# #MakeAmericasPollsGreatAgain: Evaluating Twitter as a tool to predict election outcomes

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In perhaps the most unexpected outcome in US election history<sup>1</sup>, Republican candidate Donald Trump secured enough Electoral College votes to defeat the long-believed putative winner, Democratic frontrunner<sup>2</sup> Hillary Clinton. The results attracted much media attention, as many sources claimed throughout the campaign process that Trump was "unqualified" or "reckless"<sup>345</sup>, and that Clinton, an "establishment" candidate<sup>678</sup>, did not represent change for which the people longed. Despite this, the results of the election were the most hotly contested outcome in American politics since 2000<sup>9</sup>; Clinton received 65,853,516 votes in the popular vote, almost 3,000,000 more than Trump's 62,984,825 votes, yet he won the Electoral vote 306 to Clinton's 232.<sup>10</sup>

A key factor in Clinton's loss was the unexpected conversion of historically Democratic states ultimately voting Republican, costing her the Electoral votes in which she needed. Two such states, Wisconsin and Michigan, were projected in the final days of the election to overwhelmingly vote Clinton – Public Policy Polling, FOX 2 Detroit/Mitchell, Gravis, Detroit Press, Emerson, and MRG all predicted a Clinton win by a minimum of 5 points, with only Trafalgar predicting a Trump win by 2 points in Michigan,<sup>11</sup> and Remington Research, Loras, Marquette, and Emerson all predicting a Clinton win in Wisconsin by a

<sup>&</sup>lt;sup>1</sup> Lake, Unprecedented.

<sup>&</sup>lt;sup>2</sup> "Hillary Clinton on Why She's Not an 'Establishment' Candidate."

<sup>&</sup>lt;sup>3</sup> Shabad, "Hillary Clinton."

<sup>&</sup>lt;sup>4</sup> Blair and Reporter, "Donald Trump Is 'Morally Unqualified' but Christians Don't Need Qualified Gov't, John Piper Says."

 <sup>&</sup>lt;sup>5</sup> Wing and Wilkie, "Why Donald Trump Is Uniquely Unqualified To Speak About Military Service And Sacrifice."
<sup>6</sup> Allen and Allen, "Sorry, Hillary."

<sup>&</sup>lt;sup>7</sup> Kass, "Hillary Can't Win. She's the Establishment Candidate in Year of Insurgency."

<sup>&</sup>lt;sup>8</sup> "Hillary Clinton on Why She's Not an 'Establishment' Candidate."

<sup>&</sup>lt;sup>9</sup> Lake, Unprecedented.

<sup>&</sup>lt;sup>10</sup> "2016 Presidential Election Results."

<sup>&</sup>lt;sup>11</sup> "RealClearPolitics - Election 2016 - Michigan."

minimum of 6 points.<sup>12</sup> The result of the election reflected none of these numbers, with Trump taking Michigan by 0.3 points and Wisconsin by 0.7.

The 2016 Election was not the first race where traditional polling failed to predict the outcome. In 2012, Democratic incumbent Barack Obama was expected to barely defeat his Republican challenger, Mitt Romney, yet the final Electoral result was a landslide victory of 332 to 206.<sup>13</sup> The 2014 midterm elections experienced a similar surprise, with Republican candidates unexpectedly winning a majority in both the House and Senate, despite polling results.<sup>14</sup> Speculation on the growing error of traditional polling methods points to the development and widespread availability of technology – cell phones, laptops, and tablets have all but replaced land-line phones, which were once a relatively stable source of polling data especially among certain demographics – the young and low income.<sup>15</sup> As cell phone ownership in the US has increased, social media involvement has also increased.<sup>16</sup> In 2014, 75% of smartphone-owning survey participants responded that they use their mobile device to check social media at least twice a week, with many respondents checking it daily.<sup>17</sup> Further, the growth of smartphones has led to people less likely answering political polling surveys due to an increase in immediate access to information; this has shifted desires from answering surveys to finding data on the Internet for instant gratification instead.<sup>18</sup>

With the decline of traditional polling method efficiency, political analysts have shifted towards novel techniques to develop more accurate projections. In 2011 following the Arab Spring revolution, social media participation caught the eye of analysts as an emerging method to assess political attitudes after over 90% of Egyptian and Tunisian respondents with

<sup>&</sup>lt;sup>12</sup> "RealClearPolitics - Election 2016 - Wisconsin."

<sup>&</sup>lt;sup>13</sup> "2012 Presidential Election Results."

<sup>&</sup>lt;sup>14</sup> Zukin, "What's the Matter With Polling?"

<sup>&</sup>lt;sup>15</sup> Ibid.

<sup>&</sup>lt;sup>16</sup> Anderson, "6 Facts about Americans and Their Smartphones."

<sup>&</sup>lt;sup>17</sup> Ibid.

<sup>&</sup>lt;sup>18</sup> "How Did Political Polls Become so Inaccurate?"

Internet access said they used Facebook at least once to voice their concerns facing their current revolution.<sup>19</sup> The results of Bond et al.'s 61-million participant study suggested that there is a strong correlation between social media involvement and political behaviour with closeness of social media relationships – that is, closer relationships with connections on social media had a greater likelihood of being influenced by posts, news article shares, etc.<sup>20</sup> This became increasingly verifiable in the 2012 US Presidential Election as almost 40% of Americans used social media, namely Facebook and Twitter, to share political articles, voice political opinions, follow political leaders, or encourage friends to take political action.<sup>21</sup> A 2014 Pew Research survey reported that 39% of US adult internet users engaged in one of eight traditional political activities.<sup>22</sup> The 2016 Election saw an increase in political social media involvement – between Facebook, Twitter, and Instagram, Clinton began with 6,084,180 followers and ended with 28,287,109, while Trump had 8,613,917 at the beginning and ended with 55,342,988.<sup>23</sup>

Twitter received extra attention in the 2012 Election, as Obama and Romney's campaigns were attempting to win the most followers over "digital wars" during and immediately after presidential debates, while Facebook saw very little discussion or hashtag postings.<sup>24</sup> Elections since then have seen a rise in Twitter analysis, rather than using traditional methods or even Facebook, to more accurately assess political realities as they compare to social media activity.<sup>25</sup> This trend continued into 2016, as Clinton and Trump

<sup>&</sup>lt;sup>19</sup> Boulianne, "Social Media Use and Participation."

<sup>&</sup>lt;sup>20</sup> Bond et al., "A 61-Million-Person Experiment in Social Influence and Political Mobilization."

<sup>&</sup>lt;sup>21</sup> Rainie et al., "Social Media and Political Engagement."

<sup>&</sup>lt;sup>22</sup> Yang and DeHart, "Social Media Use and Online Political Participation Among College Students During the US Election 2012."

<sup>&</sup>lt;sup>23</sup> "The Impact of Social Media on the 2016 Election."

<sup>&</sup>lt;sup>24</sup> Editor, "Twitter and Politics."

<sup>&</sup>lt;sup>25</sup> Jungherr, Schoen, and Jürgens, "The Mediation of Politics through Twitter."

became almost synonymous with Twitter for 2016, tweeting many targeted messages about each other throughout their campaigns.<sup>26</sup>

In a general sense, this project attempts to compound on the current literature surrounding social media as a political analysis tool. Wisconsin and Michigan, key factors of Clinton's loss, were selected as case studies because of their shared unexpected election outcome as well as similar social geographies. Geotagged tweets from the two states were compiled into a database and assessed using Wordcloud technology. The project attempts to evaluate Twitter as a more accurate predictor of the political climates of states rather than traditional polling methods.

## Background on Michigan and Wisconsin

I selected Michigan and Wisconsin as a case study for their similar population traits, as well as their traditional political affiliation. While several states defected against their historic voting pattern for the Presidential Election<sup>27</sup>, none of these states shared as similar demographic traits as Michigan and Wisconsin. As of 2015, the age and sex distribution of the two states are nearly identical, with 22.4% and 22.2% of population under 18, 15.8% and 15.6% of population over 65, and 50.8% and 50.3% of population as female for Michigan and Wisconsin, respectively; median household income for the two states is also similar, with Michigan at \$49,576 and Wisconsin at \$53,357.<sup>2829</sup> The economy of both states was heavily founded upon auto industry and manufacturing as seen in Detroit, Michigan and Milwaukee, Wisconsin; the rise of unions over the years has led to similarly impacting labour protests in 2011 Wisconsin as it did in Michigan almost 75 years prior.<sup>30</sup>

<sup>&</sup>lt;sup>26</sup> Lake, Unprecedented.

<sup>&</sup>lt;sup>27</sup> "2016 Presidential Election Results."

<sup>&</sup>lt;sup>28</sup> "Population Estimates, July 1, 2015, (V2015)."

<sup>&</sup>lt;sup>29</sup> "Population Estimates, July 1, 2015, (V2015)."

<sup>&</sup>lt;sup>30</sup> Maynard, "Are Today's Protests in Wisconsin Similar to Flint's Sit down Strikes?"

The two states also share historic voting histories of voting for the Democratic presidential candidate since 1992.<sup>3132</sup> Michigan's population has almost twice as many African Americans than Wisconsin, and past voting history reflects the traditional pattern of minorities voting for Democrat candidates, albeit a slight difference: 47.3% vs 46.5% in 2016, 54.2% vs 52.85% in 2012, and 57.4% vs 56.2% in 2008 for Michigan and Wisconsin respectively.<sup>3334</sup> These variables all helped to eliminate as many demographic variables as possible between the two states when comparing Twitter activity.

#### Methods

To narrow down tweets pertaining to the 2016 Presidential Election, Clinton and Trump's most prominent campaign phrases were used: #ImWithHer, #StrongerTogether, and #Hillary2016 for Clinton, and #MakeAmericaGreatAgain, #DrainTheSwamp, and #LockHerUp for Trump. A database of all appropriately-hashtagged tweets geotagged to the states of Wisconsin and Michigan from October 2015 through November 2016 was compiled, which were divided into separate files for Clinton and Trump. From this criteria, a total of 8,696 tweets for Clinton and 4,004 for Trump were reported.

The two main tools to analyse the database of tweets were basic numerical comparison and Wordcloud technology. Because of the variability of other text within tweets with identical hashtags, no specific statistical analysis was performed aside from basic numerical comparison. This was to ascertain a general idea of which candidate had more engagement from followers as well as comparing tweets by dates to determine effects on political engagement incited by major campaign events, such as debates or party conventions.

<sup>&</sup>lt;sup>31</sup> "Michigan Presidential Election Voting History."

<sup>&</sup>lt;sup>32</sup> "Wisconsin Presidential Election Voting History."

<sup>&</sup>lt;sup>33</sup> Ibid.

<sup>&</sup>lt;sup>34</sup> "Michigan Presidential Election Voting History."

The goal of using Wordcloud software on this project was to identify the keywords that Twitter users in the two states deemed most important. Wordcloud software converts an input of text into a shape composed of each different word from the text. The frequency of words dictate the font size for each word, so that words appearing more often are displayed larger in the final shape.<sup>35</sup> Originally, all tweets for each candidate were inputted to create two clouds, but due to data overload, six dates from 2016 were selected: July 21 and 28 upon the closure of the Republican and Democratic National Conventions, respectively; September 26, October 9 and 19 after the three general election debates; and November 8 for Election Day. Though there is no strong correlation between presidential debates and political swaying of viewers<sup>3637</sup>, an increase in Twitter activity of these hashtags was seen on dates of political events (especially Election Day, which saw approximately 80 times as many tweets as a non-event day). While the Twitter logo bird would have been an appropriate shape for the Wordcloud images, a simple square for all six images was selected for ease of reading.

#### Results

Table 1 shows numerical comparison between the hashtag phrases. To normalise between the two candidate's differing numbers of 8696 and 4004, the last column shows the percentage of each phrase divided by the total number of the respective candidate's tweets for the selected date range. Tables 2 and 3 indicate the number of Clinton and Trump's tweets published on the selected six dates, respectively. The latter two tables reveal that while Clinton had roughly only twice as many tweets than Trump, she received as much as four times Trump's totals for the dates.

<sup>&</sup>lt;sup>35</sup> "What Are Word Clouds?"

<sup>&</sup>lt;sup>36</sup> Erikson and Wlezien, *The Timeline of Presidential Elections*.

<sup>&</sup>lt;sup>37</sup> Stimson, *Tides of Consent*.

Hashtag Phrase	Frequency of Tweets	% of Candidate's Tweets
#ImWithHer	8111	93.2
#StrongerTogether	711	8.1
#Hillary2016	413	4.7
#MakeAmericaGreatAgain	3111	77.7
#DrainTheSwamp	645	16.1
#LockHerUp	287	7.1

Table 1. Numerical comparison of hashtag phrases in tweets.

Table 2: Clinton's tweet count per major date.

Date	Posted Tweets
July 21	41
July 28	45
Sep. 26	42
Oct. 9	56
Oct. 19	39
Nov. 8	422

Table 3: Trump's tweet count per major date.

Date	Posted Tweets
July 21	13
July 28	6
Sep. 26	11
Oct. 9	4
Oct. 19	48
Nov. 8	115

Below are the two exported Wordcloud images for each candidate. The data inputted into the software were the text contents of tweets for the six designated dates. Due to relatively low numbers of tweets per date (with the exception of Election Day), all dates were compiled into one input list per candidate. The ðŸ and other similar expressions are text codes for various emoticons in the tweet (in this case, a smiley face with hearts for eyes).

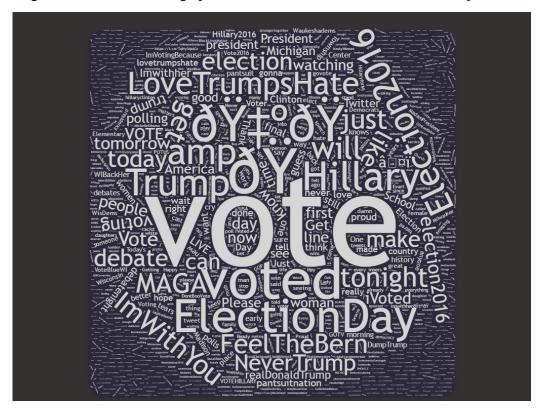
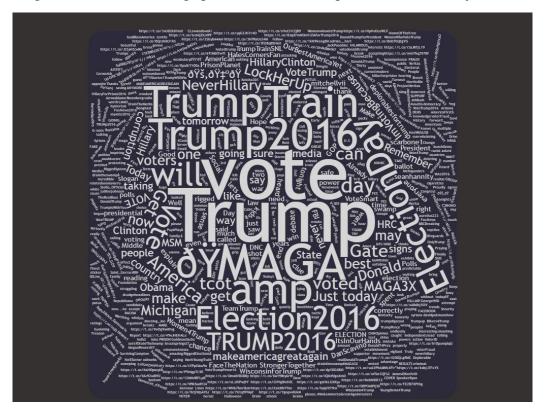


Figure 1: Wordcloud image produced from Clinton's tweets on six major dates.

Figure 2: Wordcloud image produced from Trump's tweets on six major dates.



#### Discussion

Comparing strictly the number of tweets per candidate, the polling data was not outlandish in its prediction for a Clinton win for the two states. Receiving over twice as many tweets than Trump, Clinton sparked more Twitter engagement, especially on the six designated dates of political events. Demographic aspects of typical Democratic voters (younger adults, women, racial minorities, and higher education levels) align with those likely to engage in social media political action.<sup>38394041</sup> Because of these factors, and especially during a year when the Democratic nominee was a well-educated woman, it is no surprise that more social media engagement occurred in favour of Clinton.

However, because this did not mirror the final election results, another angle of analysis must be used. Ignoring numbers and instead focusing on text content, I suspected that, due to their nature as battleground states, Wisconsin and Michigan would have many tweets pertaining to issues discussed in the previous section. This, too, proved fruitless, as the major words for Clinton's Wordcloud were "vote," "Election Day," "LoveTrumpsHate," and "ImWithYou," while Trump's major words were "Trump," "vote," "MAGA" (acronym for #MakeAmericaGreatAgain), and "TrumpTrain." Words relating to the economy (economy, job, growth, etc.) or to specific situations in the two states (the Flint water crisis, etc.) were miniscule on the Wordcloud if they even showed up at all. Curiously, the opposite candidate's phrases appeared quite often in both candidate's tweet database – "StrongerTogether" is relatively large on Trump's cloud, and "MAGA" is relatively pronounced on Clinton's.

<sup>&</sup>lt;sup>38</sup> Yang and DeHart, "Social Media Use and Online Political Participation Among College Students During the US Election 2012."

<sup>&</sup>lt;sup>39</sup> Street et al., "Social Media Fact Sheet."

<sup>&</sup>lt;sup>40</sup> Street et al., "A Deep Dive Into Party Affiliation."

<sup>&</sup>lt;sup>41</sup> Parmelee and Bichard, *Politics and the Twitter Revolution*.

The scope of this study was not text content analysis, but rather simple numerical comparison and word frequency analysis. Because neither of these methods correlated to the final election outcome, relying strictly on the numerical aspect of tweets or tweets tagged with limited phrases does not seem viable to predict election outcomes. To better determine political environments within a region, the selectivity (or non-selectivity) of hashtags must be precise – for example, if one wanted to identify the frequency of tweets pertaining to the Flint water crisis, a larger scale analysis of tweets in the area is necessary to include words like "Flint," "water crisis," "emergency," etc. rather than just politically-affiliated words. Thus, the analysis of tweets requires delicate consideration of the context of how current political issues fit into campaign foci, as well as the countless variables surrounding social media use, including demographic factors, physical presence of candidates, platform of social media, etc.

One such demographic factor is the unknown proportion of Twitter users that are under the age of 18. Twitter allows users to create accounts as long as they are at least 13 years of age.<sup>42</sup>. However, statistical survey data is generally only acquired from consenting adults (at least 18 years of age) due to the difficulty of acquiring parental consent and other legal logistics<sup>43</sup>. The scope of this study did not focus heavily on Twitter user demographics aside from location, so some tweets observed could have been from users under the legal age of voting, potentially skewing the analysis.

A critique of Clinton's campaign throughout the election cycle was that her speeches and phrases did not resonate within voters; instead, they felt she felt was an establishment candidate giving empty, insincere messages.<sup>44</sup> Comparing the words between the two clouds, this seems verifiable. Clinton's largest words are related to actual voting or Election Day, not

<sup>42</sup> Nielsen, "Lisa Nielsen."

<sup>&</sup>lt;sup>43</sup> Street et al., "Social Media Fact Sheet."

<sup>&</sup>lt;sup>44</sup> Kass, "Hillary Can't Win. She's the Establishment Candidate in Year of Insurgency."; Allen and Allen, "Sorry, Hillary"; "Hillary Clinton on Why She's Not an 'Establishment' Candidate."

words related to her campaign; Trump's largest words, on the other hand, all relate back to either him or his slogans, indicating that his campaign resonated more within voters than Clinton's. While quantitative comparison yielded little to no results, this media observation verified by Wordcloud qualitative data supports that future political analysis should focus more on content rather than strict numbers.

### Conclusions

Social media is a rapidly growing means of political activity. The briefness of Twitter's interface has seen a large rise in politically-related tweets since 2012. Because of varying demographics between the two major political parties, however, the use of Twitter as an effective political predictor is not entirely reliable. While the tweets of Michigan and Wisconsin voters aligned with traditional polling methods, neither technique successfully predicted a Trump win in both states. Despite the inconclusiveness of this study's findings, it assists in directing the foci for future political social media projects. Other factors thus must be at play, and the limitations of using only six specific hashtags are evident. As numerical comparison accomplished little in the way of novel election prediction, future studies should instead analyse textual content on all tweets, rather than just those with the most desirable hashtags.

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