Who revived the basic income debate? Investigating the role of social media in the political agenda-setting process
Abstract

This study addresses the lack of scholarly attention for the role of social media in the political agenda-setting process. It is expected that social media help draw attention of politicians by making some issues more visible and increasing their urgency. Taking the basic income debate on Twitter as a case study, I find that high public attention coincides with high political attention, although debate integration and leadership do not meaningfully predict these spikes in attention. The content of conversations reveals that politicians engage in discussion because Twitter cues the public relevance of particular issue, facilitates the diffusion of information and lowers barriers to participation in public debate. Politicians that support the issue are more likely to respond to public attention, while opposing politicians tend to refrain from engagement until impending political consequences make the issue urgent. The overall implication is that social media can modulate the impact of traditional media coverage on political agendas.

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Introduction

Basic income has returned to the Dutch public and policy agenda. The controversial proposal to hand out ‘free money’ with no strings attached was introduced in the public sphere in the seventies (cf. Kuiper, 1975). It got serious policy consideration by major policy institutes such as the WRR and CPB after a wave of unemployment in the mid-eighties (Groot & van der Veen, 2000). The proposal was then rejected by both political left and right, chiefly because it challenged fundamental values like the virtue of labour and the principle of reciprocity. Politicians’ rejection of the idea in the eighties silenced the public debate on basic income for years to come.

Three decades later, the basic income debate reappears in the public sphere: Dutch newspapers have been reporting on basic income regularly since early 2015, as can be seen in figure 1. Not long after this renewed attention, more than a dozen municipalities in the Netherlands have initiated so-called ‘trust experiments’ with unconditional welfare (Groot, Muffels & Verlaat, 2018) to see how welfare recipients react when releasing activating incentives and reciprocating demands. These experiments aim to test the behavioural response to unconditional (or less conditional) welfare, one of the foundational principles of basic income policy. Underlying these experiments is a view of human nature based on social and psychological needs, in contrast to the conception of humans as strategic benefit-maximizers. These welfare experiments have followed after the basic income debate revived. Hence, the revival of the basic income debate may well have inspired or facilitated the first steps towards paradigm-shifting welfare reform.
At least in the Netherlands, national politics is not due credit for this renewed attention. Political elites have refrained from engaging in the current basic income debate. Rather, the national political discourse on welfare provisions revolves around activation, austerity and reciprocity (Kootstra & Roosma, 2018, van Oorschot & Roosma, 2015; Green-Pedersen, 2010). Correspondingly, the Dutch national government insisted that the trust experiments should “examine the effectiveness of different policy options to stimulate participation in the labour market and to overcome benefit dependence” (OECD, 2017: 2). Instead, this debate seems to originate from bottom-up: basic income discussions are spearheaded by academics, interest groups, journalists and opinion-makers.

We can study bottom-up agenda-setting by observing activity on Twitter. The medium is designed as an open arena of discussion and over ninety per cent of Dutch politicians are active on Twitter according to a fairly recent survey (De Boer et al., 2014). The network is reportedly composed of “political junkies”, such as journalists, politicians and politically engaged citizens. Many politicians communicate with their followers on Twitter. Some, like Geert Wilders, even do so primarily. Interviews have revealed that politicians are attentive to debates on Twitter and that they suspect the medium to influence the political agenda (Nieuwsuur, 2018; De Boer et al., 2014). Consequently, using social media to voice concerns may result in real policy influence: the public could directly influence political agendas.

In spite of this potential, the influence of social media like Twitter on the political agenda is markedly absent in the agenda-setting literature. Social media has been studied as a tool to protest regimes (e.g.
Howard, Duffy & Freelon, 2011) and policies (Bekker, Beunders & Edwards, 2011; Benkler et al., 2015), but not as a gradual and more systematic influence on the policy agenda. In the domain of agenda-setting, studies have moved from temporally linking traditional news media and political agendas (Kleinnijenhuis et al., 2003; Walgrave & Manssens, 2004) to mapping conditions for the impact of traditional news media (Walgrave & van Aelst, 2006; Bonafont and Baumgartner, 2013; Vliegenthart et al., 2016) and investigating politicians’ perceptions of news media influence (Walgrave, 2008; Vesa, Blomberg & Kroll, 2015). These studies analyse the role of newspaper coverage and television broadcast, but hardly move beyond that. Research that does target social media is concerned with the influence of traditional media on social media agendas, leaving the connection to politics untouched (e.g. Conway, Kenski & Wang, 2015; Russel Neuman et al., 2014). Thus, systematic research on the role of social media in the political agenda-setting process is lacking.

There are, however, good reasons to investigate the role of Twitter in the agenda-setting process. Research shows that Twitter and traditional media reciprocally influence each other, engaging in a “complex and dynamic interaction” (Neuman et al., 2014: 1). In elections too, Twitter follows the traditional media story on some topics and is able to set the story featuring in traditional media in others (Conway, Kenski & Wang, 2015). If Twitter debate is to some extent independent of the traditional media agenda, debate can reach politicians through Twitter and arouse their interest or elicit a response.

The Dutch basic income debate is an ideal case to investigate the political agenda-setting ability of social media. There is little structuring of opinion by political elites due to the absence of a national political debate on basic income (cf. Nicholson, 2011). In spite of this apparent elite inactivity, over a dozen municipalities are experimenting to test one of the fundamental assumptions of basic income. Bottom-up debate might be a key element in this rather unconventional turn in welfare policy. I therefore aim to answer the following research question:

How does the basic income debate attract attention from politicians on social media?

I will attempt to explain political attentiveness to basic income from a (quantitative) network perspective and using (qualitative) content analysis. In the sections below I elaborate on the theoretical expectations, report on the methods and results of the study and draw conclusions in light of these findings.

Attracting political attention
Debate has a network component (who talks to whom) and a substantive component (what are they talking about). These two perspectives are intimately connected, because interactions cannot be seen separately from their content (White, 1976; Krinsky & Crossley, 2013). Simply put, people cannot talk without talking about something. I will argue that both perspectives contribute to our understanding of bottom-up agenda-setting. Network characteristics should relate to the visibility of an issue, investigated by means of (quantitative) network analysis. The topic of debate provides insight into why an issue is perceived as urgent, ascertainable through (qualitative) content analysis. Visibility and urgency attract political attention in different ways, as I will elaborate below.

I. Visibility

An issue can only become important to politicians when it is visible (Koopmans, 2004). Traditional media can decide which issues are publicized and which are not, but this gatekeeping function does not apply to social media like Twitter. On Twitter, topics become visible when tweets on that topic have high levels of engagement. As in real life, large and intense debate provides a major cue for politicians that the issue is important to the public. A Dutch member of Parliament notes that “people will notice when you manage to get a topic trending on Twitter: there is something going on” (Nieuwsuur, 2018).

Visibility due to public activity helps interested politicians to introduce the issue in the political sphere. Politicians may be newly inspired by public debate, or see a political opportunity to promote their already existent ideas in line with the public discussion. This explains why politicians tend to adopt mediatized issues when they align with their own interest (Green-Pedersen & Stubager, 2010; Zoizner, Sheafer & Walgrave, 2017). Moreover, the motivation to respond to some issues over others can be motivated by the promise of electoral success (Sevenans, 2017; Thesen, 2012). From this angle, as the pool of potential voters grows, so does the potential benefit of engaging in debate. In sum, issue visibility provides motivation for interested politicians to engage in discussion.

There are two ways in which participants in the debate can increase the visibility of the basic income debate. I will briefly summarize them both before elaborating each point separately. First, issues become more visible as the discussion becomes integrated (cf. Watts & Strogatz, 1997). An integrated discussion entails that people are engaging in discussion with many others, instead of discussing the topic in isolation. Arguments get more diverse exposure in an integrated debate and are more visible as a consequence (Yang & Counts, 2010). Participants who are bridging isolated conversations, i.e. participating in multiple conversations, play a vital role in this process (Burt, 2000; Obstfeld, 2005).
Second, strong leadership increases issue visibility. Strong leaders are particularly visible in the debate themselves due to strong endorsement of their messages by other participants (Yang & Counts, 2010). This visibility allows them to attract attention and involve previously uninvolved participants in the debate (Koopmans, 2004). Thus, whereas integration involves increased engagement amongst current participants, leadership increases engagement of outsiders.

Visibility through integration

By definition, an integrated debate features high levels of interaction between participants. The concept of integration presumes that discussions about basic income can be isolated and become (increasingly) connected over time. Two conversations are isolated when there is no interaction, in any form, between groups of people conversing. Conversations can be isolated—with two groups not interacting in any way—and integrate as participants engage in other conversations. Prior conversation facilitates future conversation (Yang & Counts, 2010), so participants are more likely to continue debate beyond their local conversations once contact with others is established.

A special role is set out for the connector who starts this integration. Integration is a dynamic approach to the better-known process of brokerage (Obstfeld & Borgatti, 2008; Burt, 2005). A broker is someone who mediates the relationship between two individuals or groups, so that they can only communicate through the broker. Although originally conceived as a deliberate strategy to exploit the holes in information flow by playing people against each other (Burt, 2005), a more natural conception as a person who aims to close these holes by introducing the previously unacquainted (Obstfeld, 2005). This is the day-to-day job of talent scouts, matchmakers and job coaches. The collective activity of the ‘tertius iungens’—the third who joins—leads networks to move towards integration by closing structural holes. I will refer to this activity more intuitively as connector activity.

In terms of Twitter debate, connector activity is the act of bridging discussions with others: connectors are engaged in multiple, otherwise isolated conversations. These connectors can integrate conversations both actively and passively. In an active sense, a connector can mention users from other regions in the debate, making them attentive to the conversation and suggesting they should engage as well. Mentioning others can be simply to make them attentive, but most of the time it entails calling out others in expectation of a response. Users can also actively involve others by posting a message that is often retweeted. Jackson & Welles (2016: 402) note that “retweets tend to represent ideological endorsements, while mentions more often represent ideological opposition”. Connectors can also
integrate conversations in a more passive sense, by being engaged in multiple conversations. The Twitter timeline prioritizes tweets (a) from users with which you engage and (b) that are often retweeted or favourited. Thus, connector activity in other conversations will be visible to you if you interact with them regularly, especially if their tweets are popular. In both active and more passive ways, connector activity integrates local conversations.

An integrated debate is a more visible debate, for the general public as well as for politicians. This is because integrated networks allow for a more rapid diffusion of information (cf. Watts & Strogatz, 1997). Increased engagement equals a higher number of retweets, favourites or replies for the average tweet. This increases visibility because tweets with high engagement are prioritized by the Twitter algorithm. In addition, because more users are involved, more acquaintances will see the activity. Connectors can thus create a more lively debate and make this debate more visible as a consequence. Reiterating that visibility motivates politicians to respond leads me to my first hypothesis:

**H1: Increasing integration of the basic income debate precedes an increase in political tweets**

*Visibility through leadership*

The visibility of the debate also depends on the strength of leaders in the debate. Leadership can be a formal role ascribed to a person and an informal status – being recognized as a leader by others and getting people to seek your advice and cooperation (Blau, 1968). There is no formal leadership in public debate, no legitimate way of coercing others. Instead, leaders are those who muster the support of others in the process of interaction (cf. Uitermark, Traag & Bruggeman, 2016). Participants become informal leaders by positive endorsement from other participants.

Leaders attract the bulk of attention in the debate, both positively and negatively. The positive endorsements that make them informal leaders also make them visible and credible actors in the debate: legitimate authority flows from the many people acknowledging their discursive contributions (Spencer, 1970). This visibility and credibility allows them to attract supporters (Koopmans, 2004). A proportion of the people who agree with the message will endorse it and hence facilitate its diffusion through the network. Because these leaders come to embody the position of many others in the debate, it also makes them a natural target for criticism (Collins, 1998; Frickel & Gross, 2005). Uitermark, Traag and Bruggeman (2016: 108) summarize this point succinctly in stating that leaders “serve as magnets for peripheral actors and come to serve as focal points around which antagonistic groups form”. 
The ability to attract attention – and hence to make the debate more visible – increases as leaders become stronger. The strength of leadership improves the odds of spreading the message, because the stronger a leader is, the more visible he or she is initially and the more criticism he or she is likely to elicit. A visible leader increases the visibility of debate, as proponents engage in debate to counter these criticisms. More activity makes the debate more visible and increases the likelihood of political response. My second hypothesis is thus:

**H2: Increasingly strong leadership of the basic income community precedes an increase in political tweets**

### II. Urgency

The second important driver of political attention is the perceived urgency of an issue. There are numerous issues that politicians can respond to, but only some of them will manage to be selected (Jones & Baumgartner, 2005). It is not the importance of issues in itself, but their relative importance to other issues “to pass a ‘threshold of urgency’ as defined by the agenda’s capacity” (Boydstun, 2006: 5). Especially for politicians opposing the issue, it must become urgent enough to demand their attention. Whereas the motivated interest of politicians mean they can pick and choose from the available issues that they attend to, the perception of what is urgent forces issues into politicians’ awareness. Especially in politics, the defending group is better off ignoring the debate entirely: “the career of a discursive message is likely to remain stillborn if it does not succeed in provoking reactions from others in the public sphere” (Koopmans, 2004: 374).

In general, an issue should become urgent when real (negative) consequences appear probable. Something bad must appear to be happening in order to command opposing politicians’ attention. This perception may follow from a high level of public or media attention, but also from external events – ‘real’ (impending) consequences – that increase issue relevance (Jones & Baumgartner, 2005). The content of conversations will be interpreted in light of this urgency theory, in an attempt to understand why (if at all) basic income elicits response from opponents in the debate.

The role of social media in this perception of urgency is of central interest. The analysis should reveal why issues become urgent by looking at overall trend across conversations and mechanisms within conversations. The overall trend in perceived issue urgency across conversations illuminates when issues become urgent and what is its proximate cause. The mechanisms through which social media affect
issue urgency should show how social media contributed to issue urgency in an individual conversation given the debate’s history and context.

To see what makes the basic income issue urgent enough for the opposing group to enter the debate is best assessed using an inductive approach. Politics is a complex system that interacts with events outside of its parameters but also itself consists of multiple layers of interacting and interdependent agents (Sevenans, 2017; Kindon, 2011). This complexity makes it difficult to predict beforehand how an issue like basic income becomes to be perceived as urgent. Looking at the high number of politicians and politically active citizens on Twitter, it is reasonable to think that the social medium acts as a transmitter or amplifier of issue urgency. Issues picked up on social media can take on a life of their own, swelling until the online attention feeds back to traditional media and politics (Benkler et al., 2015). To uncover if and how social media play a part in making politicians attentive to the basic income issue, I perform an inductive interpretative analysis of Twitter conversations (cf. Strauss & Corbin, 1990). The main goal of such an approach is not to test hypotheses, but to allow insight to emerge from the conversations on Twitter, guided by the theoretical framework of issue urgency.

**Data and methods**

*Data collection*

In order to test my hypotheses and evaluate the content of the basic income debate on Twitter, I have collected tweets spanning from January 2012 until May 2016. The end result is a directed and weighted edgelist of Twitter users connected by retweets, mentions and replies. In total, the time period contains 218279 edges: 46894 retweets, 57578 mentions and 113807 replies. A total of 7620 edges are from politicians. In total, 6 percent of retweets and 11 percent of replies could not be retrieved (see appendix A for more details). This is the consequence of the Twitter API returning ‘not found’ errors, API limitations such as the maximum number of retweets or the twitter search call not finding any tweets. An overview of the process is included in the figure below.
In the first phase, all tweets mentioning the word basic income – ‘basisinkomen’ in Dutch – were collected. Using the Twitter search operators\(^1\) in the standard search engine\(^2\) the query was as follows: “basisinkomen since:2012-01-01 until:2018-02-01”. In the second phase I retrieved all in-replies and retweets surrounding these tweets using the Twitter search API\(^3\). For each tweet gathered in the first phase, I requested the retweet id’s and sender usernames and to what username and what tweet id the tweet replied to. The response was transformed into a list that contains the username from which tweets originated and usernames at whom tweets were directed. The third phase involved getting the replies to each tweet. Three steps were needed to gather the replies to a tweet: search Twitter for all replies to the user who sent the tweet in the period after the tweet was posted, retrieve the in-reply-to ids from each tweet using the Twitter API and match the in-reply-to id’s to the tweet id. The process is thus to gather all tweets directed at a user at the relevant time and then to drop replies that are not in

**Flowchart of data collection process**


\(^2\) [https://twitter.com/search-home](https://twitter.com/search-home)

\(^3\) [https://developer.twitter.com/](https://developer.twitter.com/)
reply to the tweet at hand. Replies were collected up to the ninth reply to avoid off-topic discussion and because the newly introduced participants dropped below 5 percent. In the fourth and final phase, mentions indicated by the ‘@’ symbol are extracted from the text of previously gathered tweets.

There is an important limitation regarding retweet data collection: Twitter limits the maximum number of returned retweets to one hundred per tweet. Inspection of the retweet count reveals that only 15 of 104373 first-phase tweets have more than one hundred retweets: 734 out of 79368 retweets could not be retrieved due to this limitation, less than one percent of all retweets. However, the concentration of retweets may result in an underestimated difference in centrality for the most central users if their most popular tweets appear in the same time period. In addition, the network integration will be somewhat underestimated at time points featuring these missing links.

Operationalization

a. Network analysis

The network was plotted using an edgelist that connects Twitter users if they retweet, reply to or mention each other. Interactions are aggregated to weeks to form a network, directed by sender and receiver (with retweets being directed from ‘retweeter’ to ‘retweeted’) and weighted according to the frequency of each type of interaction (retweet, reply or mention) per week. Analyses are executed using open source software R and the package igraph in particular (Csardi & Nepusz, 2006). Networks are visualized in R with the much appreciated help from the tutorial by Ognyanova (2017). The remainder of this section discusses the operationalization of three concepts of interest: political attention, network integration and leadership.

First, political attention is comprised of tweets by politicians. If the political agenda-setting literature considers how politicians “determine their priorities, give attention to or ignore issues, and do, or do not, take decisions or a stance concerning these topics” (Walgrave & Van Aelst, 2006: 89), tweets by politicians are a reliable indicator of politicians’ attentiveness. Although tweets might be too far removed from the party and policy agenda (cf. Walgrave & van Aelst, 2006; Vesa, Blomberg & Kroll, 2015), they do reveal the attentiveness and interests of individual politicians. To ensure that only actual attention from politicians is measured, tweets directed at politicians are not considered political attention. Their tweets will show up as an edge in the network if (a) they retweet a tweet mentioning basic income, (b) they reply in a chain of replies about basic income and (c) they mention other users in their basic income tweets or replies to basic income tweets.
Politicians are included when they represent a party that occupies a seat in a municipal council, provincial state council, second chamber or first chamber. People engaged with political parties that are not part of government are seen as non-political actors due to their distance from the legislative and policy-making process. This criterion allows a flexible pool of local municipal party representatives as part of the political debate. Politicians are identified on Twitter with the help of a list provided by Politwoops⁴ and their organisers, the Open State Foundation. This website tracks and saves tweets from (mostly) Dutch politicians and has built its list of political Twitter users over time. In total, 445 politicians from 27 political parties are included in the data. Together, these politicians are initiators of 7620 interactions over the course of 4 years: 1120 retweets, 2351 mentions and 4149 replies.

Second, network integration is measured by first executing walk-trap clustering algorithm with ten steps (Pons & Latapy, 2006). This algorithm finds isolated conversations (i.e. communities or densely connected subgraphs) by connecting to neighbouring nodes in the network according to the likelihood of their observed conversation patterns. As a function of the occurrence and frequency of interaction with other nodes, “random walks tend to get ‘trapped’ into densely connected parts corresponding to communities” (Pons & Latapy, 2006). A random walk is thus a recreation of the diffusion patterns in the data, mimicking the pattern of interaction based on the observed likelihood of interaction. For a detailed discussion on the walk-trap algorithm, see appendix B.

Network integration is measured as the number of clusters found by random walk diffusion, proportional to the size of the network. The number of clusters is likely to increase when there are more participants in the debate at that time, simply because there is more ‘room’ for clusters to form. The correlation between the uncorrected number of clusters and the number of edges in the graph indeed suggests autocorrelation (r=.93). This correlation is even inversed (r=-.29) when we divide the number of clusters at time t by the number of nodes at time t. Since the (proportional) number of clusters will be lower for more integrated networks, the measure is inversed. The resulting proportional number of clusters ranges from 6.5 to 65.5 percent and can be interpreted as the degree of network integration given its size.

Third, leadership is measured using the weighted indegree or strength centrality measure (Freeman, 1979). In principle, indegree is the number of times a participant in the debate is mentioned, replied to or retweeted:

⁴ [https://politwoops.nl/](https://politwoops.nl/)
The more often someone gets attention from others in the debate, the more central they are to the debate. This centrality is often equated with informal leadership (e.g. Uitermark, Traag & Bruggeman, 2016). In the case of weighted networks, multiple citations from the same person are considered equal to citations from several unique others. Because the reference count will increase as the debate intensifies, the indegree measure must be normalized before it can be used to compare networks in time. This is done by dividing the citation count by the number of $n-1$ nodes in the graph, interpretable as the proportion of citations a given participant receives.

Leadership on the network level, the ultimate characteristic of interest, is assessed by taking the variance in node-level centrality scores. A low variance means that the citations are equally distributed over the network, while a high variance means that some individuals get a much greater share of the citations than others. Leadership scores range between .01 and 5.7 with a mean of .31.

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<td>(1) Political tweet volume</td>
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Descriptive statistics in table 1 show that there is considerable skewness in the distribution of political tweet volume and leadership. Both variables have a disproportionate number of weeks with low tweet volume and weak leadership. There is a moderately high correlation between network integration and political tweet volume ($r=.224$, $p<.001$). A small and negative correlation exists between leadership and political tweet volume ($-.097$, $p<.05$) and heavily integrated debates generally lack a strong leader ($r=-.227$, $p<.001$). Some additional descriptive statistics are included in appendix C.

b. Content analysis
The content of conversations on Twitter are of interest to grasp changes in the urgency of the basic income issue. Conversations are reconstructed based on the available data. Starting from any first tweet, I gathered the replies to that tweet and the series of replies to each of those replies up until the ninth reply. These tweets form a conversation or ‘chain’ of tweets. From the moment the word basic income is mentioned, all responses are tracked, meaning that a conversation can branch off into multiple sub-conversations. Every tweet has been marked as being sent or not sent by a politician defined as a username occurring in the list of politicians provided by politwoops.nl. For each conversation I have counted the number of unique politicians involved in the conversation. The conversations with the most unique politicians involved are selected as the conversations generating the most political attention. This follows from the reasoning that a discussion amongst multiple politicians has more political impact than a single but long conversation involving only a single political actor. A maximum of four unique politicians are involved in the entire corpus of conversations. Sixty-nine conversations involve at least two politicians, excluding one conversation that mentioned basic income but was unrelated to the debate. These sixty-nine conversations form the basis of a content analysis on the origin of political attention for basic income.

Two units of analysis will be considered in terms of content: the conversations themselves and the debate as a whole. Conversations are classified according to (a) what type of actor posted the initial tweet and (b) the proximate cause for posting the initial tweet in the conversation. The debate as a whole is analysed by looking at the temporal order in causes and types of actors involved in conversations. The analysis will proceed first by individually assessing each of the 69 conversations. The actor’s self-chosen occupation and unique proximate cause are registered. Conversations without an apparent instigation are left blank. After this initial identification, actors and conversations are classified into types according to similarities in their features, intending to reduce complexity without overgeneralizing idiosyncrasies within categories. Following classification, the temporal order in type of actors involved and type of proximate cause are inspected. The goal here is to find clusters of similar conversations. From this integrative exercise, different phases in the debate are expected to emerge.

After careful inspection of the data, several types of actors, classes of proximate causes and phases of debate emerged from the data. Actors are divisible into six types: politicians, journalists, bloggers, individuals, political parties and interest groups. For political actors, the political party they represent is also registered. Actors have been additionally classified as proponents or opponents of basic income according to their social media comments on the issue. This is generally based on a single conversation,
although when applicable, multiple comments of the same actor have been assessed to confirm the validity of the initial categorization. Tweet causes are separable into six categories, namely mainstream news events (newspaper articles, tv-publications), political events (debates, motions and initiatives), comments (with no direct real-world reference), political statements (expressing formal party standpoints), call-outs (mentioning politicians in an effort to get a response) and blogs (link to extensive arguments from bloggers). Four phases of debate emerge, respectively, a phase of media attention, political momentum for proponents, Twitter discussion, political counteroffensive, and finally a return to less and only positive attention. The classifications resulting from the analysis are summarized in a table.

Results

This section first discusses the results of the network analyses, followed by the content analysis.

Network analysis

There is a strong correlation between political and non-political activity ($r = .82$, $p<.001$). Hence, politicians are most active in the basic income debate when others are active as well. For the most part, it is difficult to distinguish a temporal order in ‘who tweeted first’ when tweets are aggregated to weekly volume. Still, it seems that non-politicians are relatively active in the debate before most political participants are. There is considerable fluctuation in the degree of network integration and leadership. Roughly, it seems that the network becomes more integrated and leadership weakens as time passes. The regression of network integration changes non-linearly over time, generally increasing at first and decreasing in the course of 2015. Leadership, on the other hand, is stronger at the start of the debate and decreases over time. Finally, there seems to be a link between the trends in newspaper coverage on the one hand and Twitter activity on the other hand. The two types of media are not independent from each other. Appendix C provides more details on the trends in these measures.

Regressing on politicians’ tweet volume with lagged predictors will provide insight into the temporal connection between these variables. A formal test of the hypotheses requires correlating the change in political tweet volume at time zero with the preceding change in network integration and leadership at $t-1$ and beyond. It is standard practice to detrend time series before regressing them, i.e. making them stationary, since temporal trends are extremely susceptible to yielding spurious connections (cf. Yule, 1926). The reasoning is that the fluctuations around the trend line are more meaningful then a general
increase or decrease. Because differences are centred on zero, difference scores also alleviate the issue of skewness in the data.

Trends can be removed from time series by differencing them, i.e. taking the difference between two consecutive observations. The stationarity of the three time series is assessed using the augmented Dickey-Fuller test for unit root and the Kwiatkowski-Phillips-Schmidt-Shin test of trend stationarity. These tests indicate that a trend is present in political tweet volume (ADF = -2.4, p=.4; KPSS = 3.7, p<.01), although only one of the two tests reports non-stationarity for network integration (ADF = -3.7, p=.03; KPSS = 1.2, p<.01) and leadership (ADF = -4.9, p<.01; KPSS = 2.2, p<.01).

Cross-lag regression involves regressing a lagged time series on another time series. Rather than randomly inserting lags into the regression equation, it is helpful to inspect a cross-correlation function (CCF) plot. Figure 3 shows such a CCF plot, displaying the correlation between political tweet volume and (respectively) network integration and leadership at various leads and lags. Although it is possible to see significant correlations for extremely distant lags, I have set the margin of the lags and leads to 20 weeks. This is already very broad, since it is theoretically unlikely that a change in network structure now yields political attention 20 weeks ahead. Rather, this causal process is expected to envelop sooner, within several weeks or even within a single week.

The CCF plot shows the size of each correlation and its significance as it surpasses the blue line on the y-axis at various lags and leads on the x-axis. It appears that there is no solid correlation between either predictors when the trend is removed from the data. Hence, the bivariate correlation between network integration and political tweet volume reported above is probably spurious. This means there is another factor that causes an increase in network integration as well as an increase in political tweet volume. Traditional news events picked up by social media are a likely suspect: more intense debate involving both politicians and non-politicians ensues after some newsworthy event takes place. Since there are no meaningful correlations between the predictors and outcome variable, it is redundant to run a regression on these difference series.

What is still apparent however, is the strong correlation between tweets by politicians and tweets by nonpoliticians even when the trend in the data is removed. There is a strong correlation between difference scores at lag zero (r=.758, p<.001), in correspondence with the trends visible in appendix C (figure 1). This means that the causal process between political and non-political attention for basic
income, if it exists, takes place within the week. Insight in this process requires a more fine-grained analysis.

Figure 3: Cross-correlation functions

Content analysis

The question of how the basic income debate on social media attracts attention from politicians is as of yet unanswered. Macro-characteristics such as network integration and leadership are unable to explain why politicians engage in the Twitter basic income debate. A more fruitful endeavour may be to inspect
the content of discussions on Twitter. This analysis will involve a tweet and all its responses (from here on a conversation), where the focus is particularly on why politicians got involved in these conversations on social media.

After studying all the conversations involving multiple politicians (see Appendix D for an overview), I find that Twitter is a platform that expands the reach of traditional media and facilitate discussion of external events. External events that attract political attention are traditional media publications and political events such as debates, motions, initiatives and so on. Social media facilitate attraction of attention from politicians by (a) providing cues of public awareness and (b) opportunities to call out politicians, (c) by connecting non-political and political participants and (d) by facilitating endorsement of messages by politicians. This becomes clear when we inspect why politicians respond.

The first phase of the debate is characterized by politicians responding to more traditional news events. Tegenlicht—a public television show on ‘future affairs’—extensively covered the basic income proposal in two episodes in February and September 2014. Both episodes are inspired by the work of Rutger Bregman, a basic income advocate known for his contributions to journalism platform ‘de Correspondent’.

“#tegenlicht is trending topic! #basicincome”

(Pakhuys de Zwijger, news organisation, 2014-02-26)

The political impact of the Tegenlicht episodes is apparent on Twitter. Several politicians got involved when Pakhuys de Zwijger tweets that the Tegenlicht episode (the necessity of utopia) became trending topic. This happened three days after the episode aired on television. In response to basic income becoming trending topic, a journalist writing for platform Follow The Money (FTM) calls out a green left politician: “popular amongst the people, what about politics?”. She engages by stating her party has “made the first step” towards basic income “by proposing a 32-hour work week plus less tax on work and more tax on raw materials”⁵. Several causes of political response seem to come together here. First, as a proponent of basic income, she has motivated interest in entering debate. Second, the trending topic marker is an important cue that validates the topic as socially relevant. Third, she was called out by a non-political participant in the discussion. This mention seems the most direct cause of her engagement. Combined, she was called out to enter debate due to the public interest in basic income and decided to engage so likely because of the social relevance and her personal stake in the discussion.

⁵ https://twitter.com/user/status/438774307184214017
This is a pure example of how public debate can attract political attention. In this case, Twitter signals that the topic is of public interest and enables nonpoliticians to involve politicians.

Also a few days after the same Tegenlicht episode, a journalist from platform Follow The Money (FTM) tweeted about his recently published article portraying basic income as a way to reduce the complexity of the current social system, including a cost calculation of its implementation\(^6\). The article seems inspired or facilitated by the episode. One politician of the animal party (Partij voor de Dieren) responds to a retweet of the tweet, by stating that “basic income is only legitimate if you accept exploitation of A by B”\(^7\). Here, the original tweet travels through the social network and reaches politicians through others in the network. This illustrates the diffusion function of Twitter: bridging actors connect politicians to others in the debate.

Likewise, The Post Online (TPO) published an online article about the virtues of basic income. A prominent labour party politician tweeted the link while expressing her support for basic income. Other labour party politicians engaged in discussion by indicating a lack of nuance in the article and stating their desire for a broader societal and party-internal debate\(^8,9\). This exemplifies another role of social media, namely public endorsement of non-political sources by political actors.

“Basic income: more leisure time, more comfort, more solidarity”
(Astrid Oosenburg, Labour, 2014-08-31)\(^10\)

It is important to note that these platforms – Tegenlicht, FTM and TPO – operate at the fringes of mainstream media. This fringe media coverage attracted attention from politicians on Twitter, most of whom were at least open to the basic income proposal. It thus appears that basic income was initiated by fringe media and picked up by proponent politicians. Of course, reality is never so clear-cut. Already after the first episode of Tegenlicht, local politicians from the green left party showed some interest in basic income, albeit very preliminary, in the form of internal debate\(^11\). This indicates that public interest in basic income did not create interest amongst green left politicians, but rather legitimized political debate amongst those already interested.

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\(^6\) [https://twitter.com/RF_HFC/status/438578347606818816](https://twitter.com/RF_HFC/status/438578347606818816)
\(^7\) [https://twitter.com/ewaldeng/status/438583233333460992](https://twitter.com/ewaldeng/status/438583233333460992)
\(^8\) [https://twitter.com/davied/status/506090907339612161](https://twitter.com/davied/status/506090907339612161)
\(^9\) [https://twitter.com/Sjuuljetje/status/506092801780883456](https://twitter.com/Sjuuljetje/status/506092801780883456)
\(^10\) [https://twitter.com/AstridOosenbrug/status/506060801505886208](https://twitter.com/AstridOosenbrug/status/506060801505886208)
\(^11\) [https://twitter.com/femkeroosma/status/389796844932329472](https://twitter.com/femkeroosma/status/389796844932329472)
The second phase is characterized by political momentum: politicians report on and respond to political events. On Twitter, this momentum is first displayed in late September 2014. A local green left politician shares her submission of a proposal to investigate basic income in the province of Groningen. From the responses it is clear that MIESLAB (a social activist organization) and Tegenlicht are involved.

“Just announced investigation of #basicincome in the province of Groningen at the Provincial states”
(Nienke Homan, Green Left, 2014-09-24)\(^{12}\)

This event is the first recognizable on Twitter in a series of political developments that culminate in the welfare experiments, where activating and reciprocating requirements are temporarily removed for a select group of participating long-term unemployed. Several (semi-)political debates are organised around the topic of basic income, including a meeting organized by MIESLAB, and multiple debates amongst the socialist party (SP) the green party (GL) and the labour party (PvdA). The members of these three major political parties support a motion to investigate the tenability of basic income during national congresses. In spite of the labour party’s advice to reject the motion, which is in line with their historical attitude towards basic income, its members vote to support it. An observant participant at the Green left congress notes that “Green Left accepts a motion to investigate basic income following #labourparty and #D66”\(^{13}\).

“The Labour Party board does not want to investigate basic income. Curious to see whether the congress this Saturday feels the same”
(Rutger Bregman, journalist, 2015-01-14)\(^{14}\)

Political momentum continues to swell during the winter of 2015, when Green Left party leader Bram van Ojik issues an offline statement in favour of unconditional welfare, the most central tenant of basic income. The Utrecht fraction of the Green Left party follows in suit by expressing formal support for unconditional welfare on Twitter, while referencing to an article about basic income published in the prominent newspaper NRC Handelsblad.

\(^{12}\) https://twitter.com/NienkeHoman/status/514721270240669696
\(^{13}\) https://twitter.com/RichardHoekstra/status/564078720873664513
\(^{14}\) https://twitter.com/rcbregman/status/555307984277221376
“Basic income: it will not make you lazy (…) that is why Green Left argues for welfare without conditions”
(Green Left Utrecht, political party, 2015-04-03)

In this phase, political attention seems to originate mostly from within the political system itself. Politicians share political events and statements, to which other politicians respond. Twitter still plays an important role in the drawing of attention, because it allows political proponents to sustain the public discussion on basic income. Because politicians are embedded in networks that include other politicians and news media, their tweets tend to generate political attention.

The temporal order of events shows that the public attention for basic income, in newspapers and on television, inspired or at least facilitated the green left party to successfully pass motions to experiment with unconditional welfare. Likewise, it may well have been the storm of public attention for basic income that led to the acceptance of the motion to investigate basic income in spite of the party elite’s advice to reject it. News and political events outside of Twitter instigated the political momentum that followed, but Twitter helped raise and sustain public awareness.

Up until now, the events and attention surrounding basic income have predominantly included proponents of the proposal. The political momentum for basic income has moved the debate to a new phase: the Twitter discussion phase. It is only at the end of February 2015 that the numerous opponents of basic income and the corresponding welfare experiments start to mingle in the debate. One of the first critical questions is asked by a politician from the Socialist party (SP), regarding the nature of the green left support for welfare experiments: “What does the Green Left intend with allowing income on top of welfare? Illegal work? Labour displacement? Flexible work?”16. The implication is that unconditional welfare has negative consequences. Several weeks later, in April 2015, another SP politician argues – seemingly without instigation – that basic income “sounds nice, but is a Trojan horse”17. He contends that replacement of current benefit arrangements with a single universal grant results in poverty for the most disadvantaged. Another socialist politician speaks out against basic income in May, stating that “welfare for everyone, at the expense of those who need it, is wicked”18.

15 https://twitter.com/GroenLinks030/status/583904173768441856
16 https://twitter.com/JosSwarjjes_SP/status/571444142313746432
17 https://twitter.com/coppus/status/587349637528432642
18 https://twitter.com/paululenbelt/status/599966816966946816
“Welfare benefits for everyone, at the expense of those who need it is wicked, not polite #basicincome”
(Paul Ulenbelt, Socialist, 2015-05-17)

Around this point, several non-politicians post tweets that also manage to elicit a defensive political response. The issue is now urgent enough for politicians to engage with citizens, something that has not been apparent before. A Twitter user named @EWdeVlieger digs up an article published by FTM in 2014, starting a discussion on basic income involving sixty tweets amongst eighteen non-political users and two politicians.19 A non-political proponent of basic income successfully calls out the socialist party by requesting their formal position regarding the proposal.20 Another civilian user posts a blog arguing for basic income, again eliciting response from several politicians.21 A similar example of successful bottom-up civil lobby is a tweet from Henk Daalder, who quite randomly inserts a comment on basic income into a conversation amongst politicians regarding a free trade agreement, shifting the debate towards basic income.22

From the start of June, the liberal party (VVD) launches a Twitter offensive against basic income. It appears that the proponents have gained enough political momentum to demand a response, even from the party that has historically kept silent on the topic. A local fraction the liberal party first explicitly rejects basic income, calling it “undesirable, untenable and unaffordable”.23 Later that month, the right-wing populist fraction of the freedom party (PVV) tweets to reject the recently initiated welfare experiments in Utrecht, drawing proponents into a Twitter discussion.24 In August 2015, Chantal Nijkerken from the liberal party tweets that “income is generated by working and not by being idle”,25 again instigating a debate amongst several politicians and civilians. This tweet nicely summarizes the liberal response that a basic income violates the principle of reciprocity. Several other liberal politicians explicitly reject basic income at this point, referencing an article by economists Willem Vermeend and Rick van der Ploeg in the Telegraaf26,27 and an opinion piece by liberal politician Marianne Poot in the 19 https://twitter.com/EWdeVlieger/status/589427245879533568
20 https://twitter.com/Uwgeldwinkel/status/590257603160240128
21 https://twitter.com/PuckvanTilburg/status/597816509558353920
22 https://twitter.com/HenkDaalder/status/602111916484468736
23 https://twitter.com/Harry_Bevers/status/629297835058573312
24 https://twitter.com/ReneDercksen/status/610892491408039937
25 https://twitter.com/cnijkerken/status/628808155636568064
26 https://twitter.com/Harry_Bevers/status/629974323416415920
27 https://twitter.com/berthoman/status/630442678036078592
Financiele Dagblad28,29. The Amsterdam fraction of the liberal party officially rejects basic income by echoing the words of Marianne Poot: “We think free money is conceited defeat from the Left”30.

“Basic income? Back to the sixties? Free money does not exist! Income is generated by working and not by being idle”
(Chantal Nijkerken, Liberal, 2015-08-04)

This political countermovement seems to be mostly in response to the political momentum generated by basic income proponents. The socialist party was the first to enter the debate with objections based on the ‘wasteful’ lack of targeting by universal grants. They participated in political debates regarding basic income in an early stage but only actively spoke out against basic income on Twitter after the motion to investigate basic income as a policy option was accepted by the green left, labour party and centre-liberal D66. The liberals held out longer before responding, in line with their historical tendency to refrain from debate. Still, when the experiments with unconditional welfare were confirmed, they felt the need to engage. The basic income debate thus became urgent when it threatened to become an unwanted political reality.

It is important to recognize that opposing parties also chose to engage in the debate on Twitter. This fact alone suggests that there is some (perceived) impact of Twitter on the political agenda, as the main goal of the opposition was to shut down the welfare experiments. Whereas proponent politicians sustained the basic income debate, opposing politicians attempted to delegitimize basic income by tweeting counterarguments. Proponents of basic income also react to these tweets, creating a true Twitter debate.

A final phase of the debate is a cooling down of the political counteroffensive, returning to a state of predominantly proponents trying to sustain the Twitter debate. A politician re-tweeted a post referring to an article from VICE on basic income in September 2015. Later that month, labour representative Marleen Haage shares that she addressed the secretary of state to permit the welfare experiment in Utrecht during the labour party’s member council. A socialist party second chamber representative tweets about her amendment to allow welfare recipients to generate more income on top of their benefit, although she very explicitly separates basic income from a less restrictive welfare policy.

28 https://twitter.com/MariannePoot/status/630628437489811456
29 https://twitter.com/GertjanWeerink/status/630789759028232192
30 https://twitter.com/VVDAmsterdam/status/630635561695465472
“The call to the secretary of state to enable experiment #basicincome #Utrecht is successful”
(Marleen Haage, Labour, 2015-09-19)\(^{31}\)

“Next week we vote on our amendment to allow additional income for welfare beneficiaries. Curious who will support us.”
(Sadet Karabulut, Socialist, 2015-10-27)\(^{32}\)

In sum, it seems that the debate was initially instigated by some fringe traditional media. Green left and D66 proponents managed to pass motions and start experiments with basic income. Only after the political momentum for basic income increased, the political opponents felt obliged to engage in the discussion. The debate cooled down in September 2015, where again mostly proponents continue to propagate the proposal in the public sphere.

Twitter plays a facilitating role in the debate, legitimizing political action by providing cues of public awareness, allowing to draw politicians into debate by calling them out, helping the diffusion of information because friends of politicians respond to basic income tweets, sustaining the basic income debate by enabling public endorsement and forming an arena of debate as the opposition attempts to delegitimize the issue.

**Conclusion**

This study finds that social media contribute to making issues visible to politicians, but do not notably influence the urgency of basic income policy. Rather, social media are used by news media to expand their reach, an expansion that sometimes catches the attention of motivated politicians. Traditional media thus heavily influence the social media discussion (Walgrave & van Aelst, 2006). Politicians, in turn, use social media to broadcast their achievements and ideologies. The public response on social media can be seen as a cue of public sentiment. When a message resonates with the public (Koopmans, 2004), it creates a window of opportunity for politicians to move forward with their ‘pet issues’ or exploit issue popularity for electoral success (Kingdon, 2011). Individuals may affect politicians’ interpretation of public sentiment by actively addressing them or passively funneling information into

\(^{31}\) [https://twitter.com/marleenhaage/status/645234336011300864](https://twitter.com/marleenhaage/status/645234336011300864)

\(^{32}\) [https://twitter.com/SadetKarabulut/status/659092816975548416](https://twitter.com/SadetKarabulut/status/659092816975548416)
politicians’ view. In these ways, social media moderate the influence of traditional media on political agendas.

Visibility and urgency

The temporal order of events reveals that proponents were motivated to get basic income on the political agenda after it became visible in traditional and social media, while opponents perceived the issue as urgent due to its impending political consequences.

In spite of the close relationship between issue visibility and political attentiveness, network integration and leadership play no meaningful part in getting politicians’ attention. Politicians are more attentive when the debate is integrated, but this is likely caused by news events that instigate discussion by politicians and non-politicians alike. Those tweeting these news events connect participants to one another momentarily as debate ensues, but without creating sustainable links between them. As the discussion fades, so does the network integration and the information diffusion it supposes to facilitate. To the extent that a stable community debating basic income exists, it is unable to affect the tides of attention that form around influential news events.

Leadership also does not draw people into the basic income debate. Debate on social media differs from academic and political debates in this sense: the sheer size of social media debate make it near impossible for a single person to lead the discussion. After a discussion is instigated it ripples through the network beyond the control of any single person. The social legitimacy of a message then plays the more crucial part in its diffusion than the network position of the person conveying it. However, even though there is no evidence for a general role of leadership in the Twitter debate, informal leaders might be important in sustaining debate after waves of popular attention fade. Whether this action has any impact on political attentiveness remains to be seen.

Social media do not elevate issue urgency in any notable way. Rather, opposing politicians entered the debate because of the impending welfare experiments made possible by proponent politicians. Those opposing an idea do not care about what is said, but about what is done. Outside of the political arena, where politicians are not obliged to enter debate, the organized opposition prefers to avoid discussion as long as possible. Notably, some politicians perceive basic income as a greater threat than others. A handful of opposing politicians are active in the debate from the early stages onward. The individual variation in perceived urgency and its relationship to the general acceptance of issue urgency might be a valuable avenue for future research.
The role of social media

Although social media often resonate events reported by traditional news media, the content of debate reveals there is still an independent contribution of social media to the debate. Information often originates outside of social media, but once social networks pick up on stories they facilitate debate and attract political attention. Social media thus play a supplementary role to traditional media in the political agenda-setting process: they provide cues of public awareness to politicians, make it easier for information to reach politicians and facilitate politicians’ engagement in debate.

First, social media provide cues of public awareness that increase the legitimacy of an issue. Politicians consider public opinion before they act for some issues, using media coverage as a rough indicator of what occupies the public mind (Kindon, 2011). Social media constitute a more direct poll of public awareness. Issues can become trending or otherwise elicit a strong public response, a direct cue of the public importance of an issue. This public importance legitimates political action regarding this issue.

Second, social media make it easier for information to reach politicians. This can be done actively by calling out politicians or passively through diffusion of information. Tagging, mentioning or otherwise calling out politicians is a very direct way to make politicians attentive to an issue. In this way, social media can make issues visible to individual politicians much more directly than the broad stroke of mass media. Additionally, events reach politicians through contacts that are active on social media. The posts and comments of contacts appear in politicians’ news feed, so that engagement of nonpolitical contacts can create awareness of an issue amongst politicians.

Third, social media are a platform for politicians where they can try to legitimize or delegitimize an issue. Politicians are free to engage in debate on social media, without the restricting condition of publication by traditional media. Politicians can endorse and oppose events in an effort to gain public support for their goals. Proponent politicians publically endorsed basic income after traditional media coverage and the opposition used social media in an attempt to block the welfare experiment motions. Social media thus works the other way around, with politicians trying to influence public opinion.

The theoretical implication is that political agenda-setting theories cannot rely only on traditional media coverage in their investigations of media influence. Social media provide more direct cues of public opinion than traditional media coverage, allowing politicians to gauge what traditional media coverage must be taken seriously and what not. As such, social media can lead politicians to disregard traditional media coverage or reinforce their attentiveness.
Limitations

The network characteristics scrutinized in this study, integration and leadership, did not have a solid relationship with politicians’ attention. The reality of getting attention is much more complex than was accounted for in the network model. It seems that the abstraction of network analysis has led to a loss of detail needed to fully grasp the mechanisms of getting attention from politicians. Modeling the network processes at work thus requires a much more nuanced approach.

A primal issue concerns the unit of analysis. Creating networks requires aggregating the data so that each time point represents one week. This is too broad, because the real mechanisms of getting attention happen within the week, within the day and often even within the hour. The network process must be conceptualized as a diffusion pattern rather than an aggregated set of interactions. Perhaps this can challenge can be tackled by taking conversations as the unit of analysis and comparing types of actors, ties and network patterns. Some conversations will draw political attention and some will not, the expected difference in them related to who is involved and how they are involved.

The interlocking of social and traditional media also makes modeling the data more difficult. Debates become more integrated and visible as there is more discussion, both of which are often caused by some external event such as news reports or political developments. These factors are not included in the model, but do form an integral part of the debate. Without a way of incorporating traditional media, spurious relationships are likely to emerge. Analysis of conversational patterns thus also must account for the (external) reason that a conversation is initiated.

Finally, much of the political attention on Twitter is endogenous to the political system (cf. Sevenans, 2017). Rather than just receiving information, politicians often use the medium to send – i.e. to notify the public of political events. A politician may tell us that a debate is being organized or a motion will be discussed. Political attention on social media is then a function of external political events. Moreover, politicians are more involved in these events and more often part of the social network of other politicians. Hence, politicians tend to respond more often to these notifications. Even statements seemingly unrelated to political events may form a response to political realities on closer inspection. Quantifying endogenous and exogenous political attention and analyzing their role in different phases of debate might be a valuable avenue for future research.

In sum, it seems that social media do contribute to the political agenda-setting process. Instigated by external events in news or politics, social media help to cue the public relevance of particular issues,
ease diffusion of information and lower barriers to participation in public debate. Accordingly, scholars should rise to the challenge of including social media factors when assessing the impact of media on the political agenda-setting process.

References


Howard, P. N., Duffy, A., Freelon, D., Hussain, M. M., Mari, W., & Maziad, M. (2011). Opening closed regimes: what was the role of social media during the Arab Spring?


### Appendix A: missing data per wave of data collection

<table>
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<th>Acquired</th>
<th>Total</th>
<th>Missing</th>
</tr>
</thead>
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<td>50072</td>
<td>.06</td>
</tr>
<tr>
<td><strong>Total replies</strong></td>
<td>57549</td>
<td>64590</td>
<td>.11</td>
</tr>
<tr>
<td>First replies</td>
<td>19129</td>
<td>23179</td>
<td>.17</td>
</tr>
<tr>
<td>Second replies</td>
<td>10668</td>
<td>11954</td>
<td>.11</td>
</tr>
<tr>
<td>Third replies</td>
<td>7693</td>
<td>8208</td>
<td>.06</td>
</tr>
<tr>
<td>Fourth replies</td>
<td>5491</td>
<td>5910</td>
<td>.07</td>
</tr>
<tr>
<td>Fifth replies</td>
<td>4070</td>
<td>4559</td>
<td>.11</td>
</tr>
<tr>
<td>Sixth replies</td>
<td>3441</td>
<td>3504</td>
<td>.02</td>
</tr>
<tr>
<td>Seventh replies</td>
<td>2843</td>
<td>2949</td>
<td>.04</td>
</tr>
<tr>
<td>Eighth replies</td>
<td>2306</td>
<td>2357</td>
<td>.02</td>
</tr>
<tr>
<td>Ninth replies</td>
<td>1908</td>
<td>1970</td>
<td>.03</td>
</tr>
</tbody>
</table>
Appendix B: Walk-trap algorithm

Random walks can be compared with the diffusion of information in a debate. Arguments traverse through a discussion via the interaction habits of its participants. A group that talks amongst each other is unlikely to reach out to others in the debate. Hence, the information that is shared in that local conversation will probably not diffuse beyond it. A random walk is thus a recreation of the diffusion patterns in the data, mimicking the pattern of interaction based on the observed likelihood of interaction.

First, the distance between nodes is computed based on a random walk procedure. Starting from each node, the algorithm selects a connected node based on their observed frequency of interaction. If one participant talks twice as much to one than another, the random walk is also twice as likely to connect these two. The estimated distance between nodes depends on the length of the random walk, which I have set at $t = 10$ steps.

Second, the nodes are merged into communities through an iterative hierarchical clustering procedure aimed at minimizing this distance (cf. Ward, 1963). This decision rule is also known as optimizing the modularity of the network. The algorithm starts by dividing the network into $n$ communities, where each node forms its own community. A random node from a community is chosen and the distance to each other node in that community is computed by random walk. If the average (squared) distance is lower in the prospective community, the two communities are merged. This process is repeated until merging communities no longer reduces the average distance. Thus, the optimal amount of clusters is found by minimizing the distance between nodes.
Appendix C: network descriptive graphs

Figure 1: Trend in political and non-political tweet volume (normalized)

Figure 2: visualization of network characteristics
Note: The debate networks are plotted in the weeks where integration and leadership are highest and lowest. The first row shows network integration, where each node is a Twitter user and each tie is an interaction. The colour of the node represents which cluster the node belongs to as ascribed by the walk-trap algorithm. The debate on the left is most integrated because it has many participants that from few clusters. The debate on the right is least integrated because it has many clusters relative to its number of participants. The second row visualizes leadership in the network. Here too, each node is a Twitter user and each tie represents an interaction. The colour of the tie signifies the type of interaction: replies are yellow, mentions are red and retweets are grey. Nodes increase in size proportionate to the number of times they are mentioned, replied to or retweeted. Thus, larger nodes are stronger leaders. The debate on the left has the strongest leader because one person is interacted with much more often compared to others in the debate. Inversely, participants in the debate on the right receive an equal amount of attention from each other, indication that there is no strong leader present at that point in time.

Figure 3: trend in network integration and leadership (normalized)
### Appendix C: Tweet content overview

<table>
<thead>
<tr>
<th>Date</th>
<th>Actor</th>
<th>Party</th>
<th>Motivation for political attention</th>
<th>Motivation type</th>
<th>Phase</th>
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</thead>
<tbody>
<tr>
<td>13-05-13</td>
<td>Individual</td>
<td></td>
<td>Mention politician on Twitter</td>
<td>Call-out</td>
<td></td>
</tr>
<tr>
<td>14-10-13</td>
<td>Politician</td>
<td>GL</td>
<td>Essay GroenLinks (kiezen om te delen)</td>
<td>Political</td>
<td></td>
</tr>
<tr>
<td>07-02-14</td>
<td>Blogger</td>
<td></td>
<td>Blog (sociale effecten van een basisinkomen)</td>
<td>Blog</td>
<td></td>
</tr>
<tr>
<td>26-02-14</td>
<td>News org.</td>
<td></td>
<td>Episode Tegenlicht (noodzaak van een utopie)</td>
<td>News event</td>
<td>Media attention</td>
</tr>
<tr>
<td>26-02-14</td>
<td>Journalist</td>
<td></td>
<td>Publication FTM (BI: een alternatief voor de rondpompmachine)</td>
<td>News event</td>
<td></td>
</tr>
<tr>
<td>06-04-14</td>
<td>Politician</td>
<td>GL</td>
<td>Debate within green left party</td>
<td>Political</td>
<td></td>
</tr>
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<td>26-08-14</td>
<td>Interest group</td>
<td></td>
<td></td>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>31-08-14</td>
<td>Individual</td>
<td></td>
<td>Publication The Post Online (BI: meer vrije tijd, meer comfort, meer oog voor elkaar)</td>
<td>News event</td>
<td></td>
</tr>
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<td>18-09-14</td>
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<td>GL</td>
<td>Meeting NGSZ (vervang regelingen door BI)</td>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>21-09-14</td>
<td>Politician</td>
<td>D66</td>
<td>Episode Tegenlicht (Gratis geld)</td>
<td>News event</td>
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</tr>
<tr>
<td>21-09-14</td>
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<td>PvdA</td>
<td>Episode Tegenlicht (Gratis geld)</td>
<td>News event</td>
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<td>21-09-14</td>
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