Media Bias in the U.S.’ Big Three TV Networks

by

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Abstract

The discussion of media bias has a long history in the field of media studies, but the subjective essence of bias makes it hard to define as well as challenging to measure. The model that statistically analyzes the relationship between how the presidential job approval rating changes and the likelihood of that being aired used in this paper can enable us to overcome the problems in previous studies. Applying the model to the U.S.’ big three TV networks’ evening news programs, we find that two of them have apparent biases on the whole. Especially NBC presents a clear preference for negative news about Obama and positive news about Trump. Considering the power these networks possess on shaping public opinion, the discussion of media bias remains essential.

Keywords: media bias; US network news; presidential job approval polls
Acknowledgements

It is a great journey for me this year,

I cannot get this far without the help of many people.

To express my appreciation,

I attach the following text.

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All of my colleagues
and
My family
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Chapter 1.

Introduction

It is believed that newspaper and other dispensers of public information are designated to transmit objective, factual information gleaned and communicated by credentialed professionals (Bruce Thornton, 2013). Meanwhile, with a large number of multiple audiences, the media also has significant power to shape people’s perception of the world. However, whether by the headline of the newspaper or the tone of the news anchor, the media can imply biases. That media is biased is nothing new, and it is not difficult to understand. On the one hand, journalists and editors as human beings inevitably have individual opinions and preferences that affect how to report the news; on the other hand, media coverage, as a product of the market and a tool in partisan politics is extensively influenced by economic and political factors. These make media bias hard to notice and difficult to measure. In reality, more people today begin to aware of this issue of media bias. According to a 2017 Gallup/Knight Foundation survey, Americans increasingly perceive the media as biased and struggle to identify objective news resources. On the multiple-item scale of media trust with scores from 0 to 100, the average American scores 37 (2018). Media bias has been gradually influencing people’s trust in the whole media industry.

When US media exert considerable influence on the general public, they also play an essential part in framing voters’ attitudes and their involvement, thus have an impact on their elected president. In effect, the complicated relationship between US media and the most powerful person in the country- US president has long been pointed out. “Seen from the White House, mass media can be potent allies or obstructive, constitutionally protected but unelected enemies” (Morgan, 1995). It is an essential skill for a president to manage the relationship with media, but that was not always the case. Watergate and the Clinton-Lewinsky scandal have already shown how crucial it is for a president to deal with the media. The relationship between these two makes the US president an appropriate object to look at the bias in the media.

Though the voices about the decline of traditional news media have been prevailing for a while, television news still has a strong influence on Americans’ daily
lives. According to the Pew Research Center, television is still the most popular platform for Americans to get news. In 2018, 50% of Americans used television as their primary news source, followed by news websites, which attracted 33% of US citizens (Pew Research Center, 2018). Thus, television news can still be an excellent place to examine media bias.

Given all mentioned before, the research tries to figure out are there any biases in current US TV networks? If so, how do biases present in those networks? Following these questions, the paper uses a quantitative way to figure out how media bias present in evening news programs of the U.S.’ Big Three TV networks on the two most recent presidents Barack Obama and Donald Trump.
Chapter 2. Literature Review

2.1. What is media bias?

Though media bias has long been discussed in both public and academic conversations, it still lacks a clear and precise definition. The reason for this uncertainty can be traced back to the nature of the bias. As D'Alessio and Mike Allen (2000) argue, bias is an outcome of subjectivity, meaning it is a difference of perception rather than a matter of objective agreement. Not only does this make media bias challenging to define, but it also indicates the inevitability of subjective bias. Therefore, bias cannot be eliminated. Since bias is inherent everywhere in the field of communication, and television news, then the relevant norm is not zero bias, but rather some degree of tolerable bias. Therefore, the norm of inevitable bias needs to be established. Otherwise, there is no bias or everything is biased (Williams, 1975). His statement of bias again proved the inevitability and the subjectivity of bias.

As scholars like Bagdikian have pointed out, media power is political power (2004). The idea that media shapes people’s perception of their political leaders and also influence voters’ attitude has been proved by many scholars (Eberl, Wager, & Boomgaarden, 2017; Druckman and Parkin, 2005). Naturally, media bias has a close connection with partisan politics and competing ideologies. While political parties always compete with each other, it does not mean that media bias on parties has to be zero-sum. Hopmann, Van Aelst, & Legnante (2011) try to understand the bias from its opposite, considered as balance by them. Unbiased news coverage is not slanted in favour of or against any political side, but all sides should be equally represented following some standard of balance. (Hopmann et al., 2011). Based on this idea, he suggests that the concept of media bias encompasses multiple sub-types, including visibility bias, tonality bias, and agenda bias (Hopmann et al., 2011). Because it is so is difficult to give a clear definition of media bias, researchers like Hopmann discuss the bias from identifying a variety of forms and types of bias. Take another example of D’Alessio and Mike Allen. After a meta-analysis of 59 bias studies about presidential election campaigns, they identify three kinds of media bias, including gatekeeping bias, which represents editors' and journalists' preferences for selections of specific topics; coverage bias, which reflects in their decisions on the physical amount of coverages;
and statement bias, which is their specific opinions and attitudes implied in the coverages (2000).

2.2. Approaches to studying media bias

Since bias is highly subjective and not easily reducible to a single definition, the resulting problem is that there exists no general standard or agreement on the measurement of bias. Past studies could be roughly divided into four types.

The first and most common one is content-based. These studies analyze media bias by identifying different characteristics of media content and assessing how biases are presented through those characteristics. For example, Covert and Wasburn (2007) identify 10 prominent social issues on which differing partisan perspectives between 1975 and 2000 and compare the ideological tendencies in the two largest circulation news magazines, Time and Newsweek with that in partisan journals, the Conservative National Review and the liberal Progressive by analyzing the content about the 10 issues. Similarly, Zelizer et al. (2002) focus on how the Intifada was reported differently in three mainstream US newspapers, The New York Times, The Washington Post and The Chicago Tribune, by looking at features like headlines, leading paragraphs, graphics, and photographs. Groseclose and Milyo (2005) compare the number of times the media outlets cite certain think tanks and policy groups with the frequencies the Congress members of known ideological leaning cite the same groups. David Niven (2003) argues that equivalent political behavior provides a useful baseline for a meaningful comparison of political news coverage. Based on this idea, he examined the news coverages of 4 congressional party 'switchers' who changed their party allegiances. Finally, Genzkow and Shapiro (2010) measure the bias by comparing phrase frequencies in the newspapers with those in congressional speeches to identify whether the media's language is more similar to that of a congressional Republican or a congressional Democrat.

The second approach often used to analyze media bias is frame theory. Frame analysis tries to identify which frame the media is using when reporting the specific issue and how that frame is constructed. In other words, these studies mainly address questions of what information is conveyed by the media and how it is conveyed (Entman, 1993, 2007, 2010; Kuypers, 2002). The methods using frame theory closely
connect with the content-based approaches. While content-based approaches put more emphasis on various features of biased content, the frame theory illustrates how slanted framing can shift over time with changes in these interactions (Entman, 2010).

The third type of past studies about media bias can be summarized as market/audience-based. This involves analyzing the mutual relationships between these two parts. More specifically, they are more focused on how market demand and audiences’ attitudes encourage the generation of media bias and how bias, in turn, influences that demand (Xiang and Savary, 2007; Mullainathan and Shleifer, 2005). For example, with the question that whether liberals in the US have a higher news demand, Sutter (2011) examines several crucial factors of newspaper circulation across the country and metropolitan areas and argues that some liberal bias in the news might be a consequence of consumer preferences. In another approach, Baron (2004) choose to look at the bias's effect on news demand. He argues that bias reduces the demand for news because individuals are more skeptical of stories from news organizations that tolerate bias.

The last common approach can be classified as computational semantic analysis. The works using this approach usually focus on the text features and the word choices in the published news coverages and analyze the tendencies behind them by relevant software (Adeyemo, 2018; Holtzman, Schott, Jones, Balota, & Yarkoni, 2011).

Generally, these approaches are all interrelated and have their own merits, but the limitations are evident at the same time. One overarching issue is that these studies mostly analyze published content, which makes it difficult to know how journalists' selection practices influence media bias. Given that the whole collection of news stories is unknown and the published content has been filtered by the journalists before facing the public, the discussion on a significant type of media bias, thus, is neglected. Such studies must also code the content that they analyze, recreating the problem of bias in the research context. For example, when a piece of news content is coded as negative or positive, a degree of subjectivity always enters the picture despite methodological precautions like inter-coder reliability.
Chapter 3. Methodology

3.1. Research Design

As mentioned before, there are two main limitations in current bias studies. The first one comes from the subjective nature of bias and subjective perceptions about that bias. People may have different understandings of the same coverage. In research about media bias, this will cause problems in the coding process. In many content-related analyses, researchers try to set uniform standards for coding the stories, but this can only partially mitigate the fact that individual coders will interpret those standards differently. Secondly, there is a selection problem: most news stories researchers can study are already published to the public, which means all the content in the research has been filtered by journalists and editors once. Therefore, many studies about media bias ignore the existence of the selection bias from the beginning.

In order to avoid these two problems, a measurement model inspired by Groeling (1998, 2008) is used to examine media bias in this study. In this model, polls about the president’s overall job performance are the main focus. Almost all the US mainstream media conduct polls of different aspects of the incumbent president, but the results are not aired every time. These polls represent the current public’s quantitative evaluation of the president. As such, the media’s decision to report the results or not reflects their attitudes toward the president to a certain extent.

On the one hand, the quantitative poll results can provide a clear baseline for researchers to compare and analyze. Therefore, analyzing these polls bypasses the need to code media content, thus reduce the risks associated with subject coding. On the other hand, since all the polls conducted by media outlets are saved in relevant online archives, the whole collection of the data can be seen, the problem of filtering can also be bypassed. By knowing whether the media report the poll numbers or not and how they report the results as the poll results change, it is possible to assess the media’s attitude to the president in the poll. Then the measuring logic here becomes analyzing the relationship between changes in presidential polls and the likelihood of those being reported.
Groeling (2008) identifies four generic patterns that such coverage might take [Figure 3.1]. The first pattern shows that the poll result will be reported as long as it shows significant quantitative changes. The greater the change is, no matter the direction, the more likely it will be reported. This pattern indicates that the media considers changes from the status quo as their selecting standard.

In contrast, the null preference listed as the fourth pattern indicates that no matter how poll results change, the possibility of those being reported basically remains the same. That is to say, the media’s decision to reporting the poll results is not influenced by the changes in poll numbers at all. They have their own regular reporting rules which do not correlate with changes in poll results.

The second and third patterns show a type of preference for a certain situation. The second graph shows that the media prefer the negative changes in the poll results. The more the poll result drops, the more likely it is reported. On the contrary, when the poll result goes up, the media shows less interest to report.

The third graph represents the opposite situation—perhaps an ideal pattern, for the incumbent. Negative results are less likely to be reported to the public, and vice versa. In such cases, we might infer that the media is in favor of the incumbent.
Figure 3.1 Systematic Patterns of Poll Story Selection.

Note. Adapted from “Who’s the Fairest of them All? An Empirical Test for Partisan Bias on ABC, CBS, NBC, and Fox News”, by Groeling, T, Presidential Studies Quarterly, 38(4), 631-657
Nevertheless, Groeling (2008) put more focus on examining partisan bias and identified media bias only when the media has a clear bias towards one side and against the other at the same time in terms of reporting partisan politics. This research suggests media bias takes various forms other than the “one-sided” form mentioned above. It attempts to explain more possible situations. In this study, we define media bias as the report of fact, where all the party involved is not presented in a balanced and equal way. Given all the above, we compare the coverages about job approval ratings of two different presidents, yielding five different scenarios:

Change result: For both presidents, when the poll result is reported when it goes up, then the result is also reported when it has a similar decrease. Meanwhile, both should be different from the result showing an unchanged result.

Null Result: For both presidents, no matter how poll results change, the possibility of those being reported are almost the same. Changes in approval poll results are statistically uncorrelated with their selection for broadcast.

Pure Negative (Positive) result: For both presidents, the substantial decrease (increase) in the poll result should be more likely to be reported than the similar increase (decrease) in the poll result. Notice that these results do not represent the biased result, which is in favor of one side and against the other, but they absolutely are not fair coverages and show a particular slant and bias to some extent.

Biased result: For President A(B), a substantial increase in approval should statistically be more likely to be reported than the equivalent decrease in approval, while for President B(A), a substantial decrease in approval should statistically be more likely to be broadcast than the equivalent increase in approval. In this case, the media has a bias towards President A(B). Moreover, if the media have the preference for the negative poll results of President A(B), while they just have the preference for the changed poll results or the null result of President B(A), in such cases, we can infer that the media has bias against President A(B), similarly, if the media have the preference for positive poll result of President A(B), while they just have the preference for changed poll result or the null result of President B(A). In such cases, we can infer that the media is in favor of President A (B).
Overall, the method applied in this study enables us to examine media bias in terms of the presenting outcome on the media. As long as the involved party is not reported in a balanced and equal way, it is identified as biased content in this study.

3.2. Data and methods

For using the model discussed above to test media bias, two main variable sets need to be collected. An independent variable set: the changes of polls conducted by the media outlets and a dependent variable set: the broadcasting situation of the polls. Also, some characteristics of polls need to be collected.

This research put the focus on the US's "Big Three" TV network which are ABC, NBC, CBS, and their evening news programs, ABC World News Tonight, NBC Nightly News, and CBS Evening News. According to Pew's research, television is still the most common platform for Americans to get the news (Pew Research Center, 2018). The three networks in this research are usually considered as most representative TV networks in America. The ‘Big Three’ boasts a long history, and reach generally broader and more varied audiences compared to cable news outlets like Fox News and CNN. Network news is also generally seen as less biased than cable news. A Gallup survey indicates that Americans have greater confidence in national television network news than in cable news to provide news that is mostly accurate and politically balanced (Gallup, 2018).

Meanwhile, among all the news programs, evening news often has the greatest number of viewers. Pew's researches show that in 2018, while an average number of audiences for three major cable TV news during the daytime was 821,895, that number during prime time was 1,245,375. However, the average number of audiences for three major networks’ (ABC, NBC, and CBS) evening news was 5,348,408 (2018).

This study examines poll ratings and relevant coverage of the two most recent presidents, Donald Trump, and Barack Obama, to figure out how media bias presents itself in different TV networks and on different presidents. The poll data set was acquired from the online archive pollingreport.com, which records and updates almost all types of polls by different organizations. In order to get more comprehensive findings, only polls that rate the president's overall job performance—shorthanded as 'job ratings'—were
selected. For example, questions such as "Do you approve or disapprove of the way President Donald Trump is declaring a national emergency to build a wall along the U.S.-Mexico border?" were excluded, and only questions on overall job performance, such as "Do you approve or disapprove of the way Donald Trump is handling his job as president?" were used. Because the polls of overall performance are more regularly conducted and aired than those of specific fields. Also, for the two presidents, questions about the specific fields are not the same. So, considering the feasibility of the research, only the presidential job ratings were used.

In the meantime, the transcripts of three evening news programs were obtained from the online archive Factiva as the dependent dataset. In order to conduct the quantitative analysis, only news stories citing specific polls numbers are included, and those contain broader analysis or vague comments of presidential popularity without such citation is excluded. More general expressions, such as a comment that "The president should worry about the latest poll result" were not selected. For President Obama, the study looked at poll data from his first inauguration on January 20, 2009, to his farewell January 10, 2017, and the relevant evening news program transcripts. Similarly, for President Trump, the poll data and broadcast are collected from his first inauguration on January 20, 2017, to May 4, 2019, the date when data collection concluded.

As mentioned previously, the only independent variable set in this paper is the changes in the president's job ratings, which ensures a maximally constrained environment in which different media coverage might be compared. However, there are two types of unusual cases that cannot be avoided. First, it is not entirely fixed concerning how often media outlets conduct a poll. They sometimes make a new poll half a year after the last poll or even the very next day. Second, a given poll result might experience extreme change because of certain events. For example, Obama's job ratings rise significantly from 46% to 57% following the killing of Bin Laden. Extraordinary incidents like these can cause a significant impact on the media's decision to report on the poll, and risk confounding the relationship between changes in poll numbers and the possibility of being broadcast. In order to have a more reliable independent variable set of changes in polls, a moving average of the last three poll results is calculated as a mediator to calculating the independent variable set, then subtracted it from the latest poll result to obtain the independent variable set defined as
PollChange. As for the dependent variable set, the only those cited the specific numeric result of polls are counted. Therefore, the dependent variable set defined as PollAired is a binary variable set. It took a value of 1 when then the poll results were aired, otherwise 0.

For examining media bias, a descriptive analysis of key variables including Approval (poll results of the president's job ratings), Days Between Polls, Changes in Approval Since Own Last Poll and Poll Change was conducted to identify significant characteristics and trends in the data. Also, the research conducted a binary logistic analysis, which is often used to predict the probabilities, to figure out the relationship between changes in polls and the likelihood of that being reported. All data analysis and most parts of visualization are generated using R.

In the logistic model, the research added a control variable called Elections, which contains all the presidential elections and midterm elections. Though exclusive polls are conducted in the election period, people might become more sensitive to the incumbent president's working performance during that period, thus affecting the job ratings. Meanwhile, for a president who is in a weak position, the media may transfer the attention to other candidates. Unlike scandals and national disasters, elections provide a more regular source of significant influence on the mechanism of presidential job approval polls. Because of these, the research selected the election data as a control variable. It is coded in binary, with a value of 1 for the year before the date of a presidential election and six months before the date of a midterm election. Both logistic analyses with and without the control variable were conducted.
Chapter 4. Findings

4.1. Descriptive Analysis

After conducting a descriptive analysis of all the critical variables in three network TV news about two presidents, the results shown in Table 4.1 can be divided into four parts.

Generally, these polls show that fewer people approve of President Trump's job performance than President Obama's. In ABC and CBS, the difference in approval ratings between Trump and Obama is about 10%, with a maximum of more than 20%. However, on NBC, the smallest gap is presented between Obama and Trump, and Trump also has the most approval here, no matter the maximum or the average value. Americans are, in general, dissatisfied with the Trump administration.

There are obvious distinctions in terms of how often the networks collect the public opinion of two president's job performance. The time interval of poll conduction for Obama in three networks is relatively stable, which is about once a month. However, for Trump, the frequencies decrease significantly and become more irregular. All the networks prolong the time interval of the poll conduction. Moreover, ABC seems least willing to do such thing, with the most extended interval arrives five months (140 days), even the average interval is more than two months (67 days). Note that ABC also has the lowest average approval rating for Trump. In general, NBC conducts polls the most time and has the shortest interval.

As introduced before, the long-term and reliable changes in poll results can be identified through the independent variable PollChange in this research. In Obama's case, his polling numbers tend to decline over his presidency steadily, but the decreasing amplitude is quite steady. While the drop arrives the most in ABC's polls, the average drop of polls in all three networks is no more than 0.25. As for Trump, his poll results fluctuate more greatly. While CBS polls show a trend of decline, the other two networks show a positive change with the poll result going up about 0.5 in NBC's polls.

The other primary variable in the table is the broadcast situation, referred to as PollAired. Among all three TV networks, for both presidents, the possibility of poll results
being reported on ABC maintains a similar level, which is about one-sixth. Though NBC and CBS show distinct traits in reporting the poll results for these two presidents and Trump's poll gains less opportunity to be aired. For NBC, the likelihood to report the poll result between these two presidents are specifically different. While it reports 33% of Obama's approval ratings, only 17% of Trump's approval ratings. Note that NBC runs polls most frequently, and the change in its polls about Trump is most favorable. Also, Trump gains the best job ratings on NBC.
### Table 4.1 Descriptive Analysis of Main Variables

**ABC**

<table>
<thead>
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<th>Min</th>
<th>Max</th>
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<th>SD</th>
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<tr>
<td>Barack Obama (n=91)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approval</td>
<td>40</td>
<td>69</td>
<td>50.25</td>
<td>5.517</td>
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<tr>
<td>Days Between Polls</td>
<td>1</td>
<td>98</td>
<td>32.03</td>
<td>19.582</td>
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<td>Changes in Approval Since Own Last Poll</td>
<td>-6</td>
<td>9</td>
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<tr>
<td>Poll Change</td>
<td>-7.667</td>
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<td>-0.227</td>
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<tr>
<td>Poll Aired</td>
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<td>Donald J. Trump (n=12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Approval</td>
<td>36</td>
<td>42</td>
<td>38.33</td>
<td>2.103</td>
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<tr>
<td>Days Between Polls</td>
<td>21</td>
<td>140</td>
<td>66.82</td>
<td>35.048</td>
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<td>-6</td>
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<td>Poll Change</td>
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**NBC**

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<td>Approval</td>
<td>40</td>
<td>61</td>
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<td>Days Between Polls</td>
<td>5</td>
<td>56</td>
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<td>-5</td>
<td>8</td>
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<td>0.17</td>
<td>0.493</td>
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### 4.2. Logistic Analysis

Three types of models with different conditions are established to present the relationship between how much polls change and how possible the results are presented to the public in the three TV networks. Table 4.2 provides more detailed data about the possibility of the poll results being reported when the poll number drops five points and goes up by five points, as well as the difference between these two situations.

#### 4.2.1. Model 1: General Possibility Curve

The first model in Figure 4.1 shows a basic model with only one independent PollChange and one dependent variable PollAired. This model illustrates a general relationship between these two primary variables with 95% confidence interval shade in different TV networks, under Trump and Obama administrations.
Beginning with ABC, for both President Obama and Trump, the possibility of poll results being reported is quite stable. The relationship curve between the PollChange and the PollAired is quite flat. There is only a 10% likelihood more to report a 5-point drop than to report a 5-point gain in Obama's poll results. Note that ABC shows zero possibility to report Trump's poll results. This is because out of all 12 polls run by ABC in this period, only the first 2 of them were reported. No further reports occurred until the data collection period ended on May 4, 2019. Since the independent variable PollChange is obtained by subtracting the moving average of the last three poll results from the latest poll result, that makes the first three dependent variable PollAired correspond to three void independent variables. So, the only two reports in Trump's case were not included in this analysis, which also led to a null preference result in ABC.

However, NBC tells a different story. The PollChange of both presidents is more related to the PollAired. For President Obama, as the poll results go up, it is less likely to report the results. There is a 52.45% likelihood more to report a 5-point decrease in the poll than to report a 5-point increase in the poll. As for President Trump, in contrast, the poll results are more likely to be aired when the results go up. Though the possibility gap between poll goes up 5 points is smaller than the poll goes down 5 points compared to Obama's case, that gap is still as large as 34.87%. In comparison, it is clear that NBC is more willing to report negative poll changes of Obama and positive changes of Trump. Here we find a possible indication of biased coverage.
Figure 4.1 Model 1-General Possibility Curve
Finally, CBS shows yet another set of results. For both presidents, the relationship between changes in poll results and poll results being aired are negatively related. While it is less likely for both of them to report the poll results as the results go up compared to the other two TV networks, this is especially evident for Trump. When the poll result goes from a drop of 5 points to an increase of 5 points, the possibility of Obama's poll result being reported decreases by 36.8%. But for Trump, the number is about 30% more (64.38%), with less than 8% chance of being reported when the poll has a 5-point drop and more than 70% chance when the poll has a 5-point gain. To sum up, while CBS is reluctant to report both presidents' good news, it is more likely to broadcast Trump's negative news compared to Obama's.

<table>
<thead>
<tr>
<th>Model 1- General Possibility</th>
<th>Poll Change=-5</th>
<th>Poll Change=5</th>
<th>Difference in Poll Aired</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Obama</td>
<td>21.7%</td>
<td>10.6%</td>
<td>11.1%</td>
</tr>
<tr>
<td>ABC Trump</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NBC Obama</td>
<td>61.4%</td>
<td>8.95%</td>
<td>52.45%</td>
</tr>
<tr>
<td>NBC Trump</td>
<td>5.73%</td>
<td>40.6%</td>
<td>-34.87%</td>
</tr>
<tr>
<td>CBS Obama</td>
<td>59.5%</td>
<td>22.7%</td>
<td>36.8%</td>
</tr>
<tr>
<td>CBS Trump</td>
<td>71.5%</td>
<td>7.12%</td>
<td>64.38%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 2- With Separate Variables</th>
<th>Poll Change=-5</th>
<th>Poll Change=5</th>
<th>Difference in Poll Aired</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Obama</td>
<td>31.9%</td>
<td>23.5%</td>
<td>8.4%</td>
</tr>
<tr>
<td>ABC Trump</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NBC Obama</td>
<td>80.2%</td>
<td>18.4%</td>
<td>61.8%</td>
</tr>
<tr>
<td>NBC Trump</td>
<td>0.29%</td>
<td>36.8%</td>
<td>-36.51%</td>
</tr>
<tr>
<td>CBS Obama</td>
<td>64.6%</td>
<td>27.1%</td>
<td>37.5%</td>
</tr>
<tr>
<td>CBS Trump</td>
<td>87.2%</td>
<td>17.1%</td>
<td>70.1%</td>
</tr>
</tbody>
</table>
Although the general relationship between the PollChange and the PollAired is known from the model 1. However, there is a flaw in the model 1 that renders it unable to model the ‘Preference for Change’ case identified in the section of research design. This is because the logistic analysis is unable to generate the U-shape curve. The possibility trend of the poll result being aired might be different when the poll number has negative changes as well as positive changes. In order to present this unusual situation more clearly, two subsets of the primary independent variable set PollChange were created: NegPollChange (takes values of the PollChange when negative and zero otherwise) and PosPollChange (takes values of the PollChange when positive and zero otherwise). Then, two models with these two variable sets as the independent variable separately were established to see how they influence the dependent variable, PollAired.

Generally speaking, Figure 4.2 shows similar trends to Figure 4.1. However, there are some subtle differences. The most apparent one is Obama’s case on ABC. In Figure 4 1, the relationship between changes in the polls and the possibility of poll results being reported are relatively flat. Whether ABC decides to broadcast Obama’s poll results is not likely to be affected by how the poll numbers change. In the new model presented in Figure 4.2, the curves are slightly different for both negative and positive changes in his polls. The higher the poll number changes, the more likely it is to be reported on. Table 4.2 also shows that there is only 8.4% more chance to report a poll with a 5-point drop than a 5-point gain, which indicates that ABC has no significant
preference to either Obama's negative poll results or positive poll results, but a changed result. Due to the same reason mentioned above, nothing changes in Trump's case in ABC (copied the same graph from Figure 4.1). A brief conclusion is that there is a mild case of the Change scenario for Obama on ABC.

As for NBC, a prominent part is its mild "preference" for Trump's good news. Though the possibility of getting reported when the poll number increases 5 points is just 36.8%, ABC is extremely reluctant to report Trump's bad news while there is a strong possibility to air the 5-point drop in Obama's poll, with as high as 80.2% probability, the likelihood of reporting that in Trump's poll is only 0.3%.

Like the general possibility curve shown in Figure 4.1, NBC tends to broadcast Trump's good news and is extremely reluctant to report Trump's bad news. Moreover, for Obama, Table 4.2 shows that while the poll number falls 5 points, NBC is 80.2% possible to report his poll number and barely possible to report Trump's, with only 0.3% likelihood.

There is no significant difference between CBS's curve in Figure 4.1 compared with that in Figure 4.2. Just as presented in model 1, for both presidents, it is less likely to report the poll result as the result increases. The relationship is magnified because the classification of the independent variable set is more detailed than before. Most strikingly, the possibility of reporting Trump's poll result when it drops 5 points soars to 87.2%.

4.2.3. Model 3: Possibility Curve with Separate Independent Variables and the Control Variable

In model 3 shown in Figure 4.3, the control variable Elections was added into the previous model to check whether the possibility curve would stay the same with the effect of control variables. However, it can be seen from Table 4.2 that all the curves basically remain unchanged, suggesting that the relationship between changes in the polls and the likelihood of the poll result being reported is very stable for both presidents. It also implicates that the control variable has no significant influence on the mechanism as assumed before.
Figure 4.2 Model 2-Possibility Curve with Separate Independent Variables
Figure 4.3 Model 3 - Possibility Curve with Separate Independent Variables and the Control Variable
4.3. Summary

This chapter examined how the Big Three networks’ tendency to report (or not report) on presidential job approval changes.

Firstly, the descriptive analysis of several main variables provides a general picture of presidents’ poll and their broadcasting information concerning the two presidents in three national TV networks. There are some immediately noticeable trends.

Among all the networks, ABC is most reluctant to report the poll results and has the most prolonged time interval (the max value of Days Between Polls) to conduct polls of both President Trump and President Obama; NBC is the most frequent one in terms of running the poll of Trump. Also, Trump got the highest average poll results, the most positive changes in the poll numbers. In terms of CBS, it is the most willing network to report the poll result of both presidents, with the likelihood of over one third.

In order to have a deeper understanding of how media present in those networks, three models are established to conduct the logistic analysis and analyze the possibility of reporting the presidents' poll result as the result changes. The results of these models are very consistent. According to the scenarios identified before, ABC has a null preference for both presidents. When the independent variable PollChange is divided into two subtypes with negative and positive values separately, ABC turns to show a mild preference for changed results in Obama's polls. While NBC has a clear preference for negative news about Obama, it presents a mild preference for positive news for Trump – a possible indicator of media bias. Moreover, for CBS, it shows Pure-Negative scenarios for both presidents, and it has stronger negative attitudes toward Trump.
Chapter 5. Discussion

By analyzing the news coverages about the two most recent presidents' job approval ratings, this study has sought to identify media bias in the three national TV networks. After two quantitative analyses, the first thing that needs to be pointed out is that the relationships between how the poll results change and how possible the result is to be reported on are very different in these three networks.

For both presidents, ABC was least likely to report on job approval polls. It shows a mild preference for the changed results in Obama's polls and a null preference for Trump's. Therefore, for both presidents, the change in their poll numbers have no statistically significant impact on ABC's decision to air them. In this term, ABC shows no signs of bias in any direction for either president. Meanwhile, the results of the logistic analysis indicate that NBC has a mild pro-Trump tendency. This tendency can be better reflected in the descriptive analysis that NBC conducted the polls of Trump most often, has the best poll numbers and most positive poll changes of him. These all suggest that NBC is biased in Trump's favor between Trump and Obama in terms of the final presenting outcome of the news. As for CBS, it has a preference for negative news of both presidents, but it shows stronger negative attitudes towards Trump known from the slope of the curves. Though it does not like NBC that has distinctly different curves for the two presidents that indicate the bias towards a particular side, the coverages on NBC are not balanced and contains news slants, which is also considered as a kind of media bias in this research.

According to the analysis above, two out of three networks in this research present biases, and they are shown in different ways. It also has to be mentioned that the research chooses a very concrete perspective of polls and related coverages to look at the bias, which just illustrates how common and embedded biases are in news reports. While biases in coverages of presidential polls are everywhere in the three national TV networks, it is hard for the mass public to identify them. In fact, Americans believe television networks news and newspapers are generally less biased than cable news or internet-only news resources (Gallup, 2018). Considering the power of the "Big Three" TV network in shaping public opinion about the world, this research and the discussion of the media bias is very necessary.
It is known that media bias in the United States closely connects with partisan politics. Just like the popular opinion, many academic studies have indicated the mainstream media in America are generally left-leaning. Such as Groseclose (2012) argues in his book that mainstream media outlets have strong liberal biases and Eric Merkley (2018) gets the result that there is bias in favor of Democratic presidents in his research. When the scholar Tim Groeling used a similar method to examine the media bias on Democratic president Bill Clinton and Conservative President George W. Bush, he found ABC, NBC and CBS all appeared to favored good news for Clinton and bad news for Bush, which is in accordance with the partisan's stereotypes (2008). However, the result of our research does not show any clear evidence of the prevailing idea about the partisan bias that these mainstream TV networks have a pro-liberal or pro-Democratic bias when it comes to presidential poll reporting. In all the three networks, Democratic President Barack Obama is not reported particularly positively. On the contrary, the Conservative President Donald Trump gets a favorable report from NBC. It has to be noticed that the two presidents in this study served their terms in the 2000s and 2010s, and the other two in the Greoling's research served their terms in the 1990s and 2000s. During the intervening years, the world, as well as the US, has experienced significant changes. Though the result of this research is not enough to prove that partisan bias has disappeared in the mainstream media, it does indicate the role partisan politics play on media bias may not be the same strength as before. Whether its power transforms into other things or weakens needs to be discussed in later researches.

The method used in this research originates from Tim Groeling's examination of partisan bias. In his model, he chooses presidents from different parties and identifies media bias only when the media is apparently biased toward one side of them. For instance, bias is only identified if the network prefers to report President A's good news and report President B's bad news at the same time. This study has sought to account for a wider variety of possible scenarios. We believe that there are more presentations of media bias other than the "for one side and against the other side" situation. This research also considers pure negative, pure positive, change/ neg and change/pos (while the network has the preference to report the changed result of President A's poll but the preference to report the positive change of President B's poll) because the news in these cases has already shown slants. There is also another case that the network airs all the facts they have. Take the scenario of the pure negative result as an example.
The media’s decision to report both president’s negative news is just because there are only negative changes in both presidents’ poll results. But this case can be excluded because the primary logistic analysis in this research is a prediction model. More specifically, it predicts how possible the poll number is to be aired as its change varies from -5 to 5 base on the data collected. Moreover, there are both positive and negative changes in both the president’s poll data. Therefore, the network’s decision to report both presidents’ negative news does present bias of their own.

While there are many types of media bias, the study focuses on the media’s selection practice as a possible source of bias. It is difficult to analyze the media’s selection because for most of the time, news coverage on the media has been filtered by the media, and it is difficult to know how the filtering process happens. However, the measuring logic of this paper effectively avoids this trap. Since both poll data and news transcript can be easily obtained, it can be known which poll results are filtered out and which are selected to be aired. It is essential and necessary to analyze the filtering process because it is akin to selecting a raw resource before making a news product. When there is bias in this initial process, it is highly likely that the end product will also be biased. In addition, studying polls also provides an opportunity to look at how news is reported in a figurative way. Unlike the analysis of tones or attitudes in the news, the relationship between how the poll result changes and how possible the result is to be transformed a media’s attitude to a statistical relationship, which makes the subjective judgment have little chance to happen.

However, the research does have some limitations both about the research objects and the method, which need further improvement. Firstly, the news of the presidential overall job approval is a very concrete and specific site for analyzing media bias in the TV networks. Even in the same media outlet, bias may manifest inconsistently in different aspects. The networks also conduct other polls about the president’s job approvals except for the overall job approval, including public opinion on economic or other specific issues. Future studies should include a wider range of polling data to make a more comprehensive analysis.

Another limitation about the study object that should be pointed out is that the study only put the focus on the evening news programs, under the rationale that these are flagship programs that attract the largest population of audiences. Whereas, poll
results may be cited in other programs of the network, such as morning news or other
current affairs programs. Also, due to the strict standard of news data collecting, only the
poll results mentioned specific numbers were included. Those that cite the poll result but
without the specific numbers are all not counted as valid, including the statement like
"Most Americans…" or "The poll hit a new low." Therefore, a very limited data sample is
collected, especially in Trump's case. But this standard of collecting the news data
should be kept in order to ensure convincing findings. Besides, when conducting this
research, President Donald Trump has yet to conclude his tenure as president.
Conducting this research after his term is over may generate different results.

As for the method, though it does not need to analyze the news content and thus
reduce the risk that comes along with the subjectivity when using a statistical model, it
takes the risk of oversimplifying the complicated context of media bias at the same time.
There will be other types of bias that our data and model does not cover. The change of
study background may generate different judgment and understanding of bias.
Therefore, this study just provides a quantitative perspective to look at the final
presentation of media bias on three national TV networks. For future research, mixed
research with the content-based analysis and the rigorous quantitative method can be
used to get a comprehensive understanding of media bias.
References


# Appendix

## Table 5.1 A1 Logistic Analysis Results, Obama (1/20/2009-1/10/2017)

<table>
<thead>
<tr>
<th></th>
<th>ABC Model1</th>
<th>NBC Model1</th>
<th>CBS Model1</th>
<th>ABC Model2</th>
<th>NBC Model2</th>
<th>CBS Model2</th>
<th>ABC Model3</th>
<th>NBC Model3</th>
<th>CBS Model3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PollChange</td>
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<td>-0.28*</td>
<td>-0.16*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>NegPollChange</td>
<td>-0.26*</td>
<td>-0.57**</td>
<td>-0.26*</td>
<td>-0.26</td>
<td>-0.58**</td>
<td>-0.26*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PosPollChange</td>
<td>0.13</td>
<td>-0.16</td>
<td>-0.16</td>
<td>0.12</td>
<td>-0.17</td>
<td>-0.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elections</td>
<td></td>
<td></td>
<td></td>
<td>0.19(N)</td>
<td>-0.28</td>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.71***</td>
<td>-0.93***</td>
<td>-0.42</td>
<td>-2.08***(N)</td>
<td>-1.46***(N)</td>
<td>-0.71***(N)</td>
<td>-2.14***(N)</td>
<td>-1.35***(N)</td>
<td>-0.74*(N)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.81***(P)</td>
<td>-0.69*(P)</td>
<td>-0.21</td>
<td>-1.87***(P)</td>
<td>-0.60(P)</td>
<td>-0.14(P)</td>
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<tr>
<td>Pseudo R²</td>
<td>0.01</td>
<td>0.11</td>
<td>0.07</td>
<td>0.07(N)</td>
<td>0.18(N)</td>
<td>0.08(N)</td>
<td>0.07(N)</td>
<td>0.19(N)</td>
<td>0.08(N)</td>
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<tr>
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<td>0.01(P)</td>
<td>0.01(P)</td>
<td>0.02(P)</td>
<td>0.01(P)</td>
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<td>0.01(P)</td>
<td>0.01(P)</td>
<td>0.02(P)</td>
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<td>82</td>
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</tbody>
</table>

*** p<0.001; ** p<0.01; *p<0.05

(N) represent the model for negative poll changes, (P) represents the model for positive poll changes
### Table 5.2 A2 Logistic Analysis Results, Trump (1/20/2017-5/04/2019)

<table>
<thead>
<tr>
<th></th>
<th>ABC Model1</th>
<th>NBC Model1</th>
<th>CBS Model1</th>
<th>ABC Model2</th>
<th>NBC Model2</th>
<th>CBS Model2</th>
<th>ABC Model3</th>
<th>NBC Model3</th>
<th>CBS Model3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PollChange</td>
<td>N/A</td>
<td>0.24</td>
<td>-0.35</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NegPollChange</td>
<td></td>
<td>0.99</td>
<td>-0.71</td>
<td>N/A</td>
<td>-0.42</td>
<td>-0.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PosPollChange</td>
<td></td>
<td>0.24</td>
<td>-0.21</td>
<td>N/A</td>
<td>0.27</td>
<td>-0.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elections</td>
<td></td>
<td></td>
<td></td>
<td>-0.73(N)</td>
<td>-0.88(N)</td>
<td></td>
<td>-0.44(P)</td>
<td>-0.64(P)</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>N/A</td>
<td>-1.59*</td>
<td>-0.82</td>
<td>N/A</td>
<td>0.87(N)</td>
<td>-1.63(N)</td>
<td>N/A</td>
<td>-0.42(N)</td>
<td>-1.43(N)</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>-1.72*(P)</td>
<td>-0.35(P)</td>
<td>-1.53(P)</td>
<td></td>
<td>-0.25(P)</td>
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</tr>
<tr>
<td>Pseudo R²</td>
<td>N/A</td>
<td>0.07</td>
<td>0.24</td>
<td>N/A</td>
<td>0.13(N)</td>
<td>0.36(N)</td>
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<td>12</td>
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<td>12</td>
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</tbody>
</table>

*** p<0.001; ** p<0.01; * p<0.05

(N) represent the model for negative poll changes, (P) represents the model for positive poll changes