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A Meta-Analysis of Polls from the 2012 Presidential Election

Abstract

Political pundits framed the 2012 U.S. presidential election as a horserace between Barack Obama and Mitt Romney. However, a number of election forecasters found that the election was always Obama's to lose. This paper presents a simple quantitative methodology to analyze polling data of the national race and the four closest swing states: Florida, North Carolina, Ohio, and Virginia. Our results suggest that out of the four states, only Florida emerged as a true toss-up. In addition, the national popular vote appeared to lean toward Obama throughout the election cycle. The analysis also allows us to visualize trends in public opinion during the campaign through various key events including the Supreme Court's ruling on the Affordable Care Act, the announcement of Romney's running mate, the national party conventions, the release of a video showing Romney making controversial comments at a fundraiser, the three presidential debates, the vice presidential debate, and Hurricane Sandy.

1. Introduction

The 2012 U.S. presidential election provided much fodder for the news media. Political pundits focused on the horserace, often framing the election as a tossup. However, using quantitative models, a wide range of poll aggregators and election forecasters predicted that the election was always President Obama's to lose. Ignoring differences in motivation, there are two notable reasons for these conflicting interpretations. The first reason was that pundits tended to focus on the seemingly close national popular vote. However, the U.S. president is not elected by national popular vote. Instead, the president is elected through the Electoral College, which the quantitative forecasters emphasized.

The Electoral College consists of 538 electoral votes, which are allocated to each state and the District of Columbia. States with larger populations are allocated more electoral votes while states with smaller populations are allocated a minimum of three electoral votes. With the exception of Maine and Nebraska, each state (and the District of Columbia) awards all of its electoral votes to the candidate who wins the statewide popular vote. Most states solidly and reliably vote for either the Democratic or Republican presidential candidate. Therefore, the outcome of the Electoral College comes down to several "swing states."

Secondly, the pundits tended to focus on the single latest poll released. In contrast, the quantitative forecasters used aggregates of many polls from different polling companies conducted over the same time period. The aggregation of many polls provides more reliable results than any single poll.

Three election forecasters using different models all provided extremely accurate predictions of the 2012 presidential election outcome. Nate Silver of the *New York Times*' FiveThirtyEight blog [1] became the most famous forecaster. In addition to his celebrity status in the media, he has been recognized by professional statisticians and will be the President's Invited Address speaker at the 2013 Joint Statistical Meetings [2]. Silver's forecast incorporated state polls, national polls, and economic data to calculate the probable outcome of the election on each campaign day. Drew Linzer of Votamatic [3] used historical data to set a long-term prediction and used that prediction to interpret polling data throughout the campaign cycle. His work on election forecasting was recently published in the *Journal of the American Statistical Association* [4]. Sam Wang of the Princeton Election Consortium [5] used state polling data to estimate conditions of the campaign as polls came in, as well as predict the probability of Obama's reelection from both a random drift and a Bayesian perspective. Wang is an Associate Professor of Molecular Biology and Neuroscience at Princeton University.

In this paper, we present a quantitative methodology to analyze polling data for the national popular vote and for the four closest swing states of the 2012 presidential election. Our approach is much simpler than the methods used by Silver and others. However, through this approach, we can still see that, out of the four states, only Florida emerged as a true tossup. In addition, the national popular vote appeared to lean toward Obama throughout the election cycle. Furthermore, this analysis allows us to visualize how the race unfolded over time through key campaign events.

The rest of the paper is organized as follows: in Section 2, we summarize approaches taken by forecasters such as Silver, Linzer, and Wang. In Section 3, we describe our methodology. In Section 4, we present and analyze

the results using the methodology, which is done for national polls and the four closest swing states: Florida, North Carolina, Ohio, and Virginia. We summarize our conclusion in Section 5.

2. Various Approaches

Nate Silver began forecasting during the 2008 presidential election. Silver's model, described in his FiveThirtyEight blog, weights each poll based on the past performance of the pollster, sample size, and recentness. For states where there were no recent polls, Silver used an inferential process to calculate a rolling trend line. Historical polling data are also incorporated to simulate 10,000 election scenarios under the assumption that demographically similar states are likely to move in a similar pattern. The model also makes adjustments based on economic indicators. Probabilities for the likely winner are then assigned to each state and the national election [6, 7].

Like Silver, Drew Linzer started forecasting in 2008. Linzer's Votamatic developed a unified statistical model to measure trends in public opinion and to make an Election Day forecast. This model used a historical forecast in the earlier stages of the campaign. The historical forecast is based on the Time-for-Change model [8], which says that the incumbent party candidate's national share of the two-party vote is "a function of three variables: the president's net approval-disapproval rating in June of the election year; the percent change in GDP from Q1 to Q2 of the election year; and whether the incumbent party has held the presidency for two or more terms". This national level pattern can be applied to each state because states tend to move together due to national effects. The state-level forecasts were then modified as new polls are released [4].

Sam Wang started applying his model during the 2004 presidential election. Unlike the approaches taken by Silver and Linzer, Wang's approach does not include historical data. Only state level polls are used. Instead of averaging the polls, Wang uses medians of the previous week's polls in order to overcome outliers. The state polls were used to estimate the median electoral vote outcome and the *Popular Meta-Margin*, which is defined as "the amount of opinion swing that is needed to bring the Median Electoral Vote Estimator to a tie" [9].

Finally, HuffPost Pollster (formerly Pollster.com) provides trend estimates based on the most recent polls. They do not average polls to estimate the trends. Instead, they use smoothed estimates of candidate support based on local regression models. Like Wang, they do not use any historical data [10].

3. Methodology

For our approach, we use polling data provided by the HuffPost Pollster database [10] to create poll charts. The database contains information such as the organization that conducted the poll, the dates in which the polls were conducted, the sample size, and the percentage of respondents for each candidate. While the database contains national polls dating back to March 2009, we consider polls from June 1, 2012 till Election Day since June was when the nominations wrapped up and the general election campaign began.

Charts are created based on national polling and polling from each of the following states: Florida, North Carolina, Ohio, and Virginia. These states are chosen because they were the four closest swing states and the only states where the candidates came within five points of each other. Candidates spend most of their time and resources campaigning in swing states and thus, these states came under close scrutiny. Therefore, these states were more heavily polled so there is a richer amount of data from which to work. Trend lines for candidates Barack Obama and Mitt Romney are created using both weighted averages according to sample size from polls and simple averages without regard to sample size. Similar to Wang's method for finding the meta-margin, the trend lines were updated for each day using averages of either the three most recent polls or all polls with a final polling date within the last seven days, depending on which is greater. Depending on how many polls share an end date, occasionally, dates meant to show data using the three most recent polls in fact include more than three polls.

The weighted average on each day is calculated as follows:

$$\hat{p} = \frac{\sum_{i=1}^{n} s_i p_i}{\sum_{i=1}^{n} s_i}$$

Here, sample size s_i and a candidate's percentage p_i are for the i-th poll, and n is the number of polls up to and including the day for the most recent seven days. If there are less than three polls with an end date from the past seven days, then $n = 3$ is used for the three most recent polls. Polls with larger sample sizes carry more weight when $\hat{p}$ is calculated. In contrast, the simple average $\bar{p}$ does not take sample size into account as shown below:

$$\bar{p} = \frac{\sum_{i=1}^{n} p_i}{n}$$

One advantage of the weighted average method is that we can calculate a 95 percent confidence interval for each day. The confidence intervals were calculated as follows:

$$\hat{p} \pm 1.96 \sqrt{\frac{\hat{p}(1 - \hat{p})}{N}}$$

where $N = \sum_{i=1}^{n} s_i$. A disadvantage of the weighted average method is that a single outlier poll with a large sample size can severely affect the trend lines. On the other hand, such an effect is smaller using the simple average method, which can be seen in polls for both Florida and Virginia.

Our method does not account for bias or house effects (where specific pollsters tend to produce results that are systematically more favorable toward a candidate or party) among pollsters [11, 12]. Pollsters that release polls more frequently, such as Public Policy Polling and Rasmussen Reports, might crowd the results, which could be problematic if those pollsters have strong house effects. The method also does not account for outlier polls. Furthermore, fewer polls are released earlier in the campaign, so the charts may not illustrate trends in opinion as well during these periods as later in the campaign. This is particularly true in states that were polled less frequently. It is less of a problem nationally, as no date from the beginning of June had fewer than five polls over a seven-day period.

4. Analysis

We use our methodology to study trends in voting preferences from the U.S. as a whole and the four closest swing states. Most of the discussion is based on the weighted-average methodology. We will also show the results for simple average methodology and discuss similarities and any differences where applicable. In the rest of this discussion, following Nate Silver's definition, we frequently use the term *bounce* to describe a change in the spread between the candidates rather than a change in the absolute position of one candidate. For example, Candidate A might have 49 percent and Candidate B might have 48 percent, which means the spread is one percent. If Candidate A changes to 50 percent and Candidate B changes to 47 percent (now a spread of three percent), that would be a two-point bounce for Candidate A. Bounces are usually temporary.

Each chart is marked with several noteworthy dates in the campaign. These dates include the day the Supreme Court issued the ruling to uphold the Affordable Care Act (ACA), sometimes derisively called "Obamacare" by opponents, which was a signature piece of legislation from Obama's first term. The Act was a source of much controversy, especially concerning the so-called "individual mandate" for Americans to purchase health insurance. The second important date was when Romney announced Representative Paul Ryan from Wisconsin as his running mate. (As the incumbent, Obama continued with Vice President Joe Biden as his running mate.) The third and fourth dates mark the Republican National Convention and the Democratic National Convention. Since each convention took place over the course of four days, the final dates of the conventions are marked on the charts.

The fifth date in each chart marks when a controversial video of Romney at a private fundraiser was released. The video became known as the "47 percent video" because of this quote:

> "There are 47 percent of the people who will vote for the president no matter what. All right, there are 47 percent who are with him, who are dependent upon government, who believe that they are victims, who believe the government has a responsibility to care for them, who believe that they are entitled to health care, to food, to housing, to you-name-it. That that's an entitlement. And the government should give it to them. And they will vote for this president no matter what…These are people who pay no income tax." [13].

Other dates include the first, second, and third presidential debates between Obama and Romney, and the vice-presidential debate between Vice President Joe Biden and Representative Paul Ryan. The final date marks when Hurricane Sandy hit.

Prior to presenting our results, we make one cautionary note. Changes in trends after events are not necessarily caused by the events. Additionally, polls are typically conducted over several days, so a poll released immediately after an event is unlikely to capture the full impact of the event. If an event causes a change in candidate preference, the change takes several days to fully materialize.
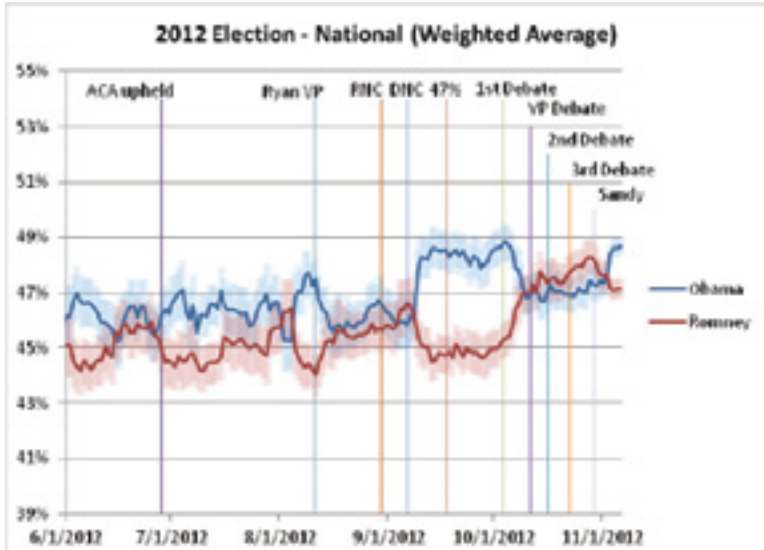
4.1 National Polls

Figure 1: Weighted average computation of national polling data

Although U.S. presidents are elected through the Electoral College and not a national popular vote, it is worth looking at national polling to get a sense of potential national-level effects of certain events. Figure 1 shows the trend lines using our methodology with weighted averages.

The ACA was a contentious campaign issue. It was a major piece of legislation from Obama's first term. A case challenging the constitutionality of the law made its way to the Supreme Court, which released its decision to largely uphold the law on June 28. Interestingly, while public opinion for the law had consistently been underwater [14], Obama appears to gain one percentage point while Romney loses half a percentage point. However, this change could just be the result of normal fluctuations. The apparent bounce peaked around July 4.

Historically, presidential candidates receive a bounce in the polls when they announce their running mates and the 2012 election was no exception. Silver found that the selection of the vice-presidential candidate led to a five point bounce on average [15]. Our approach found Romney's bounce was lower than average, gaining 3.3 percentage points.

Bounces also typically happen after party conventions. After the final day of the Republican National Convention (RNC), August 30, Romney received a 1.8 percent bounce which ended by September 6. The reason for such little movement after the RNC might have been that the Democratic National Convention (DNC) happened the week afterward, quashing the possibility for further movement in Romney's direction. Obama's convention bounce was around 4.9 percentage points. Obama's convention bounce appears different from other bounces or movement in the campaign because it seems to sustain for a longer period of time (nearly one month), while other bounces seem to peak after about a week. Perhaps the release of the 47 percent tape caused his bounce to sustain.

Challengers typically get bounces in polls after the first presidential debate. Silver found that "historically, the largest shifts in the polls after the first debate have been about three points in either direction" [16]. According to our analysis, movement toward Romney after the first debate appeared even larger. Between the first presidential debate on October 3 and the vice-presidential debate on October 11, Romney's poll numbers improved about 3.6 percentage points.

A few things possibly contributed to this larger-than-average bounce. Romney was overwhelmingly considered the winner of the first presidential debate [17] and his win was among the largest ever for a first debate [18]. Additionally, the Obama campaign jumped on Romney's 47 percent comments, running ads that tied Romney to them. The Obama campaign sought to portray Romney as, not only out of touch, but also as a candidate with extreme positions [19]. The October 3 presidential debate was the first time since the release of the 47 percent tape that Romney could directly address a large section of voters and counter or dispel the Obama campaign's attacks. Romney projected a more moderate image during the debate [20].

After the debate, pundits portrayed the bounce as huge momentum toward Romney [21]. Much was made of a Pew Research poll, which showed Romney leading 49 to 45 among likely voters after the first debate [22, 23]. However, from Figure 1, we see that after the first debate, Obama's level of support merely fell to pre-convention levels. Obama's support remained at these levels until the last few days. Romney's support narrowly passed Obama's support during this time period, peaking with a 1.2 percent lead on October 27.

One might be tempted to say that Hurricane Sandy caused Obama to re-take the lead since Romney's support fell and Obama's support rose afterward. From Figure 1, we observe that there was around a 2.5 point swing between Obama and Romney from the day Hurricane Sandy hit New Jersey

to Election Day, resulting in an Election Day lead for Obama of 1.5 points over Romney. Examining the confidence intervals, Obama's Election Day lead ranges from 0.8 to 2.2 points, excluding undecided voters. When we look at simple averages, Obama had a one-point lead on Election Day (see Figure 2).

The response to Hurricane Sandy might have helped Obama, but it appears that national polls on the whole underestimated Obama's popular vote margin. This is based on the observation that the final popular vote total had Obama beating Romney 51.1 percent to 47.2 percent (a 3.9 percent margin of victory) [24], while the final weighted average was 48.7 percent for Obama and 47.2 percent for Romney. Given that 1.7 percent of the electorate voted for third party candidates, nearly all of the remaining undecided voters would have had to vote for Obama. Exit polls indicate that around three percent of the electorate decided their vote on Election Day, of which 51 percent chose Obama and 44 percent chose Romney [25]. If national polls systematically underestimated Obama's support by a similar margin throughout the campaign, he would have finished ahead regardless. On the other hand, from Wang's analysis, state polls seem to indicate that Obama's post-Sandy bounce already faded by Election Day [26].

Finally, we note that the trend lines based on simple averages (see Figure 2) appear very similar to the trends based on the weighted averages.
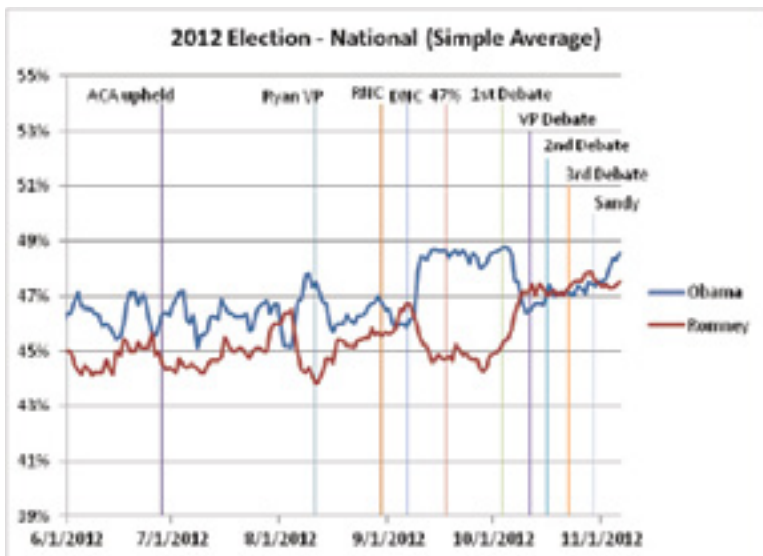

Figure 2: Simple average computation of national polling data

4.2 Swing States

Many of the national level effects appear in swing state polling as well. At times, the state-level swings appear larger than the national swings. This is possibly because candidates spend most of the time campaigning in swing states, making the campaign events more salient to swing state voters.

4.2.1 Florida

Florida had the closest result of any state in the 2012 election; Obama only won by 0.9 percent. As Figure 3 shows, the polling from Florida seemed especially volatile. Obama's support remained pretty steady after the Affordable Care Act was upheld. Romney's support declined before the Supreme Court announced its decision but increased afterward to levels similar to those before the decline. Romney's support continued to stay steady until he announced Paul Ryan as his running mate. The apparent bump for Obama at the end of July is due to the three most recent polls, all of which showed favorable results for him. The huge nearly-13 point swing after the Ryan pick is due to one outlier poll with a large sample size that can significantly affect weighted average. The poll from Foster McCollum White & Associates showed a 14-point spread between the candidates, something that no other Florida poll showed in either direction. Romney likely received a bounce from the Ryan pick, but probably not one of that magnitude. The bounce for the simple average is a still-large 9.7 points (see Figure 4), but less pronounced compared to weighted averages.

Following the Democratic National Convention and through the 47 percent tape, Obama received about a 3.7 point bounce, which began to come down prior to the first debate. After the first debate, Obama's support remained fairly steady while Romney's support increased a couple points, peaking around the second debate. In the last eleven days of the campaign, the spread between Romney and Obama remained less than one percent. From Election Day polling, Romney led Obama by only 0.2 points based on weighted averages. Examining the confidence intervals, we found that Florida's Election Day polling ranged from a 2.1 point Romney lead to a 1.8 point Obama lead. Romney led by 0.5 points from simple averages. The result had Obama winning Florida by just under 0.9 percent [24].
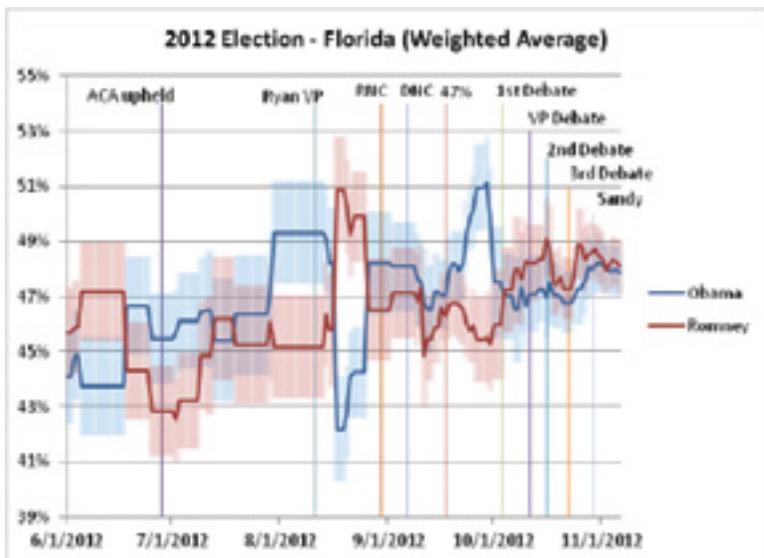
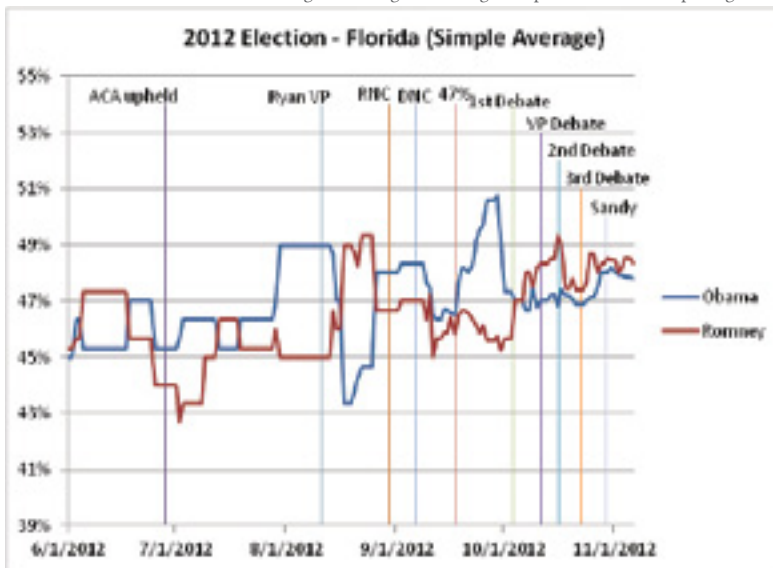Figure 3: Weighted average computation of Florida polling data

Figure 4: Simple average computation of Florida polling data

4.2.2 Virginia

In Virginia, the apparent bump for Romney after the DNC results from one poll, from Gravis Marketing, with a very large sample size (see Figure 5). Such a bump does not appear when we look at the simple averages (see Figure 6). Obama's convention bounce in Virginia was more than five points. After the release of the 47 percent video, the gap between Obama and Romney widened a bit until it started shrinking toward the end of September and the beginning of October, before the first debate. Romney received at least a three-point bounce following the first debate.

Romney and Obama fluctuated within one percent of each other until after the third debate when Obama's support seemed to rise steadily. Romney's support also appears to fall about one point after Hurricane Sandy. Other than the period right after the DNC, the difference between weighted and simple average is not significantly different. Election Day polling showed Obama leading by 2.4 points from weighted averages. Examining the confidence intervals, Obama's lead ranged from 0.4 to 4.4 points. Obama led 2.5 points from simple averages. The final result had Obama winning by 3.9 points [24].
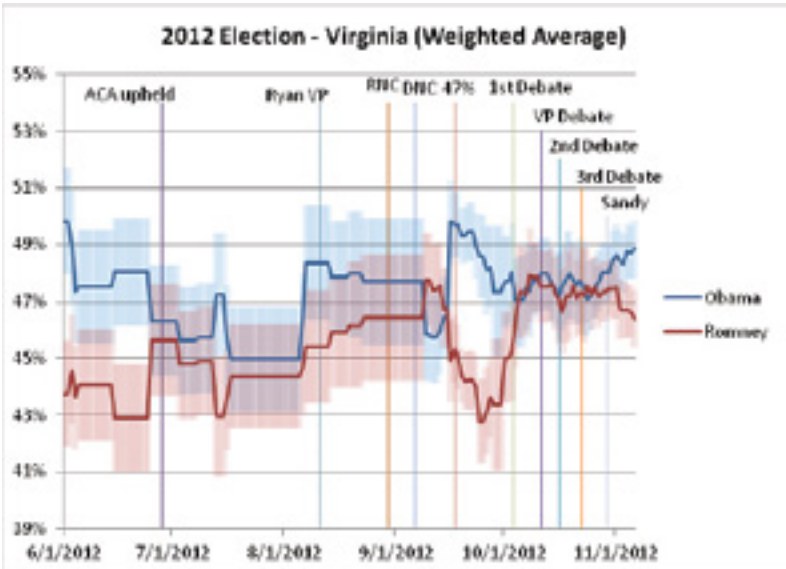

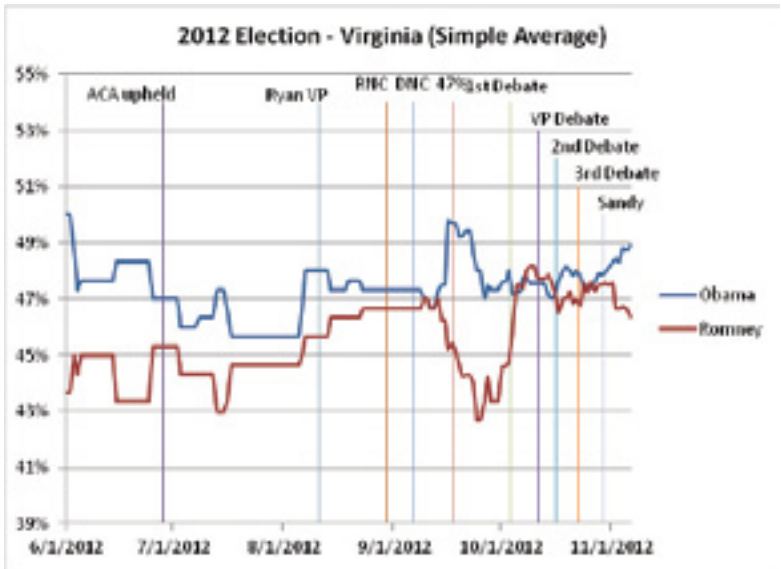Figure 5: Weighted average computation of Virginia polling data

Figure 6: Simple average computation of Virginia polling data

4.2.3 Ohio

As seen in Figure 7, Obama was almost always ahead in Ohio, except for a brief period after the RNC. The simple averages show a very similar trend (see Figure 8). Romney received about a five-point bounce after announcing Paul Ryan as his running mate, which is larger than the national bounce but not enough to bring him into the lead in Ohio. After the RNC, Romney appeared to receive a 2.8-point bounce, one point larger than his national bounce, although it was more related to Obama's support dropping than Romney's support increasing. This apparent movement comes from a period using three polls; two were from the same firm (Gravis Marketing) and the other was a mail survey conducted by the Columbus Dispatch. Due to this circumstance, we should view the result with caution.

Obama received a bounce of about 5.7 points after the DNC, larger than the national bounce; however, the bounce may be a recovery from the dip seen in Figure 5. Furthermore, Obama's peak support after the DNC bounce was not much higher than his peak before the RNC. The bounce started to fade, but then he got a second bounce of around 5.5 points after the release of the 47 percent video. This is unlike the national numbers, which

remained steady for both candidates. Obama's support peaked at 51.1 percent, then began to fall leading up to the first debate. Obama's support continued on this trajectory while Romney's support sharply rose following the first debate, resulting in a bounce for Romney of nearly seven points. During this period, Romney rose to his peak of just under 47 percent.

Conventional wisdom among pundits said that the first debate gave Romney momentum and the Obama campaign needed a solid vice presidential debate performance from Biden to "stop the bleeding" for Obama [27]. In Ohio, however, Romney's debate bounce peaked before the vice presidential debate. After the vice presidential debate, Obama's lead over Romney remained at least 1.5 points. Following the third debate, the lead remained at least two points. Obama's lead in Ohio peaked at three percent right after Hurricane Sandy hit. Election Day polling had Obama with a lead of 2.6 points from weighted averages (±1.5 points with 95% confidence) and 2.8 points from simple averages. Obama won Ohio by just under three percent
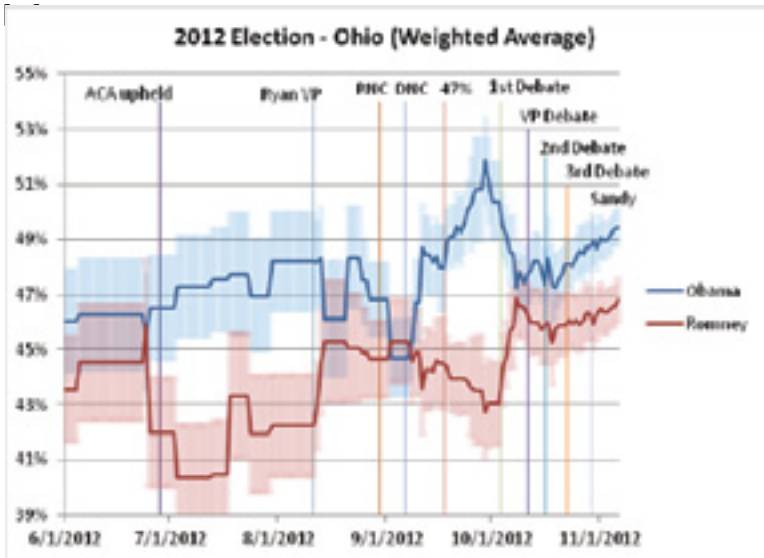

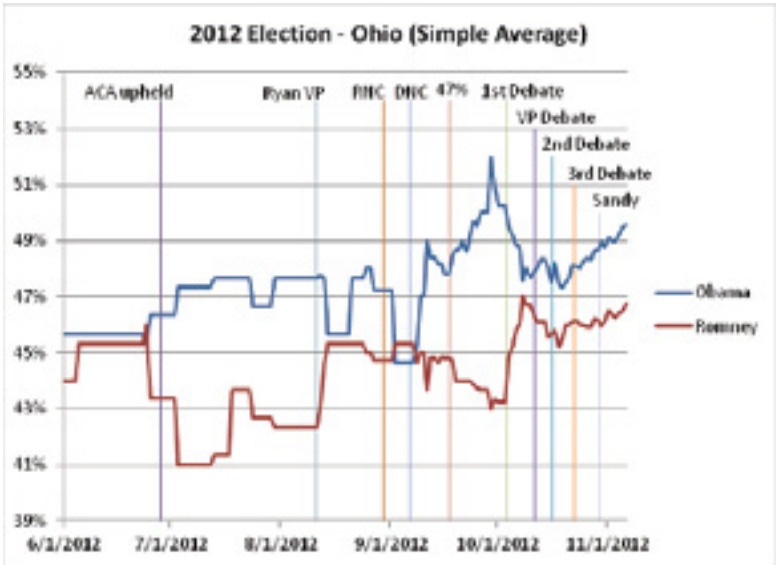Figure 7: Weighted average computation of Ohio polling data

Figure 8: Simple average computation of Ohio polling data

4.2.4 North Carolina

Polling was less frequent early on in North Carolina, so the trends initially appear fairly constant (see Figure 9). From the available data, there is no evidence that either the Supreme Court decision or Romney's choice of Paul Ryan had much effect on the race. Romney received around a 4.3 point bounce following the RNC. Obama received around a two-point bounce following the DNC; however, his support hit a plateau on par with his support prior to the RNC. On the other hand, Romney's support continued to increase and hit a new peak just below 50 percent.

Romney's support started to fall from this peak before the release of the 47 percent tape. After the tape's release, Obama receive a bounce of 4.5 points, pulling him into the lead. The lead was brief, however; Obama hit his polling peak of 48.3 percent, lower than Romney's peak support up until that point, and lower than Romney's general level of support afterward. Obama's lead primarily came from a drop in Romney's support. Romney re-gained most of his support prior to the first debate and hovered around 49 percent for the rest of the campaign. After the first debate, Romney received about a 5.5-point bounce. On the other hand, with simple averages, the bounce was less pronounced (see Figure 10); Obama's large drop was mostly caused by a

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Gravis Marketing poll with a large sample size showing normal support for Romney (50%) and much lower support for Obama (41%). By Election Day, polling showed Romney ahead by 1.8 points from weighted averages. From the 95 percent confidence intervals, the Election Day polling result ranges from Romney leading by 4.7 points to Obama leading by 1.2. Romney led 1.5 points from simple averages. The actual election result was a two percent lead for Romney [24].
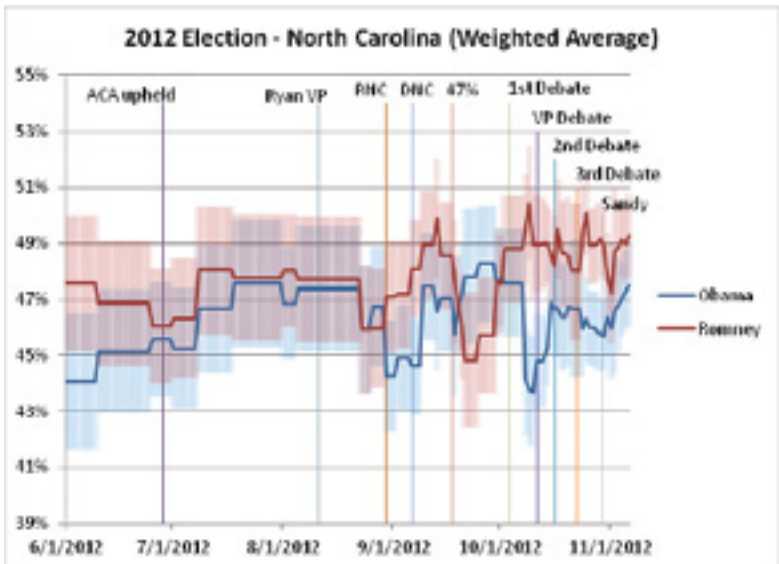

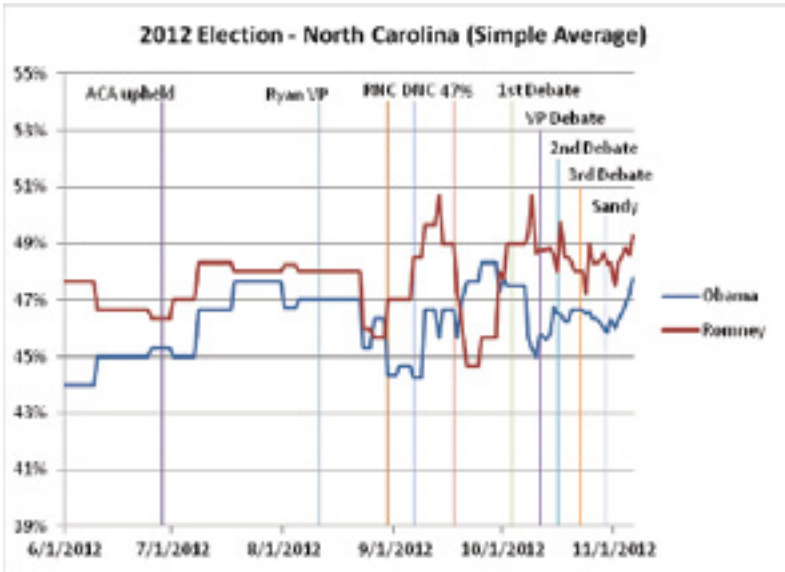Figure 9: Weighted average computation of North Carolina polling data

Figure 10: Simple average computation of North Carolina polling data

4.3 Weighted Average vs. Simple Average

The above discussion is mostly focused on the weighted averages. We have also included the graphs for the simple averages. We observed that, except for a few cases when single polls with large sample sizes made shifts appear more pronounced, there was no significant difference in the trends between weighted and simple averages. The problem of including outlier polls in the averages can be minimized by using Wang's method of using medians instead of averages. However, on the positive side, confidence intervals can be calculated for weighted averages.

5. Conclusion

During the 2012 presidential campaign, pundits often framed the election as close. However, our study of the four closest swing states and the national polls shows that

1) in Ohio, Obama held a consistent lead in polls for most of the campaign

2) in Virginia, Obama led for most of the campaign aside from the period between the first and third debate, and came out leading in the end

3) Romney was generally ahead in North Carolina, except for a period between the release of the 47 percent video and the first debate when Obama had a slight increase in support coincide with a larger decrease in support for Romney

4) Obama and Romney alternately led in Florida and the final polling showed an essential tie

5) national polls showed Obama ahead for the most part except for periods after the first debate, but Obama came out ahead in the polls.

In each state, Romney's support appeared to fall after the release of the 47 percent tape. Nationally, the tape's release seemed to sustain Obama's convention bounce. In each state, Romney started regaining support before the first debate then received a bounce after the debate. Nationally, the first debate seemed to bring Obama's support back down to pre-convention levels while Romney's support reached new peaks. Obama did not appear to regain his national lead until after Hurricane Sandy hit the east coast. However, he maintained his lead in Ohio and began retaking the lead in Virginia before Hurricane Sandy.

Our methodology is much simpler than that of Silver, Linzer, and Wang. However, it gives insight into Obama and Romney's standing throughout the presidential campaign. Models from Nate Silver and Drew Linzer ended up correctly giving Florida to Obama, while Sam Wang's model showed Florida to be a tie [28]. Our model ended with Romney ahead in Florida by a very slim margin. The other swing states and the national polls fared better. The confidence intervals correctly pegged the margin between the two candidates from the results in each of the four closest swing states, though they understated Obama's national lead. While national polls showed Romney pulling ahead for a period of time, he likely was not actually ahead in the Electoral College. It is often said that Ohio is the ultimate swing state. Some analysts noted that Romney had a difficult path to win the Electoral College without Ohio [29]. Obama's consistent lead in Ohio seems to indicate that the election was his to lose all along.

References

[1] Silver, N. (2012). *Fivethirtyeight: Nate Silver's political calculus*. Retrieved from fivethirtyeight. blogs.nytimes.com

[2] Myers, J. A. (2013, February 20). Nate Silver is featured speaker for JSM 2013. *American Statistical Association*. Retrieved from http://www.amstat.org/newsroom/pressreleases/NateSil ver_JSMPresAddressSpeaker.pdf

[3] Linzer, D. (2012). *Votamatic: Forecasts and polling analysis for the 2012 presidential election*. Retrieved from http://votamatic.org/

[4] Linzer, D. A. (2013). Dynamic Bayesian forecasting of presidential elections in the states. Journal of the *American Statistical Association*, 108(501), 124-134. doi:10.1080/01621459.2012.737735

[5] Wang, S. (2012). *Princeton election consortium*. Retrieved from http://election.princeton.edu/

[6] Silver, N. (2008, March 1). *Frequently asked questions, last revised 8/7/08*. Retrieved from http://www.fivethirtyeight.com/2008/03/frequently-asked-questions-last-revised.html

[7] Silver, N. (2012, June 7). *Election forecast: Obama begins with tenuous advantage*. The New York Times. Retrieved from http://fivethirtyeight.blogs.nytimes.com/2012/06/07/election-forecast-obama-begins-with-tenuous-advantage/

[8] Abramowitz, A. (2008). Forecasting the 2008 presidential election with the time-for-change model. *PS: Political Science & Politics, 41(4)*, 691-695. doi: 10.1017/S1049096508081249

[9] Wang, S. (2012, September 19). About the meta-analysis (FAQ). *Princeton Election Consortium*. Retrieved from http://election.princeton.edu/faq/

[10] Huffpost pollster FAQ. (2012). *The Huffington Post*. Retrieved from http://www.huffingtonpost.com/p/huffpost-pollster-faq.html

[11] Jackman, S. (2012, October 24). House effects, back by popular demand. *The Huffington Post*. Retrieved from http://www.huffingtonpost.com/simon-jackman/house-effects-by-back-by_b_2007907.html

[12] Silver, N. (2012, June 22). Calculating 'house effects' of polling firms. *The New York Times*. Retrieved from http://fivethirtyeight.blogs.nytimes.com/2012/06/22/calculating-house-effects-of-polling-firms/

[13] Corn, D. (2012, September 17). Secret video: Romney tells millionaire donors what he really thinks of Obama voters. *Mother Jones*. Retrieved from http://www.motherjones.com/politics/2012/09/secret-video-romney-private-fundraiser/

[14] Obama health care law: Favor/oppose. *The Huffington Post*. Retrieved from http://elections.huffingtonpost.com/pollster/us-health-bill/

[15] Silver, N. (2012, August 19). In picking Ryan, Romney makes an all-in move. *The New York Times*. Retrieved from http://fivethirtyeight.blogs.nytimes.com/2012/08/19/in-picking-ryan-romney-makes-an-all-in-move/

[16] Silver, N. (2012, October 1). Sept. 30: Romney down a touchdown?. *The New York Times*. Retrieved from http://fivethirtyeight.blogs.nytimes.com/2012/10/01/sept-30-romney-down-a-touchdown/

[17] Silver, N. (2012, October 23). Obama unlikely to get big debate bounce, but a small one could matter. *The New York Times*. Retrieved from http://fivethirtyeight.blogs.nytimes.com/2012/10/23/obama-unlikely-to-get-big-debate-bounce-but-a-small-one-could-matter/

[18] Jones, J. M. (2012, October 8). Romney narrows vote gap after historic debate win. *Gallup*. Retrieved from http://www.gallup.com/poll/157907/romney-narrows-vote-gap-historic-debate-win.aspx

[19] West, D. M. (2012, November 1). Top five ads for Obama. *The Brookings Institution*. Retrieved from http://www.brookings.edu/blogs/up-front/posts/2012/11/01-obama-campaign-ads-west

[20]Beinart, P. (2012, October 3). Romney's crafty moderate debate strategy. *The Daily Beast.* Retrieved from http://www.thedailybeast.com/articles/2012/10/03/peter-beinart-rom ney-s-crafty-moderate-debate-strategy.html

[21]Wang, S. (2012, October 25). David Brooks – now with ro-mentum!. *Princeton Election Consortium.* Retrieved from http://election.princeton.edu/2012/10/25/do-you-under stand-polls-as-well-as-david-brooks/

[22]Romney's strong debate performance erases Obama's lead. (2012, October 8). *Pew Research Center.* Retrieved from http://www.people-press.org/2012/10/08/romneys-strong-debate-performance-erases-obamas-lead/

[23]Silver, N. (2012, October 9). Oct. 8: A great poll for Romney, in perspective. *The New York Times.* Retrieved from http://fivethirtyeight.blogs.nytimes.com/2012/10/09/oct-8-a-great-poll-for-romney-in-perspective/

[24]Election results. (2012). T*he Huffington Post.* Retrieved from http://elections.huffingtonpost.com/2012/results

[25]Presidential race - 2012 election center. (2012, December 10). *CNN.* Retrieved from http://www.cnn.com/election/2012/results/race/president/

[26]Wang, S. (2012, November 12). A final unskewing. *Princeton Election Consortium.* Retrieved from http://election.princeton.edu/2012/11/12/the-final-unskewing/

[27]Stanage, N., & Parnes, A. (2012, October 5). Dems hope Biden can blunt Romney momentum post-debate. *The Hill.* Retrieved from http://thehill.com/homenews/campaign/260435-for-democrats-hope-and-nerves-ahead-of-vice-presidential-debate

[28]The election prediction game: The winners and the losers. (2012, November 11). *Los Angeles Times.* Retrieved from http://articles.latimes.com/2012/nov/11/opinion/la-oe-predictors-electoral-count-20121111

[29]Green, J. (2012, October 31). Can Romney win without Ohio?. *Bloomberg Businessweek.* Retrieved from http://www.businessweek.com/articles/2012-10-31/can-romney-win-without-ohio