

#MakeAmericasPollsGreatAgain: Evaluating Twitter as a Tool to Predict Election Outcomes

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ABSTRACT

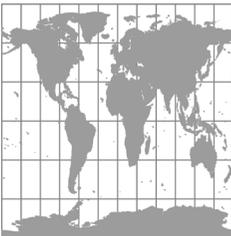
Traditional political polling methods have become less reliable as society adopts more smartphone technology. Internet and social media use have also risen due to increased smartphone use, which have given a digital voice to political views. This study assessed one social media platform, Twitter, as a means for predicting election outcomes more accurately than traditional methods. Michigan and Wisconsin's 'tweets' related to the 2016 presidential election campaign slogans of candidates Hillary Clinton and Donald Trump were compiled and a numerical comparison was performed. WordCloud technology was employed for a visual representation of the numerical data. Numerical comparison yielded results and predictions that were inconsistent with the actual outcome of the election, visual content analysis of the WorldCloud images revealed that qualitative data might be more useful in election predictions. Future studies should expand on qualitative analyses of social media involvement as a potential replacement for traditional polling methods.

Keywords: Election, Twitter, Social Media, Political Polling, 2016 Presidential Election



INTRODUCTION

In perhaps the most unexpected outcome in US election history (Lake 2016), Republican candidate Donald Trump secured enough Electoral College votes to defeat the long-believed putative winner, Democratic front-runner (Rhodan 2016) Hillary Clinton. The results attracted much media attention, as many sources claimed throughout the campaign process that Trump was "unqualified" or "reckless" (Shabad 2016, Blair & Reporter 2017), and that Clinton, an "establishment" candidate (Allen & Allen 2016, Kass 2016, Rhodan 2016), did not represent the change for which the people longed. The results of



the election were the most hotly contested outcome in American politics since 2000 (Lake 2016); 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 (CNN 2016).

A key factor in Clinton's loss was the unexpected conversion of historically Democratic states ultimately voting Republican, costing her electoral votes she needed. Two such states, Wisconsin and Michigan, were projected in the final days of the election to vote overwhelmingly for 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 (RealClearPolitics 2016a), and Remington Research, Loras, Marquette, and Emerson all predicting a Clinton win in Wisconsin by a minimum of 6 points (RealClearPolitics 2016b). 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 (Andrews, Bartz, and Tumgoren 2012). The 2014 midterm elections experienced a similar surprise, with Republican candidates unexpectedly winning a majority in both the House and Senate, despite polling results (Zukin 2015). 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 (Zukin 2015). Due to 99% of adults ages 18 to 49 owning cell phones, the response rate of traditional polling methods has diminished immensely over time; the late 1970s experienced an

almost 80% response rate, 1996 had 36%, and 2014 was down to 8% (Zukin 2015). Further, because many Americans 65 years or older have not converted to cell phones, the sampling of political polling is skewed in favour of this older generation – if the younger generation is not answering phone calls, then only the data for older respondents is being recorded.

As cell phone, particularly smartphone, ownership in the US has increased, Internet traffic via these devices has also increased (Tsetsi and Rains 2017). Smartphones hold an advantage over desktop computers and laptops in their mobility – one can access their phone virtually anywhere – as well as being particularly attuned for communication and social media applications (Tsetsi and Rains 2017). Consequently, social media involvement has also increased (Anderson 2015). 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 (Anderson 2015).

However, surveys like this smartphone-owner one are but one of many that a typical person experiences daily. Because of the seemingly endless onslaught of satisfaction surveys from vehicle service shops, cell phone customer support lines, or even an appointment with a physician, Americans are increasingly less likely to actually respond to these surveys (Linker 2015). Traditional phone call political polling has also experienced a large shift in slanting the call's dialogue in favour of one candidate rather than a simple preference polling. Linker argues that this increasing quantity and decreasing quality of polling exceeds the human mind's capacity (2015), and thus traditional polling is rapidly becoming less reliable (Byers 2015).

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 Internet access said they used Facebook at least once to voice their concerns facing civil unrest at the time (Boulianne 2015). 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, friends or family with digital connections on social media had a greater likelihood of being influenced by each other's posts, news article shares, etc. (Bond et al. 2012). This study was supported during 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 (Rainie et al. 2012). A 2014 Pew Research survey reported that 39% of US adult internet users engaged in one of eight traditional political activities (Yang and DeHart 2016). 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 (“The Impact of Social Media on the 2016 Election” 2015).

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 (Editor 2015). 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 (Jungherr, Schoen, and Jürgens 2016). This trend continued into 2016, as Clinton and Trump became almost synonymous with Twitter for 2016, tweeting many targeted messages about each other throughout their campaigns (Lake 2016).

If statistics of users are any indication, the use of social media will not cease in the com-

ing years, so political analysis and prediction must adapt to incorporate these platforms. Curiously, however, little literature has been published exploring the specific use of social media and political predictions. In a general sense, this project attempts to expand on the current literature surrounding social media as a political analysis tool. While Facebook contains almost 6 times as many active users as Twitter (Boulianne 2015), Twitter's public status updates and strong use of hashtags make specific political analysis much easier than Facebook. 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 than traditional polling methods.

BACKGROUND ON MICHIGAN AND WISCONSIN

Of the “battleground” states during the 2016 election, I selected Michigan and Wisconsin as case studies 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 (CNN 2016), 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 (U.S. Census Bureau 2015a, 2015b). 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 similar labour protests in 2011 Wisconsin as Michigan experienced almost 75 years prior (Maynard 2011).

The two states have also voted for the Democratic presidential candidate since 1992 (“Michigan Presidential Election Voting History” 2017, “Wisconsin Presidential Election Voting History” 2017). 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 (“Wisconsin Presidential Election Voting History” 2017, “Michigan Presidential Election Voting History” 2017). 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 these 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.

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 dictates the font size for each word, so that words appearing more often are displayed larger in the final shape (BoostLabs 2014). 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 (Erikson and Wlezien 2012, Stimson 2004), 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).

RESULTS AND DISCUSSION

Overall, the tweet count for Clinton was 8696, while Trump’s was 4004 (Table 1), though some tweets contained overlapping hashtags. Tables 2 and 3 indicate the number of Clinton and Trump’s tweets published on the selected six dates, respectively. It should be noted that while Clinton had roughly only twice as many tweets as Trump for the campaign season, she often received four times Trump’s totals for the selected dates. Text content was also input into the software for each candidate’s tweets during the six designated dates, and Wordclouds created to show keyword occurrence in each respective tweet (Figs. 1 & 2). In these Wordclouds, the large the word or phrase, the more prevalent it was

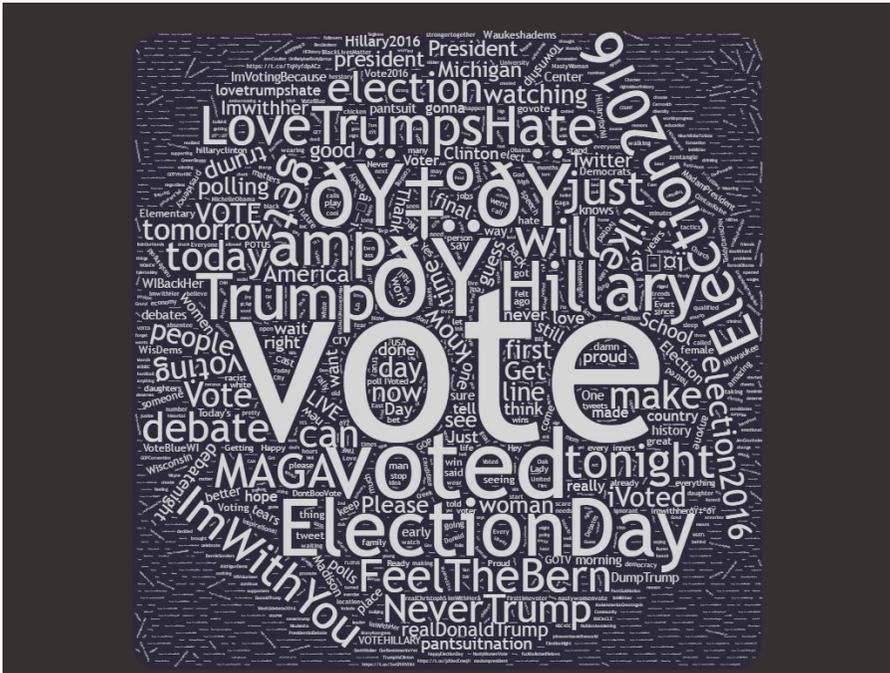


Figure 1. Wordcloud image produced from Clinton's tweets on six major dates.

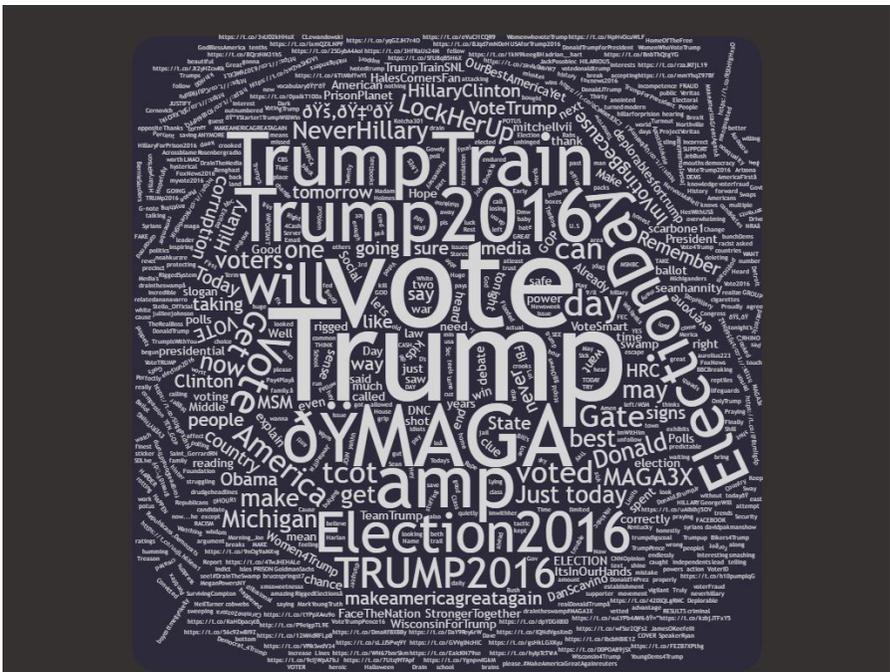


Figure 2. Wordcloud image produced from Trump's tweets on six major dates.

Table 1. Numerical comparison of hashtag phrases between Clinton phrases (rows 1-3) and Trump phrases (rows 4-6), with the first column denoting most prevalent hashtag phrases. The second column indicates how many times each hashtag phrase appeared. The last column (far-right) shows the percentage of each phrase divided by the total number of the respective candidate’s tweets for the selected date range for both Michigan and Wisconsin.

Hashtag Phrase	Phrase Count	% of Candidate's Total Tweets in MI/WI
#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 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

in the tweets. Due to relatively low numbers of tweets per date (with the exception of Election Day), however, 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 (e.g., a smiley face with hearts for eyes).

Comparing strictly the number of tweets per candidate, the polling data were not outlandish in its prediction for a Clinton win in 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 (Yang and DeHart 2016; Street, NW, Washington, and Inquiries 2017; Street, NW, Washington, and Inquiries 2015; Parmelee and Bichard 2013). 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 is necessary. Ignoring numbers and instead

focusing on text content, it is 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," "LoveTrump-sHate," 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 pronounced on Clinton's.

The scope of this study was not text content analysis, but rather basic 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, identifying the frequency of tweets pertaining to the Flint water crisis, a larger data pool and analysis of tweets in the area would include words like "Flint," "water crisis," and "emergency," 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 (Nielsen 2013). 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 (Street et al. 2017). The scope of this study did not focus heavily on Twitter user demographics aside from location, so some tweets observed could have been produced by users under the legal age of voting, potentially skewing the analysis.

Another issue with Twitter is the ability to hide tweets from public view. While still much more publicly visible than other platforms (e.g., Facebook), the option to hide tweets from users prevents complete analysis. The total count for hashtags are skewed, but to what degree remains unknown. Users also have the ability to turn geotagging off, removing the location metadata from their tweet. While certain regional- or state-specific keywords could help georectify these tweets using context, this process would greatly hinder analysis time. Twitter also unfortunately has the ability for users to tweet about the same candidate multiple times or even tweeting about multiple candidates. While this could be eliminated by establishing a parameter for one tweet per one user, the issue arises of which hashtags or tweet to pair with the user (if a user tweets twice with #Imwithher but once with #MakeAmericaGreatAgain, with which candidate should the tweet be aligned?). Further studies could partner with Twitter to investigate the rough percentage of hidden users and those tweeting multiple and conflicting hashtags, and if correcting for location or manually selecting a candidate alignment is worth the time invested.

A critique of Clinton's campaign throughout the election cycle was that her speeches and phrases did not resonate with voters; instead, they felt she felt was an establishment candidate giving empty, insincere messages (Allen and Allen 2016; Kass 2016; Rhodan 2016). Comparing the words between the two clouds, this seems verifiable. Clinton's largest words are related to actual voting or Election Day, not 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. Twitter has seen a large rise in political 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. While this project is not comprehensive enough to assert any definitive findings about Twitter itself, it assists in directing the foci for future political social media (particularly Twitter) projects. The results however clearly indicate that the volume of social media engagement is not necessarily the same as traditional methods' results, nor is it equivalent to assessing tweets' qualitative content. 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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