

OBAMACARE ON TWITTER: ONLINE POLITICAL PARTICIPATION AND ITS EFFECTS ON POLARISATION¹

Abstract. As Internet-based communications have expanded, online debating has become a significant form of political participation. This work examines online discussions around health care in the United States by analysing tweets about Obamacare and then assessing the degrees of polarisation in social media. The results indicate that highly influential entities in social media have an important capacity to polarise the public. Another relevant finding is that ideology is a powerful mechanism to frame online discussions by relegating policy arguments in online debates. Finally, this work shows that social media can easily promote negative sentiments towards 'the other', confirming group homogeneity in online communities.

Keywords: *Obamacare, Twitter, online political participation, polarisation*

Introduction

In representative democracies, aggregation through voting is the basis for decision-making; however, scholarship has called voting a passive form of participation in contrast with other active forms like volunteerism, activism, campaign finance, and/or participation in public debates (Lawrence et al., 2010). Recently, the expansion of Internet-based communication has allowed increasing citizen involvement in public debate. However, as we have moved from small public forums to *big* social media, the idealistic notion of the Internet as an open place for deliberation has been distorted. Although Internet users are *created equal*, their online activity and outreach capacity have created differential power to frame narratives, especially political and ideological ones. That is, if an online political entity has

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a strong influence on social media, it holds great capacity to frame policy and political issues based on its own ideological views and political interests, which ultimately impacts the deliberative process underlying political debate.

In this study, we analyse online political discussions around the provision of health care in the United States by analysing Twitter discussions around a decision of the Supreme Court of the United States (SCOTUS) upholding the individual mandate of the Affordable Care Act (ACA) in 2012, or Obamacare. Collective action problems such as health care emerge around the production, use and distribution of public goods. This is a political and policy problem that involves conflicting views not only in the definition of what well-being means, but in the decision-making process to achieve the desired collective goals. This study's purpose is to gain a deeper understanding of political polarisation in the age of social media along with its impacts on policy decision-making. Ultimately, we argue the capacity to influence policies arises more from traditional forms of political power and less from online political activity. However, online debates can frame the public's views on policy issues. Yet in an age of social media, like in offline political activity, powerful entities have the capacity to polarise the public's views and opinions, potentially adding to the negative impacts of polarisation by leading to poor leadership and reducing the quality of law-making (Barber and McCarty, 2013; Epstein and Graham, 2007). The literature review for this work addresses the problem of polarisation and deliberation in democratic theory, the comparison of ideological and rational explanations of political participation, and critical elements of online political participation.

Polarisation and Deliberation: Two Tails of Democracy

Representative democracy lies at the core of American political institutions. In the ideology of Republicanism, and attempting to avoid the tyranny of majorities (Tocqueville, 1835) and factionalism (Madison, 1788), popular sovereignty is held by its legitimate representatives. However, representative legitimacy has been questioned in areas such as the validity of majority rule, public disengagement from political debates, corruption among politicians, and the lack of rational deliberation. Given this scenario, the degree to which the public can impact policies in a representative democracy is mediated by the levels of polarisation (or consensus) in the political debate, how much politicians' own preferences prevail over the public's, and the capacity of politicians to frame issues in such a manner that seems to align both preferences. The latter is a source of major concern for theorists of democracy because it has created a *wicked* connection between the public and politicians.

Non-traditional means of political participation are important for promoting accountability and informed dialogue in a democracy. Habermas (1991) suggests there is a need for rational debate² in democratic culture because institutional legitimacy comes not only from voting but also from consensus and the deliberative process. In the 'public sphere', the ideal type of communication leads to rational consensus as opposed to ideological accounts. 'Rational' in this perspective refers to the means and normative content of political ends, affecting individual and group beliefs and attitudes that ultimately impact political action. In this perspective, deliberation in the public sphere to achieve rational consensus requires rational-critical arguments, "common concerns" in the topic domain, and openness among participants (Habermas, 1991).

Scholarship argues that a problematic issue of American political institutions is the lack of deliberation (Friedrichs, 1980; Habermas, 1991/1999; Knight and Johnson, 2011) in contrast to the difficulties of achieving consensus in large groups (Mansbridge, 1973). Yet, deliberation is still an important normative claim required for decision-making in democratic contexts. While the decision-making rule is designed on the basis of representation, the essence of democracy remains in the sovereignty of people and deliberation attempting to achieve consensus. This seems to eliminate the apparent dichotomy between representation and direct participation, and aggregation versus deliberation. The fact is that we know the essential problems of democracy persist: Is representative democracy truly deliberative? Are the representatives accountable for their decisions to the public?

Representative democracy does not exclude deliberation. Gutman and Thompson (2004) argue that mediation between the people and their representatives can be explained by the concept of 'reason-giving'. They claim that leaders should be accountable to their citizens by giving reasons for their decisions (Gutmann and Thompson, 2004). Thus, 'reason-giving' can be a way to approach deliberation in a representative democracy. However, Fishkin (2009) points out the difficulties of balancing political equality and deliberation when they are mediated by rational ignorance: response bias in opinion polls, people's unwillingness to accept their own ignorance regarding political issues, political discussions among like-minded people, and the likelihood of manipulation of the masses, especially due to asymmetrical campaign warfare. Although online platforms are designed to allow equal access to information and participation, cases like Obamacare indicate that social media can increase asymmetrical campaign competition. Fung (2006) suggests though

² Habermas' approach to rational consensus assumes the most ideal form of rational interaction under the Kantian tradition, whereas public choice scholars based their assumptions of rationality on the concept of utility functions: individuals are rational utility maximisers.

that “far from unfeasible or obsolete, direct participation should figure prominently in contemporary democratic governance” (Fung, 2006: 74). Even if representative democracy and deliberation are not mutually exclusive, the institutional framework and decision-making rules determine the possibilities and challenges of political participation.

Polarisation is among the big challenges of political participation; it is a loose wheel with the capacity to produce positive and/or negative outcomes in the political sphere. Spatial models of ideology for elites and voting mass behaviour became central in political science after the 1970s (Knight, 2006). The spread of ideology across the left-right spectrum is a way to measure the polarisation or concentration of political forces³. McCarty et al. (2006) suggest that since the 1970s there has been ever greater polarisation in American politics, and also a rise in inequality given the links between the structure of political and economic systems. In that sense, the high levels of political polarisation could become the opposite of Habermas’ version of deliberation. Nowadays, political debate does not meet the *Habermasian* criteria of rational communication. Instead, American politics depicts non-rational or non-critical arguments, topics in the public domain are framed by politicians according to their own political preferences, and debate is clustered among communities (Lorentzen, 2014; Moody and Mucha, 2013; Pew Research Center, 2014; Smith et al., 2014), a trend accentuated by the extended use of online communication. Knight and Johnson (2011) suggest that divergent points of view are also significant for achieving consensus, but the rationality of the argument is an important condition to deliberate around conflicting points of view (Hafer and Landa, 2007; Knight and Johnson, 2011). On the other hand, Fiorina et al. (2005) argue that polarisation of the electorate is a ‘myth’ and, given the lack of information among the public, its views are not very ideological, and only the elites are polarised. Abramowitz and Saunders (2008) reject Fiorina’s claims, with their empirical research finding that the high levels of polarisation seen among the elites reflect divisions among voters as well.

Political Participation: Rational or Ideological?

The literature on political participation debates between rational or ideological accounts to explain participation. In rational accounts, means matter before political ends because means are rational but ends are normative, and only rational actions can be used to predict political behaviour (Arrow, 1950; Downs, 1957; Morrow, 1994). Rational choice analytic models suggest

³ *DWNominate Scores (Dynamic Weighted Nominal Three-step Estimation) have contributed significantly to the production of literature on ideology measurement and political polarisation in American Politics (Poole and Rosenthal, 1995–2017).*

that in democracy the 'rational citizen' chooses political welfare, and the government that provides it; the moral or normative contents of political welfare are not in and of themselves relevant to this individual. With these assumptions, analytical models aim to explain the rational behaviour of agents and aggregation of preferences, given scarce resources and uncertainty (Arrow, 1950; Downs, 1957/1960). Maximisation of utility applied to an agent's means (not his ends) appears to hold the key to predicting political behaviour, assuming collective action is the sum of individual behaviours (Buchanan and Tullock, 1999). This perspective assumes the 'rational ignorance' of average citizens in stable democratic systems and, because of the idea of utility maximisation, ignorant voting is the preferred form of participation since the input is very low compared to the expected outcomes. The means-ends analysis assumes that ignorance is a form of rationality since an individual is maximising limited resources (Downs, 1957).

If political ignorance is rational, does the rule of 'one citizen equals one vote' legitimise the political actions of representatives? On one side, the argument of efficiency in decision-making prevails over the need for deliberation (Buchanan and Tullock, 1999; Millspaugh, 1942). But, on the other, rational ignorance that reduces political deliberation and accountability over political action, paired with rapid bureaucratisation, becomes one of the underlying problems of the legitimacy of political institutions (Rohr, 1986; Waldo, 1948). Indeed, to what extent is political ignorance a rational decision? This is a central question in the field of policy because the ignorant average voter will not rationally consider different political options before choosing one. As far as online participation goes, to what degree does rationality explain participation in online debates? Rational accounts can be very limited in explaining why citizens participate in online debates if this requires a considerable amount of resources.

Ideological accounts of political participation can provide insights into the role of ideology in online debates. People support politicians who are ideologically closer to their political and policy preferences. These preferences are rooted in a variety of moral or normative frameworks that are critical to creating political symbols that closely connect politicians with their public (Kahneman, 2011; Schneider and Ingram, 1997). Edelman suggests "[p]olitical acts must be compatible with settings physically or symbolically expressive of particular *political* norms, legitimations, or postures" (Edelman, 1985: 110). In a democracy, politicians need their constituents to support them for re-election and, to that end, they use different strategies to obtain citizens' support (Caplan, 2007). Therefore, political strategy emerges as a combination of politicians' need for support, and knowledge about how political and policy preferences are formed. One strategy politicians use is issue-framing (Jacoby, 2000; Shanahan et al., 2011). According to Jacoby

A single social problem can be characterised and discussed in several different ways. The specific terms used to 'create' a political issue out of a social problem has a strong effect on the nature and degree of popular agreement with the various sides of that issue" (Jacoby, 2000: 750). The language used in policy formation sets out "target groups" or "target populations" for resource allocation. (Schneider and Ingram, 1997)

However, ideology in political participation holds the potential to harm democracy. Ideology can threaten political debate due to the risk of the public being manipulated by politicians, affecting the public's capacity to hold politicians accountable. Concerns about campaign finance as an ideological form of political participation suggest that it might distort the political process depending on who has the resources to participate and how politicians use such financial resources to impact the public's views on policy issues (Bonica, 2013; McCarty et al., 2006). Likewise, Fishkin (2009) warns about the risk of public manipulation by politicians, while Edelman indicates the existence of this wicked connection between the public and politicians. In fact, from a policy literature⁴ perspective, coalitions can be identified by their shared beliefs (Sabatier and Jenkins-Smith, 1993; Sabatier and Weible, 2007). In the case of healthcare reform, policy coalitions can be detected by their shared beliefs such as: 'the need for universal healthcare coverage', 'public provision of health care', 'the need to reduce inequality', 'private healthcare coverage', 'the need to reduce the budget deficit due to of the share of entitlements', 'individualistic notions of welfare provision', 'reduce government intervention'.

The Pitfalls of Online Political Participation

The increasing and rapid change in communication technology has become an important social phenomenon with a significant impact on the political process. The spread of Internet usage, especially in North America and Europe, is assumed to benefit democracy given the greater access to information and ease in communication (Coleman and Gøtze, 2002). Idealistic accounts about the Internet suggest it holds the potential to create the conditions for deliberation because it increases access to and facilitates the spread of information, reduces the complexities of face-to-face interaction, and provides an open forum to express opinions in public debates. But the question arises: does it meet Habermas' requirements for *rational debate*? Optimist and pessimist views seem to address this issue. Hopeful views suggest that the Internet promotes equal access to information and

⁴ More specifically, the *Advocacy Coalition Framework (ACF)*.

allows open participation in online debates. Pessimist perspectives argue that online interaction is likely to follow the same patterns seen in the political world, information bias, lack of access, a power structure where elites define the contents, and Internet illiteracy (Lawrence et al., 2010).

Dahlberg (2007) identified three models of Internet-democracy rhetoric and practice: (1) liberal individualist; (2) communitarian; and (3) deliberative. According to the author, the deliberative model has the potential for creating and expanding an inclusive public sphere fostering rational public opinion that enhances accountability (Dahlberg, 2007). The notion of the public sphere on the Internet is, however, problematic because it might become a place to maintain the status quo of social and political systems instead of enabling the emergence of a counter-public or agonistic public sphere. The Twitter analysis detailed later in this article will illustrate the capacity of Internet-based communications to either increase rational deliberation or become a threat to democracy. As much as campaign finance is exposed to manipulation by key political actors, online political participation is a good target for that too. Its features allow for the easy manipulation and/or framing of issues in the political debate as a means to gain electoral support. Fishkin (2009) argues that the use of new communication technologies does not necessarily enhance the democratic process but may instead distort the public's will and re-frame political discussions by politicians.

The literature on Internet usage in politics suggests that the *spiral of silence* or fear of isolation that discourages individuals from voicing their opinions (Noelle-Neumann, 1974) can be used to explain online communication. The lack of face-to-face communication removes the unwillingness to speak up in public about policy issues; and also enables online settings where the same individuals can share their views with an audience that is already considered to be more likely to agree with them (Hampton et al., 2014; Lee and Kim, 2014; Miller, 2014; Schulz and Roessler, 2012). This can become a perverse form of interaction in the digital domain with negative outcomes for the real political world. In cyberspace, people interact with the like-minded, leveraging the emergence of ideological clusters. Empirical studies on political polarisation on the Internet indicate the likelihood of online political communities forming polarised clusters based on the ideological homophily of the group composition which, in turn, affects their perceptions of social issues (Bode et al., 2011; Conover et al., 2012; Lorentzen, 2014; Smith et al., 2014; Yardi and Boyd, 2010). Therefore, online political participation does not *per se* enhance political deliberation as some scholars claim (Bennett and Segerberg, 2012; Couldry et al., 2014). It is not the Internet but the democratic values in the political culture that determine the extent to which online debates promote deliberation instead of polarisation.

There is an important role for politicians and political campaigns to manipulate the content of online discussions through political campaign strategies. Experts in political communication contend that political communication is tailored to specific audiences (Karlsen, 2011). These days, the increase of Internet-based communication has resulted in the rapid *contagion* of information across online communities. Cialdini (2009) indicates that contagion is the rapid diffusion of critical information amongst people. Thus, online messages go viral because of their emotional content, and messages with negative emotions are more likely to spread (Dobele et al., 2007; Guadagno et al., 2013). Therefore, the rapid diffusion of messages on the Internet can be explained by the shared beliefs held by the participants of online networks, and the emotionally charged content of the messages (Kelly et al., 2015). These two elements are critical for the campaign strategist who can take advantage of this to create messages that spread easily and ultimately affect people's perceptions about politics (Garg et al., 2011; Stieglitz and Dang-Xuan, 2013; Wattal et al., 2010).

To summarise, we believe political participation can be studied from the ideological rather than the rational perspective. Using ideological arguments, politicians can easily frame issues according to their own views and political interests. Today, with the growing use of Internet-based communications, politicians can easily use ideologically framed issues to achieve political goals. Since the ideal deliberation process as rational debate around conceptions of what constitutes collective welfare is potentially facilitated by direct engagement in the public sphere via online participation, the analysis of Twitter concerning Obamacare will provide some insights into the capacity of social media to polarise politics.

The political setting: Online political discussions concerning Obamacare

The ACA was introduced in the House of Representatives in September 2009 and signed into law by President Barack Obama on 23 March 2010. Efforts to introduce universal healthcare coverage in the USA can be traced to the 1940s when President Harry S. Truman proposed a national health insurance programme aiming to provide coverage to all Americans. Due to strong opposition from the American Medical Association (AMA) and its funding of efforts to convince the public that this was nothing more than socialised medicine, the plan died on the floor of Congress (Cockerham, 2017). In the late 1980s, the conservative think-tank Heritage Foundation released the study "Assuring Affordable Health Care for All Americans" (Butler, 1989). The conservative origins of the ACA were later opposed by members of the Republican Party, enacted into law by a Democratic President and Congress, and upheld 5 to 4 in

the Supreme Court. This case illustrates how bipartisan coalitions can produce outcomes that cannot be categorised as exclusively left or right. In this regard, the public debate after the Supreme Court's upholding of the individual mandate to buy health insurance developed around the role of government in taxation versus the role of government in the provision of health, and whether or not that is a public good. The controversy of the issue created a large set of offline and online discussions. This work analyses the online discussions.

Our main concern is whether political participation via social media has created the conditions for rational deliberation or has instead increased political polarisation on health care. We argue that participation in online debates has the potential to alter the political process, mostly through the activity of the key political actors who can frame the policy narrative based on their own political interests. They might not promote rational deliberation as a means to build consensus but discussions that tend to polarise the public in an online space that seems to be highly ideological. In addition, subjects are willing to express their views among like-minded subjects and confront views that are opposed to theirs, given the lack of face-to-face interaction. Moreover, the use of online activity by powerful entities in social media as part of a political strategy to capture votes can have negative consequences for political debate on social issues. This is important because social media is a venue where political debate takes place. Based on empirical evidence from previous studies, we agree that social media creates online political communities that frame social and political issues based on the ideological beliefs of their members, affecting political action.

Online political communities possess the ability to frame social issues based upon ideological beliefs. The effectiveness of the online messages depends on the centrality of political actors and ability of the media to spread the message. This work analyses online political participation concerning Obamacare and the healthcare issue in the USA. Following the findings of previous works, we expect that features of online participation via Twitter like highly ideological messages, engagement in like-minded communities, and willingness to confront opposing perspectives without face-to-face interaction can increase political polarisation.

Data and Methods

Twitter is a microblogging online service that allows users to send and receive 140-character messages called tweets. Using the full firehouse of Archive Twitter data (via GNIP⁵), we analysed 31 days of Twitter data sur-

⁵ GNIP is a private company that allows access to the Twitter API. Data was obtained under a contract between GNIP and MSU-SSRC.

rounding the Supreme Court upholding the individual mandate of the ACA or Obamacare (National Federation of Independent Business v. Sebelius) on 28 June 2012 that were collected between 13 June and 13 July 2012. After reviewing the health reform issue in social media, the data were filtered to select tweets that refer to key political entities and topics to delimit the content of the study (Table 1). In total, we collected 4,597,061 million tweets, of which 2,591,104 are English-language tweets and 1,566,332 are in the Spanish language (the other tweets are in different languages), since “ACA” means “here”, a term widely used in this language. This saw us drop around 1.5 million tweets in the Spanish language from our data set. Once cleaned, the data set consists of 2.5 million tweets. A random sample of 1,500 tweets was selected to create a corpus in order to perform qualitative analysis through human coding of individual tweets, and its related content.

Table 1: KEYWORDS AND HASHTAGS USED FOR THE SOCIAL MEDIA DATA COLLECTION

Key words	Key words	Hashtags
Obama	DeathPanels	#Obamacare
ObamaCare	Sebelius	#ACA
Affordable Care Act	Supreme Court	#healthcare
Affordable Care	Constitutionality	
ACA	Health insurance	
Health Care Reform	Health exchange	
Health Care	Exchanges	

Source: The authors' own analysis.

The inquiry about participation in online debates is substantive and methodologically challenging. We faced a few challenges collecting and analysing the Twitter data: the large volume of tweets, the complexity and messiness of the dataset, the organic process of data production, and the dynamics of the social phenomenon in itself (the online debate). In this work, we understand big data as “things one can do at large scale that cannot be done at a smaller one, to extract new insights or create new forms of value, in ways that change markets, organizations, the relationship between citizens and governments, and more” (Mayer-Schönberger and Cukier, 2013). This understanding allows for a multi-methods approach to the analysis. This work combines big data analytic techniques with qualitative analysis of social media data. The big data analytics will allow understanding of the degree of polarisation and consists of content, sentiment and influence analyses. The qualitative analysis of tweets permits identifying ideological themes that frame the debate, and to re-assess the levels of polarisation.

Big Data Analytics: Social Media Tracking and Analysis System (SMTAS)

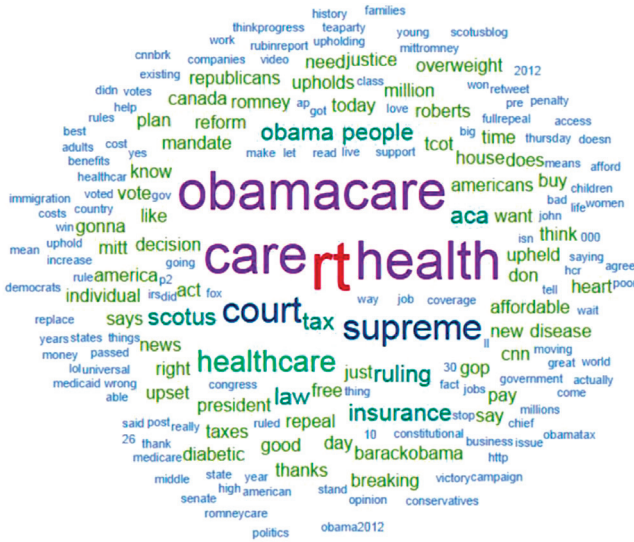
Twitter data collection and analytics were performed using the tools available in the Social Media Tracking and Analysis System, a project at the Mississippi State University-Social Science Research Center at Mississippi State University. SMTAS is based on cloud servers which work as the backbone of the entire system. The backend database is a cluster of PostgreSQL servers and the web application uses Django, Celery, Redis, Javascript and Bootstrap. Map generation and tweet mapping is provided by Google Maps. SMTAS also uses a large number of web services for data enrichment and a wide variety of software libraries for analysis. This study used content, sentiment tools for the trending analysis.

Content and Sentiment Analysis

SMTAS provides keyword tracking and visualisation of the content posted by Twitter users by using search, keyword and hashtag modules. The visualisation tool shows the top utilised words and hashtags in a collected set of tweets (Figures 1 and 2). Although Obamacare and the Supreme Court appear the most in the dataset (because they were used as search terms), terms like *health, individual, mandate, insurance, taxes, romney, barakobama, republicans, need, justice* appear repetitively in the dataset, indicating potential elements of the discussions.

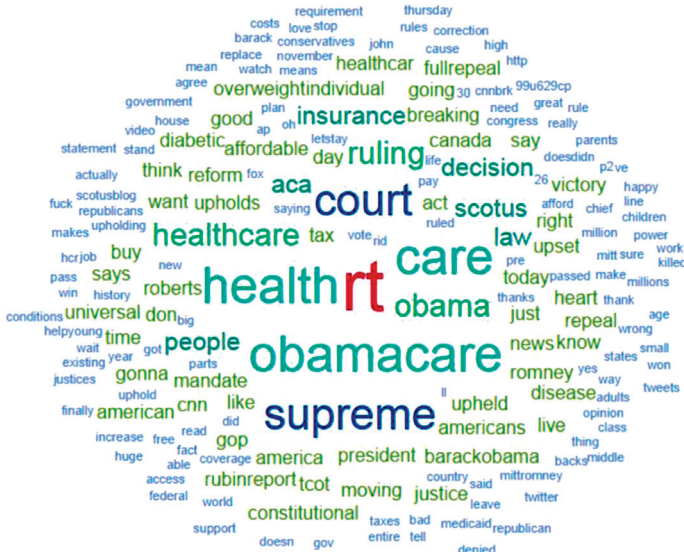
Using the content analysis results, a set of categories was identified as being more likely to express political and ideological sentiments in general (Obama, Romney, Republicans, Democrats) and more specifically related to health (Affordable Care Act, Health Professionals). This selection of terms was later used to perform an overall sentiment analysis. The sentiment analysis of the tweets utilised a machine-learning model which looks at the content of a tweet to determine the polarity (positive, negative or neutral) of the message. One of the most common approaches is the “bag of words” technique where the message to be codified is stripped of any common words (such as “I”, “is”, “the” etc.) while the frequency of important (uncommon) words is also taken into account. In other words, the sentence/message is converted into a word-frequency vector, with each important word having a frequency count of the number of occurrences in the message. This step is called *feature extraction*. Prior to the conversion, the messages can also undergo natural language-processing techniques (such as stemming etc.) to reduce the amount of noise. Once the features are extracted from the messages, they can be used to train a machine-learning model for polarity. The training data is usually codified by humans to

Figure 1: MOST USED KEYWORDS, 13 JUNE–13 JULY 2012



Source: The authors, based on Twitter data (Social Science Research Center-Mississippi State University (SSRC-MSU) – GNIP Contract). Analytics performed on the Social Media Tracking and Analysis System (SMTAS).

Figure 2: MOST USED KEYWORDS, 28 JUNE 2012



Source: The authors, based on Twitter data (Social Science Research Center-Mississippi State University (SSRC-MSU) – GNIP Contract). Analytics performed on the Social Media Tracking and Analysis System (SMTAS).

ensure greater accuracy. The step of labelling the feature vectors is known as codification⁶.

This is usually the case for training a lot of software’s online movie reviews which have been codified by users. The data are used to train the machine-learning models such as Support Vector Machines, Na ve Bayesian Classifier, Weighted Trees etc. After the training is completed, any new message can be codified by the machine-learning model using the statistical weighting of the content of the new message in comparison to the trained data. In simpler terms, words with a positive effect such as “good”, “great”, “like”, “love” etc. influence the sentence containing them to be codified as positive by the model, whereas “hate”, “no”, “worse”, “bad”, “tough” etc. codify messages as negative. In our sentiment engine, we used emoticon (about 50 emoticons were identified and codified) based sentiment codification to train a Logistic Regression based model. The training set used to conduct

Table 2: CATEGORIES AND KEYWORDS SELECTED FOR THE SENTIMENT ANALYSIS

Cate-gories	OBAMA	ROMNEY	REPUBLICANS	DEMOCRATS	AFFORDABLE CARE ACT	HEALTH PROFESSIONALS
KEY WORDS (Twitter content)	baracobama	romney	republican	democrats	health	doctors
	obama	mitt	republicans	democrat	healthcare	doctor
	barack	mittromney	gop	democratic	obamacare	nurses
			teaparty	liberal	reform	nurse
			conservative	liberals	reforms	medicine
			conservatives		care	medical
					aca	professionals
					uninsured	physicians
					affordable	
					afford	
					universal	
					insurance	
					premium	
				premiums		
				coverage		
				coverages		

Source: The authors’ own analysis.

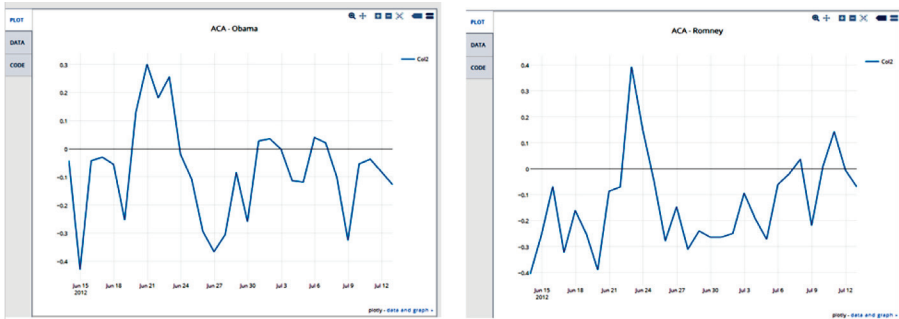
⁶ Taking an example, “The weather is really good today!”
 - feature extraction ->
 - [(weather, 1), (really, 1), (good, 1), (today, 1)] ->
 - codification ->
 - [((weather, 1), (really, 1), (good, 1), (today, 1)), Positive]
 - training ->
 - [Machine learning model]

this sentiment analysis is formed by about 4 million tweets with positive and negative codes. Using 10-fold, cross-validation, the model performs at approximately 80 per cent accuracy and about 74 per cent accuracy against human codified tweets. We performed sentiment analysis overall ACA/Obamacare and on the specific categories that were previously identified (Table 2).

Results of the sentiment analysis indicate that tweets containing words associated with “Obama” (in association with the term “ACA”) saw high levels of fluctuation during the period under study (range = -0.4 - +0.3); at the beginning of the period, we observe a drop in the sentiment (from 0 to -0.4), an important increase around 21 June (+0.3), a significant drop around the time of the Supreme Court meeting (27 June, -0.38) and less significant ups and downs following the Court ruling. Considering that the time of the Supreme Court decision coincided with the presidential race, the sentiment for tweets containing words associated with “Romney” (range = -0.4 - +0.4) show similar behaviour as for the term “Obama” (Figure 3). However, when comparing the sentiment trends for tweets containing words associated with “Democrats” (range = -0.3 - +0.4) on one side and “Republicans” (range = -0.4 - +0.4) on the other, we observe an important difference. Tweets including words related to “Democrat” start the study period with an important drop in sentiment (from +0.4 to -0.32), then the polarity of the sentiment rose significantly after the Court ruling (+0.4), followed by a drop on 6 July (-0.2) and a new rise on 10 July (+0.35). In contrast, tweets containing “Republicans” related words show a drop (from +0.15 to -0.4), followed by a rise (+0.45) on 21 June and a drop on 24 June; after that date, tweets containing words associated with “Republicans” were ranked with negative polarity on the majority of days (Figure 4). Finally, tweets containing “health care professionals” (range = -0.5 - 0.0) and “health care” (range = -0.2 - +0.15) related words showed a constant negative sentiment which we attribute to the fact those terms are associated with actual health care problems (Figure 5).

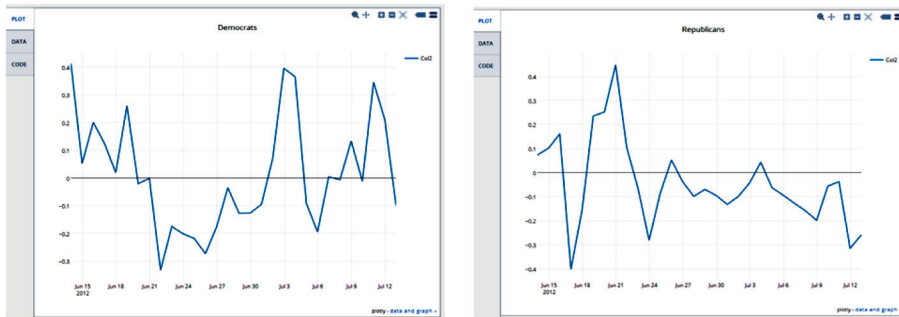
By the time the data were collected, approximately 2%-3% of the tweets had geo-coordinates associated with them. These geo-coordinates are accurate to within 2-5 feet of the exact location of a user when they tweeted. Apart from the geo-located tweets, certain Twitter users' profiles contain meta-data attributes like their primary location information. Any of such information can be used to either spatially map the location of the Twitter user or co-relate the data with other sources of information (such as census data or any geo-located dataset). Using this tool, we analysed the data by region (based on the division of the Bureau of Economic Analysis - see Table 3) to compare the levels of social media polarisation. The regional distribution of the sentiment analysis shows that, on average, all regions

Figure 3: SENTIMENT ANALYSIS OF TWEETS CONTAINING “OBAMA” AND “ROMNEY” RELATED WORDS



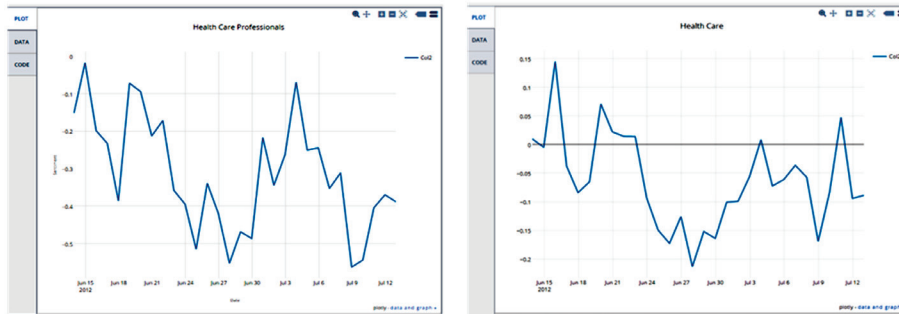
Source: The authors' own analysis.

Figure 4: SENTIMENT ANALYSIS OF TWEETS CONTAINING “DEMOCRATS” AND “REPUBLICANS” RELATED WORDS



Source: The authors' own analysis.

Figure 5: SENTIMENT ANALYSIS OF TWEETS CONTAINING “HEALTH CARE PROFESSIONALS” AND “HEALTH CARE” RELATED WORDS



Source: The authors' own analysis.

express negative sentiment around the Obamacare issue, but the Rocky Mountains and the Southwest regions have the most negative sentiment, and the Great Lakes region shows the least negative sentiment (Table 4).

Table 3: REGIONAL DIVISION – US BUREAU OF ECONOMIC ANALYSIS

Region Name	States
New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont
Mideast	Delaware, District of Columbia, Maryland, New Jersey, New York, and Pennsylvania
Great Lakes	Illinois, Indiana, Michigan, Ohio, and Wisconsin
Plains	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota
Southeast	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia
Southwest	Arizona, New Mexico, Oklahoma, and Texas
Rocky Mountain	Colorado, Idaho, Montana, Utah, and Wyoming
Far West	Alaska, California, Hawaii, Nevada, Oregon, and Washington

Source: The authors, based on information from the US Bureau of Economic analysis (N. A.).

Table 4: REGIONAL OVERALL SENTIMENT

Region	Overall Sentiment
New England	-0.14556
Mideast	-0.16438
Great Lakes	-0.05158
Plains	-0.08761
Southeast	-0.10839
Southwest	-0.18274
Rocky Mountain	-0.19617
Far West	-0.18718

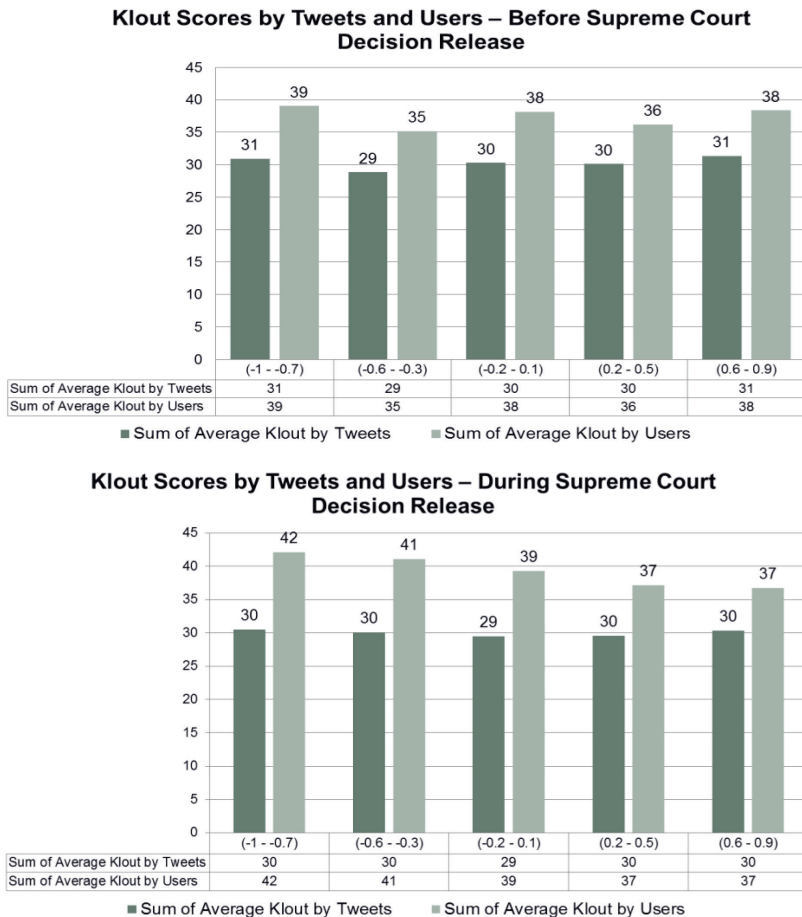
Source: The authors, based on Twitter data (Social Science Research Center-Mississippi State University (SSRC-MSU) – GNIP Contract). Analytics performed using the Social Media Tracking and Analysis System (SMTAS).

Analysis of Influence

Twitter analytics also allows trends on ‘who’ is influential in the online discussions to be observed. The Klout score is a social media analytics service that measures a user’s influence and ability to compel action by others online. It takes account of retweets, follower counts, list memberships and unique mentioners, and is a numerical value ranging between 1 and 100 (Rao et al., 2015). Using the keywords: “obama”, “barac”, “barackobama”, “baracobama”, “obamacare”, “aca”, and “#aca”, the trending analysis of Klout

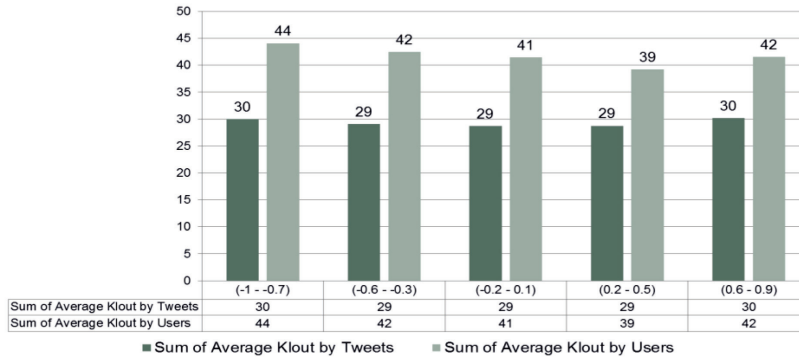
scores by tweets and users crossed with sentiment analysis shows an overall rise in the Klout scores among tweets and users that are more likely to express negative sentiment on the day the Supreme Court released its ruling and afterwards (Figure 6). If regarding this case highly influential users tend to express negative sentiment, that would indicate the nature of their online political participation: top influencers have the capacity to drive the public to their desired political views and opinions. Having influencers on both sides of the ideological spectrum produces the capacity to polarise the public. To obtain a deeper understanding of this issue, the next section will present the results of a qualitative data analysis to help better understand polarisation in online political participation.

Figure 6: KLOUT SCORES BY TWEETS AND USERS BEFORE, DURING AND AFTER RELEASE OF THE SUPREME COURT DECISION



Source: The authors, based on information retrieved from SSRC-MSU, SMTAS.

Klout Scores by Tweets and Users - After Supreme Court Decision Release



Source: The authors, based on information retrieved from SSRC-MSU, SMTAS.

Qualitative analysis: Human coding of tweets

A random sample of 1,500 tweets was extracted from the dataset to assess levels of polarisation in five respects: *ideology*, *partisanship*, *presidential candidate*, *health reform* and *perceptions about the other*. Coding for each category is detailed in Table 5. Tweets were coded by three different individuals and the coding results then averaged. Cross tab results (using Stata 13) show that tweets that were coded as ideologically “conservative-political” and “conservative-social” are more likely to express a negative perception regarding the health reform, whereas tweets coded as “liberal-social” tend to express a positive perception of the reform. However, an important portion of the tweets were identified as neither ideological nor expressing a perception about the reform and these were merely informative (Table 6a). The contrast between *ideology* and *perceptions about the other* shows that, when referring to the other, tweets coded as “conservative-political”

Table 5: QUALITATIVE CONTENT ANALYSIS – CODING SHEET

Ideology	Partisanship	Presidential Candidate	Health Reform	Towards the other
Liberal - Social	Democrat	Obama	Positive	Against
Liberal - Economic	Republican	Romney	Negative	Neutral
Liberal - Political	Non-partisan	None	Neutral	Non-mentioned
Conservative - Social				
Conservative - Economic				
Conservative - Political				
Neutral				

Source: The authors’ own analysis.

and “liberal-social” tend to perceive the other as an opponent; although an important proportion of the same “liberal-social” group tends to not refer to the *other* (Table 6b).

We only coded *partisanship* and *presidential candidate* when the tweet specifically mentioned it. Most of the coded tweets did not mention a specific party or candidate, in which case they were coded as “none”. Tweets coded as “none” for *partisanship* and *presidential candidate* were evenly split as expressing “positively” and “negatively” about the health care reform but, ultimately, the majority of tweets in the sample do not have content that expresses a negative or positive response (Tables 6c and 6e). When cross tabulating *partisanship* and *perceptions about the other* and *presidential*

Table 6: CROSS TAB RESULTS OF THE QUALITATIVE CONTENT ANALYSIS

6.a: IDEOLOGY AND HEALTH REFORM

Ideology	Health Reform			
	Negative	Neutral	None	Positive
Conservative_Economic	10.86%	1.32%	0.35%	0.00%
Conservative_Political	43.69%	7.89%	3.99%	0.80%
Conservative_Social	19.44%	1.97%	1.56%	0.00%
Liberal-Economic	0.76%	1.97%	0.35%	3.19%
Liberal-Political	1.77%	14.47%	5.21%	18.09%
Liberal-Social	1.26%	23.68%	12.15%	68.35%
Neutral	9.34%	23.03%	3.30%	2.13%
None	12.88%	25.66%	73.09%	7.45%

N = 1,500 Tweets

Source: The authors' own analysis.

6.b: IDEOLOGY AND PERCEPTIONS ABOUT THE OTHER

Ideology	Perceptions About the Other			
	Against	Neutral	Not mentioned	None
Conservative-Economic	5.86%	0.00%	0.79%	0.00%
Conservative-Political	25.78%	1.79%	2.77%	1.18%
Conservative-Social	10.16%	7.14%	2.37%	0.24%
Liberal-Economic	1.56%	3.57%	2.37%	0.00%
Liberal-Political	11.46%	16.07%	11.46%	0.24%
Liberal-Social	25.52%	33.93%	56.13%	2.60%
Neutral	7.81%	19.64%	8.70%	1.42%
None	11.85%	17.86%	15.42%	94.33%

N = 1,500 Tweets

Source: The authors' own analysis.

6.c: PARTISANSHIP AND HEALTH REFORM

Partisanship	Health Reform			
	Negative	Neutral	None	Positive
Democrat	0.00%	1.97%	1.56%	7.18%
Non-partisan	0.00%	1.97%	0.17%	0.53%
None	91.41%	96.05%	97.05%	92.29%
Republican	8.59%	0.00%	1.22%	0.00%

N = 1,500 Tweets

Source: The authors' own analysis.

6.d: PARTISANSHIP AND PERCEPTIONS ABOUT THE OTHER

Partisanship	Perceptions about the other			
	Against	Neutral	Not mentioned	None
Democrat	1.56%	1.79%	9.88%	0.24%
Non-partisan	0.65%	0.00%	0.40%	0.00%
None	92.58%	96.43%	89.72%	99.76%
Republican	5.21%	1.79%	0.00%	0.00%

N = 1,500 Tweets

Source: The authors' own analysis

6.e: PRESIDENTIAL CANDIDATE AND HEALTH REFORM

Presidential Candidate	Health Reform			
	Negative	Neutral	None	Positive
None	96.46%	98.68%	98.09%	94.41%
Obama	0.00%	1.32%	1.22%	5.59%
Romney	3.54%	0.00%	0.69%	0.00%

N = 1,500 Tweets

Source: The authors' own analysis.

6.f: PRESIDENTIAL CANDIDATE AND PERCEPTIONS ABOUT THE OTHER

Presidential Candidate	Perceptions about the other			
	Against	Neutral	Not mentioned	None
None	96.61%	98.21%	91.70%	100.00%
Obama	1.04%	1.79%	8.30%	0.00%
Romney	2.34%	0.00%	0.00%	0.00%

N = 1,500 Tweets

Source: The authors' own analysis.

candidate and *perceptions about the other*, we observed that, although there is no clear evidence of partisanship or preference for presidential candidates, the majority of the tweets indicate they are against 'the other' (Tables 6d and 6f).

Conclusion

Voting is just one form of political participation and contrasts with other active forms such as volunteerism, activism, campaign finance, and/or participation in public debates (Lawrence et al., 2010). With the expansion of Internet-based communications, online political participation has become a significant form of contributing to public debates. However, as we have moved from small public forums to *big* social media, the idealistic notion of the Internet as the open venue for deliberation has been distorted. Although Internet users are *created equal*, their online activity and outreach capacity has created differential capacity to frame narratives, especially political and ideological ones. This study presented the results of an analysis of online political discussions concerning health care provision in the USA via analysis of tweets about the ACA or Obamacare that were made two weeks before and two weeks after the SCOTUS upheld the individual mandate of the ACA in June 2012.

The analysis of social media activity around Obamacare allowed levels of political polarisation in social media to be assessed. Although the capacity to influence policies comes more from traditional forms of political power and less from online political activity, online debates are significant because they have the ability to frame the public's views on issues. Key messages may be derived from this work. First, highly influential entities in social media have a growing capacity to polarise the public's views and opinions, potentially increasing the political polarisation of a two-party system. The results of the sentiment analysis illustrated how much the sentiment towards an issue like health care can fluctuate significantly. But, more importantly, the results show how influencers can impose their views, in the process polarising the public towards ideological extremes. In a political system like that featured in this article, extreme political polarisation can lead to poor leadership and poor quality law-making instead of growing accountability (Barber and McCarty, 2013; Epstein and Graham, 2007).

Another key message from this article is the power of ideology to frame online political participation. As the results indicate, the debate on health care in America tends to be polarised which we attribute not only to the role of influencers but to the high levels of ideology present in the discussions. The emergence of key themes regarding the health care reform resemble different elements of ideology, leading to a spectrum polarised between

left and right. However, we found that left and right are not cohesive and closed groups and were able to differentiate between left and right at the social, political and economic levels. This is relevant because the content of social media discussions reveals that the ideological lines are strong but also in the process of being redefined. A good example is the role of the market economy in the provision of public goods where one side of the ideological spectrum argues there is a need for a government-regulated market economy, while the other highlights the need for a completely free market to solve collective action problems. This perhaps explains why we saw what was originally a conservative reform being approved by a Democratic legislative and executive.

Finally, as online participation is becoming ever more important to understand politics in developed nations, we are also observing social media's capacity to promote negative sentiments towards 'the other', providing support for the group homogeneity hypothesis, as suggested in the literature. This is relevant because what we are seeing is the emergence of a confrontational digital world, rather than a deliberative space for achieving rational consensus as some scholars had anticipated. This ultimately is affecting the public's views and expectations about policy and politics. In fact, as we saw the debate is becoming highly ideological, there is less and less room for discussions about the contents of policy. In this regard, once again highly influential agents in social media carry a big responsibility due to the power of their messages. In this case, the features of online communication are important because they provide clues about which issues to consider to help understand this type of political participation. As online communication allows for confrontation without face-to-face interaction and engagement in like-minded communities, it is highly likely that polarised communities will emerge, with all the risks this may bring for deliberative democracy.

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