"A PRESIDENT FOR ALL AMERICANS": TRUMP BECOMES 45TH PRESIDENT OF THE UNITED-STATES

Coralie OSTERTAG —FACE It News

At 2:45 a.m. Eastern time, Donald Trump was officially declared as the projected winner of the federal election, thus becoming president-elect.

He took the stage shortly after to thank America and to congratulate his opponent, Hillary Clinton, on a great campaign.

The results of this federal election sure shocked the world. How did he do it? No one saw it coming.

Image taken from: https://www.cbsnews.com/news/presidential-election-2016-results-live-updates/

TRUMP WINS OVER CLINTON:
Curve Ball Thrown at Trusted Pollster

Coralie OSTERTAG — FACE It News

According to FiveThirtyEight's pollster rating grades, ABC News/ Washington Post has a rating of A+, meaning it is a trustworthy pollster (to view the ratings and scales, visit: projects.fivethirtyeight.com/pollster-ratings/).

The pollster held daily polls from October 23rd to November 6th. Out of those 15 days, Clinton spent 11 of them ahead of Trump.

Looking at the visualization below, even non-mathematician views would predict that by election day (November 8th), Clinton would still be in the lead; thus, claiming role of the first female president. Yet, Donald Trump is going to be the 45th President of the United States. So should the country wonder where the polls went wrong, or instead, wonder how Trump won?

The graph shows the major changes that happened around different dates. Let us dive into the key moments that likely caused the changes.

On October 28th, James Comey, Director of the FBI, announced that they would be investigating the new emails leaked back on October 7th. This is not the first time Americans heard about Clinton's email scandal. At this point, she has had to deal with the scandal for over a year, undergoing a full investigation where James Comey previously concluded "that no charges are appropriate in this case." Naturally, the additional investigation of the newly leaked emails would result in some voters switching their intended vote. Looking at the graph, one can see that this coincides with the first day Trump's polling results are higher than Clinton's.

For the following few days, Trump maintains his poll lead on Clinton, but there is still plenty of time before election day.

On November 1st, The Wall Street Journal published an open letter officially signed by 370 economists, including eight Nobelists. The letter's purpose was to strongly "recommend that voters choose a different candidate on [several] grounds."
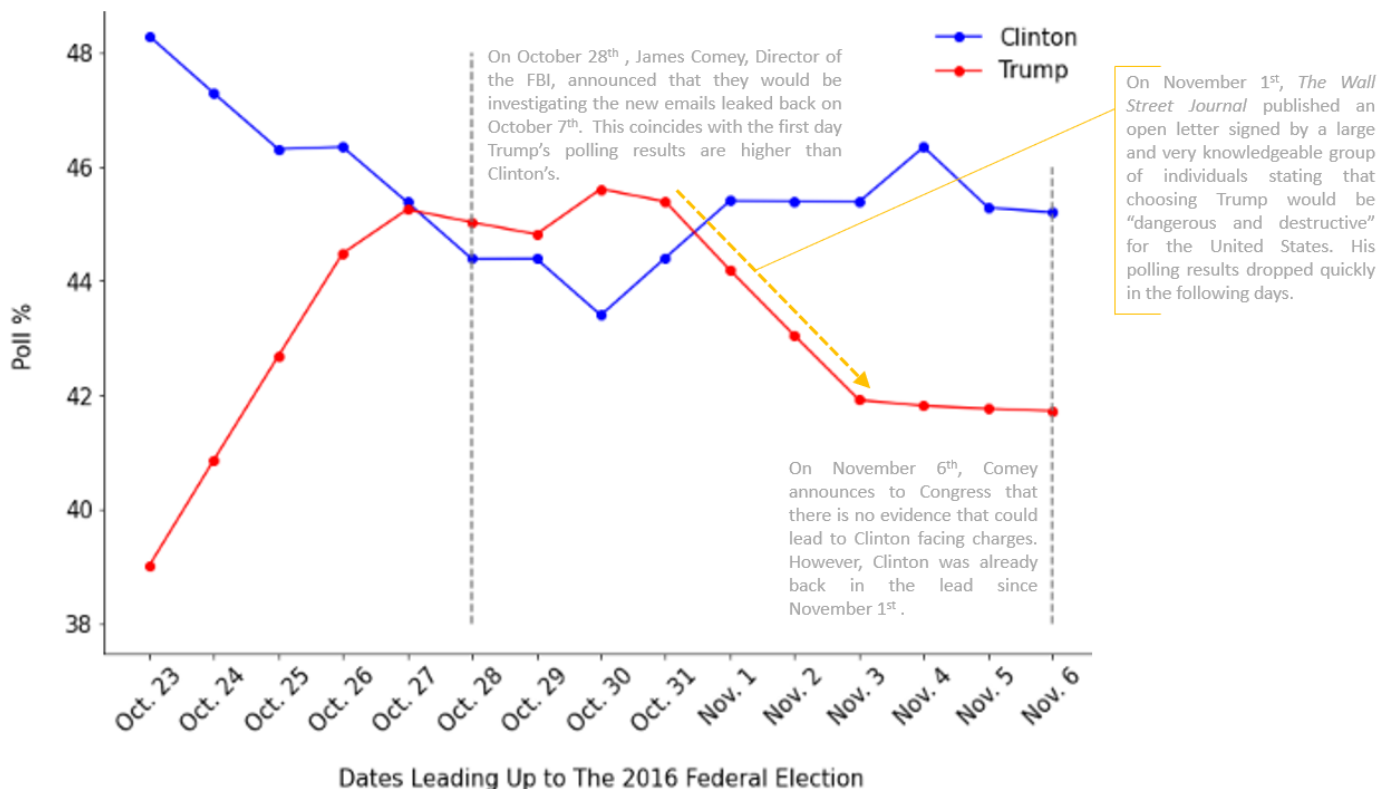
The end of the letter stated that Trump would be "a dangerous, destructive choice" for President of the United States. With highly respected experts advising against voting for Trump, many voters shifted towards other candidates. As seen in the graph, his polling results dropped quickly in the following days.

As people wanted answers before election day, the FBI worked hard on the email investigation. On November 6th, Comey announced to Congress that there was no evidence that could lead to Clinton facing charges. However, since The Wall Street Journal's November 1st publication of the letter against Trump, Clinton was already back in the lead and to many voters, the investigation was ancient history.

The right third of the graph shows what looks like a stabilizing trend, with Clinton sitting at around 45.2 percent and Trump sitting at around 41.7 percent.

Trump winning the election was a shock to many. The country will have to prepare itself for the shift from Democratic to Republican rule. Perhaps

ABC News/Washington Post Polls Suggest Clinton Should Have Won The 2016 Federal Election

On October 28th, James Comey, Director of the FBI, announced that they would be investigating the new emails leaked back on October 7th. This coincides with the first day Trump's polling results are higher than Clinton's.

On November 1st, The Wall Street Journal published an open letter signed by a large and very knowledgeable group of individuals stating that choosing Trump would be "dangerous and destructive" for the United States. His polling results dropped quickly in the following days.

On November 6th, Comey announces to Congress that there is no evidence that could lead to Clinton facing charges. However, Clinton was already back in the lead since November 1st.

Poll %

Dates Leading Up to The 2016 Federal Election

Presidential Debates: Are They Worth Anything?

Coralie OSTERTAG — FACE It News

During this year's Presidential Election season, the country saw Hillary Clinton and Donald Trump go up against each other at three different occasions. These debates offer the American voters a chance to hear what their possible future leaders have to say on various political topics, especially controversial ones.

Traditionally, debates target undecided voters not heavily attached to a particular political party. Therefore, the purpose of these debates is to sway these individuals to vote for one of the two participants.

The first presidential debate happened on September 26th at New York's Hofstra University. It lasted 95 minutes and had a viewership of 84 million people. According to CNN/ORC International's post debate poll, 62% of viewers thought it was clear that Clinton won, while 27% thought Trump was victorious. Clinton is said to have won the debate.

The second presidential debate occurred on October 9th at Washington University in St. Louis. It lasted 90 minutes and had a viewership of 66.5 million people. The CNN/ORC poll results said that Clinton won this debate as well, with 57% of viewers saying she had clearly won and 34% believing Trump did.

The third presidential debate took place on October 19th at University of Nevada, Las Vegas. It lasted 93 minutes and had a viewership of 71.6 million people. Once again, polls claimed that Clinton won this debate.

Presidential debates have long been part of the electoral process. It is said that even back in 1858, Abraham Lincoln and Senator Stephen A. Douglas had several debate sessions in the run for U.S. Senate.

It is always interesting to see how these debates impact election results, yet it can be hard to visualize their effects on a national scale.

Throughout the campaign, the *Institut Public de Sondage d'Opinion Secteur* (IPSOS) conducted nation-wide surveys to see which candidate people were likely going to vote for. The IPSOS has a pollster rating of A-, which is a pretty good score according to FiveThirtyEight's pollster rating scale (for more information on the pollster rating scale, see following articles and/or visit FiveThirtyEight's website: projects.fivethirtyeight.com/pollster-ratings/).

After seeing the results from this organization's polls, Jane Doe, a Data Science student at the University of Ottawa, decided to investigate them more. She wanted to use them to study the poll movement around the three presidential debates.

We spoke to the student, and she explained to us that she chose the IPSOS polls as they had results coming in every day from December 17th, 2015, to November 6th, 2016. That is 325 days worth of results. She shared one of the first graphs she made while starting her study of the IPSOS data (see *IPSOS Poll Results Over 325 Days* graph below). When observing the simple plot, viewers can see that apart from a few moments, Clinton seems to be ahead of Trump. The lines get less clear around the days leading up to the election, but Clinton's last point on November 8th is still above Trump's.

IPSOS Poll Results Over 325 Days

2015-12-17 to 2016-11-06
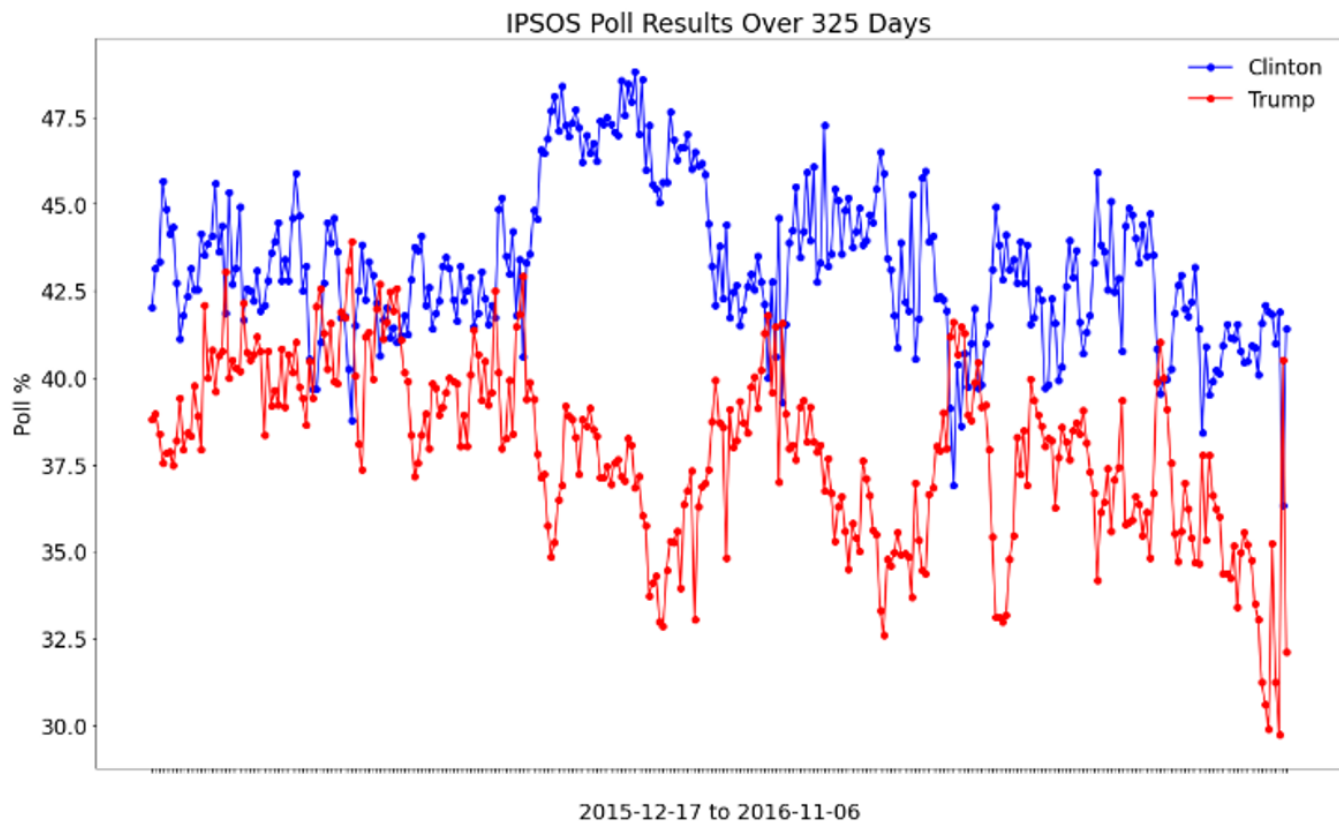
Wanting to look at the movement around debate dates, she decided to look at the three days before the debate, the day of the debate, and three days after the debate. She came up with the following graphs to visualize the IPSOS pollster results covering those 7 days for each debate:
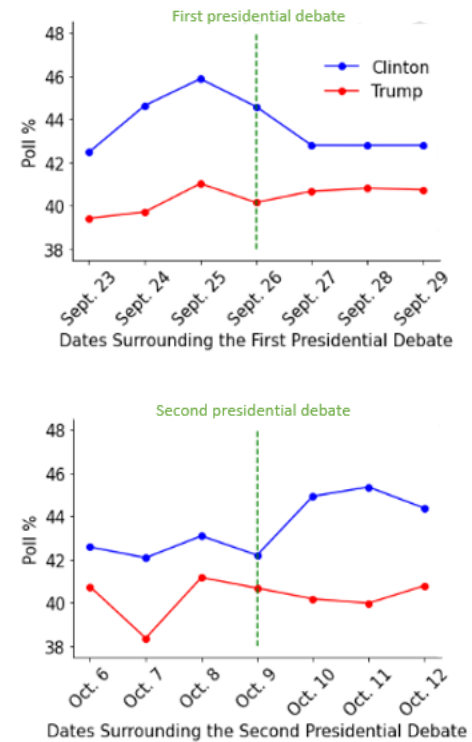
Upon further inspection, she determined that the average poll results of each week showed around 43% for Clinton and 40% for Trump. By looking at the *Average Polling Results Around Presidential Debate Dates* table found below, one can see that the changes from one weekly average to another are only by 0.02 to 0.2 percent. This shows that over the course of the debate weeks, the polling results barely changed.

With the weekly average poll results having minimal, even negligeable, changes, and Trump winning the presidential race last night, Americans are left with the following questions: Were close to five hours worth of debates between Trump and Clinton worth watching? Are debates a thing of the past? If Trump lost all three debates, how did he win over so many American voters?

Average Polling Results Around Presidential Debate Dates

	Date Range of Polls	Clinton Average	Trump Average
First Presidental Debate: September 26, 2016	Sept. 23 – Sept. 29	43.714257142857136	40.367329999999995
Second Presidental Debate: October 9, 2016	Oct. 6 – Oct. 12	43.50837285714285	40.268501428571426
Third Presidental Debate: October 19, 2016	Oct. 16 – Oct. 22	43.56014285714286	40.28859428571428

Back in 1992, according to polls conducted by CNN/USA TODAY, Bill Clinton lost two out of three presidential debates, yet he still won the election.

Perhaps a wider study must be conducted over the course of the next federal elections to determine if debates truly have an impact on election results. For now, Americans must prepare for the switch from Obama's Democratic government term to Trump's Republican term.

Likely Voters Give Better Predictions Than Registered Voters
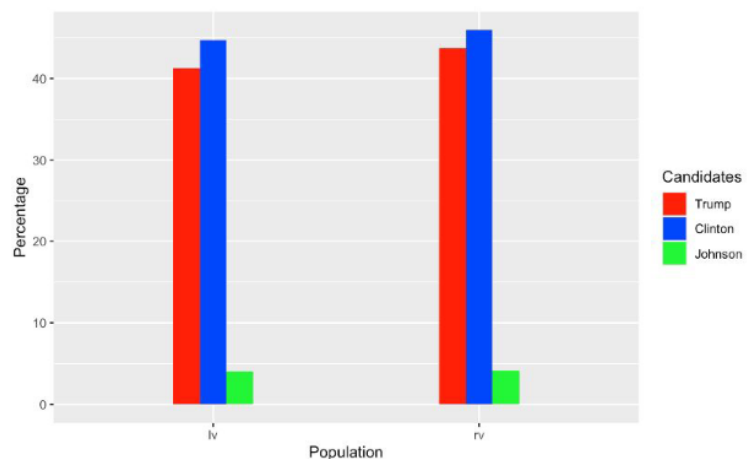
Francine UWERA — FACE It News

Pre-election pollsters will sample registered voters, likely voters, or both to predict the winner of the presidential elections. Registered voters are those who are registered to vote in their precinct or election district. Pollsters have created models to isolate likely voters, which estimates who is most likely to vote (GALLUP, n.d.). Several questions are asked to measure intention to vote, past voting behaviour, knowledge about the voting process and interest in the campaign. Different models combined with other factors such as previous years' turnout and demographics are used to determine the likelihood of voting. The likely voters give the best sense of who might show up to vote come Election Day, therefore giving a better prediction of who is going to win the elections. (Pew Research Center, 2016)

In the 2016 presidential elections, among the registered and likely voters, we see a close race tie between Hilary Clinton and Donald J. Trump nationwide.

Overall, the polling results show that the American population is in favour of Clinton. Compared to the registered voters, a slightly larger portion of the likely voters are supportive of Clinton. The support for Johnson is about the same in both likely and registered voters.

Likely voters (lv): 45% would vote for Clinton, 41% for Trump and 4% for Johnson
Registered voters (rv) : 46% would vote for Clinton, 44% for Trump and 4% for Johnson

Electoral College Report

Francine UWERA — FACE It News

Voters indirectly elect the president through the Electoral College process. In total there are 538 electoral votes and a majority of 270 are required for a candidate to win the presidential election. Each state has the same number of electoral votes as members of its congressional delegation. The District of Columbia is given 3 electoral votes for the purpose of the Electoral College. All the states except for Nebraska and Maine have a winner-take-all system that awards all the electoral votes to the candidate who wins the state's popular vote. Nebraska and Maine appoint individual electors based on the winner of the popular vote within each Congressional district and then 2 "at-large" electors based on the winner of the overall state-wide popular vote. (Archives, n.d.)
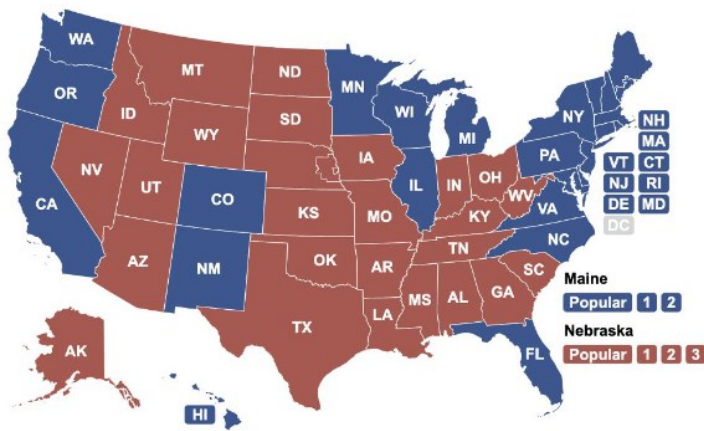
If we look at the polling per state, we get different maps for registered and likely voters.

The prediction among registered voters is that Clinton would win the Electoral College with 313 electoral votes thus securing two of the key states Florida and North Carolina that

2016 Polling Electoral Map For Registered Voters

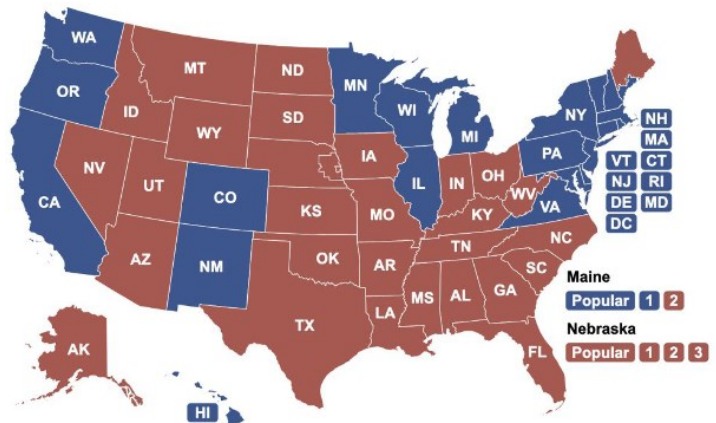Hilary Clinton: 313   Donald J. Trump : 222

- 270 electoral votes are required for a candidate to win the US presidential elections
- Registered voters were not sampled in the District of Columbia (which has 3 electoral votes)
- No data for Nebraska CD-1, Maine CD-1 and Maine CD-2. We assumed winner-take-all electoral votes

Among likely voters, the race is a tie between Trump and Clinton with 269 electoral votes each. In this model, Trump would win Florida and North Carolina. It's a split in Maine: Trump wins the 2nd Congressional District of Maine and Clinton the 1st Congressional District and the popular vote.

2016 Polling Electoral Map For Likely Voters

Hilary Clinton: 269   Donald J. Trump : 269

- 270 electoral votes are required for a candidate to win the US presidential elections
- It is a close competition in : North Carolina: 45.14% for Trump and 45.05% for Clinton; Florida : 45.85% for Trump and 45.71% for Clinton; Nevada : 43.71% for Trump and 43.24% for Clinton

The polling results for both registered voters and likely voters were off. Donald J. Trump won the 2016 presidential election with 306 electoral votes and Hilary Clinton lost with 232 electoral votes (The New York Times , n.d.). The polls in both samples predicted that Michigan, Pennsylvania, and Wisconsin would be won by the democratic candidate, Hilary Clinton. Those states had historically voted for the Democrats but were secured by the Republicans in 2016. Furthermore, the polling results in the registered voters' sample inaccurately predicted that Florida and North Carolina would be won by Clinton, but the electoral votes went to Trump.

In the 2016 election, the likely voter model was the most accurate in its state-level polls at projecting the election outcome. However, it underestimated Trump's support thus failing to predict the winner of the election. Building a precise and accurate likely voter model is complex as some factors that influence it can be unpredictable. The change in voter turnout might explain the polling error. In 2016, turnout increased to 65.3% (compared to 64.1% in 2012) for Caucasian Americans but dropped to 59.6% (compared to 66.6% in 2012) for African Americans (File, 2017). This possibly caused an overestimation of support for Hilary Clinton because African Americans were the group most supportive of her. The likely voter model attempts at its best to predict which of the eligible voters will turn out on election day thus adding another layer of accuracy in forecasting the outcome of an election. However, incorrect assumptions on voter turnout or the impact of gender on voter turnout can skew the forecast in the wrong direction. Finally, a late decision on whether to vote or not, and who to vote for is not something that can be controlled, leaving room for potential surprises on election day.

have 30 and 16 electoral votes respectively.

Does Polling Method Matter?
Online vs Phone Based Polling

Alex Wyatt — FACE It News

Looking back at the recent 2016 Presidential election there are many surprising events to reflect on. Of course, the unexpected victory of Donald Trump (Republican) over Hilary Clinton (Democrat), despite her clear lead throughout polls, tops said list. This outcome is also covered by my colleagues, so I'll seek to gain a different perspective and explore the differences in results based on polling technology. That is, the predictions of online polls versus phone-based polls.

First, some background. Polling methods can be split into three main categories: Live Phone, Online, and IVR. IVR means Interactive Voice Response, an automated form of polling conducted over the phone (IVR polls, n.d). To compare results by medium, Live Phone and IVR are both considered when talking about Phone polling, leaving 90 Phone polls and 51 Online polls.

Number of Phone and Online Polls
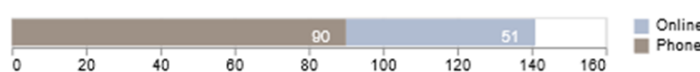
Trump won the election because he won specific battleground states. Notably, other than Virginia, he won every battleground state with 10 or more electoral college votes. Looking below there is a visualization of battleground state results and their impact.

Electoral Votes
(Battleground States)


Winner
■ Trump ■ Clinton
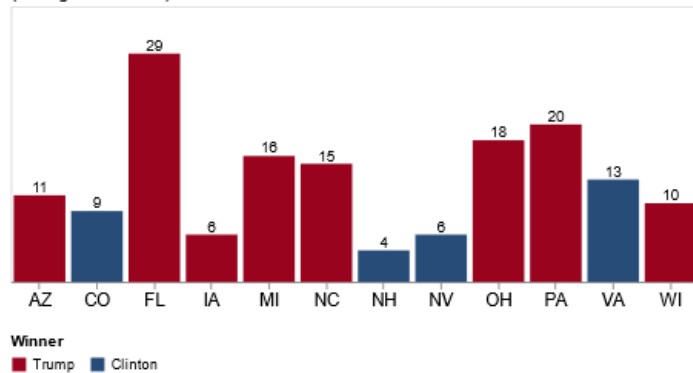
These states are Arizona, Florida, Michigan, North Carolina, Ohio, Pennsylvania, and Wisconsin (Ballotpedia , 2016). Because of a lack of trustworthy data, Michigan and Wisconsin are dropped in favor of the others and the U.S. in general.

Looking at the red and blue graphs in the right column, Trumps actual popular vote share was far above any value estimated by pollsters, whether Online or by Phone, but the Phone value was always closer. Similarly for Clinton, almost all predicted vote shares are smaller than popular vote gained, but on average the margin is much smaller for her than Trump, and in North Carolina, Clinton's polled share was even higher than her actual gained share.

Polling vs Election Vote
Donald Trump
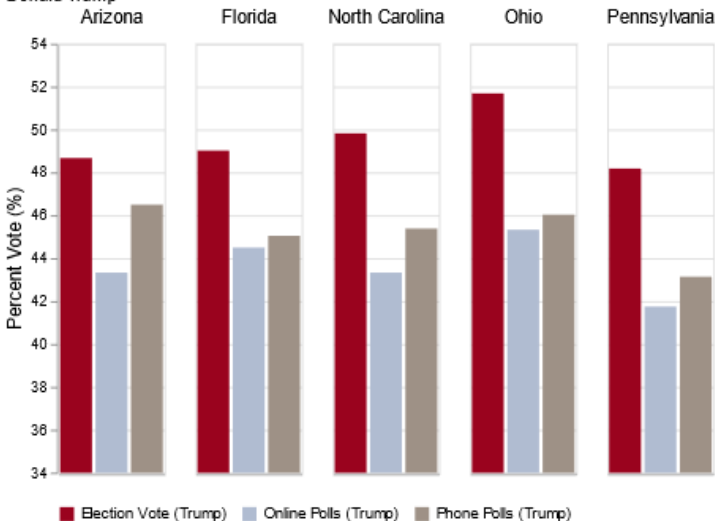
So why are actual numbers higher than polled numbers in both cases? Likely because of how the polls are designed. Since these values are averages of the percentages of all relevant polls, and polls typically allow 'No Response' for some questions or responses like 'Unsure' or 'Undecided', we end up with results that are lower than a general election, where ballots are counted only if they are filled for one of the candidates, and spoiled ballots are not considered (ballots that are not countable as supporting a candidate).

Polling vs Election Vote
Hilary Clinton
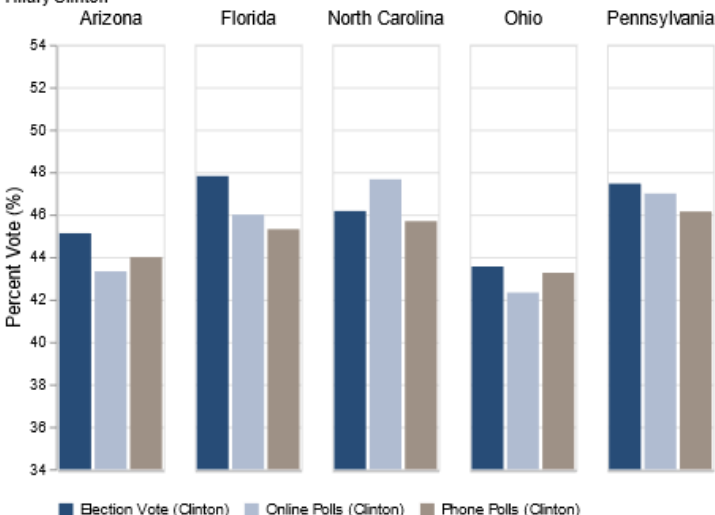
Considering this realization, Clinton's results are more concerning. If we scale the averages of Clinton's polling numbers so together with Trump's they add to 100%, we see how badly her polls missed.

For every single battleground state above, Clinton's election vote percentage was between 2% and 5% lower than what Online polls predicted and between 1% and 2% lower than what Phone polls predicted. Clearly, Clinton was favored more in Online polls than Phone polls, but both overestimated support.
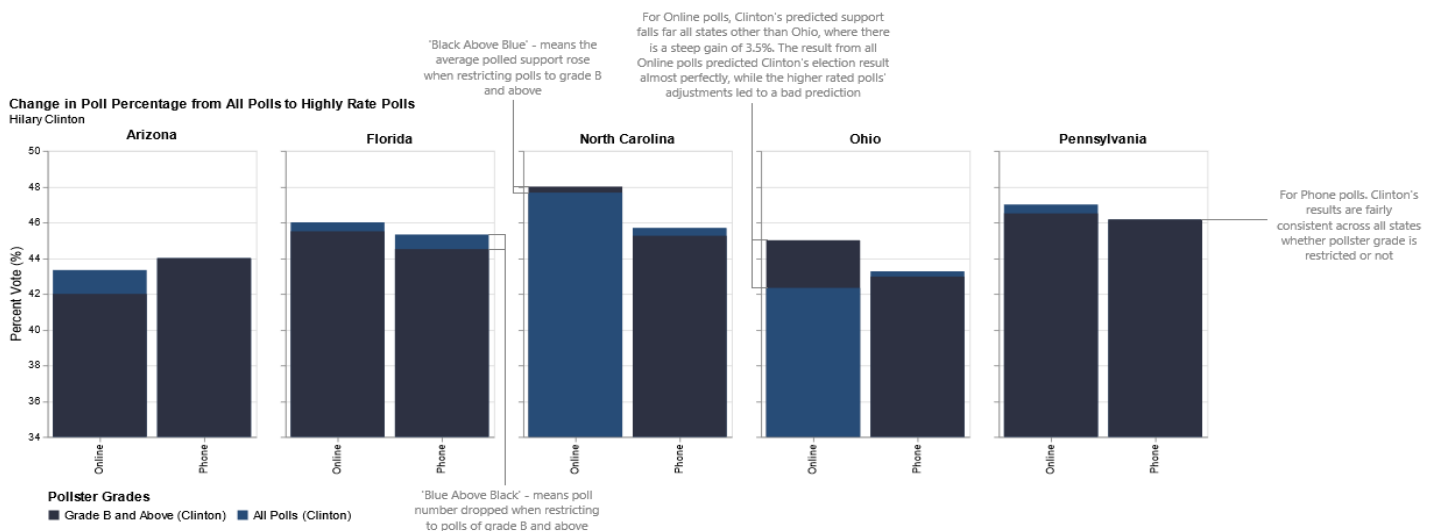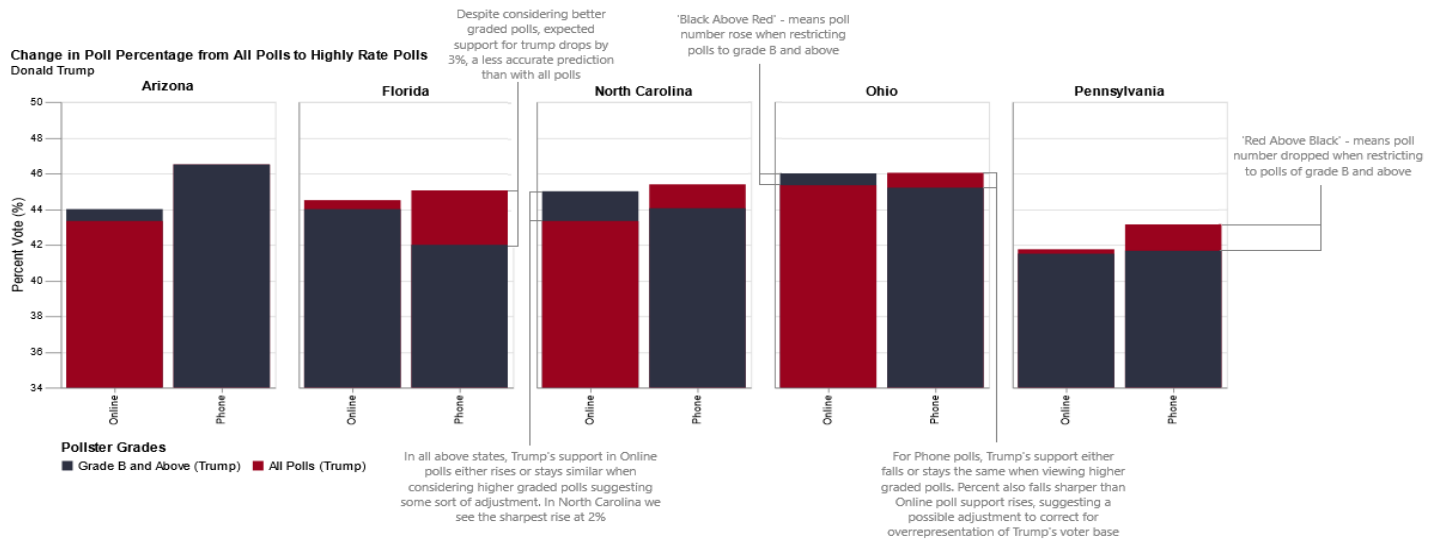
Now moving on, there's the main observation to circle back to – in all relevant states, Trump polled higher, sometimes much higher, in results taken through Phone polling than results taken through Online polling. As some theories suggest, perhaps those being polled were nervous about showing their support for Trump – a hypothesis called the 'shy Trump supporter' (Coppock, 2017). If we follow this theory, lower predictions in Online polling are somewhat unexpected, given that Online polling is relatively anonymous compared to Phone polling.

Another consideration is Trump supporters tend to skew older, topping 50% of the population above 50 years old (Pew Research, 2018). Seeing as these same age groups are less likely to be online at the current day (2016) and are more likely to still have a home phone/centralized line listed in a geographic based directory, this could explain why Trump appears to poll much better on Phone polls. Phone polls are more likely to include his voter-base.

Polling vs Election Vote - Percent Total Vote of Two Main Candidates
Hilary Clinton

Legend: Election Vote (Clinton), Online Polls (Clinton), Phone Polls (Clinton)

Change in Poll Percentage from All Polls to Highly Rate Polls
Donald Trump

Despite considering better graded polls, expected support for trump drops by 3%, a less accurate prediction than with all polls

'Black Above Red' - means poll number rose when restricting polls to grade B and above

'Red Above Black' - means poll number dropped when restricting to polls of grade B and above

Pollster Grades
Grade B and Above (Trump), All Polls (Trump)

In all above states, Trump's support in Online polls either rises or stays similar when considering higher graded polls suggesting some sort of adjustment. In North Carolina we see the sharpest rise at 2%

For Phone polls, Trump's support either falls or stays the same when viewing higher graded polls. Percent also falls sharper than Online poll support rises, suggesting a possible adjustment to correct for overrepresentation of Trump's voter base

Change in Poll Percentage from All Polls to Highly Rate Polls
Hilary Clinton

'Black Above Blue' - means the average polled support rose when restricting polls to grade B and above

For Online polls, Clinton's predicted support falls far all states other than Ohio, where there is a steep gain of 3.5%. The result from all Online polls predicted Clinton's election result almost perfectly, while the higher rated polls' adjustments led to a bad prediction

For Phone polls, Clinton's results are fairly consistent across all states whether pollster grade is restricted or not

Pollster Grades
Grade B and Above (Clinton), All Polls (Clinton)

'Blue Above Black' - means poll number dropped when restricting to polls of grade B and above

A final and interesting note to leave you thinking about this topic: What happens to the disparity between Phone and Online polls if we limit to only polls that are highly graded by FiveThirtyEight, an award-winning polling analysis website. Since polls are graded on a scale from A+ to C-, consider those graded B and above.

First, there is a drop in number of polls, but the drop is relatively uniform for both Phone and Online.

With fifty-one Phone polls and twenty-one Online polls, how do results change?

Looking at the results of high graded polls, Trump support in Phone polls falls, which is unexpected because it was already far below his final vote percentage. Also, his support in Online polls either stays relatively the same or rises. It is possible, knowing Trump's voter base skews older, the better polls are adjusting for this in an attempt to produce more representative results. Also, seeing that the Phone polls lose more percentage than Online polls gain, it appears that including the poorly graded polls provides a better prediction for actual results, especially when looking at Phone polls. Including the poorly graded polls gives a better prediction of final election results.

As for Clinton, the changes are different. For Phone polls results are relatively consistent, either staying the same or falling slightly. However, for Online polls, Arizona shows a drop in predicted votes, while Ohio shows a large gain. Clinton performed worse in Ohio than any of the other four states studied and including the bad Online polls almost exactly predicted her result (43% popular vote), however, using only the good Online polls results in a prediction that is almost 2% too high (45%), which again, presents issues with the medium by which polls were conducted.

Overall, it appears like good pollsters had theories on polling methods benefiting specific candidate, with Online polls benefiting Clinton and Phone polls benefiting Trump. In both cases, we see that whatever adjustments were made to produce the results of these polls, they are less accurate than when including lower graded polls. Maybe next time, as a reader, consider how the poll you are reading is conducted and whether it could help to consider multiple outlets with multiple methods of polling.
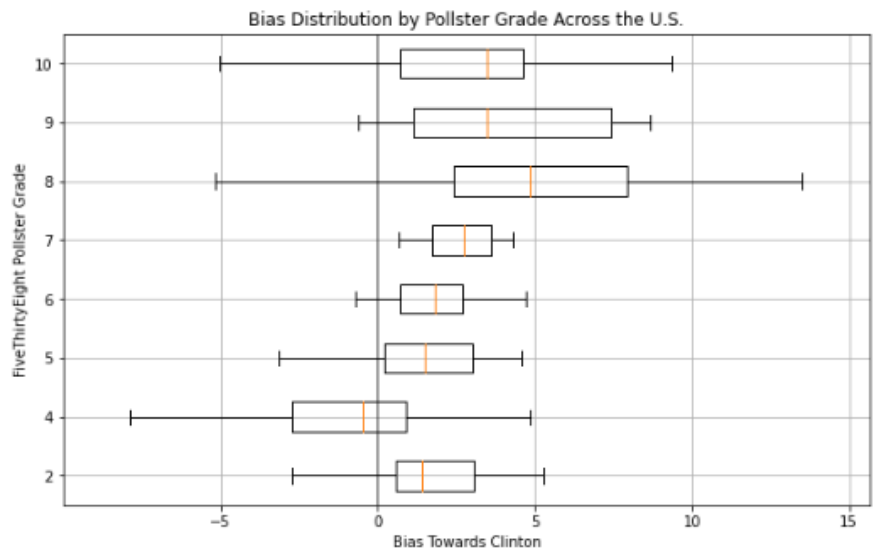
The Role of Pollster Bias and Pollster Grades in the 2016 U.S. Presidential Election

Elli TRABOULSI — FACE It News

The 2016 US Presidential Election is seen as a pivotal event in American political history. It was a race marked by twists and turns, a surprising outcome, and a storm of controversy that still rages on in the political discourse of the nation. Under the surface of the election's chaos and headlines, lies a story of numbers, data, and the question everyone is asking: how did the pollsters get it so wrong?

As the election year unfolded, pollsters across the country stepped up to gather the opinions of the American electorate. Each with their methodologies and statistical tools, these pollsters set out to predict the election's outcome, with eyes on the two major candidates, Hillary Clinton, and Donald Trump. As the night of November 8, 2016, came to an end, it became increasingly evident that something was amiss in the world of American political polling. Most pre-election polls had pointed to a comfortable lead for Hillary Clinton.

FiveThirtyEight's projection stated that Clinton had a 71.4% chance of becoming the next president of the United States (FiveThirtyEight). Projections from respected polling firms, such as ABC News/Washington Post, Monmouth University, Ipsos, and YouGov, had suggested that Clinton would win the election. Yet, when all was said and done, Donald Trump was victorious, defying the predictions that had dominated headlines for months. After the election, a thorough analysis of the polling data revealed a narrative that went beyond just the numerical results.

Bias Distribution by Pollster Grade Across the U.S.

There is a story of consistent pollster bias, where pollsters seemed to sway in favor of one candidate more than the other. But what was the root of this bias, and could it be explained by the pollster grades assigned by FiveThirtyEight? To unravel this mystery, statisticians and political analysts dove deep into the data. They studied whether pollsters consistently leaned toward one candidate over another. Did higher pollster grades equate to more accurate predictions? The results were revealing. Amid the election's unfolding narrative, a curious pattern emerged among pollsters and their grading. The data unveiled a connection between a pollster's grade and their learning. A pollster's grade is based on the historical accuracy and methodology of each polling organization's polls. Pollsters with higher grades were more biased towards Clinton, a trend that piqued our curiosity. As we move up the grade scale, the bias towards Clinton gradually increases. With an A- score, pollsters were the most biased in Clinton's favour. The C+ pollsters, those graded a 4 on the scale, were more correct in their predictions with a slight tilt toward Trump. They were followed by those with a D grade then a C- grade, and subsequently a C grade, shown as 2, 5, and 6 on the scale, respectively. The data revealed that the grades given by FiveThirtyEight did not hold the key to a pollster's ability to forecast the future. Diving deeper into the role of pollster bias, some pollsters did reveal a consistent bias in favour of a particular candidate.

Surprising discoveries were made about the pollsters and their tendencies in this election's polling. Emerson College, often flying under the radar, stood out as one of the more accurate predictors. With a modest B grade and a track record of minimal bias toward Democratic candidates, their results left political observers pleasantly surprised. Meanwhile, Monmouth University and ABC News/Washington Post basked in the glow of A+ grades, confidently forecasting a victory for Clinton. SurveyMonkey, despite its history of leaning a bit too favorably toward Democrats and sporting a humble C- grade, managed to defy expectations with one of the most precise election projections. SurveyUSA, with an A grade and a mean-reverted bias of 0.0 according to FiveThirtyEight, painted a picture where Clinton would cruise to victory. But, as we now know, reality had other plans. Those with B- grades consistently delivered the highest average polls favoring Clinton. Perhaps this phenomenon could be attributed to a specific demographic or regional preference for Democrats, influenced by factors like political ideology or geographic location. Then came Rasmussen Reports, which has historically overrated the performance of Republican candidates. Surprisingly, it emerged as the only accurate one among the respected group of pollsters studied.

The US Presidential Election of 2016 will live on in the collective memory of the country. It was an election that went against the odds, disproved presumptions, and emphasized how crucial data and analysis continue to be to our democratic system. It served as a timely reminder that, just like in real life, the story often lies not just in the headlines but also in the careful examination of the data behind them.

Now back to our initial question: How did the pollsters get it so wrong? The answer lies in the bias, methodology, and sample. Those with higher grades revealed a greater tilt towards Clinton, while the lower grades demonstrated a somewhat clearer perspective. The grades themselves, assigned by FiveThirtyEight, did not definitively correlate with predictive accuracy. The 2016 election reminded us that the story frequently lies in the intricacies of the statistics, like how unexpected politics can be. Despite their best efforts, the pollsters encountered the unexpected. It served as a timely reminder that in the realm of elections, clarity is elusive and that the true story frequently defies the most painstakingly planned forecasts. The nation will use the lessons learned as a lighthouse as it prepares for future elections. They serve as a helpful reminder that investigating pollster bias and the impact of pollster ratings are not merely statistical exercises, but rather crucial instruments for comprehending American democracy. They are directing us through the impending political storms in the search for truth and accuracy .

Bias Distribution by Pollster