

## The State of Presidential Election Forecasting: The 2004 Experience

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### Abstract

This paper assesses the current state of U. S. presidential election forecasting, describing forecast methods and their predictive accuracies for the most recent election, 2004. Three types of forecasts were made for the election using the methods noted: 1) point forecasts of the popular vote (by campaign polls, futures contracts on candidates' performance, regression models, Delphi expert surveys, and a combination of forecasts from these methods); 2) point forecasts of the electoral vote (by regression models, probability models based on state polls, a compilation of median polls in states, and exit polls); and 3) dichotomous forecasts of the popular vote winner (by a multi-indicator index, cut-points for single indicators, and bellwether states). Candidate futures provided the most accurate popular vote forecasts. A state probability model and the median state poll technique were the most accurate electoral vote methods. All three dichotomous techniques successfully predicted the election winner.

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*keywords:* bellwethers, combining forecasts, cutpoints, Delphi, election forecasting, evaluating forecasts, indexes, polls, prediction markets, probability forecasting, regression.

## Introduction

Modern presidential election forecasting using systematic techniques began about 70 years ago, in the mid-1930s, with the campaign polls of George Gallup, Elmo Roper, and Archibald Crossley. In the intervening years, polling methods have been refined and new techniques have been progressively applied to the task of predicting presidential election outcomes. After 70 years of experience in this field, where do we stand? How well are we able to forecast presidential elections? How do various methods stack up against one another? Which ones produce the most accurate forecasts? Which ones produce the most convincing forecasts?

In this analysis, the focus is on current forecasting techniques, those that were in use in the most recent presidential election, 2004, and which are likely to be important in forecasting subsequent elections. The forecasting methods used in 2004 may be classified into three categories, according to the type of forecast they produced:

- \* point forecasts of the popular vote

Methods that produce forecasts of the national popular vote were the most common, and included campaign polls, futures markets in which contracts on candidates are traded, regression models, Delphi expert surveys, and a combination of forecasts from these four methods.

- \* point forecasts of the electoral vote

Methods forecasting the electoral vote, less common than techniques forecasting the popular vote, included a regression model, probability techniques using state polls, a method based on identifying the median poll for each state, and exit polls.

- \* dichotomous forecasts of the popular vote winner

Unlike methods in the first two categories, which produce point forecasts, these methods seek merely to identify the election winner, regardless of the margin. The methods included were a multi-indicator index, cutpoints and thresholds identified for single indicators, and bellwether states.

### Point Forecasts of the National Popular Vote

The review of forecasting methods in 2004 begins with techniques for forecasting candidates' shares of the national popular vote.

### National Campaign Polls

Campaign polls, or trial heats, are public opinion surveys conducted to determine the percentage of the potential electorate that would vote for the respective candidates if the election were on the day when the interviews occurred. The result is typically interpreted as a prediction of the election outcome, although polling organizations usually are reluctant to do so.

In 2004, the accuracy of the polls varied substantially. It was not uncommon for polls conducted by reputable organizations, taken at nearly the same time, to differ by about 10 points. This variation problem probably stemmed from:

- \* the lack of standards for defining "likely" voters to interview and for counting people who are leaning toward a candidate but are still uncommitted;
- \* the increasing use of cellular telephones by younger voters, to the exclusion of the landline phones on which pollsters rely; and

\* growing public resistance to participating in surveys, largely due to the high volume of unwanted calls from telemarketers.

Polling organizations sought ways of overcoming these problems. The use of Internet surveys, to both augment and replace traditional polls, increased (Zogby International 2004; Harris Interactive 2007). This helped to include more young voters who are unreachable through their cell phones, but are active Internet users. Alternatives to random digit dialing for telephone surveys received added attention, including sampling from lists of registered voters and from official election participation records (Green and Gerber 2004). Also important was a new emphasis on combining campaign polls taken at nearly the same time, which reduces the variation of the results through averaging (Cuzán, Armstrong, & Jones, 2005; Armstrong 2001a).

Table 1 reports the forecast errors of polls from 2004 that have been combined by weekly averaging, covering the 34 weeks prior to the election. The weekly periods run from Tuesday through Monday, that is, in seven-day increments leading up to election day. Polls are included in a given week if the survey periods occur during that week, or mostly so. The poll data are the percentage of respondents who favored incumbent Republican President Bush, as a share of the respondents favoring the Democratic and Republican candidates combined. The error is calculated as the distance of the weekly average from 51.2, the percentage of the major-party vote received by Bush. The data are from RealClearPolitics.com and include all reported surveys.

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Table 1 about here

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Table 1 reveals that the polls were very accurate during the last stages of the campaign. The mean absolute error was only 0.4% for the final five weeks, beginning near the end of September. Moreover, the polls were quite accurate in the spring, from mid-March to mid-May, averaging 0.6% on an absolute basis for the nine weeks. This provided a substantial lead time for accurate poll-based predictions of the election outcome, as early as 34 weeks before the election. Polls taken during the summertime, however, tended to have large forecast errors.

### Futures Markets for Elections

Futures markets for presidential elections attracted considerable attention in 2004. These are online markets in which traders buy and sell contracts at prices that represent the market's estimate of the likely outcome of a given election. Most prominent are the Iowa Electronic Market and Intrade.com. The Iowa market was launched in 1988 by the business college at the University of Iowa as an educational tool (Berg, Forsythe, & Rietz, 1997; Berg, Forsythe, Nelson, & Rietz, 2006). Intrade, a commercial service based in Ireland, entered the field more recently, but offers greater variety of election contracts and has larger trading volume.

The Iowa market – the focus of this analysis – includes two categories of

presidential election contracts: winner-take-all contracts, in which those who bet on the winning candidate receive the full payoff; and vote-share contracts, in which the winners' payoff equals only the share of the vote received by the winning candidate. The vote-share market is of greater interest to forecasters, because the trading price of these contracts becomes an estimate of the percentage vote likely to be garnered by a given candidate.

The forecast errors for Bush vs. Kerry vote-share contracts in 2004 are reported in Table 1. The underlying contract data are weekly averages of each day's average contract price. As the table shows, *in every week but four, during the 34 weeks before the election, the forecast error of the average prices of the Bush contract was less than 1%*. That is, as early as the week of March 9-15, when it became clear that Kerry would be the Democratic nominee, the November election outcome was able to be predicted by the Iowa market with great accuracy. Even during the summer months, June through mid-August, when the polls encountered their largest weekly forecast error, averaging 2.0%, the Iowa market's Bush contract maintained its high level of accuracy, with an average weekly error of less than 0.5%. For the two weeks immediately prior to the election, the average weekly error dropped to 0.25%. In short, in 2004 the Iowa market was a highly effective predictor of the presidential election outcome in both the long term and the short term.

### Regression Models of the National Popular Vote

Regression models have been in the forefront of efforts to predict the outcomes

of presidential elections since the late 1970s. Most of the models are based on the theoretical assumption that presidential elections are referenda on the president's job performance, particularly with respect to the economy. Most of the models have come from political science and economics, and their structure has varied accordingly. Political scientists, largely building on early efforts by Lewis-Beck and Rice (1984), Campbell and Wink (1990), and Abramowitz (1988), have created models using the reported values of independent variables that reflect recent or current conditions, usually for periods ending no later than June of the election year. Economist Ray Fair and others who have extended his work have developed models based primarily on economic data that include the third quarter of the election year (Fair 1978; 2002b). Thus, except for forecasts made shortly before the election, Fair must project third quarter conditions. Some of these structural differences reflect differing theoretical perspectives: Are elections largely decided before summertime, or not until well into the fall campaign (Gelman & King, 1993; Holbrook, 1996; Campbell, 2000)? Are elections so much the product of economic conditions that they can be predicted by the state of the economy alone, or must political factors be taken into account?

Table 2 reports the types of indicators used in models of the 2004 election. Most models are quite similar to those that the respective authors have used in forecasting previous elections. Several have variables in common. All but one take into account whether a candidate is of the incumbent president's party. All but one include the impact of economic conditions, whether past or anticipated. In fact, three models include more than one indicator of economic performance. The president's job approval

rating also appears in four models. These indicators capture the inclination of voters to hold the incumbent president's party accountable for economic conditions and for the president's overall performance, as noted above. Several models track the length of time that the incumbent party has held the presidency, which highlights the tendency of voters to alternate parties in the White House after two terms.

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Table 2 about here

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Table 3 reports the accuracy of forecasts from regression models and other means of predicting the popular vote. Each forecast is entered in the table for the week in which it was reported.

As the table shows, the earliest 2004 regression forecast by a political scientist was made by Norpoth in late January, fully 40 weeks before the election. Norpoth's data included an autoregressive process for the two previous presidential elections, the outcome of the recent New Hampshire primary, and a New Deal realignment variable, all data that are available early, which enabled him to make the early forecast (Norpoth 2004). Norpoth's model over-predicted Bush's vote by 3.5%, but that was more accurate than either the polls or the Iowa market were that early in the campaign.

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Table 3 about here

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Forecasts from most other models were released during late July and early August (the 14th and 15th weeks before the election) and in late August and early September (the 9th and 10th pre-election weeks). For the earlier group the average forecast error was 3.4%. By far the most accurate of these models was the extension of Fair's approach by Cuzán and Bundrick (2005), who added federal spending to the mix and predicted the election result to within a tenth of one percent. For the later group – late August and early September – the average forecast error was 1.9%. A forecast by Wlezien and Erikson was the most accurate one in this group, with only 0.5% error.

### Delphi Expert Surveys

Surveying groups of experts to elicit their predictions has been little used in forecasting presidential elections. Prior to 2004, apparently only two such expert surveys had been undertaken, both for the 1992 election (Broder, 1992; Tetlock & Belkin, 1996; Tetlock, 2005). Neither followed the Delphi procedure.

In 2004, three Delphi surveys were conducted by Armstrong, Cuzán and Jones (Cuzán et al., 2005) to forecast the presidential election. Each had two rounds and was limited to predictions for the major-party candidates. The surveys were conducted in August after the Democratic convention, in September after the Republican convention, and in October following the debates.

The accuracy of Delphi as a forecasting method is dependent on the expertise of the participants and on the success of efforts to minimize the bias associated with subjective methods. For the 2004 surveys, participants were experts in American

politics, mostly prominent political scientists. Bias control measures were implemented as part of the usual Delphi process, such as avoiding face-to-face contact among experts and maintaining the anonymity of written responses.

The 2004 Delphi survey results have been entered into Table 3. For the August survey, the 12th week before the election, the median prediction for the expert group was 49.5% for Bush, an error of 1.7%. For both the September and October surveys, during pre-election weeks 7 and 2, the median forecast was 50.5% for Bush, only 0.7% short of Bush's 51.2% vote. Thus, even though Delphi is usually considered a long-range method, in this case it performed well in the short and medium terms.

#### Combined Forecasts of the Popular Vote

In 2004, apparently for the first time, forecasts from all four of the leading methods for predicting the popular vote in presidential elections were combined to produce one composite forecast, dubbed the Pollyvote. (The Pollyvote project, led by Scott Armstrong, is described in Cuzán et al., 2005.) The techniques in this mix included campaign polls, prices in the Iowa Electronic Market for the Bush/Kerry vote-share contract, forecasts from regression models, and the results of the Delphi expert surveys. In creating the combined forecast, predictions from each technique were averaged individually. For polls and the Iowa market, these averages covered several months by late fall. Also combined were the three Delphi expert surveys and forecasts from regression models. The average forecasts produced by each method were then averaged across all four methods. With a 51.5% forecast for Bush, this average of

averages was a highly accurate predictor of the 2004 election result, with an error of only 0.3%.

### Comparing the Accuracy of the Popular Vote Techniques

In comparison with most methods of forecasting the popular vote, the Iowa market's Bush/Kerry vote-share contract was the superior performer. Compared with polls across the 34 weeks in Table 1, the mean absolute error for the Iowa market was 0.6%, and 1.3% for polls. In the last four weeks before the election, the Iowa market and polls performed equally well, both with a low 0.4% error.

Table 3 provides other comparative data. Generally, regression models were less accurate than the other three methods. The models fared less well in comparison with polls and the Iowa market at comparable lead times, apart from the exceptions noted. Delphi expert surveys and the combination of methods were competitive with polls and the Iowa market during the same time periods, and more accurate than the average regression model.

### Point Forecasts of the Electoral Vote

Forecasters predicting presidential elections have generally been less concerned with forecasting the electoral vote than the national popular vote. Fewer techniques for forecasting the electoral vote, therefore, have been in recent use. Early systematic efforts to predict the electoral vote relied on regression, which was also applied to this purpose in 2004. Other methods that generated probability estimates of each state's

vote, derived from state-level polls, were in wider use. Electoral vote forecasts have also been based on the median poll for each state within month-long periods. In the following sections these methods are described, as are exit polls, another form of state-level forecasts. Each technique produces point forecasts of the electoral vote and was used in 2004.

### Regression Models of the Electoral Vote

Regression has been used to forecast the electoral vote from two alternative perspectives, the national level and the state level. Lewis-Beck and Rice (1992) developed a model based on national data, which, except for the dependent variable, was much like the popular-vote models that compared election years. By contrast, state-level models have pooled data for all states over several election years (Rosenstone, 1983; Campbell, 1992, 1994), or for the year of the previous election (Chappell & Soumbatiants, 2000, 2001).

Most of the variables included in these previous electoral vote models are causal. They reflect influences between elections, such as economic conditions, prior election results, and regional differences. In contrast, none of the models reported from 2004 is causal. They all are based on polls taken within the states, and thus have no explanatory purpose.

In 2004, a state-level regression model was developed by Soumbatiants, Chappell and Johnson (2006) and Chappell (2004). The equation had one independent variable, campaign polls in each state. Using simulation techniques, these analysts

calculated the probability of Democratic candidate Kerry winning the respective states. From mid-October to election day they consistently predicted a Kerry victory. with 282 electoral votes. In fact, Kerry garnered 252 electoral votes, which was 18 short of victory, and a 30-vote forecast error. Six days before the election, the probability of Kerry winning was 51.9%.

### Other Probability Techniques Using State Polls

In separate efforts in 2004, Moro and Wang determined the probability of candidates winning the electoral vote by calculating probability distributions for each state derived from state polls. Their approaches are akin to the technique developed by Alesina and colleagues for converting polls into probabilities of electoral victory, using the analogy of pricing options, with a strike price of 50 representing 50% of the vote (Alesina, Roubini, & Cohen, 1997, pp. 114-115).

#### The Moro Technique

Economist Andrea Moro used the most recent poll for each state and its reported margin of error to calculate the probability that at least 50% of the electorate in the state favored a given candidate. The point estimate and its confidence interval became the basis of a simulation that created a distribution of election outcomes for each state. The proportion of simulations won by each candidate was then calculated, thus identifying the leading candidate in the state. The results from state simulations were tallied to produce an estimate of the candidate's vote in the electoral college.

As graphics on Moro's web site show, the probability of Bush winning appeared to decline rather consistently from about the middle of October onward, with great volatility immediately prior to the election. However, Moro's final prediction on election eve put the probability of a Bush victory at 54.1%. Bush was predicted to win the Electoral College with a nine-vote margin, compared to his actual 34 vote margin, a 25 vote prediction error. Another calculation by Moro using an alternate source of polling data produced more accurate forecast of a 19-vote victory for Bush (Moro, 2004).

### The Wang Technique

Sam Wang, a neuroscientist at Princeton, also predicted the probability of each candidate winning in each state. The candidate with the highest probability of winning was allocated the state's electoral votes. Again, polls conducted within the states were the basis of generating probability estimates. Wang accessed the same data sources as Moro, but used the averages of polls for the previous 3-7 days, while the latter used the most recent poll.

Wang employed two techniques for generating his probability estimates: His basic model appears to be similar to Moro's. In the other, Wang made adjustments for undecided voters and for turnout, which favored Kerry. This action was apparently taken on the unsubstantiated belief that undecided voters would tilt disproportionately toward Kerry, and that young people would turn out in unusually high numbers to vote for him.

*The final prediction from Wang's first method was perfectly correct: he forecast that Bush would garner 286 electoral votes to Kerry's 252, which was indeed the result.*

The forecast from the embellished second method, which Wang favored, was far too optimistic for Kerry, predicting that he would receive 311 electoral votes to 227 for Bush, an error of 59 votes (Wang, 2005).

### Median State Polls – Colley and Gott

Astrophysicists Wes Colley and Richard Gott identified the median poll from among polls conducted in each state during the previous 30 days, and then allocated the state's electoral votes to the leader in that poll. For each poll Colley and Gott determined the difference between Bush and Kerry, noting, of course, which candidate was leading. As illustrated on their web site, suppose there were five polls with these differences between the candidates: Kerry +3, Kerry +1, Bush +2, Bush +2, Bush +4 (Colley, 2004). Since the median is Bush +2, Bush is the predicted winner, and is thus allocated that state's electoral votes. The results in all states are tallied, to forecast the national electoral vote.

The final prediction by Colley and Gott, issued early on election day, forecast a Bush victory, with 290 electoral votes to Kerry's 248 (Colley & Gott, 2004). Bush actually received 286 votes, and Kerry garnered 252. In this highly accurate forecast, the electoral college tallies were off by only four votes.

### Exit Polls

Exit polls also can be considered state-by-state forecasts. However, these surveys of voters as they leave their polling places are obviously not predictions of how

people will vote, but rather are estimates as to how people have already voted. Essentially, if accurate, exit polls accelerate the reporting of the election outcome in advance of the official vote count. Since exit polls are contemporaneous with the event, their accuracy should be high. However, inaccuracy was a major problem in both the 2000 and 2004 elections. In 2000, exit polls and the television network projections derived from them famously failed to predict the election results in Florida and some other states. As a consequence, for 2004 sponsoring media organizations replaced the exit polling firm, Voter News Service, with a promising team, Edison Media Research and Mitofsky International (together known as Edison/Mitofsky).

The new group's performance, however, did not meet expectations. Kerry was wrongly projected to win the electoral college, with 302 votes to 236 for Bush (author's calculations from data in Edison & Mitofsky, 2005, pp. 21-22). Moreover, Kerry was also predicted to win the popular vote, with 51% to Bush's 48% (Edison & Mitofsky 2005, p. 20). The forecast error in the popular vote was high in many states, averaging 3.1%. In fact, the Bush vote was underestimated in 41 of the 50 exit polls, and the winner was incorrectly identified in five states. In a report to the consortium of sponsoring media groups, Edison/Mitofsky attributed much of this error favoring Kerry to an over-reliance on youthful interviewers, who attracted a disproportionate number of young people – predominately Kerry supporters – who were willing to participate in the surveys. Ironically, pre-election campaign polls were better predictors of both the individual state results and the national popular vote than were these surveys taken soon after the interviewees had voted.

### Comparing the Accuracy of the Electoral Vote Techniques

The prediction error for each electoral vote method in 2004 has been noted in discussing the respective methods. Table 4 extends the analysis by comparing the errors among methods. As the table shows, the absolute error for electoral vote forecasts ranged from 0% to 11% – and those extremes were produced by the same forecaster. The average error for the group of forecasts was 5.0%.

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Table 4 about here

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Wang's basic probability model predicted the electoral vote perfectly, but his embellished model was off by 11%. The forecast by Colley and Gott's median poll approach was off only fractionally, at 0.7%. The greatest disappointment was the exit polls, which should have been highly accurate, given their timing, close to the vote. Their forecast of the electoral vote was 9.3% in error. The median poll technique was by far the simplest in the group, and its strong performance is consistent with research findings that often the simple, less sophisticated techniques are the most accurate (Armstrong, 2001b, pp. 694-695).

The electoral vote forecasting methods of 2004 were all based on state-level surveys. Given that state polls have small samples, and thus wide confidence intervals, dependence on them probably contributes to the large average forecast errors of some

of these techniques.

### Dichotomous Forecasts of the National Popular Vote Winner

This concluding section covers methods that are used to forecast the national popular vote, but which do not produce point forecasts or probability estimates. These are dichotomous indicators that seek merely to forecast whether a given candidate will win or lose. Included are Lichtman's index of 13 "keys", single indicators for which switches or cutpoints of winning and losing are identified, and bellwether states that reflect the political sentiment of the nation.

#### Lichtman's Index of 13 "Keys"

In 1981, Allan Lichtman and a collaborator developed a technique for forecasting presidential elections based on an assessment of 13 important factors or "keys", thought to have consistently influenced the outcome of elections since 1860. These statements are worded so as to favor the candidate of the incumbent president's party. For example, "The economy is not in recession during the election campaign" (Key 5); "The incumbent administration effects major changes in national policy" (Key 7); or "The incumbent party candidate is charismatic or a national hero" (Key 12). As is evident, each statement operates as a switch that is either on or off – true or untrue. If Lichtman determines that five or fewer statements are false, then the candidate of the president's party is predicted to win. If six or more are false, the president's party is expected to lose (Lichtman, 1996).

Lichtman's technique is based on the referendum theory of elections, focusing nearly exclusively on the incumbent party. Some of the keys provide an assessment of the incumbent president's performance in office; other keys assess the incumbent party's choice for its current candidate. Taken together, the keys provide a comprehensive list of factors on which to judge the incumbent party.

For the 2004 election only four of the indicators were false, a favorable forecast for President Bush. By correctly predicting a Bush victory, Lichtman maintained his unblemished forecasting record using this technique, beginning in 1984. Lichtman usually releases his forecasts about a year before the election. For 2004, his preliminary forecast was published on 25 April 2003, a remarkable 18-month lead time (Lichtman, 2003).

### Single Indicator Cutpoints

In contrast to Lichtman, whose dichotomous indicators are part of an index, some analysts attempt to identify a single indicator that might predict whether a candidate will win or lose the presidency. Single indicators commonly in use are thought to reflect the incumbent administration's performance, thus returning us to the referendum concept. Popular indicators include some that link election outcomes to levels of the stock market, interest rates, or economic growth. The underlying mechanism is that if the level of an interval-scaled indicator passes a given threshold, then an election prediction is triggered, either a win or a loss. The thresholds or cutpoints are determined empirically, based on a historical pattern.

The economic growth in the second quarter of election years illustrates the method. As seen in Figure 1, during the period 1952 through 2000, when second quarter growth was 2.6% (annualized) or higher, the candidate of the incumbent president's party won (with one exception, 1968). Conversely, when growth was 1.5% or lower, the incumbent party lost. Thus, for 2004 the win threshold was 2.6%, and the loss threshold was 1.5% (Jones, 2002, p. 82). The first report of second quarter GDP growth in 2004, released by the Bureau of Economic Analysis near the end of July, was 3.0%. Since this was above the 2.6% cutpoint, the growth indicator predicted a Bush victory. The pre-election lead time was 14 weeks. (The growth rate for the second quarter was revised to 2.8% in late August, then to 3.3% in late September. These revisions, 10 weeks and 5 weeks before the election, respectively, were still above the 2.6% win threshold.)

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Figure 1 about here

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### Bellwether States

Bellwether states are another type of dichotomous predictor of presidential elections. If a candidate wins the bellwether, that candidate is then predicted to win the national election. Conversely, if the candidate loses the bellwether, that portends a loss. The prediction, therefore, is made by determining how the bellwether will vote.

Unlike the other indicators in this section, the bellwether phenomenon does not

imply any causal effect on the national election, because the bellwether is not assumed to influence the vote in other states. Rather, the bellwether is presumed to function as a microcosm of the nation, so that whatever factors are influencing the national electorate are also influencing the bellwether.

If predictions are made from the bellwether's voting result on election day, the bellwether provides little lead time. Thus, in practice, polls that are conducted in the bellwether during the campaign become the basis of predicting the national outcome. The accuracy of the bellwether depends, therefore, not only on the extent to which it is a microcosm of the nation, but also on the accuracy of polls taken there.

In recent years New Mexico has been the most consistent bellwether state, voting for the winning candidate in every presidential election since 1916, except for the close 1976 contest (Jones, 2002, pp. 15-19). In 2004, most weekly averages of polls in New Mexico showed Democrat Kerry with a substantial lead, from late spring through pre-election week 5, when he led by four points. Voter support, however, shifted to Bush in week 4, giving him a three-point advantage. Bush's lead in the polls continued for the remainder of the campaign, though it narrowed in the final week to 1.4% (data source: RealClearPolitics.com). In the end, Bush won New Mexico by 0.4%. Thus New Mexico was again an accurate, though very competitive, bellwether, with a forecast lead time of four weeks.

New Mexico's impressive track record as a bellwether may appear inconsistent with the microcosm assumption, given that the state's societal composition is hardly reflective of the nation. The fact that a bellwether state has only to predict the national

winner, not provide a point forecast of the national vote, may mean that it can be a successful bellwether while having only some of the characteristics of the nation – in effect, being only a partial microcosm.

### Comparing Dichotomous Techniques

In comparison to the other forecasting methods described, the objective of the three dichotomous methods was more limited, and the methodology was simpler than most. Each was designed only to predict the winner of the election. As we have seen, the three methods for doing so are diverse. The application of the multi-indicator index is a series of judgmental decisions by the analyst, while the cutpoint and bellwether methods are more empirically driven. As evident in Table 3, lead times for the dichotomous methods varied widely in 2004 – from 80 weeks, to 14 weeks, to 4 weeks. In the end, each method was successful in achieving the limited objective of forecasting the 2004 election winner.

### Conclusion

This study has attempted to assess the state of presidential election forecasting as of the 2004 election. In that election, forecasters directed their work toward one of three objectives, generating:

- \* point forecasts of the popular vote,
- \* point forecasts of the electoral vote, or
- \* dichotomous forecasts of the popular vote winner.

Forecasting activity for each of these purposes is summarized in Table 5, which reports the final forecasts produced by the methods in the respective categories. By far the most attention was devoted to the first objective, producing percentage forecasts of the popular vote. As a group, forecasting methods for that purpose were highly accurate, led by the Iowa market's 0.2% error for the last pre-election week. Final forecasts for four of the five methods had 0.7% error or less. As to the remaining method, the average regression model was 2.7% in error, although for most models the final forecast was the only forecast, made an average of 15 weeks before the election. Nearly all of the models correctly predicted the winner, and the errors of two models' forecasts were very low, 0.1% and 0.5%.

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Table 5 about here

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Efforts to predict the electoral vote were fewer, and were undertaken mostly by academics from fields other than political science – economics, neuroscience, astrophysics. The exception was public opinion analyst Warren Mitofsky, who developed exit polls. As can be seen in Table 4, three of the seven forecasts of the electoral vote failed to correctly predict the winner. Moreover, the forecast errors for electoral vote predictions tended to be high, as is evident in Table 5. Two notable exceptions were a probability model that perfectly forecast the electoral vote, and a compilation of median polls in the states that was only 0.7% in error.

Among the dichotomous methods of predicting the winner of the popular vote, Lichtman's 13-key index was a noteworthy performer. His correct forecast was first made 80 weeks before the election and remained unchanged, which is reflected in his later forecast, as noted in the table (Lichtman & Keilis-Borok, 2004). As for the other two dichotomous methods, the GDP cutpoints were accurate and remained so after the government's data revisions, as late as five weeks before the election. In addition, New Mexico continued its record as an accurate bellwether, with a four-week lead time.

So where do we stand in forecasting presidential elections as of 2004? We know that most of the techniques in use are suitable for forecasting elections. We also know that the Iowa futures market is a superior forecasting tool; that averaged polls perform only somewhat less well; that some regression models are highly accurate; that largely subjective indexes can be consistently accurate; that most "simple" techniques – those involving no mathematical calculations beyond measures of central tendency – are quite accurate, notably combining polls and other forecasts. Knowing what we do, it should be possible to forecast future presidential elections accurately, if the most promising methods are used.

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**Table 1**

**Forecast Error of Polls and Iowa Electronic Market  
for 34 Weeks Before the 2004 Election**

<u>Weeks before election / dates</u>	<u>error: polls</u>	<u>error: Iowa market</u>
34 Mar 9 - 15	0.3	-0.1
33 Mar 16 - 22	0.6	-0.2
32 Mar 23 - 29	-0.6	0.8
31 Mar 30 - Apr 5	-1.4	0.4
30 Apr 6 - 12	-1.5	0.8
29 Apr 13 - 19	-0.2	0.7
28 Apr 20 - 26	0.4	0.6
27 Apr 27 - May 3	0.6	0.8
26 May 4 - 10	-0.2	0.7
25 May 11 - 17	-2.4	0.6
24 May 18 - 24	-1.8	-0.6
23 May 25 - 31	n/a	-0.6
22 Jun 1 - 7	-2.6	-0.4
21 Jun 8 - 14	0.8	0.1
20 Jun 15 - 21	-1.1	-0.4
19 Jun 22 - 28	0.2	1.2
18 Jun 29 - Jul 5	-4.2	0.3
17 Jul 6 - 12	-2.1	-0.4
16 Jul 13 - 19	-2.3	0.4
15 Jul 20 - 26	-1.5	0.5
14 Jul 27 - Aug 2	-2.3	-0.8
13 Aug 3 - 9	-3.2	0.2
12 Aug 10 - 16	-1.7	-0.4
11 Aug 17 - 23	-1.4	-1.6
10 Aug 24 - 30	-0.7	-1.0
9 Aug 31 - Sep 6	2.2	-0.7
8 Sep 7 - 13	1.8	-0.3
7 Sep 14 - 20	1.6	-0.2
6 Sep 21 - 27	2.0	0.5
5 Sep 28 - Oct 4	0.4	1.3
4 Oct 5 - 11	-0.5	0.2
3 Oct 12 - 18	0.6	-0.8
2 Oct 19 - 25	-0.1	-0.3
1 Oct 26 - Nov 1	-0.3	-0.2

Sources: RealClearPolitics.com (<http://realclearpolitics.com>)  
Iowa Electronic Market (<http://www.biz.uiowa.edu/iem>)

Table 2

## VARIABLES IN 2004 REGRESSION MODELS

	past or anticipated economic conditions	duration / alternation of parties in W House	public's approval of Pres performance	incumbent Pres is candidate	candidates' success in primaries	candidate strength in campaign poll	party of incum Pres	govt fiscal policy	voter support for party in Cong	nation at war
Abramowitz	X	X	X							
Campbell	X			X		X				
Cuzán & Bundrick	X X	X					X	X		
Fair	X X X	X		X			X			X
Hibbs	X									X
Holbrook	X	X	X							
Lewis-Beck and Tien	X X		X	X						
Lockerbie	X	X								
Norpoth		X			X				X	
Wlezien & Erikson	X		X							

Whether the candidate is of the incumbent president's party is taken into account in the dependent variable in all models except Norpoth's.

Sources: indicated in parentheses in note below

Notes: Some models have more than one indicator of economic conditions, denoted by multiple X's. The specific indicators are listed below:

Table 2 (cond)

*economic conditions:*

- Abramowitz (2004): GDP growth rate for first two quarters of election year  
 Campbell (2004a): GDP growth rate in second quarter of election year; halved for non-incumbent in-party candidate  
 Cuzán and Bunderick (2005):  
 \* GDP per capita growth rate in first three quarters of election year  
 \* number of quarters in first 15 quarters of the administration in which the growth rate of per capita GDP is greater than 3.2 percent at an annual rate
- Fair (2002a):  
 \* GDP per capita growth rate in first three quarters of election year  
 \* number of quarters in first 15 quarters of the administration in which the growth rate of per capita GDP is greater than 3.2 percent at an annual rate except for 1920, 1944, and 1948, where the values are zero;  
 \* inflation: growth rate of the GDP deflator in first 15 quarters of the administration except for 1920, 1944, and 1948, where the values are zero
- Hibbs (2007): per capita disposable personal income growth rate, a weighted average computed from the election quarter back to the first full quarter of the presidential term
- Holbrook (2004): survey of personal finances in May of election year: 100 plus difference between percent saying they are better off financially and percent saying they are worse off financially
- Lewis-Beck and Tien (2004):  
 \* GDP growth rate for first six months of election year *times* whether an elected president is running (interactive variable)  
 \* growth in jobs over first 3.5 years of president's term
- Lockertbie (2004): consumer expectations regarding their personal financial situation for the next year (first quarter of election year)
- Wlezién and Erikson (2004): Index of Leading Economic Indicators through 13th quarter of president's term; each quarter weighted .9 as much as following quarter

Table 3

Lead Time and Accuracy of Popular Vote Forecasts  
in 2004

week before election / dates	forecaster(s)	method	predict winner?	listed method absolute error (%)	poll absolute error (%)	lowa mkt absolute error (%)
80 Apr 22 - 28 ('03)	Lichtman	index	yes	-----	-----	-----
40 Jan27 - Feb2	Norpoth	regression	yes	3.5	4.4	15.7
24 May 18 - 24	Lockerbie	regression	yes	6.4	1.8	0.6
15 Jul 20 - 26	Hibbs	regression	yes	1.8	1.5	0.5
14 Jul 27 - Aug 2	Fair	regression	yes	6.3	2.3	0.8
14 Jul 27 - Aug 2	Abramowitz	regression	yes	2.5	2.3	0.8
14 Jul 27 - Aug 2	Cuzán & Bundrick	regression	yes	0.1	2.3	0.8
14 Jul 27 - Aug 2	Jones	cutpoints	yes	-----	2.3	0.8
12 Aug 10 - 16	Armstrong et al	Delphi	no	1.7	1.7	0.4
10 Aug 24 - 30	Lewis-Beck & Tien	regression	no	1.3	0.7	1.0
10 Aug 24 - 30	Holbrook	regression	yes	3.3	0.7	1.0
10 Aug 24 - 30	Wlezien & Erikson	regression	yes	0.5	0.7	1.0
10 Aug 24 - 30	Wlezien & Erikson	regression	yes	1.7	0.7	1.0
9 Aug 31 - Sep 6	Campbell	regression	yes	2.6	2.2	0.7
7 Sep 14 - 20	Armstrong et al	Delphi	yes	0.7	1.6	0.2
4 Oct 26 - Nov 1	Jones	bellwether	yes	-----	0.3	0.2
2 Oct 19 - 25	Armstrong et al	Delphi	yes	0.7	0.1	0.3
1 Oct 26 - Nov 1	Armstrong et al	combined	yes	0.3	0.3	0.2

*Sources:*

Campbell (2004b, 734)  
Cuzán, Armstrong and Jones (2005)  
Cuzán and Bundrick (2005, 258)  
Fair (2004)  
Hibbs (2004)  
Jones (2002, 16, 82)  
Lichtman (2003)

**Table 4**

**Techniques for Forecasting the Electoral Vote  
in 2004**

<u>Forecaster(s)</u>	<u>Method</u>	<u>Predict winner?</u>	<u>Absolute error: electoral votes</u>	<u>Absolute error: percent</u>
Soumbatiants, Chappell, Johnson	regression	no	30	5.6
Moro - basic	probability simulation	yes	25	4.6
Moro - alternate	probability simulation	yes	19	3.5
Wang – basic	probability	yes	0	0
Wang - modified	probability	no	59	11.0
Colley & Gott	median poll	yes	4	0.7
Edison / Mitofsky	exit polls	no	50	9.3

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*Note:* All forecasts were made during the last week before the election, except for the exit poll projection made on election night.

*Sources:*

Chappell (2004)

Colley and Gott (2004)

Edison Media Research and Mitofsky International (2005)

Moro (2004)

Wang (2005)

**Table 5**  
**Final 2004 Forecasts, by Method**

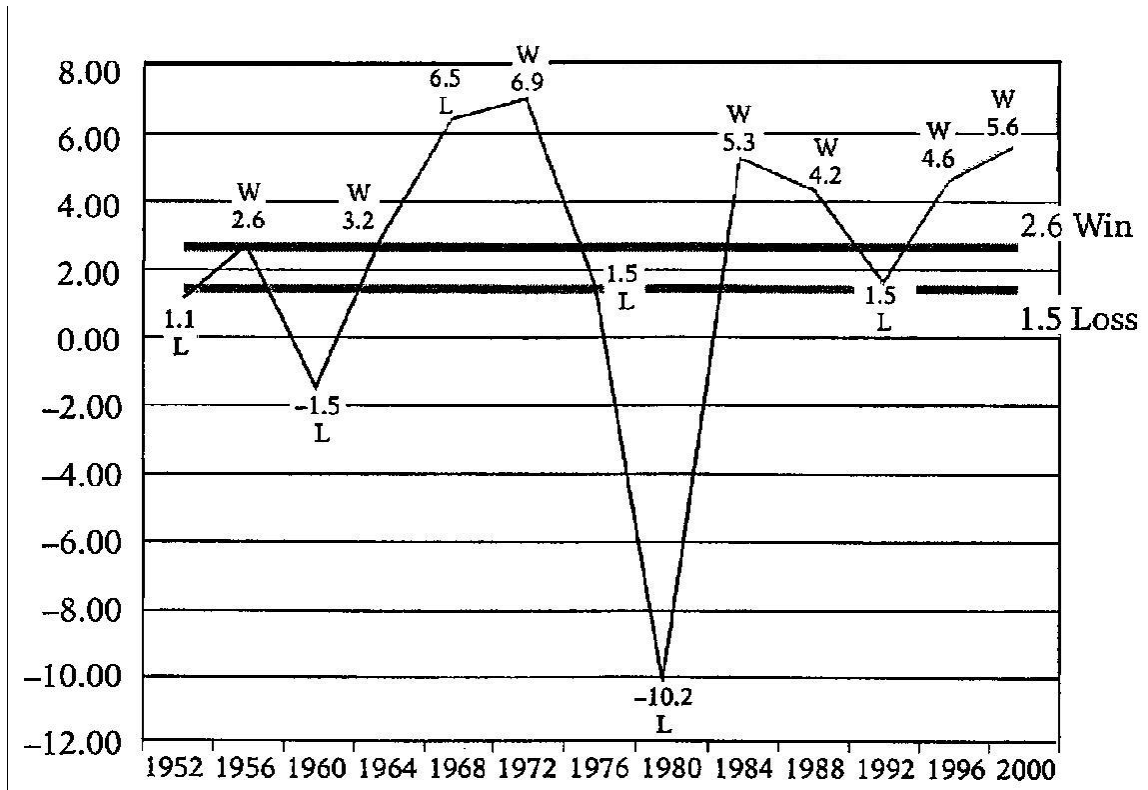
<u>Method</u>	<u>Forecast Result: absolute error</u>	<u>Pre-election Week</u>
<u>popular vote – point predictions</u>		
campaign polls	0.3	1
Bush/Kerry vote-share contract	0.2	1
regression models *	2.7	15 (average)
Delphi expert surveys	0.7	2
combined methods	0.3	1
<u>electoral vote – point predictions **</u>		
regression model	5.6	1
probability models	4.8	1
median state poll	0.7	1
exit polls	9.3	1
<u>popular vote – win / loss predictions</u>		
	<u>winner predicted?</u>	
13-key index	yes	14
GDP cutpoints	yes	5
New Mexico bellwether	yes	1

\* The most popular vote regression models generated forecasts from one data set, and thus have one “final” forecast.

\*\* All electoral vote forecasts are derived from state campaign polls or other state surveys

Figure 1

GDP GROWTH 2ND QUARTER OF ELECTION YEAR



W= Win for candidate of incumbent president's party

L= Loss for candidate of incumbent president's party

1968 is misclassified  
2000 is popular vote "win"

Source: Jones (2002, p. 82)

## Randall Jones – Bio Sketch

Randall J. Jones, Jr. is Professor of Political Science at the University of Central Oklahoma. His published work in forecasting relates to elections and international political risk analysis. He is author of *Who Will Be in the White House? Predicting Presidential Elections* (Longman, 2002), and co-editor of *21 Debated: Issues in World Politics* (Prentice Hall, 2000, 2004).