Post-election Reactions

Social Media Analysis of 2020 US Presidential election

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# Introduction

The United States of America constitution mandates an election process that happens every four years and the winner lead this great nation for four years until the next elections. Presidents can run for a second term and can lead additional four years if he/she win re-elections. The election of the president and the vice president of the United States is an indirect election in which citizens of the United States who are registered to vote in one of the fifty U.S. states or in Washington, D.C., cast ballots not directly for those offices, but instead for members of the Electoral College.2 That means, winning the popular votes (nationwide individual votes) won’t get you elected unless you win the minimum necessary Electoral College. If no candidate receives a majority, the president is elected by the House of Representatives, which may choose among the three candidates with the most electoral votes.

The first Presidential election occurred in 1788 when George Washington was elected as the first President of USA after winning 69 (of 138) electoral votes. 3 Since then, there were a total of 58 elections. In 53 of the 58 total elections held so far (about 91 percent), the winner of the national popular vote has also carried the Electoral College vote. The winners of the nationwide popular vote and the Electoral College vote have differed only in close elections. The first president, George Washington, was elected as an independent. Since the election of his successor, John Adams, in 1796, all winners of U.S. presidential elections have represented one of two major parties. Third parties have taken second place only twice, in 1860 and 1912. The last time a third (independent) candidate achieved significant success (although still finishing in third place) was Ross Perot in 1992, and the last time a third-party candidate received any electoral votes not from faithless electors was George Wallace in 1968.4

One major component to getting elected to any office is running a successful campaign. Candidates campaign vigorously to be nominated by their party as well as to help them win the general elections. 2020 was peculiar by the fact that the nation was highly hit by the novel Coronavirus pandemic. This has restricted the Candidates from speaking in front of large crowds of their supporters. This had resulted in Candidates to rely on the media to have their messages heard to voters in America. Besides the Mainstream media, social media was abundantly used by both Candidates’ campaign. The proportion of Americans using some sort of Social Media had increased from 10% in 2008 to 79% by 2019.5 That means 247 million Americans use social media regularly.

## Objective (Business Questions)

In this project, we would like to assess Twitter Users’ reaction to the 2020 elections. The project is intended to answer the following questions

1. How do Americans react to 2020 elections? (The overall sentiment of supporters of both candidates)
2. How should Candidates run their campaign in the future? (especially in relation to social media users)

## METHODOLOGY

The official twitter account of President Trump (@realDonaldTrump) and former vice president Joe Biden (@JoeBiden) were used to collect tweets using TweePy. A total of 240,758 tweets were collected in relation to Biden’s twitter account and 237,932 tweets were collected in relation to Trump’s twitter account. Both ***.json*** files were stored into python’s list for further pre-processing and analysis. Basic twitter statistics such as hashtag counts, mentions, geographical locations, follower counts etc. were computed prior to data cleaning. The different components of the tweets were saved into CSV to ease converting the twitter data into dataframe.

The CSV files of both Candidates’ were then pushed into pandas dataframe. The tweets of both candidates were cleaned by removing unnecessary numbers, brackets, parentheses, alphanumeric objects, very common English words and short words. The tweets were then tokenized and lemmatized using NLTK packages of python. The tweets were then pushed into word clouds using Matplotlib taking word frequencies into considerations. Descriptive statistics of word count, character count, hashtag counts, follow counts etc. were done using ***.decribe()*** methods of python. The polarity and subjectivity of the overall tweets of both candidates were determined using pattern, TextBlob and Vader. A separate column containing sentiment scores of each tweet were added into each dataframes using Vader sentiment. The final dataframes were then pushed into CSV files for future references.

## rESULTS and Discussions

A total of 235,884 users interacted with the official account of President Donald Trump with 119,737 unique Users resulting the tweets to user ratio of 1.97. Regarding Joe Biden, 240758 users interacted with 153190 users resulting in tweets per user of 1.572. 53.4% of tweets in association with @JoeBiden were retweets compared to 44.5% in case of @readDonaldTrump. Users that interacted the most with both twitter accounts are within USA with Texas being home for the most users in relation with Donald Trump and California in relation with Joe Biden.

Table 1: Top 10 Geographic location of Users

|  |  |  |  |
| --- | --- | --- | --- |
| Trump | | Biden | |
| Location | User count | Location | User count |
| United States | 2073 | United States | 1999 |
| USA | 867 | USA | 731 |
| Texas, USA | 646 | California, USA | 691 |
| California, USA | 617 | Florida, USA | 598 |
| Florida, USA | 481 | Texas, USA | 551 |
| Los Angeles, CA | 382 | Los Angeles, CA | 480 |
| Pennsylvania, USA | 256 | Washington, DC | 424 |
| New York, NY | 251 | New York, NY | 313 |
| Chicago, IL | 242 | Chicago, IL | 274 |
| New York, USA | 232 | New York, USA | 268 |

In the Trump campaign @realDonaldTrump is the most used user account followed by @potus and @DanPatrick. In Biden campaign @JoeBiden was the most used user account followed by @KamalaHarris and @realDonaldTrump. #ChinaJoeBiden, #China and #ChinaJoe were the most frequently appearing hashtags in Trump’s tweets. #JoeBiden, #Patri and #BlackLivesMatter were the three most commonly used hashtags in relation with Biden’s tweet. Veteran’s day appeared quite significantly in both tweets.

Table 2: Most active users and most used Hashtags

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Trump | | | | Biden | | | |
| User | Count | Hashtag | Count | User | Count | Hashtag | Count |
| @realDonaldTrump | 188864 | #ChinaJoeBiden | 1619 | @JoeBiden | 178394 | #JoeBiden | 2997 |
| @POTUS | 10497 | #China | 1607 | @KamalaHarris | 36730 | #Patri | 1204 |
| @DanPatrick | 8246 | #ChinaJoe | 1605 | @realDonaldTrump | 31262 | #BlackLivesMatter | 885 |
| @GOP | 8199 | #1 | 1175 | @va\_shiva | 14783 | #COVID19 | 679 |
| @LouDobbs | 6555 | #Pennsylvania | 1050 | @RealCandaceO | 9054 | #Election2020 | 547 |
| @FoxNews | 4928 | #Evidence | 961 | @robertjeffress | 4002 | #VeteransDay | 529 |
| @TomFitton' | 4822 | #MAGA | 781 | @toddgillman | 3910 | #NUROWN | 522 |
| @seanhannity | 4760 | #fraud | 709 | @SenatorLankford | 3587 | #Trump | 431 |
| @SidneyPowell1 | 4707 | #Elect | 694 | @rtmradio | 3248 | #Biden | 290 |
| @Li | 4562 | #HappyBirthdayMarines | 588 | @VP | 3028 | #MainstreamMedia | 279 |

‘Pay’, ‘big’, ‘price’ , ‘voter’, ‘fraud’, ‘subversion’, ‘potus’, ‘stand’, ‘president’ etc. were clearly visible in the word cloud drawn using Trump’s tweet. ‘President’, ‘elect’, ‘analysis’, ‘computer’, ‘algorithm’, ‘michigan’, ‘amp’ etc. clearly visible in the word cloud drawn using Biden’s tweet. “Voter fraud” and “pay big price” appeared very frequently in Trump’s tweet indicating the Candidate’s stand regarding the outcome of the election. “President elect”, “analysis” and “michigan” stood out in Biden’s tweet indicating acceptance of the outcome. Michigan was clearly in the mix as the state was one of the few determining the outcome of the election.

Figure1/Table 3: Word clouds

|  |  |
| --- | --- |
| Word clouds of both candidates’ tweet | |
| Donald Trump | Joe Biden |
|  |  |

Trump’s tweet had a polarity of 0.06 compared to 0.16 of that of Biden’s. Trump’s tweet had a subjectivity of 0.48 compared to Biden’s 0.52. This indicates the polarity of both candidates’ reaction was close to zero (neutrality). Biden’s tweet, however, are slightly more positive than Trump’s. Both Candidates’ tweets were halfway between objective and subjective (although Trump’s were slightly closer to objective and Biden’s slightly close to subjective). The subjectivity and polarity scores of both Candidates’ tweets were the same using pattern and TextBlob sentiment analysis. With Vader the polarity of Donald Trump’s tweet was -0.03 compared to 0.12 to that of Joe Biden’s. Both numbers are closer to zero indicating neutrality of the overall tweets.

According to pattern sentiment’s classification both Candidates’ tweet was classified as “neutral\_tweets.” This was in line with the sentiment score reported above.

The average character counts of Trump’s tweet were 101 compared with 111 to that of Biden’s. The average word counts of Trump’s tweets were 13.8 compared with 15.9 to that of Biden’s.

Table 4: 5-point summary of Trump’s and Biden’s tweets

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Char counts | | Word count | | Avg Word length | | Avg Hashtags | |
| Trump | Biden | Trump | Biden | Trump | Biden | Trump | Biden |
| Minimum | 1 | 1 | 1 | 1 | 0.03 | 1 | 0 | 0 |
| 25% | 64 | 82 | 7 | 11 | 3.99 | 6.09 | 0 | 0 |
| 50% | 117 | 139 | 14 | 18 | 6.36 | 7 | 0 | 0 |
| 75% | 140 | 140 | 20 | 21 | 9.64 | 8.18 | 0 | 0 |
| Maximum | 164 | 153 | 38 | 47 | 152 | 88 | 15 | 13 |

69.4% of Biden’s tweet had character length of more than 100 compared with 55.6% to that of Donald Trump’s. This indicated tweets in relation to @JoeBiden tend to be longer than that of @realDonalTrump.

Figure 2: Histogram showing character counts of tweets from both Candidates

|  |  |
| --- | --- |
| Histograms of character counts | |
| Donald Trump | Joe Biden |
|  |  |

## Conclusion

2020 elections were very interesting in many ways. Although I didn’t get the opportunity to vote, I was closely following the events unfolding. With COVID-19 continuing to threaten our existence, the emergence of “mail in ballots” had been the center of controversies as far as the election is concerned. Based on the analyses results of significant numbers of tweets from both candidates, the following conclusions can be drawn.

First, the overall sentiments of tweets from both sides were fairly neutral. Trump’s tweets weren’t as negative as people expect them to be. Trump, being a sitting president and officially vowing not to concede, were expected to have negative sentiments in tweets being pushed by himself and his support base. The results in this assessment were to the contrary. Biden’s tweets were not as positive as people expected them to be. When you emerge victorious in a national election such as this one, it would be only customary for the candidate and his supporters to tweet and retweet something positive. The outcome of the analysis however showed a fairly neutral sentiment.

Second, tweets from both Candidates were halfway between objective and subjective.

Third, tweets in relation to the official account of Joe Biden tends to be longer than tweets in relation with the official account of Donald Trump.

Fourth, media in general (and social media in particular) play huge roles in outcomes of elections. Candidates in the future should focus on reaching out active social media users especially in swing states such as Pennsylvania, Michigan, Wisconsin and Nevada.

Fifth, the fact that Veterans day was almost equally covered on both sides of the isles indicate no matter how divided Americans are, they will always converge to one single point and unite on matters pertaining to their country. Some thing that all Americans, irrespective of their political opinion, should be proud of!

## Disclosure:

This project is entirely for academic purpose done toward fulfilling requirements of MIS 670. I don’t have any sort of political interests in relation to this paper.

## references

1. Cover photo by Shutterfly
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