

Beyond normalization and equalization on Twitter: Politicians' Twitter use during non-election times and influences of media attention

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Twitter has already become one of the most important social media platforms for political communication. Concerning the use of Twitter in politics, two possible developments have been at the core of the theoretical discussion – equalization and normalization. As normalization seems to be the case in most western countries about politicians' Twitter use, it is yet unknown to what extent this debate can be applied to non-election times. The aim of our study is three-fold. First, we address the debate of normalization on Twitter with a focus on the activity level on Twitter. Second, we classify the politicians based on their activity level in order to investigate to what extent the Twitter use still differs even if a high level of adoption has been reached. Third, we analyse the impact of the traditional media on the Twittersphere during parliamentary and non-parliamentary phases, thus focusing on non-election times. Our results show that even though media attention gives some politicians an advantage online, equalization tendencies are still possible on Twitter if politicians actively use the platform.

Keywords: Twitter, political communication, media attention, equalization, normalization, social media

Twitter has already become one of the most important social media platforms for political communication, with some scholars are hoping that platforms such as Twitter have a positive impact on the relationship between politicians and citizens (Coleman and Blumler 2009). Studies have examined how politicians (for an overview Jungherr 2014b), journalists (e.g. Metag and Rauchfleisch 2017) or social movements (e.g. Gerbaudo 2012) use Twitter. In the political sphere, Twitter is often used as a campaigning tool and has the potential to accompany traditional campaigning strategies (Jungherr and Schoen 2013).

Concerning the use of Twitter in politics, two possible developments have been at the core of the theoretical discussion – equalization and normalization. The emergence of social media and the Internet, in general, gave rise to hope for equalization: the Internet should enable political actors with little resources to overcome the dominance of actors with strong resources in the offline world (Margolis and Resnick 2000). After many years of research focusing on whether equalization comes into being, Jungherr (2014b) concludes that most studies in different national contexts rather underscore the tendency of normalization for Twitter, i.e. that politicians and parties with substantial resources also dominate the use of Twitter. However, the concepts of normalization and equalization are mostly studied with regard to the adoption of social media (e.g. Guðmundsson 2016; Vergeer and Hermans 2013). It has hardly been analysed to what extent – once a social media tool such as Twitter has been adopted – different ways of using social media also reflect tendencies of normalization and equalization.

As normalization seems to be the case with regard to politicians' Twitter adoption in most western countries, it is yet unknown to what extent their use differs between electoral times and non-election times. While normalization and equalization tendencies have been studied regarding the adoption of Twitter in election times, we suggest that studying the way Twitter is used in non-election times will enrich the concepts of normalization and equalization through differentiating between levels of activity of social media use. Even if most politicians have adopted Twitter, to what extent does the activity of politicians on Twitter differ in these phases and reflect patterns of normalization or equalization?

In Switzerland, the parliament meets four times a year for a three-week parliamentary session. This particular aspect of the Swiss system enables us to examine the use of Twitter with regard to the concepts of normalization and equalization systematically in two phases – during sessions with high parliamentary activity and during normal times.

In a second step, we argue that normalization and equalization on Twitter should not be analysed solely focusing on Twitter as an isolated platform. Research has shown that mass media coverage is influential for what is happening on Twitter (Vargo et al. 2015; Ceron et al. 2016; Petrovic et al. 2013). If politicians with more power, which we will introduce as a more accurate measurement in the context of normalization, are covered more prominently in the media coverage, and this coverage influences Twitter, normalization tendencies on Twitter should also be furthered through

influences of mass media coverage of politicians. Therefore, we analyse possible correlations between mass media attention and the attention politicians receive on Twitter.

The aim of our study is twofold. First, we examine different types of Twitter use and classify the politicians based on their activity level in order to investigate to what extent the Twitter use still differs against the background of the normalization and equalization debate even if adoption has taken place. Moreover, we compare the identified user types based on their political and socio-demographic characteristics. Second, we analyse the impact of the traditional media on the Twittersphere during parliamentary and non-parliamentary phases, thus focusing on non-election times.

From equalization to normalization and beyond

When online media were first introduced in politics and used during election campaigns, two different developments were forecasted by researchers. The idea of equalization meant that resources of political parties are less significant for using online communication compared to the offline world. Thus, through the use of online media, smaller and fringe parties would be able to reach a larger audience (Gibson et al. 2008; Schweitzer 2008; Coleman and Blumler 2009; Castells 2009). In the early and mid-1990s, the idea was supported by empirical research because small parties could benefit from online campaigning despite their limited resources (Gibson and Ward 1998). In contrast, the normalization hypothesis argues that differences between political parties and candidates in the real world are simply replicated on the Internet because differences in professionalism, resources and visibility between major and minor parties in the real world are also reflected in their use of online media (Gibson et al. 2008; Schweitzer 2008).

Concerning Twitter, a tendency towards normalization thus means that politicians who are powerful in the offline world dominate the political debate on Twitter (Jungherr 2014b). Jungherr (2014b) states that most results rather underscore the tendency of normalization for Twitter. However, studies dealing with the concept of normalization often only analyse the adoption of social media amongst politicians, but do not consider how actively they use it (e.g. Larsson 2013; Guðmundsson 2016). Some studies take the use of Twitter into account in more detail. Vergeer and Hermans (2013) analyse which factors explain various activities on Twitter, among them the number of followers, following other Twitter users and reciprocal relationships during the general election of 2010 in the Netherlands. They find, for example, that 'candidates from older parties have more followers than those from younger parties, suggesting that established parties know best how to utilize new technology to reach out to people' (Vergeer and Hermans 2013: 411). This is an indication of normalization in Twitter activities. Klinger (2013) also shows that larger political parties in Switzerland show higher reciprocal activity on Facebook and Twitter during the election year of 2011. Also, Larsson and Kalsnes (2014) study the social media practices of politicians in Sweden and Norway and find that younger politicians are more active on Twitter, with the number of tweets sent by a politician from

a given date on being the indicator for Twitter activity. They discuss this result as an underdog effect for politicians which are usually rather disadvantaged – which underscores the equalization tendency.

The overview of the state of research reveals that only a few studies analyse normalization and equalization tendencies of politicians on Twitter focusing on Twitter activity and different forms of Twitter use. Those studies which do so mainly research Twitter activity during election times (Klinger 2013; Vergeer and Hermans 2013) or only focus on certain activities, for example the number of tweets sent (Larsson and Kalnes 2014). We argue that through the analysis of normal phases in the political system and phases with high political activity, the research on normalization and equalization can be enriched if it is considered how actively users use Twitter and by differentiating between these phases. It is possible that social media adoption takes place because Twitter usage is a trend in the general population of politicians. If politicians only open an account because it is a current trend, this is called the *me too* effect (Metag and Marcinkowski 2012; Sudulich and Wall 2009; Selnow 1998). Such politicians have an account but are not actively using it. Analysing how actively politicians are using Twitter in different phases of political activity adds further evidence to the concept of normalization on Twitter. Thus, we investigate the social media use of politicians during non-election times in order to identify different user types. Prior research identified socio-demographic as well as political characteristics that possibly explain the activity of politicians on Twitter. Our inductive approach allows us to investigate the characteristics of the politicians belonging to a particular group and to compare them with other groups:

RQ1: *What user types can be identified amongst politicians?*

Besides the activity on Twitter, we are also interested in the attention politicians receive on Twitter. The activity level obviously influences the attention they receive, but traditional media might also have a strong influence. In the following section, we focus on Twitter attention and its possible relationship with media attention.

Media attention and normalization online

Twitter has early on been described as a news media platform that mirrors traditional media (Kwak et al. 2010). In the case of specific events such as breaking news or sports events, Twitter influences the traditional media. Similar effects have been investigated in a political context. Jungherr et al.'s (2016) studies analysed the effect of campaign-specific events and topics on Twitter communication in a longitudinal design. Jungherr (2014a) also used longitudinal data to examine if the volume of Twitter messages followed the same logic of political coverage in traditional media. However, both studies used data collected months directly preceding the elections. In a recent study, van Aelst et al. (2017) directly compared in a cross-sectional study media attention of candidates with their activity and popularity on Twitter. They

found that the activity level and the number of followers explain the media attention a candidate received in the month before the election. Overall, only a few studies have analysed longitudinal data and included media variables when analysing political Twitter use.

In contrast, for more general issues, the media still lead Twitter (Petrovic et al. 2013). Political coverage outside of election times belongs to the latter category concerning the interaction between Twitter and traditional media. Based on the evidence currently available, it seems fair to suggest that on the level of general issues the media lead Twitter with news stories (Vargo et al. 2015) and set the agenda (Ceron et al. 2016).

With regard to the normalization and equalization debate, the question regarding the relationship between media attention and attention on Twitter relates to questions of power and resources. A general understanding would be that if a political actor dominates the offline world, it can be expected that this media attention will likely have an impact on the Twitter attention she or he might then receive. Vice versa, if a political actor receives much attention online without being prominent in the media, this would be strong evidence for an equalization tendency.

However, what does media attention and dominance in media attention mean and what influences it? Since in its original sense, resources are the core of the concepts of normalization and equalization, this means that political actors who are prominent in the media also have many resources at hand. Concerning equalization tendencies on the Internet, it is argued that resources such as money play less of a role on the Internet (Castells 2009). However, it is rather difficult to reliably measure financial resources as a primary indicator for normalization or equalization (Lilleker et al. 2011) of political actors outside of the United States, where the information about the financial resources of politicians is quite transparent. In countries such as Switzerland or Germany, no publicly reliable data is available. Some studies directly asked politicians about their resources through surveys (e.g. Marcinkowski and Metag 2014; Metag and Marcinkowski 2012). One major drawback of this approach is that researchers have to rely on the self-evaluation of politicians. Also, focusing only on tangible resources to identify normalization or equalization can be misleading. In politics, intangible resources such as power are far more important. A political actor with a lot of financial resources who is barely mentioned in the media and never wins elections would not be regarded as an established or powerful actor in the light of the normalization and equalization approach.

Instead, power would be a more accurate measurement for analysing media and Twitter attention in the light of normalization. Based on prior research, we know that party leaders (Tresch 2009) or politicians from large parties which are strongest in parliament (van Aelst et al. 2008) receive higher media attention. Still, there are many unobservable factors that can influence media attention. For example, politicians have direct contact with journalists (Kovic 2017) or implement specific clandestine campaign strategies to access the media (Serazio 2014). Thus, media attention is not necessarily solely a product of a politician's measurable power. Likewise, Twitter

attention may not be solely the result of a politician's power as the normalization hypothesis would suggest. It would also be possible that the media attention itself leads to more attention on Twitter through agenda-setting processes – all else being equal.

Although it is difficult to measure these different factors which result in media attention as well as Twitter attention, we would still argue that presence in the media is an indicator for power – no matter how these resources actually materialize. We assume that politicians with strong media attention have plenty of resources at hand which they successfully used. This implies that political actors who are dominant in the media are powerful. Thus, normalization would mean that those actors who get a lot of media attention should also get much attention on Twitter due to their power in the political system. However, media attention can mean different things. Capturing *media attention*, van Aelst et al. (2008) for example counted the number of times a political actor was mentioned in the media. Jungherr (2014a) also counts in his study how often political actors were referred to in the media. By contrast, the concept of *standing* is more specific. Standing can be best described as the extent to which a political actor 'is taken seriously by being given extensive media coverage, regardless of content' (Gamson and Wolfsfeld 1993: 121). This concept, in a more elaborate form, 'refers to gaining the status of a regular media source whose interpretations are directly quoted' (Ferree et al. 2002: 13). Standing thus means for a political actor having an active presence with his or her voice in the media. Studies with this understanding usually investigate the standing of a political actor in the context of a particular policy issue (e.g. Tresch 2009; Höglinger 2008).

To evaluate whether normalization beyond adoption can be observed online, we compare media attention with the attention politicians receive on Twitter. However, to take into account that attention can mean different things, it also needs to be discussed what forms of attention on Twitter can be distinguished.

Attention on Twitter as a construct

Activity on Twitter can mean different things. A normal tweet can be classified as general broadcasting, as Graham et al. (2013) have defined it in their study. In contrast, a reply or a mention are part of interactive communication and thus measures of *resonance*. A user is being addressed either directly, through a reply, or indirectly, through a mention. Both can be positive or negative, depending on the context. Retweets, in contrast, are a measurement of the importance of a message for users on Twitter and also part of the concept of resonance (Jungherr 2014a).

Activity and resonance, however, are not clearly independent of each other. The more active a politician is on Twitter, the more retweets he or she will receive (e.g. van Aelst et al. 2017). Someone who never writes a tweet cannot be retweeted. The same holds partly true for replies. Most replies are replies to a specific tweet, but replies can

also occur in the form of replies to a username without addressing a specific tweet. Mentions as part of resonance are the most activity-independent aspect out of these three elements of resonance.

The different forms of resonance on Twitter can be interpreted as equivalents to media attention. A Twitter mention is the closest form to just being mentioned in the media, whereas retweets can be compared to the concept of standing because the political actor is being mentioned with its voice. Replies also extend the visibility of a politician but are more similar to mentions because a politician is only being addressed. These indicators are purely outcome oriented and ignore other components such as the number of followers which do not clearly indicate the possible reach.¹ Concerning the concept of normalization, if a politician has a high media attention and gets many mentions on Twitter while controlling for her or his activity level, this would be an indicator for normalization. Normalization tendencies should be expected most for mentions on Twitter because the only precondition for a mention is the existence of a user account. If a politician is famous enough and has opened a Twitter account, he or she will receive mentions even though he or she might never write tweets. Also, if a politician who is often covered in the media receives many replies and retweets on Twitter, this would indicate normalization. Normalization would be least expected when retweets are concerned because this would mean that a politician who gets a lot of media attention also has a strong standing on Twitter. This correlation should not be as strong as the correlation between media attention and mentions or replies because standing on Twitter also depends on other factors. Politicians who are not prominent in the media can still have a strong standing on Twitter due to their activity level or skilful use of social media.

As a result of these considerations, we expect that the media attention a politician receives in the offline world will likely correlate with the Twitter attention he or she might then receive. Therefore, we compare media attention with the attention politicians receive on Twitter. When doing so, we analyse retweets, mentions and replies separated as they stand for different constructs. Also, our study includes a longitudinal design. We ask:

RQ2: *What is the correlation between Twitter attention and media attention politicians receive?*

To date, few studies have analysed the resonance politicians receive on Twitter. This can be possibly explained by the technical difficulties that inevitably arise with such an analysis. All tweets directed at politicians in the form of replies or mentions can only be identified if the politicians are continuously tracked over time. This information can be very useful, however, since the measurement of resonance on Twitter would be the closest platform-specific equivalent to media attention.

Data

Switzerland has in total 246 politicians in the Federal Assembly which consists of the councils of states (upper house) and the national council (under house). At the beginning of 2015, all Swiss parliamentarians with a Twitter account ($n=107$) were manually identified. Switzerland with its *militia parliament*, ‘that is, a parliament composed of amateurs who combine their professional activities with their parliamentary duties’ (Kriesi 2001: 60), also has different periods of parliamentary activity. The parliament meets four times a year for the three-week parliamentary session. The spring session of the parliament (2–22 March 2015) and three weeks without a session or national vote (30 March–19 April 2015) were chosen as the time period for the data collection. Between these two phases, one week as a break was included to ensure the independence of the samples.

In a first step, all tweets in which a politician appeared with its username were extracted for the session ($n=8265$) and normal phase ($n=4764$).² These tweets could be a retweet of a politician, a reply to a politician or a tweet including a mention of the politician. In a second step, the timeline of every politician was downloaded one week after the normal phase. The tweets from the session ($n=3220$) and the normal phase ($n=1880$) were extracted from this data set. For RQ2, the daily number of replies and normal tweets were used as a measurement of the activity of a politician on Twitter that potentially has an influence on the attention politicians received. Of course, retweeting is also a form of activity, but a causal relationship with received attention on Twitter seems less plausible because retweets do not foster direct replies and mentions directed at a politician. Additionally, we considered the individual-level variables, number of followers, age and a politician’s gender.

The print media of the German-, French- and Italian-speaking parts of Switzerland were collected over the platform Factiva to capture the media attention politicians receive in the press.³ Every article during both phases in which a politician was mentioned with its name was downloaded. It was counted in how many articles each politician was mentioned with his or her name (session $n=2990$; normal $n=1309$). Articles appearing in multiple media outlets were not filtered out and counted separately because the overall media attention is the main focus of our research question. For RQ2, the count data for media and Twitter attention was aggregated per day for each politician. Table 1 provides an overview of all our variables in the two phases.

Method

For RQ1, the aim is to identify different groups of politicians on Twitter based on their use. Therefore, a cluster analysis is an appropriate approach. Standard cluster analysis techniques such as k-mean procedures require a priori assumptions such as the number of clusters, but a Gaussian Mixture Model with Expectation Maximization

	Normal	Session	Correlation r
Normal tweets***	6.42 (9.97)	10.65 (14.89)	0.85
Replies*	4.00 (9.05)	7.19 (11.99)	0.77
Retweets**	7.19 (14.21)	13.80 (34.80)	0.86
Average received retweets**	1.05 (1.33)	1.57 (2.04)	0.73
Received replies**	15.93 (27.06)	23.89 (39.01)	0.75
Received mentions***	8.84 (16.74)	15.96 (25.29)	0.74
Media attention***	12.90 (16.50)	28.00 (22.60)	0.47

Paired t -test, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. $n = 107$. Means with standard deviations in parentheses.

Table 1: Overview of variables and comparison between the two phases.

(Fraley and Raftery 2002) offers an inductive exploratory technique without a priori assumptions. This algorithm can accommodate several cluster shapes, copes well with outliers and is recommended for building typologies (Ahlquist and Breunig 2012). The best model can be selected based on the Bayesian Information Criterion (BIC) (Schwarz 1978), and it is possible to identify which variables should be included in the model (Raftery and Dean 2006). We used the R-packages *mclust* (Fraley et al. 2012) and *clustvarsel* (Scrucca and Raftery 2014) for this analysis.

For RQ2, a *general linear model* (GLM) should not be considered because such a model violates the independence assumption of the response variable. We have repeated-measures data for all 107 politicians on Twitter. Thus, the data consists of 107 clusters with repeated measurements. These components increase the risk of a type 1 error, especially if the within-subject correlation is strong (Zuur 2009; Gardiner et al. 2009). A typical approach would be the implementation of a time-series cross-sectional analysis with panel-corrected standard errors, but this method tends to give biased results (Plumper et al. 2005). Therefore, we consider a generalized estimation equation (GEE) model (Liang and Zeger 1986) in which particular correlation structures can be used that take the correlation over time into account. Because of the small time interval of one day, the different measurements most likely correlate with each other and thus violate the independence assumption required for a GLM. Furthermore, GEE models can cope well with count data (Twitter and media attention) and overdispersion (the mean is not equal to the variance).

GEE is the best approach not only based on methodological grounds but also based on epistemological grounds. Our primary interest is to identify the average effect of the media attention on the Twitter attention in the population of Swiss parliamentarians. The GEE model estimates the average effect in a population which is why these models ‘are also called population-average models’ (Gardiner et al. 2009: 228). We used the R-package *geepack* (Halekoh et al. 2006) to estimate our models.

Additionally, the two phases allow us to run each of our models twice. The second model can also be understood as a replication study of our first model in a slightly different setting. A considerable difference between the estimates of the models would be an indicator for a unique occurrence of the effect, whereas similar results would point towards a generalizable interpretation of the effects under investigation.

Before starting our main analysis, we checked if the two phases are different from each other on an aggregated level as prior research has indicated (Rauchfleisch and Metag 2016). Overall, the politicians were more active on Twitter; received more replies, mentions and retweets; and received a higher media attention during the session phase (see Table 1). The correlation analysis shows that politicians who are more active during the session phase are also more active during the normal phase. The same holds true for received attention on Twitter and in the media.

Results

RQ1: Identifying different user types

For the cluster analysis, the aggregated number of written normal tweets, replies and retweets during both phases were considered. The results based on *clustvarsel* (Raftery and Dean 2006) indicate that all six variables should be included in the final model. All possible model variations were calculated and compared based on the BIC. The model with the lowest BIC, thus the model that represents the data best (Fraley and Raftery 2002), was chosen.

Based on the Twitter metrics from both phases, two groups of politicians could be identified. Parliamentarians in group 1 ($n=62$) are in general the most active users on Twitter (active group), whereas parliamentarians in group 2 ($n=45$) are not actively using Twitter (passive group). Regarding the average age of the politicians, the two groups differ from each other strongly ($t[105] = -4.86, p < 0.001$): parliamentarians in the active group ($M=47.25, SD=9.57$) are younger than parliamentarians in the passive group ($M=56.51, SD=9.89$). The parliamentarians in the active group are mostly members of the national council (under house) and 71 per cent of all women in the data set are in this group. In comparison, politicians in the passive group are mostly from the council of states (upper house) and 70 per cent of all politicians belonging to the Swiss People's Party (largest party in parliament) in the sample are in this group. The scatterplot with the classification of the groups shows that there are outliers in the data which are far more active than their peers in parliament during both phases. Still, they are too few to be classified as an own group and can be captured well enough with the ellipsoidal distribution of the covariance matrix (see Figure 1). With regard to the media attention, different volumes of attention could be identified only during the session phase ($t[105] = -4.86, p < 0.001$).⁴ Politicians of the active group ($M=31.5, SD=25.4$) received overall a higher media attention than politicians of the passive group ($M=23.1, SD=17.2$). During the normal phase, the

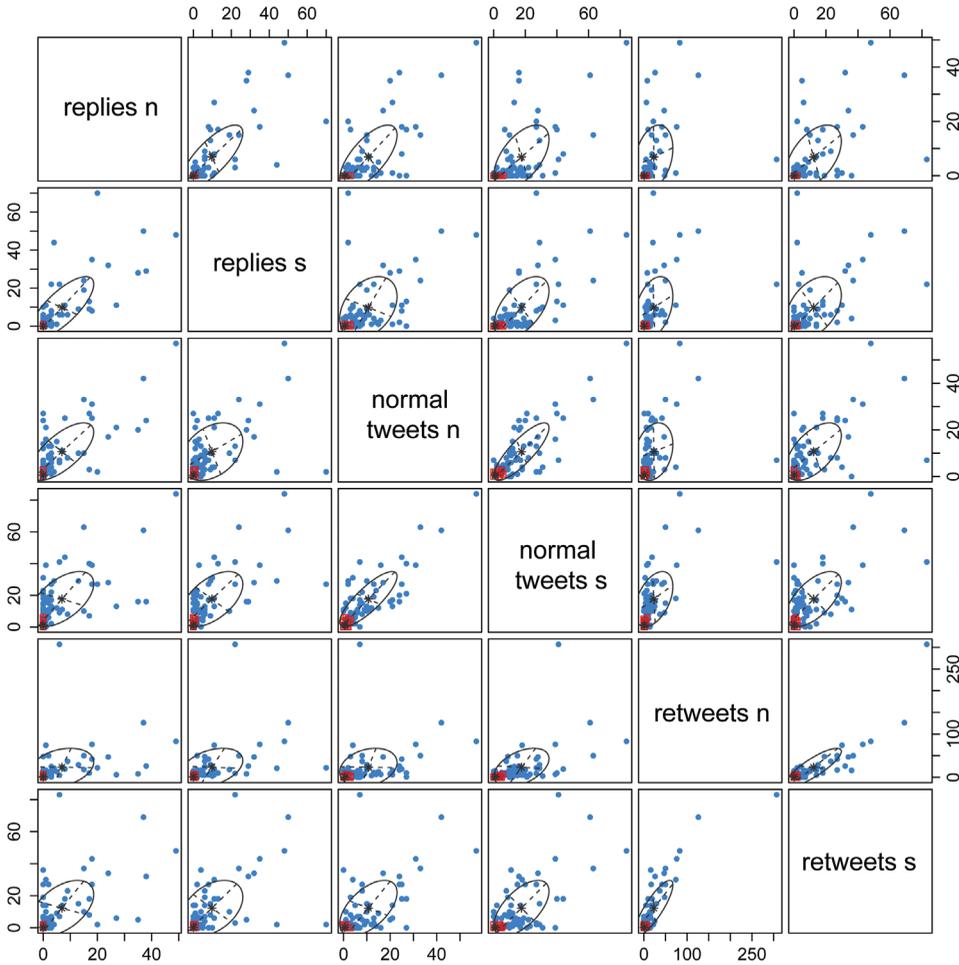


Figure 1: Scatterplots with the classification of the politicians with all variables included in the cluster analysis. Blue stands for the active group of politicians, red for the inactive group, s for session and n for normal phase.

media attention for both groups was almost identical (group 1: $M=14.05$, $SD=18.10$; group 2: $M=11.50$, $SD=14.20$).

RQ2: Influence of press on Twitter

To answer RQ2, we first calculated a correlation analysis for every politician and day for each session (total data points $N=2247$). In both phases, similar correlations for all combinations of variables could be observed (see Figure 2). Media attentions correlate the strongest with mentions, followed by replies and retweets. This analysis ignores the clustered and longitudinal form of our data. Furthermore, such an analysis cannot cope well with overdispersed count data. Therefore, we test the relationship

between the media and Twitter attention in the next step with a GEE model with a Poisson distribution (suitable for count data) and a log link. In the GEE model, we can additionally include the activity of politicians on Twitter, the number of followers in thousands, the gender and a politician's age as further predictors.

We estimated in total six GEE models for the three different forms of Twitter attention as the response variable for each phase. We used a first-order autoregressive correlation structure as we measured our variables in regular intervals. This structure is appropriate if the outcome variable correlates within the clusters.

For all six models, a strong correlation (α) between the different measures can be observed. Media attention predicts mentions during both phases. The estimates for retweets are the lowest, with no significant estimates during the session phase and only a low significant estimate during the normal phase. Media attention predicts in both phases the number of replies but the estimates are lower than for mentions. In all six models, the activity of politicians on Twitter is the strongest predictor. The values of β in Table 2 show the possible influence and can be best interpreted in its exponential form as incidence rate ratios (IRR). Media attention has an IRR of 1.08 ($\beta=0.08$) during the normal phase on mentions. This can be interpreted in such a way that for each increase in media attention, there is an 8 per cent change in the incident rate for the number of received mentions on Twitter on the same day holding other variables constant. For the activity level, the values range from a 15 per cent ($\beta=0.14$) increase in the incident rate for mentions during session up to a 28 per cent ($\beta=0.25$) increase of the incident rate for replies during the normal phase.

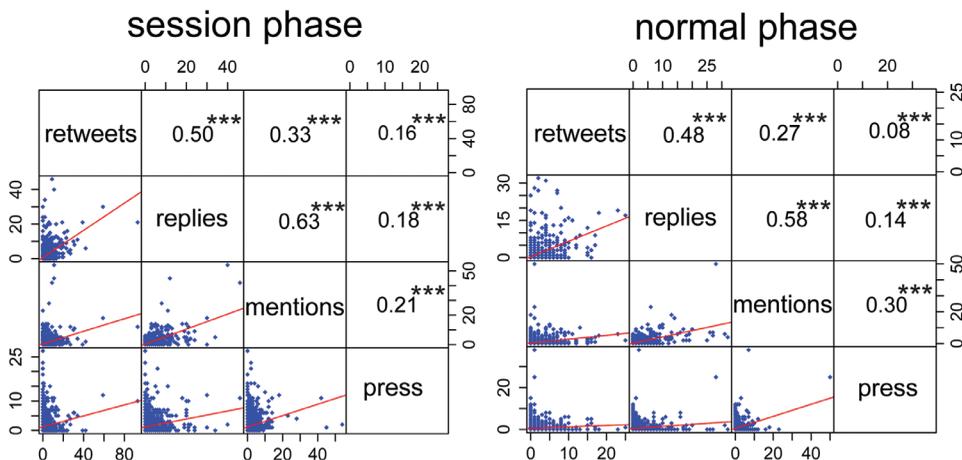


Figure 2: Scatterplots with the media attention and the variables for Twitter attention for each phase. Numbers show r , *** $p < 0.001$, $N=2247$. Lines show linear regression lines.

Phase	Replies		Mentions		Retweets	
	Normal	Session	Normal	Session	Normal	Session
Media	0.05(0.02)**	0.06(0.02)*	0.08(0.01)**	0.08(0.02)**	0.05(0.02)*	0.03(0.02)
Activity	0.25(0.03)**	0.18(0.02)**	0.20(0.02)**	0.14(0.03)**	0.23(0.03)**	0.18(0.02)**
Age	-0.03(0.02)	-0.004(0.01)	-0.02(0.01)*	0.01(0.02)	-0.03(0.01)*	-0.04(0.01)**
Gender (m)	-0.01(0.25)	-0.30(0.25)	-0.13(0.29)	-0.46(0.30)	0.05(0.29)	-0.25(0.26)
Followers in thousands	0.03(0.04)	0.09(0.02)**	0.06(0.03)*	0.08(0.03)**	0.05(0.03)	0.04(0.23)
Constant	0.71(0.84)	-0.29(0.78)	-0.06(0.58)	-1.09(1.00)	0.32(0.75)	1.78(0.65)**
α	0.48(0.03)	0.36(0.05)	0.38(0.05)	0.41(0.03)	0.34(0.03)	0.52(0.03)

β and SE in parentheses. Wald-statistics: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2: GEE model with Poisson distribution and an $r-1$ correlation structure: 107 clusters (politicians) with 21 measurements ($n=2247$).

What has been observed in the first correlation analysis is also reflected in the estimates of the GEE models. In these models, however, the media effects are smaller or even vanish in the case of retweets. For mentions and replies, the models show similar results and the effect can still be observed in both phases. Interestingly, the activity of politicians has the strongest effect on all three Twitter attention variables. The number of followers seems only to be relevant for the number of received mentions. Age and gender are mostly not relevant.

Discussion

The first research question in this study sought to determine what kind of user types can be identified among politicians on Twitter during a non-election phase. The two phases are different when we consider the following two elements: the level of activity and the attention politicians receive in the media and on Twitter. Still, the most active politicians during the session are also the most active politicians in the normal phase as the correlation analysis with both phases has shown.

This is also reflected in the cluster analysis in which only two groups of politicians could be distinguished. Regarding the two identified user types on Twitter, we find that Swiss parliamentarians on Twitter can be divided into the active parliamentarians and the passive ones. Amongst the passive, many never use their account, they just opened one at some point in their political career and almost never write tweets. These passive parliamentarians can be best explained with the *me too* effect (Sudulich and Wall 2009; Selnow 1998). They most likely opened an account because their peers in the same party or competitors during an election campaign were using Twitter. The politician in the *me too* group is on average older than the politician in the active group. This result is in line with the findings of an earlier study (Rauchfleisch and Metag 2016) in which the age of politicians explains the level of activity on Twitter.

While finding two types of users may appear simplistic and has been discussed elsewhere (e.g. Sudulich and Wall 2009), we add further evidence to this idea of two user types since both groups also appear in non-election phases. Also, we further substantiate these two groups through an analysis of their media attention. The two groups also receive different amounts of media attention. The *me too* group receives less attention during the session phase than the other group. This result indicates that the active politicians on Twitter are also receiving more media attention. A possible explanation for this might be that they have a better overall communication strategy and try to tackle many different channels including traditional media. Politicians of this group are not only stars in the Twittersphere but also dominate the media sphere. Our results, thus, show that differences in Swiss politicians' Twitter use can be detected. Furthermore, we clearly show that when studying normalization on Twitter, the attention- and activity-related aspects should be considered comprehensively.

In the light of the normalization hypotheses, we expect an overspill of mass media attention on the attention of politicians on Twitter (RQ2). In our case, media

attention has only a small effect on Twitter attention. On a day when a politician receives strong media attention, he or she is also more likely to receive more attention on Twitter. However, testing the effects in a model that takes the longitudinal clustered form of the data and the possible effect of the activity of politicians into account leads to more nuanced conclusion. Media attention does not have any substantial effect on the number of retweets and have only a small effect on replies. The media are the strongest predictor for mentions. This finding was unexpected and suggests that retweets and replies in contrast to mentions are a platform-specific form of attention mostly independent from media attention.

The activity of politicians is still the best predictor for Twitter attention. This result may be explained by the nature of communication on Twitter. Being active on Twitter increases the chance of receiving replies and retweets. On the contrary, mentions can also be received without writing any tweets and seem to be partly independent of the activity level, especially during the session phase. Only for mentions, the number of followers has a consistent effect. It is, therefore, likely that a connection between media attention and mentions exists. The media put the spotlight on a specific politician, Twitter users become thus aware of the politician on a given day and address the politician in the form of a mention or reply.⁵ Lastly, we checked in an additional analysis for the five most popular politicians in each phase the tonality of the mentions.⁶ During the normal phase, all politicians received more positive mentions than negative mentions. In the session phase, however, one out of the five politicians received more negative than positive or neutral mentions. In that one case, a political scandal was made public in a newspaper article and the involved politician also received much negative attention on Twitter. This result is an indicator for the agenda-setting function of the media.

The available evidence suggests that media attention has a small effect on the Twitter attention. Of course, the assumed causality in these models can be questioned, even though we tried to eliminate possible confounding factors such as online media by measuring media attention in traditional mass media. We believe that Twitter users still also receive their information through traditional media instead of solely relying on Twitter as a news medium. Of course, in the case of breaking news events, the news appear first on Twitter (Petrovic et al. 2013; Rauchfleisch et al. 2017) and follow one day later in traditional media, but for typical political news, the story appears first in the newspaper. The opposite direction of an effect seems not plausible. Such an effect would be an indicator for strong agenda-building processes. However, a survey of journalists in Switzerland showed that journalists mainly use a politician's tweet if it can be used as a quote and that they seldom use information from Twitter for their journalistic work (Metag and Rauchfleisch 2017). We also checked the press coverage during the normal and session phase for mentions of Twitter-specific information and could only find a few occurrences. This is in line with the results of the journalist survey.

Maybe different results could be observed if online media were included, but most Swiss newspapers publish their non-breaking news stories online on the day of

the publication in the newspaper. Therefore, in most cases, print media are a good proxy also for the online versions of the newspapers. This finding, while preliminary, suggests that a politician's Twitter attention can be partly explained with her or his media attention while it is predominantly in the hands of the politicians with their level of activity to influence their Twitter attention. Whether a politician receives a lot of retweets and replies depends on the particular features of his or her tweets and less on the number of people he or she potentially reaches (number of followers).

Taking both parts of our results into account – the different user types, as well as correlations between media and Twitter attention – our study supports the idea that normalization can also be observed when focusing on the activity and Twitter attention of politicians. The data yielded by this study provides evidence that a small part of the Twitter attention depends on the media attention a politician receives. However, success on Twitter in the form of retweets and replies still yields a potential for equalization because a politician can directly influence Twitter attention with his or her activity. Even though media attention gives some politicians an advantage on Twitter, politicians who are not dominant in the media can become dominant on Twitter if they actively use the platform. The equalization potential of activity is also supported by a limited influence of the number of followers in the analysis. While the activity on Twitter yields an effect on all three outcome variables, the number of followers only has a consistent effect on mentions. An explanation for this result would be that followers of a politician know the username of a politician. The more followers a politician has, the more people potentially know his or her username. Still, we only sampled tweets based on the politicians' Twitter usernames and did not search for full names in tweets. It might be possible that the effects would be even stronger with the inclusion of the full names, especially in the case of less known politicians.

The key strengths of this study are its integration of media data and the longitudinal design. The most significant limitation is the fact that we solely focused on media and Twitter attention and ignored the context or standing as important aspects. Furthermore, our two phases are very near to each other; future studies should test our observed effects in a different polity setting and include issues as a further dimension. A limitation also derives from differences of the Swiss context to other countries, in this case particularly the parliamentary phases. While this characteristic of the political system provides us with a unique opportunity to research different phases on Twitter, politicians in Switzerland still have a high adoption rate of Twitter and our results should also be comparable to countries with a similar media system.

Notes

1. Measuring outcome metrics such as replies or retweets are more feasible because with the current Twitter algorithm it is not clear if all followers of a politician will see a tweet.
2. We used Twitter's search API to download our sample. In an additional post hoc analysis, we compared the search with the stream API results. Around 4 per cent of the tweets

- from the stream API were not captured with the search API. These missing tweets were duplicates or originated in two instances from spam bots.
3. Factiva covers over sixty national and local newspapers of all three language regions in Switzerland. Only some very local newspapers with low circulation are not indexed.
 4. Welch two-sample *t*-test.
 5. We also tested the effect with lagged variables and in the opposite direction. Besides the model presented in this study, only the model with media preceding Twitter one day yielded very small effects.
 6. One coder was checking manually the tonality of the mentions. To assess the validity of the data analysis, a second coder analysed 50 (around 10 per cent) randomly selected tweets. We received a high intercoder reliability with Krippendorff's $\alpha = 0.9$ for ordinal data.

References

- Ahlquist, J. S. and Breunig, C. (2012), 'Model-based clustering and typologies in the social sciences', *Political Analysis*, 20:1, pp. 92–112.
- Bland, M. and Altman, D. G. (1994), 'Statistic notes: Regression towards the mean', *BMJ*, 308:6942, p. 1499.
- Bruhns, A. and Moe, H. (2014), 'Structural layers of communication on twitter', in K. Weller, A. Bruhns, J. Burgess, M. Mahrt and C. Puschmann (eds), *Twitter and Society*, Bern: Peter Lang, pp. 15–28.
- Castells, M. (2009), *Communication Power*, Oxford: Oxford University Press.
- Ceron, A., Curini, L. and Iacus, S. M. (2016), 'First and second level agenda-setting in the Twitter-sphere: An application to the Italian political debate', *Journal of Information Technology and Politics*, 13:2, pp. 159–74.
- Coleman, S. and Blumler, J. G. (2009), *The Internet and Democratic Citizenship: Theory, Practice and Policy, Communication, Society and Politics*, Cambridge: Cambridge University Press.
- Conway, B. A., Kenski, K. and Wang, D. (2013), 'Twitter use by presidential primary candidates during the 2012 campaign', *American Behavioral Scientist*, 57:11, pp. 1596–610.
- Ferree, M. M., Gamson, W. A., Gerhards, J. and Rucht, D. (2002), *Shaping Abortion Discourse: Democracy and the Public Sphere in Germany and the United States*, Cambridge: Cambridge University Press.
- Fraley, C. and Raftery, A. E. (2002), 'Model-based clustering, discriminant analysis, and density estimation', *Journal of the American Statistical Association*, 97:458, pp. 611–31.
- Fraley, C., Raftery, A. E., Murphy, T. B. and Scrucca, L. (2012), 'mclust version 4 for R: Normal mixture modeling for model-based clustering, classification, and density estimation', Technical Report No. 597, Seattle: Department of Statistics, University of Washington.
- Gamson, W. A. and Wolfsfeld, G. (1993), 'Movements and media as interacting systems', *The ANNALS of the American Academy of Political and Social Science*, 528:1, pp. 114–25.
- Gardiner, J. C., Luo, Z. and Roman, L. A. (2009), 'Fixed effects, random effects and GEE: What are the differences?', *Statistics in Medicine*, 28:2, pp. 221–39.

- Gerbaudo, P. (2012), *Tweets and the Streets: Social Media and Contemporary Activism*, London: Pluto Press.
- Gibson, R. K., Lusoli, W. and Ward, S. (2008), 'Nationalizing and normalizing the local? A comparative analysis of online candidate campaigning in Australia and Britain', *Journal of Information Technology and Politics*, 4:4, pp. 15–30.
- Gibson, R. K. and McAllister, I. (2006), 'Does cyber-campaigning win votes? Online communication in the 2004 Australian election', *Journal of Elections, Public Opinion and Parties*, 16:3, pp. 243–63.
- Gibson, R. K. and Ward, S. J. (1998), 'U.K. political parties and the Internet: "Politics as usual" in the New Media?', *Harvard International Journal of Press/Politics*, 3:3, pp. 14–38.
- Graham, T., Broersma, M., Hazelhoff, K. and van 't Haar, G. (2013), 'Between broadcasting political messages and interacting with voters', *Information, Communication and Society*, 16:5, pp. 692–716.
- Guðmundsson, B. (2016), 'New media – Opportunity for new and small parties? Political communication before the parliamentary elections in Iceland in 2013', *Icelandic Review of Politics and Administration*, 12:1, pp. 47–65.
- Halekoh, U., Højsgaard, S. and Yan, J. (2006), 'The R package geepack for generalized estimating equations', *Journal of Statistical Software*, 15:2, pp. 1–11.
- Höglinger, D. (2008), 'Verschafft die direkte Demokratie den Benachteiligten mehr Gehör? Der Einfluss institutioneller Rahmenbedingungen auf die mediale Präsenz politischer Akteure', *Swiss Political Science Review*, 14:2, pp. 207–43.
- Jungherr, A. (2014a), 'The logic of political coverage on Twitter: Temporal dynamics and content', *Journal of Communication*, 64:2, pp. 239–59.
- (2014b), 'Twitter in politics: A comprehensive literature review', *Social Science Research Network*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2402443. Accessed 28 April 2020.
- Jungherr, A. and Schoen, H. (2013), *Das Internet in Wahlkämpfen: Konzepte, Wirkungen und Kampagnenfunktionen*, Wiesbaden: Springer VS.
- Jungherr, A., Schoen, H. and Jürgens, P. (2016), 'The mediation of politics through Twitter: An analysis of messages posted during the campaign for the German Federal election 2013', *Journal of Computer-Mediated Communication*, 21:1, pp. 50–68.
- Klinger, U. (2013), 'Mastering the art of social media: Swiss parties, the 2011 national election and digital challenges', *Information, Communication & Society*, 16:5, pp. 717–36.
- Kovic, M. (2017), *Agenda-Setting zwischen Parlament und Medien ('Agenda-Setting Between Parliament and the Media')*, Wiesbaden: VS Verlag für Sozialwissenschaften.
- Kovic, M., Rauchfleisch, A., Metag, J., Caspar, C. and Szenogrady, J. (2017), 'Brute force effects of mass media presence and social media activity on electoral outcome', *Journal of Information Technology and Politics*, 14:4, pp. 348–71.
- Kriesi, H. (2001), 'The federal parliament: The limits of institutional reform', *West European Politics*, 24:2, pp. 59–76.
- Kwak, H., Lee, C., Park, H. and Moon, S. (2010), 'What is Twitter, a social network or a news media?', in Proceedings of the 19th International Conference on World Wide Web, ACM, New York, pp. 591–600.
- Larsson, A. O. (2013), 'Bringing it all back home? Social media practices by Swedish municipalities', *European Journal of Communication*, 28:6, pp. 681–95.

- Larsson, A. O. and Kalsnes, B. (2014), “Of course we are on Facebook”: Use and non-use of social media among Swedish and Norwegian politicians’, *European Journal of Communication*, 29:6, pp. 653–67.
- Larsson, A. O. and Moe, H. (2012), ‘Studying political microblogging: Twitter users in the 2010 Swedish election campaign’, *New Media and Society*, 14:5, pp. 729–47.
- Lev-On, A. (2011), ‘Campaigning online: Use of the internet by parties, candidates and voters in national and local election campaigns in Israel’, *Policy and Internet*, 3:1, pp. 107–34.
- Liang, K.-Y. and Zeger, S. L. (1986), ‘Longitudinal data analysis using generalized linear models’, *Biometrika*, 73:1, pp. 13–22.
- Lilleker, D. G., Koc-Michalska, K., Schweitzer, E. J., Jacunski, M., Jackson, N. and Vedel, T. (2011), ‘Informing, engaging, mobilizing or interacting: Searching for a European model of web campaigning’, *European Journal of Communication*, 26:3, pp. 195–213.
- Marcinkowski, F. and Metag, J. (2014), ‘Why do candidates use online media in constituency campaigning? An application of the theory of planned behavior’, *Journal of Information Technology and Politics*, 11:2, pp. 151–68.
- Margolis, M. and Resnick, D. (2000), *Politics as Usual: The Cyberspace ‘Revolution’*, Thousand Oaks, CA: Sage Publications.
- Metag, J. and Marcinkowski, F. (2012), ‘Strategic, structural, and individual determinants of online campaigning in German elections’, *Policy and Internet*, 4:3&4, pp. 136–58.
- Metag, J. and Rauchfleisch, A. (2017), ‘Journalists’ use of political tweets. Functions for journalistic work and the role of perceived influences’, *Digital Journalism*, 5:9, pp. 1155–72.
- Nuernbergk, C. and Conrad, J. (2016), ‘Conversations and campaign dynamics in a hybrid media environment: Use of Twitter by members of the German Bundestag’, *Social Media + Society*, 2:1, <https://journals.sagepub.com/doi/full/10.1177/2056305116628888>. Accessed 8 June 2020.
- Parmelee, J. H. (2014), ‘The agenda-building function of political tweets’, *New Media and Society*, 16:3, pp. 434–50.
- Petrovic, S., Osborne, M., McCreddie, R., Macdonald, C., Ounis, I. and Shrimpton, L. (2013), ‘Can Twitter replace Newswire for breaking news?’, Seventh International AAAI Conference on Weblogs and Social Media, Cambridge, Massachusetts, USA, 8–11 July, pp. 713–16.
- Plumper, T., Troeger, V. E. and Manow, P. (2005), ‘Panel data analysis in comparative politics: Linking method to theory’, *European Journal of Political Research*, 44:2, pp. 327–54.
- Raftery, A. E. and Dean, N. (2006), ‘Variable selection for model-based clustering’, *Journal of the American Statistical Association*, 101:473, pp. 168–78.
- Rauchfleisch, A., Artho, X., Metag, J., Post, S. and Schäfer, M. S. (2017), ‘How journalists verify user-generated content during terrorist crises: Analyzing Twitter communication during the Brussels attacks’, *Social Media + Society*, 3:3, <https://journals.sagepub.com/doi/full/10.1177/2056305117717888>. Accessed 8 June 2020.
- Rauchfleisch, A. and Metag, J. (2016), ‘The special case of Switzerland: Swiss politicians on Twitter’, *New Media and Society*, 18:10, pp. 2413–31.
- Rogers, E. M. (2003), *Diffusion of Innovations*, New York: Free Press.
- Schwarz, G. (1978), ‘Estimating the dimension of a model’, *The Annals of Statistics*, 6:2, pp. 461–64.

- Schweitzer, E. J. (2008), 'Innovation or normalization in E-campaigning? A longitudinal content and structural analysis of German party websites in the 2002 and 2005 national elections', *European Journal of Communication*, 23:4, pp. 449–70.
- Scrucca, L. and Raftery, A. E. (2014), 'clustvarsel: A package implementing variable selection for model-based clustering in R', arXiv preprint, <https://arxiv.org/abs/1411.0606>. Accessed 28 April 2020.
- Selnow, G. W. (1998), *Electronic Whistle-Stops: The Impact of the Internet on American Politics*, Praeger Series in Political Communication, Westport, CT: Praeger.
- Serazio, M. (2014), 'The new media designs of political consultants: Campaign production in a fragmented era', *Journal of Communication*, 64:4, pp. 743–63.
- Sudulich, M. L. and Wall, M. (2009), 'Keeping up with the Murphys? Candidate cyber-campaigning in the 2007 Irish general election', *Parliamentary Affairs*, 62:3, pp. 456–75.
- Tresch, A. (2009), 'Politicians in the media: Determinants of legislators' presence and prominence in Swiss newspapers', *The International Journal of Press/Politics*, 14:1, pp. 67–90.
- van Aelst, P., Maddens, B., Noppe, J. and Fiers, S. (2008), 'Politicians in the news: Media or party logic? Media attention and electoral success in the Belgian election campaign of 2003', *European Journal of Communication*, 23:2, pp. 193–210.
- van Aelst, P., van Erkel, P., D'heer, E. and Harder, R. A. (2017), 'Who is leading the campaign charts? Comparing individual popularity on old and new media', *Information, Communication and Society*, 20:5, pp. 1–18.
- Vargo, C. J., Basilaia, E. and Shaw, D. L. (2015), 'Event versus issue: Twitter reflections of major news, a case study', in L. Robinson, S. R. Cotten and J. Schulz (eds), *Communication and Information Technologies Annual*, vol. 9, Bingley: Studies in Media and Communications and Emerald Group Publishing Limited, pp. 215–39.
- Vergeer, M. and Hermans, L. (2013), 'Campaigning on Twitter: Microblogging and online social networking as campaign tools in the 2010 general elections in the Netherlands', *Journal of Computer-Mediated Communication*, 18:4, pp. 399–419.
- Zuur, A. F. (2009), *Mixed Effects Models and Extensions in Ecology with R*, New York: Springer.

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