simple matter of plugging in the corresponding equivalent variables for gubernatorial elections into the model. Its simplicity, in spite of the complexity of explanations of voter behavior and election outcomes, is grounded in the assumption that much of those factors are already accounted for in the primary variable in the model, \( \text{POLLS} \).
However, as I have previously shown, the prior vote variable fails to show any predictive power in the gubernatorial election model, unlike its presidential election counterpart (DeSart, 2006). This remains true, even with the addition of more data points since the original presentation of this model (as the first column of Table 1 demonstrates).

The model that I ultimately concluded worked better for forecasting gubernatorial elections eliminated the PRIOR variable, and instead included a presidential approval variable. This was a relevant modification to the model, both statistically and theoretically. Indeed, in subsequent modifications of our presidential election forecast model, we found that including a national poll variable also significantly improved the model’s performance (DeSart and Holbrook, 2010). Since we are dealing with subnational elections in the current enterprise, and in light of the prevailing debate about the influence of national-level forces on state elections, it was deemed helpful to include a national-level indicator to this model as well. Therefore, the final model that I ultimately concluded in previous work to perform the best is represented by the following equation:

\[
VOTE_{it} = \beta_1 POLLS_{it} + \beta_2 APPROVAL_{it},
\]

where APPROVAL represents the average of presidential approval ratings for the third quarter of the election year.

This current work, goes a little further to examine the national v. state influence argument by adding an additional variable to the analysis: Incumbency. King (2001) shows that incumbency is a significant factor in gubernatorial elections so it seems reasonable to assume that it would have a significant contribution to a model designed to
predict their outcomes. Including this variable in the model is a bit of a departure from the parsimony of our presidential election forecast model. However, as my earlier work has shown, gubernatorial elections aren’t quite as predictable as presidential elections and perhaps more susceptible to race-specific characteristics not picked up by the POLLS variable, so a little more complexity to the model might be appropriate.

Therefore, I will also be testing models that include a measure of incumbency:

\[ VOTE_{it} = \beta_1 \text{POLLS}_{it} + \beta_2 \text{INCUMBENT}_{it}, \quad \text{and} \]
\[ VOTE_{it} = \beta_1 \text{POLLS}_{it} + \beta_2 \text{APPROVAL}_t + \beta_3 \text{INCUMBENT}_{it}, \]

where INCUMBENT is a modified dummy variable where 1 represents a race where an incumbent is running for reelection and 0 represents an open-seat race. To keep the measure consistent with the coding of the dependent variable, a negative sign is added if the incumbent is a Republican.

The Data

The main sources for the key independent variable in the model, POLLS, are the same as they are for our presidential election model: Pollster.com, the Polling Report, and NationalJournal.com’s PollTrack. Every gubernatorial election poll conducted during the month of September preceding the election were averaged for each state and each year. Since September polls were not conducted in every state in every year, those states are necessarily eliminated from the analysis. The resulting dataset includes 118 cases for the elections spanning the years 1998 through 2009.\(^1\)

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The presidential approval ratings were obtained from PollingReport.com. All presidential approval polls reported for the third quarter of the year (July through September) were averaged to generate a value for APPROVAL for each year. However, since the White House has changed party control across the time frame of the analysis the approval variable needs to be modified somewhat. To make the variable consistent with the direction of the dependent variable, it is subtracted from 100 for the years 2001 through 2008 to reflect the Bush presidency (in effect turning it into a “disapproval” variable for a Republican presidency).

Results

Figure 1 presents the scatterplot of the September poll data with the actual outcomes in each of the sample states. It shows that while there is a fairly robust relationship between the two variables and the eventual outcome, there is also a fair amount of error as well. The Pearson’s r correlation between the two variables is .906. Compared to the data in our presidential election model (Pearson’s r = .96), this demonstrates that while there is a strong correlation between September polls and the eventual outcome in gubernatorial races, they may be slightly less predictive of the eventual outcome in those races than they are at the presidential level.

Turning to the actual models, the results of the analysis are presented in Table 1. The first column of Table 1 is the replication of our original presidential election forecast model, which I refer to as the Basic Model. These results confirm what we had already determined, the long term state-level context appears to be far less predictive of gubernatorial election outcomes than the short-term race-specific context. Even the

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2009 – none. Also, due to its outlier status resulting from Jesse Ventura’s successful third party bid in Minnesota in 1998, that data point is excluded from the analysis of the models.
inclusion of nearly 50% more data points than my initial examination of this model fails to enable the prior vote variable to achieve statistical significance.\(^2\)

This would seem to show that gubernatorial elections show a bit less stability in their results from one election to the next, and may be susceptible to the idiosyncrasies (e.g. incumbency, etc) of each individual election campaign context more so than demonstrated in presidential elections. This would certainly seem to be the case given the importance that incumbency shows in various explanations of gubernatorial elections (Squire, 1992; King, 2001)

Ultimately, the analysis thus far reaffirms that the Basic Model we originally developed for forecasting presidential election outcomes loses some of its predictive power when we move down to the gubernatorial level, even with the addition of several new data points. We can thus move on to more complex specifications of the model.

The National Context

Clearly, each year is not created equal when it comes to its electoral context. In our work with the presidential election model, Holbrook and I have found that attempting to account for the national-level context (Holbrook and DeSart, 1999, 2008, 2010) significantly improves the predictive power of the model. In my earlier examination of the gubernatorial model (2006, 2007) I found that presidential approval was a significant operationalization of the national-level context, which seemed to suggest that the

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\(^2\) Previously, I had speculated that perhaps adjusting the PRIOR variable might make render it useful in the model. In our presidential election model, we found that extending the time frame for the prior vote variable from the two previous elections to the four previous elections made the model perform better. However, making similar adjustments to the variable for this model makes no difference.
president’s standing with the public provides an indicator of his party’s fate in the gubernatorial elections.

My earlier conclusion is reaffirmed in the second column of Table 1. This APPROVAL variable proves to perform quite nicely to demonstrate that the national context in general, and presidential approval specifically, appears to indeed influence the outcomes in gubernatorial elections. According to the POLLS + APPROVAL model, a ten point shift in a president’s approval ratings results in a roughly one point gain or loss for his party’s gubernatorial candidates. This is not a huge impact, to say the least, but it could be a key determinant in close races particularly in years where approval is particularly high (2002) or particularly low (2006 and 2008)).

*Incumbency*

The third and fourth columns of Table 1 present the results for the critical re-specification of the model since I first presented it four years ago. Will it matter if we attempt a more complex specification of the state-level context? Following King’s (2001) findings of a significant incumbency effect on gubernatorial voting, it should make a difference. To what extent does specifying the incumbency-status of the race improve our ability to predict its outcome, over and above what we have been able to do to this point? Will it significantly improve the accuracy of the model, or will it simply account for some of the accuracy that had been contributed by our other general short-term state-specific variable in the model: the September poll variable?

The third column presents the model where we have simply replaced the approval variable with the incumbency variable to assess the relative effect of the two variables on
model performance. The results show that, as expected, there does appear to be a significant incumbent advantage in gubernatorial elections. The model suggests that being the incumbent typically adds roughly one and a half percentage points to a gubernatorial candidate’s vote total.

In addition, swapping out the APPROVAL variable for the INCUMBENCY variable tells us a little something about the relative importance of the national variable compared to that of the state level influence. While incumbency is a significant variable in the model, overall model accuracy is somewhat diminished. By all measures of model performance, $R^2$, standard error of the estimate, mean absolute error in prediction and percentage of winners correctly predicted, the model using incumbency in place of presidential approval (POLLS + INCUMBENCY) is slightly less accurate than the POLLS + APPROVAL model. This may have something to do with the fact that presumably the poll variable already accounts for some of the race-specific factors to begin with, and plugging incumbency into the model simply allows that variable claim back some of its actual influence.

The final column presents the results for the full model, and allows for a side-by-side comparison of the APPROVAL and INCUMBENCY variables. All three variables significantly contribute to the model, which yields the most accurate predictions of all the models examined. This simple three variable model has the lowest mean absolute error in prediction and standard error of the estimate of the four models tested, and accounts for 84.4% in the variation in gubernatorial election outcomes, and produces correct predictions of the result 86.4% of the time.
Standardized regression coefficients (not shown in Table 1) show that the APPROVAL (BETA = .124) and INCUMBENCY (BETA = .108) are comparable in their relative impact in the model, with the slight edge going to presidential approval.

Conclusion

This paper has presented update of a gubernatorial election forecast model based on the DeSart and Holbrook presidential election forecast model. While each model generates predictions of election outcomes at the state-level, there are clear differences in its predictive abilities depending on whether we are forecasting outcomes in the elections for state executives versus that for the national executive.

To judge whether this is a good forecast model one needs to put it into perspective. An $R^2$ of .844 is very healthy, and the model generates an accurate prediction of the winner in a little over 7 out of every 8 elections. But in comparison to our presidential election forecast model, it falls a little short. Currently, its presidential election counterpart has a slightly higher $R^2$ (.886), a lower standard error of the estimate (2.99) and mean absolute error (2.34), and generates accurate predictions of the winner in over 90% of the state-level outcomes.

There is also a troubling problem with the model that makes it fall short of the utility of our presidential election model: the unavailability of polling data in some states. One thing that limits this model is that, unlike in presidential elections, pre-election polls are not conducted as regularly in gubernatorial elections, at least not during the month of September. One thing that we are able to do with our presidential forecast model is
extrapolate national-level outcomes (both popular vote and electoral vote) from the state-level forecasts (DeSart and Holbrook, 2003 and 2010). It would be useful to be able to generate national-level results in terms of gains/losses of statehouses for the president’s party. However, unless a September poll is conducted in each state holding a gubernatorial election in any given year, we will continue to fall short of that goal. The recent evidence suggests that it is still a rather hit-or-miss proposition. Generally there is typically not too much difficulty finding polling data for states that hold their gubernatorial elections in presidential election years since there is usually a good bit of polling going on in the states for the presidential contest, and a question about the gubernatorial race is usually included in the survey. Indeed, that was true in 2008, where there wasn’t a single state that was holding a gubernatorial election that year that didn’t have September polling data for that contest.

On the other hand, the off-presidential years, when most states hold their gubernatorial elections, are a different story. The number of states for which we are missing polling data in 1998 was seven. For 2002 it was down to four. It appeared that the trend was moving in our favor, but in 2006 that number had ballooned up to fourteen.

Finally, the test of this model offers one more modest viewpoint to the debate over the influence of national forces in gubernatorial elections. The significance of the presidential approval variable seems to place this model squarely down on the side of those advocating the position that national forces do indeed matter, even while controlling for state-level influence like incumbency and whatever else might be captured by the September poll variable.
Further examination and respecification of the model is most certainly possible, but there is a certain beauty to the simplicity and parsimony of this model and its presidential election cousin. What all this seems to show is that gubernatorial elections, like presidential elections, are fairly predictable in advance raising the lingering question about how much the fall campaign actually influences the outcome. These results seem to suggest that campaigns perhaps may matter more at the gubernatorial level than at the presidential election.

In presidential elections, the candidates are typically more evenly matched and it is a very high profile race where there most certainly isn’t a lack of available information about the candidates and issues. However, the same cannot be said of all gubernatorial races. There is one constant that runs across all gubernatorial elections each year and that is the national-level context. The role of the presidential approval variable seems to clearly suggest that context affects the fate of the president’s party in gubernatorial elections, and that effect is somewhat predictable. Whether this is because of voters consciously rewarding or punishing the president’s party when they cast their vote for governor, or because potential candidates and their contributors are reacting strategically to the shifting national political landscape, cannot be discerned from this analysis. It may very well be the case that both influences are at play.

One thing that can be said about gubernatorial elections is that clearly there are many more local considerations that go into deciding the outcome of gubernatorial elections from one year to the next that might not be as easily predictable. This is evidenced by the fact that the prior election variable, which contributes significantly in the presidential election forecast model, fails to even achieve statistical significance in
the gubernatorial model. What stability there is in the long-term partisan balance of the electorate in state politics appears to be picked up by the September poll variable, and prior election results don’t have anything further to contribute to the explanation. In any event, what one can conclude from all this is that the specific state-level campaign context of each individual gubernatorial election seems to matter somewhat, in some more than others, and somewhat more than it might in presidential elections.
References


Figure 1

September Polls and Election Results
Gubernatorial Elections 1998-2009

Data are converted to margins for clarity of presentation. Margins are Democratic percent minus Republican percent. Pearson’s $r = .906$
Table 1 – Gubernatorial Election Forecast Models

<table>
<thead>
<tr>
<th></th>
<th>Basic Model</th>
<th>Polls + Approval</th>
<th>Polls + Approval+</th>
<th>Polls + Approval+</th>
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</thead>
<tbody>
<tr>
<td>Sept. Polls</td>
<td>0.744**</td>
<td>0.749**</td>
<td>0.693**</td>
<td>0.697**</td>
</tr>
<tr>
<td>Prior Vote</td>
<td>0.038</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Approval</td>
<td>—</td>
<td>0.091**</td>
<td>—</td>
<td>0.090**</td>
</tr>
<tr>
<td>Incumbency</td>
<td>—</td>
<td>—</td>
<td>1.476*</td>
<td>1.459*</td>
</tr>
<tr>
<td>Constant</td>
<td>11.314**</td>
<td>8.169**</td>
<td>15.799**</td>
<td>10.863**</td>
</tr>
</tbody>
</table>

R²
- .822
- .836
- .829
- .844

Adj R²
- .820
- .833
- .826
- .840

SE y/x
- 4.187
- 4.014
- 4.106
- 3.935

Mean Absolute Error
- 3.111
- 3.161
- 3.094
- 2.870

% Correct Predictions
- 84.7%
- 86.4%
- 83.1%
- 86.4%

Figures in the top half of the table represent unstandardized regression coefficients.
N = 118
* = p < .05, ** = p < .01