Campaigning in the Age of Platforms
A Longitudinal Analysis of German Parties & Politicians

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Social media platforms now play a central role in election campaigns for parties and politicians. Yet comparatively little research has compared how these actors use these platforms during and outside of campaign periods longitudinally, with much focus on single elections. Given narratives about the prevalence of a permanent campaign, we examine how German national and state actors used Twitter and Facebook between 2010 and 2021—a period that included forty-three state, national, or European elections. We demonstrate a surge and decline in the volume of party posts, contrasting with continued increases among politicians. Political actors' communication was distinct during campaign periods, with more positive rhetoric and increased use of platform affordances. Engagement was also different during campaign periods, with posts receiving more likes and shares in the month prior to an election. We demonstrate how platform campaigning evolved over a thirteen-year period, potentially exacerbating the personalization of politics, and show how platforms' features and affordances structure both the supply of and demand for political communication at election time.

Online communication now plays a central role in political campaigning in most democracies, with social media platforms serving as vital campaign tools for parties and politicians (Dimitrova and Matthes 2018; McGregor 2020). Platforms may also have fundamentally changed the nature of election campaigning and political conduct more broadly, potentially contributing to the phenomena of "permanent campaigning" (Blumenthal 1982; Elmer, Langlois, and McKelvey 2018), the personalization of politics (Cross, Katz, and Pruysers 2018; Garzia 2011) and negative campaigning (Auter and Fine 2016; Ceron and d'Adda 2016). Analyses of political communication on social media have largely focused on campaigning at election time, often restricted to a single election or platform, and rarely comparing communication during and outside of election periods. Meanwhile, the demise of Twitter (now X) and growing concerns about the societal role and power of Facebook have prompted discussion about whether the "age of the platform" (Simon 2011) may now have ended (Bogost 2022). Rather than communication being siloed through several central platforms, we appear to have entered an era of increasingly fractured and fragmented platform environments (Crul 2022; Wickerson 2021). This development suggests that the time is ripe for a longitudinal analysis of this first era of platform campaigning to better understand how elections structure political communication on these platforms over time (also suggested by Heft et al. 2024; Klinger, Koc-Michalska, and Russmann 2023; Matassi and Boczkowski 2023).

Research on campaigning on social media platforms has disproportionately focused on elections in the United States (see e.g., Kreiss 2012, 2016b), which differ from European campaigns both in campaign structure and digital regulation (Magin et al. 2017). We contend that Germany serves as a highly representative case for other consolidated democracies in terms of party system, electoral competition, media landscape, and regulation (Borucki and Kettemann 2024). Scholarship on the German case disproportionately focuses on a single election cycle (see e.g., Stier et al. 2018), and, where multi-election studies do exist, they focus solely on a single platform (see e.g., Klinger, Koc-Michalska, and Russmann 2023). This study therefore represents the first longitudinal study of the German case of the entire platform era, including election and non-election periods across multiple platforms that we are aware of.

We analyze the extent of political communication over time on the two most important social media sites of the platform era: Facebook and Twitter. Facebook was the platform with the highest number of users in Germany throughout this period (Social Media Stats Germany 2024), and Twitter was extensively used by political actors and the most politically-engaged sections of the German public (Kemp 2023). Our twelve-year timespan covers forty-one in-country elections—thirty-eight *Bundesland* (state) elections and three national elections—plus two European elections. We analyze posts by the six largest parties at both the federal and state levels, *Bundestagsfraktionen*, and *Bundestag* members between 2010 and 2021 including 2,828,249 tweets gathered through the Twitter academic API and 1,265,188 Facebook posts collected via CrowdTangle. These data allow us to sequence and analyze the communication of political actors and their audiences' responses in a coherent and systematic way using a combination of descriptive statistics and cross-sectional time-series analyses.

On the supply side, we find a steady increase in the volume of social media posting by parties between 2010 and early 2019, followed by a downward (Twitter) or flat (Facebook) trend, potentially indicating that parties became more targeted in their use of social media, more conscious of the limitations of these 'traditional' platforms, or increasingly concerned about saturation or contamination of messages. Politicians increased their volume of posts throughout the period, one way that campaigns became more personalized. We also find that elections continue to shape platform campaigning, offering evidence against the idea of a permanent campaign. National elections were clearly visible in our temporal trends, and we identify several other changes in communication during the campaign period, including a shift to more visual content on Facebook, greater use of platform affordances, and more positive rhetoric. In short, campaign periods still matter.

On the demand side, we show that political actors receive more engagement on their social media posts in the month prior to election day, suggesting that an important (though likely small) sub-section of German voters express their support for political content when they perceive it is their time to 'do politics'. Campaign periods therefore present parties with the opportunity to increase their ongoing interactions beyond the election.

We proceed by positioning our research agenda in the literature, leading to our empirical expectations about supply-side temporal trends, use of affordances and rhetoric, plus the demand-side responses in terms of engagement. Having set our expectations, we introduce our original dataset of Facebook and Twitter posts and outline our approach. Next, we present our empirical results, again moving from the supply to the demand side. We then discuss potential explanations and implications of these findings before concluding by outlining future directions for further study.

Platform Campaigning

A longitudinal perspective can complement existing studies on digital campaigning in several ways that are impossible to observe when studying campaigns and elite communication as they happen, i.e., one campaign after another. Over the past two decades, social media platforms have decisively shaped political communication. These platforms have become the main news sources for younger citizens (Hölig, Behre, and Schulz 2022), transforming how political parties and politicians run campaigns (Chadwick and Stromer-Galley 2016; Davis and Taras 2022), and structuring how political actors communicate with citizens and each other (Barberà et al. 2021; Jungherr 2023). The scale of change in political communication in these years is difficult to overstate, as digital societies have moved from information scarcity to abundance in increasingly high-choice media environments (Van Aelst et al. 2017). Digital media have fundamentally "re-tooled politics" (Jungherr 2016), yet these changes have rarely been studied over extended periods, or compared across election and non-election periods as inadequate data access has previously made temporal studies beyond one or two election cycles difficult, if not impossible, as researchers had to use changing data sources for their studies (Bruns 2019; Freelon 2018).

As these developments have taken place, political actors have been learning and adapting, with strategies on social media as trial and error (see e.g., Klinger and Russmann 2017). As social media platforms evolved, so have the experiences of political actors, their ability to strategize, to make sense of, and to "guesstimate" the logic behind algorithms, where political actors' assessment of previous cycles influence their communication in future campaigns (see e.g., Cowburn 2022, 2024).

Yet, without longitudinal analyses, the feedback loops between electoral cycles remain largely hidden. The disproportionate focus on election periods may also create epistemic challenges, with our ability to generalize from the specific to the general period hindered by the distinct communication of political actors during campaigns (Wells et al. 2019).

Though we argue that platforms transformation has been broad, we focus on three distinct aspects of this change. First, the trend of "permanent campaigning" (Blumenthal 1982)—where legislators spend almost their entire time focused on re-election at the expense of other tasks—has been exacerbated by the development of platforms (Elmer, Langlois, and McKelvey 2012, 2018). Our understanding of this trend has, to date, been limited by the relative paucity of research comparing the communication of political actors during and outside of campaign periods. Second, the direct link between politicians and the public has been shown to contribute to an increasing personalization of politics (Cross, Katz, and Pruysers 2018; Garzia 2011), and the "presidentialization" of parliamentary politics with disproportionate focus on the personal characteristics of party leaders (Lefevere, Van Aelst, and Peeters 2020; Poguntke and Webb 2015). Third, the structure and logic of platforms are said to have incentivized negative campaigning, with negative content fostering greater engagement with parties and politicians (Auter and Fine 2016; Ceron and d'Adda 2016).[1]

Negative campaigning is one of the most intensely studied phenomena of political communication in the recent decade, with a consistent finding that parties and politicians have a clear tendency to "go negative" (Lau and Rovner 2009). Broadly speaking, negative campaigning is gradual and covers a range of uses of emotional rhetoric to (de-)mobilize, and includes; calls to not vote for a competing party (rather than praising one's own party), various forms of (personal) attacks, incivility and hate, or messages generating fear and anger. Negativity is not always detrimental to democracy, but it does impact how citizens think and feel about politics (Nai 2024). In some analyses, scholars measure negative campaigning by including both negative emotions *and* negative presentations of political opponents (see e.g., DigiWorld – DigiDeMo 2024), while others separate these variables (e.g., Klinger, Koc-Michalska, and Russmann 2023). Negative campaigning is

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[1] See Note 1, supplementary material, for further discussion.

therefore a multifaceted communication style that is difficult to measure in large-scale quantitative studies that lack conceptual nuance (Haselmayer 2019). We aim to contribute a longitudinal, cross-platform analysis comparing negative rhetoric during and between campaigns, resorting to the simplest form of it, negative sentiment, which captures the emotional tone of a post.[2]

Our understanding of the role of platforms in exacerbating trends of permanent campaigning, personalization of politics, and negative campaigning is further limited by the disproportionate focus on political actors in the United States, a country that is meaningfully different in its party system and media landscape than most consolidated democracies.[3] In contrast, Germany represents a typical case among European democracies in terms of campaign logics, with a multi-party system, short campaign period, and coalition governments. From a media landscape perspective, Germany is understood as being at the center of the European public square (Teschendorf 2024), with high media literacy incentivizing political actors to campaign online, and Europe-wide regulatory standards (Borucki and Kettemann 2024). The national election campaign of 2013 was the first in which all parties used social media, by 2017 social media became a key arena for campaigning rather than just serving as a strategic add-on (Haßler, Kümpel, and Keller 2023; Magin et al. 2017). Yet, as elsewhere in Europe, though digital campaigning has become the norm for parties and candidates (Angenendt et al. 2022), these political actors are still under-exploiting the potential of digital campaigning (Magin et al. 2017). In the 2021 national election, online campaigning was particularly important to mobilize supporters due to COVID-19 restrictions, yet, only about half of the constituency candidates used Facebook and Instagram, and only one-third used Twitter (Kelm et al. 2023).

Though there is no shortage of studies analyzing German parties and politicians' use of digital campaigning (Haßler et al. 2024; Jungherr 2016; Magin et al. 2017; Schweitzer 2011; Stier et al. 2018), they largely focus on the 2013, 2017, or 2021 national campaigns. Consequently, we still lack a longitudinal and cross-platform comparative perspective including the periods between campaigns that spans the entire period in which social media platforms have come to dominate political

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[2] Rhetoric, like negative campaigning, can be studied in a more granular way than we aspire to in our analysis here. See, for example, Stromer-Galley's (2019) analysis of Donald Trump's "vulgar eloquence".
[3] See Note 2, supplementary material, for a further discussion of the ways U.S. campaigns and media regulation differ.

communication. Single case studies and cross-sectional comparisons cannot show how campaigning on platforms develops over time or reveal how parties adapt to the ever-changing landscapes of these platforms and their affordances. Jost (2023) provides perhaps the most detailed longitudinal analysis of German political actors on social media, comparing Bundestag members' user engagement on Facebook between 2010 and 2015. He finds that these politicians used message features that raised the number of interactions more frequently over time, and that this trend is connected to resources.

The German case also allows us to study differences between parties and candidates because the election system allows citizens to vote for both parties and candidates, who use complementary strategies on social media (Haßler, Kümpel, and Keller 2023). We also note that Facebook and Twitter differ in relation to political campaigning in terms of their architecture (Bossetta 2018), the users on them (Blank and Lutz 2017), how citizens use them for news and political information (Hölig, Behre, and Schulz 2022), and how politicians tailor messages strategically to cater to various groups and (perceived) audiences (Kelm 2020; Quinlan et al. 2018; Stier et al. 2018).

Expectations

We group our expectations in terms of four changes across the period in which social media platforms have emerged as an important political force. We are initially interested in the descriptive trend of the *volume* of posts by these actors throughout the entire period as an indicator of their growing use and centrality to the communication strategies of our political actors. Second, we seek to understand the adoption of new and diverse *affordances* offered by platform technology. Third, we are interested in the *rhetoric* used in posts on these platforms to better understand trends of negative campaigning. And fourth, we examine the demand-side *engagement* with these posts. In all cases, we are interested not only in the long-term temporal trends (our *a* hypotheses) but also in the differences between the campaign period immediately before an election and at other times (our *b* hypotheses). We also set out how we expect some of these features to intersect (our *c* hypotheses).

Volume

The rise of social media as a central component of political strategy has been well-documented, with parties and individual politicians increasingly relying on these platforms to connect with constituents, bypass traditional media gatekeepers, and shape public discourse in real time (Jungherr 2016, 2023; Kreiss 2016b). Our period of analysis coincided with a growing public expectation for political actors to be increasingly visible online (Enli and Skogerbø 2015). With the rise of personalized politics, the political brand often becomes synonymous with individual personalities rather than the party, particularly on platforms that allow these actors to build direct, unmediated relationships with their followers (Karlsen and Enjolras 2016; McAllister 2007). Social media platforms therefore incentivize political actors to produce increasing amounts of content and posts to maintain and foster these connections (Enli and Skogerbø 2015). Accordingly, we expect that the volume of posts by political actors will increase over time (*H1a*).

H1a: Political actors will post more over time.

Permanent campaigning, where political figures consistently engage with constituents outside of electoral periods, suggests a near-continuous stream of political communication (Blumenthal 1982; Negrine 2008) as political actors adapt to an environment where staying visible and relevant is increasingly essential (Lilleker and Jackson 2011). Using the volume of posts, we also test the permanent campaign theory versus the election effect. Our interest here is to understand if political actors are indeed "always on" in terms of posting on social media (Joathan and Lilleker 2023), or if their behavior changes immediately before an election. Research indicates that political actors use digital platforms during the campaign period to persuade undecided voters, strengthen their connection with their base, and ensure that their message is widely received (Kreiss 2016a). This surge in activity may also serve to crowd out other political actors, helping parties and politicians dominate digital spaces when it matters most (Larsson 2016). Accordingly, we expect that parties and politicians will increase the volume of posts in the campaign period (*H1b*). Given the ongoing personalization of politics, we expect this trend to be particularly notable among politicians as

campaign messages become intertwined with personal appeals (Metz, Kruikemeier, and Lecheler 2020).

H1b: Political actors will post more during campaign periods.

Affordances

In line with the extant literature, we conceive of technological affordances as being the ways in which specific uses are allowed or constrained on different platforms (Ronzhyn, Cardenal, and Batlle Rubio 2023).[4] For example, Twitter is often associated with practices related to the @mention, where the @ character is used to address another user. Though Facebook users can "tag" other users in similar fashion, the open infrastructure of Twitter makes it possible to @mention someone you do not follow on said platform, a mode of use constrained on Facebook (Hemsley et al. 2018). We detail our operationalization of affordances on both platforms in the following section. As platforms change—as they often do—the ways in which users such as the political actors under investigation here can use the platforms will change.

Given the trend of more personalized campaigning, we expect that political actors will make greater use of the affordances on both platforms over time (*H2a*). On Facebook, personalized campaigning incentivizes political actors to use more visual content to foster deeper and more personal connections with those accounts that follow or 'friend' them (Metz, Kruikemeier, and Lecheler 2020). On Twitter, we expect that this personalization will take the form of more dynamic engagement with other users' content, making use of affordances such as replying, retweeting or quoting other users' posts rather than simply using the platform as a space to broadcast their message (Vergeer, Hermans, and Sams 2013). Broadly speaking, deploying these affordances allows political actors to move away from using these platforms as a "top-down information channel" (Klinger 2013) and instead become a space to interact with (potential) supporters.

H2a: Political actors will increase their use of affordances over time.

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[4] See Note 3, supplementary material, for a further discussion of platform affordances.

Previous research indicates that these affordances have become crucial for influencing narratives and spreading campaign messages more efficiently (Bossetta 2018; Chadwick 2013; Theocharis et al. 2023). For example, retweets and mentions on Twitter allow political actors to enter the feeds of voters who might not otherwise see their posts, giving them a broader reach and allowing them to engage with both allies and opponents. On Facebook, video capabilities me be particularly advantageous during the campaign period, enabling political actors to deliver messages directly to voters without the constraints of traditional media time slots, where direct addresses can quickly disseminate policy explanations, last-minute appeals, or reactions to pressing issues. We perceive that the incentives for these types of engagement are highest immediately before an election, meaning savvy political actors will adapt their communication practices accordingly during the campaign period (*H2b*).

H2b: Political actors will increase their use of affordances during campaign periods.

Research exploring the relationship between political actors' use of social media platform affordances and the tone of their posts suggests that these affordances often lend themselves to positive messaging, particularly when posts aim to build engagement and reinforce favorable images (Enli and Skogerbø 2015). Platform affordances, such as Twitter's retweet, quote, and mention features, and Facebook's visual options like photo and video sharing, are tools that enhance interactivity and personalization. These affordances allow politicians to share dynamic, personal, or behind-the-scenes content, which frequently contributes to more positive interactions and a favorable image (Kreiss 2016a). Platform affordances are often used to highlight achievements or personalize politicians' public images, aiming to create a sense of proximity and relatability with the audience and where showing a "human" side is seen as a strategic advantage (Metz, Kruikemeier, and Lecheler 2020). We therefore include an additional expectation that posts using these affordances will feature more positive rhetoric (*H2c*).

H2c: Political actors' posts that use these affordances will be more positive.

Rhetoric

To better understand the relationship between platforms and negative campaigning, we use a measure of political actors' sentiment in their social media posts to determine whether their language is positive, negative, or neutral (Remus, Quasthoff, and Heyer 2010). Our object of interest here is therefore the emotional tone of the post. As discussed above, we recognize that negative campaigning can include aspects beyond rhetoric, for example by focusing extensively on opponents' weaknesses (Klinger, Koc-Michalska, and Russmann 2023). Yet, at its core, negative campaigning is about negative tonality, with the goal of producing negative emotions on the part of the receiver, where an established body of literature identifies posts' tone as being *the* key indicator of negative campaigning (see e.g., Auter and Fine 2016; Hansen and Pedersen 2008). Following this literature, we analyze the sentiment of posts to better understand the prevalence of negative campaigning, we explanation our approach to sentiment analysis in the next section.

Research has long demonstrated a steady increase in negative campaign appeals (see e.g., Geer 2006), with numerous studies showing that negative campaigning has increased in the digital era because political actors benefit from going negative online, receiving more engagement and media coverage (Klinger, Koc-Michalska, and Russmann 2023; Maier and Nai 2020, 2022). In particular, negative content was far more likely to be shared (Watson et al. 2024), especially when it originated from a public figure (Schöne et al. 2023). Given these incentives, we expect that political actors will become more negative over time (*H3a*).

H3a: Political actors' posts will become more negative over time.

Despite the evidence of a general trend towards negativity, political actors do use more positive language at election time (Silva, Schürmann, and Proksch 2023). The sentiment used by political actors influences how voters' react to their messages (Kosmidis et al. 2019), with negative rhetoric generally serving as an ineffective messaging strategy (Lau and Rovner 2009). In general, campaigns tend to emphasize positive messaging to build voter support and enhance the party's

appeal at election time (Ridout and Franz 2011).[5] Accordingly, political actors are incentivized to adopt a more positive tone when making appeals at election time, meaning that we expect that they will be more positive during campaign periods (*H3b*).

> *H3b*:   Political actors' posts will be more positive during campaign periods.

Engagement

The period of our analysis coincides with a huge rise in the number of people using Twitter and Facebook both in general and as a source of political information. For example, only eighteen percent of Germans used social media as a news source in 2012, a figure which rose to twenty-nine percent by 2023 (Newman 2012; Newman et al. 2023). We also know that when political actors make greater use of the affordances of platforms they receive more user engagement (Koc-Michalska et al. 2021). Given the greater number of users and our expectations about political actors' changing use of these platforms' affordances over time (see *H2a*), we expect that posts will receive more engagement over time (*H4a*).

> *H4a*:   Political actors' posts will receive more engagement over time.

Research on engagement with political actors' social media posts suggests that posts made during campaign periods receive significantly higher interaction compared to those outside of election times (Larsson 2016, 2023). Posts garner more engagement during the campaign period due to increased public interest and heightened political awareness (Jungherr 2023). This increase in engagement is attributed to the greater relevance of political messages during campaigns, as voters are more actively seeking information, engage with, and spread content related to candidates and political issues. We expect that the subset of the German electorate who are interested enough in politics to follow these political actors on Twitter or Facebook will be particularly attentive to politics more generally, and certainly be aware of forthcoming elections. We therefore expect that these

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[5] Some studies find that this relationship is conditioned by polling figures (Silva, Schürmann, and Proksch 2023), ideological position (Kosmidis et al. 2019; Valli and Nai 2022), or coalition partner status (Haselmayer and Jenny 2018).

audiences will be sufficiently attentive to notice when it is their turn to 'do politics' and will increase their engagement (*H4b*).

> *H4b*:   Political actors' posts will receive more engagement during campaign periods.

Research examining the relationship between sentiment in political actors' posts on Facebook and Twitter and the subsequent engagement finds that negative posts elicit higher levels of engagement (Bene et al. 2022; Heiss, Schmuck, and Matthes 2019; Klinger, Koc-Michalska, and Russmann 2023). This phenomenon is primarily driven by the emotional impact of negative content, which tends to provoke stronger reactions from audiences. Negative political messages are more likely to capture attention and generate engagement as users share content that resonates with their own feelings of dissatisfaction or outrage toward opponents or political issues (Watson et al. 2024). The mechanisms behind heightened engagement can be attributed to the psychological effects of negativity bias, where negative information is processed more thoroughly and better remembered (Baumeister et al. 2001). This is particularly relevant in a political context, where voters may be more inclined to react to criticisms or negative portrayals of candidates and policies (Soroka and McAdams 2015). The ability of negative posts to evoke strong emotional responses—such as anger or fear—often leads users to engage more actively by liking or sharing, thereby contributing to the virality of such content. Accordingly, we expect to observe a relationship between post rhetoric and engagement in our data (*H4c*).

> *H4c*:   Political actors' posts will receive more engagement when they are more negative.

Data

Social media have become key tools of election campaigning since their emergence almost two decades ago, with Twitter and Facebook becoming the most important and popular platforms (Kemp 2023). Though other platforms have emerged, Twitter and Facebook have become household names and, to

date,[6] remain the most relevant platforms in political communication. By the 2013 German national election, all major German parties had developed campaigns on platforms (Stier et al. 2018), and candidates self-reported a steady increase in campaign activity on Facebook and Twitter from 2013 onwards (Angenendt et al. 2022).

To better understand how politicians and parties use Twitter and Facebook, we scraped the feeds of German Bundestag members and state and national parties. Data were collected in late 2022 using the Twitter academic API accessed in R through the academictwitteR package (Barrie et al. 2022), prior to any substantive changes being made to the platform before its discontinuation in 2023. To collect Facebook posts, we used Meta's CrowdTangle platform.[7]

At the national level we collect data from the party and the *Bundestagsfraktion* (parliamentary party) accounts for the six parties in the Bundestag at any point during our period of analysis: *Alternative für Deutschland* (AfD), *Christlich Demokratische Union/Christlich-Soziale Union* (CDU/CSU),[8] *Freie Demokratische Partei* (FDP), *die Grünen, die Linke, Sozialdemokratische Partei Deutschlands* (SPD).[9] We similarly collect data from both the state party and *Landtag Fraktion* (state parliamentary party) accounts for each of the sixteen *Bundesländer* (states). Finally, we are also interested in the behavior of politicians, meaning we also collect the feeds of members of the *Bundestag* (national parliament).

For the national party and *Fraktion* accounts, we were able to collect data on both platforms going back to 2010, meaning we include all posts between 1st January 2010 and 31st December 2021 at the national level. For state parties and politicians, the historic data is incomplete, meaning we restrict our analyses to the period between 1st January 2015 and 31st December 2021. This approach gives us a total of 4,093,437 posts (2,828,249 tweets and 1,265,188 Facebook posts) from 1,594

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[6] As we were writing this paper, Twitter CEO Elon Musk made the decision to rebrand the platform to "X".
[7] For a full discussion of the data collection process using CrowdTangle (Note 4) and the Twitter API (Note 5) see supplementary material.
[8] Given that the CDU does not compete in Bavaria, and the CSU only competes in Bavaria, we consider these as a single 'Union' party in our analyses. Within this, we categorize the CSU as the Bavarian state party in our data structure to ensure all parties in our analysis have national accounts and accounts for each state. We acknowledge here that organizational and policy differences between the CDU and CSU exist, but note that many parties are also organizationally and positionally heterogeneous at the state level.
[9] Our data also include several independent politicians who are not a member of any party, these are coded as *Fraktionslos* in our data.

accounts (Twitter 743, Facebook 851) to analyze. In Table 1, we present an overview of the dataset, including the overall numbers of accounts and posts by different account types.

Table 1: Accounts & Posts Numbers

Platform	Type of Account	Accounts	Posts
Twitter	National Party	12	292,934
Twitter	State Party	160	713,110
Twitter	Politician	571	1,822,205
Facebook	National Party	12	67,329
Facebook	State Party	167	375,313
Facebook	Politician	672	822,546

Key Dependent & Independent Variables

Our expectations above include several important variables that we define here. For our arguments about general trends in our data, we present descriptive findings about the *volume* of posts over time. These are simple counts of the number of posts aggregated monthly for each group across the entire period.

Given the differences between Facebook and Twitter highlighted above, we operationalize the *affordances* of these platforms separately. Because Twitter is primarily a text-based platform (McCoy 2023), we consider the different ways that users can post, following the convention established by Larsson and Moe (2012, 2014). Most obviously, they can post a plain text message to their feed that will then appear on their followers' feeds, categorized as "original". Twitter users can also write an original message but tag another user in the content of that message using the @ symbol, categorized as "mention". Users may also choose to amplify content by other posters without adding their own text through the "retweet" function, these retweets are then broadcast to their followers giving posts the opportunity to go 'viral' and appear to users outside of their follower network. Similarly, users can "quote" other users to spread posts. Whereas the "retweet" function merely broadcasts the original post to a wider audience, the "quote" function adds additional text above the shared posts, the quote feature is often used to criticize the original post (Bastian 2022; Garimella, Weber, and De Choudhury 2016; McNear 2018). Finally, users can "reply" to the tweets of other users directly. Replies are not broadcast to a user's followers and instead appear below the original post, often used to start a direct

dialogue both with the original poster and other users (Bliss et al. 2012; Nishi et al. 2016). We therefore have five categories of Twitter affordances: original, mention, retweet, quote, and reply. In our analyses below we use original tweets as our reference category and consider the use of other affordances over time.

For Facebook, we note that the platform is less text-based and instead encourages the use of a variety of media, especially visual media. We therefore trace the adoption of these affordances in our data. Facebook users may choose to post a text-only message to their 'friends' on the platform; we again categorize these posts as "original" or "text" posts. Facebook users may also choose to include a link to another website in their posts, categorized as a "link". Facebook posts may also include visual media, the adoption of which we identify using the categories of "photo" for photographic content, including a single photo or the uploading of a photo album; and "video" for the inclusion of video media. These operationalizations of affordances reflect the distinct ways in which the political actors campaigned on these platforms during our period of analysis, where designs of digital environments structure political actors use for campaigning purposes (Bossetta 2018). Put simply, we are interested in different aspects of these platforms because the platforms themselves are distinct, our goal is not to directly compare behavior on Twitter and Facebook but to understand how those behaviors changed both over time and during election campaigns.[10]

We operationalize *rhetoric* used in posts by applying a sentiment analysis dictionary of terms to the text. Dictionary-based approaches have long been used to label concepts such as sentiment in text corpora (Grimmer, Roberts, and Stewart 2022) and are widely used in academic studies of social media and elections (see e.g., Tumasjan et al. 2010). We use a dictionary that has been explicitly validated for use in the German political context, created by Christian Rauh (Rauh 2018). Rauh's dictionary contains 37,080 German language words that are coded as positive ($+1$) or negative (-1). In line with methodological best practice (see e.g., Young and Soroka 2012), we calculate the sentiment of a post by dividing the sum of positive and negative terms by the total number of recognized terms in the dictionary, giving each post a score between -1 (negative) and $+1$ (positive).

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[10] Were we to extend this analysis to Instagram or TikTok, further affordances would likely be necessary.

In the supplementary material, we demonstrate that our approach is robust to using two other dictionaries; SentiWS (Remus, Quasthoff, and Heyer 2010) and GermanPolarityCues (Waltinger 2010). We use Rauh's measure because it is explicitly validated for use in a political context, and manually validate the measure for our purpose here (see Boukes et al. 2020; Chan et al. 2021). To do so, we hand coded a subset of posts, presenting the validity results in the supplementary material (overall correlation 0.848). Posts that do not contain any words featured in the dictionary receive a score of zero. Though we interpret these posts as not containing any obviously positive or negative sentiment, our findings are robust to the exclusion of these posts, as shown in the supplementary material.

We use two distinct measures of *engagement*: shares and likes. On both Twitter and Facebook, users can either 'share' a post to their followers or friends, or indicate that they 'like' the content of the post. Research indicates that 'sharing' and 'liking' function quite differently for audiences (Guo and Sun 2020; Kim and Yang 2017) and so we include both measures in our analyses. Given that Twitter does not have the range of other ways to 'interact' with a post that Facebook has, such as responding with a sad or angry reaction, we examine these as an extension for our Facebook data only in the supplementary material. Our primary interest in focusing on shares and likes is whether posts are being responded to positively and are being broadcast further.

We expect our trends to be impacted by the imminent presence of an election and an identifiable pattern of campaign activity. As in other European parliamentary democracies (see e.g., Krogstad, Aardal, and Narud 2004), the "short campaign" refers to the intensive final month before an election. Strict laws only permit parties to put up billboards—which remain an important messaging tool—in the final weeks before the election, and radio and TV ads are limited to the month prior to election day. As stated by the federal returning officer, the 'heated' phase of a state or federal election lasts for the final four to six weeks before election day (Die Bundeswahlleiterin 2023). We therefore consider the final month as the period we expect to see the most intensive campaign activity. Our campaign period variable therefore takes the value "1" for posts in the thirty days prior to an election and "0" otherwise. For state elections, the variable only takes the value "1" for the state party

and politicians in the associated state, e.g., we would not expect a state party or politician in Hamburg to campaign for an election in Bavaria. For national and European elections, we expect all parties and politicians to actively campaign, meaning that this variable does not change spatially.

To test our hypotheses, we use a series of cross-sectional fixed effects regression models clustered at the account level. The goal of our approach using fixed effects is to remove inter-actor and inter-platform differences, meaning we do not need to include any static control variables in our models.[11] In short, our interest in is change *within* rather than *between* actors or platforms, e.g., does a given account adopt more negative rhetoric during an election campaign. Given the substantial differences between Facebook and Twitter and to enable us to compare across platforms, we run all analyses separately by platform. The specification of each model is introduced in the results section below, based on the structure of the relevant variables.

Results

We use a combination of descriptive statistics and fixed effects models to test our hypotheses. We first present the descriptive trends for each of the different groups to identify temporal changes. These longitudinal trends provide the foundation for our understanding of the changing behavior across the period. We then empirically test how accounts change their behavior during election campaigns using a series of fixed effects models with accounts serving as the panel identifiers in our data. These models enable us to identify change within accounts in terms of the affordances, rhetoric, and engagement for different political accounts.[12] We provide further details on our modeling choices in the relevant sub-sections.

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[11] In one instance (H2), we perform a multilevel logistic regression with control for actor type, party, and state fixed effects. Details are provided below.

[12] All regression models were produced using Stata 16 (StataCorp 2017).

Volume

Figure 1 shows the number of aggregated monthly posts for national parties, state parties, and politicians (*H1a*). The volume of national party tweets slowly grew over time and then flattened from 2018 onwards.[13] State parties posted slightly fewer tweets after 2019 than they had done in the 2016 to 2018 period. In contrast, the average number of monthly tweets by politicians increased consistently between 2017 and the end of our analysis. On Facebook, we see an almost entirely flat trend from national parties from 2012 onwards and among state parties. The temporal trend expected by *H1a* is conditional on actor type, with support for the hypothesis among politicians *only* on both platforms.

Figure 1: Volume of Monthly Posts by Group
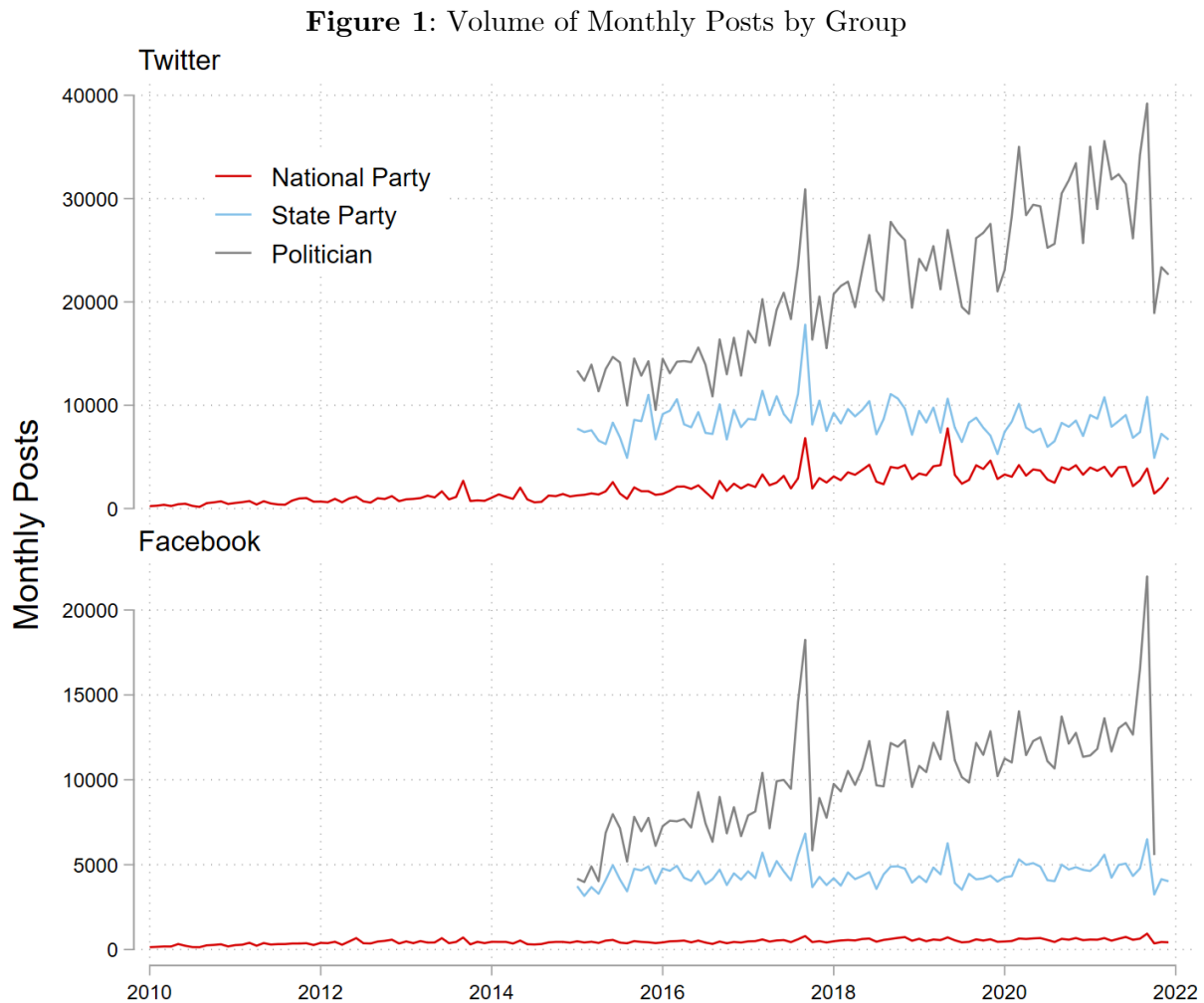
On both platforms, these descriptive data support our expectation that political actors post more content at election time (*H1b*). Among parties and politicians alike, the periods of national

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[13] For a more precise look at change in national party posts, we present this figure with a square-rooted y-axis in the supplementary material.

election campaigning in the month of September in 2013, 2017, and 2021 are clearly visible in these data, suggesting that political actors do increase their campaign activity immediately before election time rather than engaging in a permanent campaign.

Affordances

Posts containing photos were the most common form of Facebook post, and retweeting content was the most common form of Twitter post, as shown in Figure 2. We next present the descriptive trends by post type in Figure 3 (Twitter) and Figure 4 (Facebook) to enable us to understand the changing use of platform affordances over time (*H2a*).

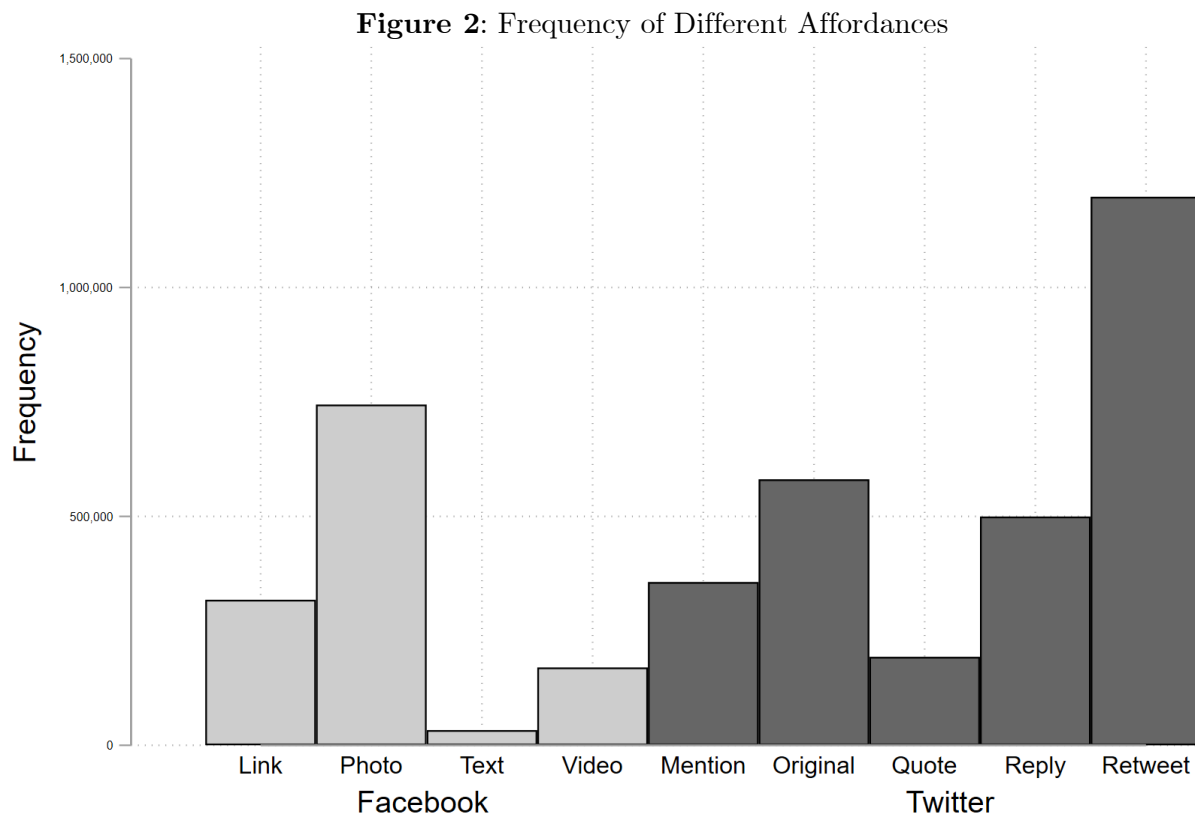**Figure 2**: Frequency of Different Affordances

Figure 3 shows that initially, national parties primarily posted original tweets, but from the 2013 election onward, retweets became the dominant form of Twitter activity (panel 1). Mentions and replies also increased over time, particularly during election periods, reflecting a strategic shift toward more interactive and participatory forms of engagement. State parties (panel 2) and politicians (panel 3) also used retweets more over time. Politicians were somewhat distinct, with more use of replies and quotations over time, possibly due to personalization and using the platform as a space to have conversations rather than to broadcast messages. For all groups, we see a big spike

in volume for the 2017 national election and the national party accounts also show spikes for the 2013 national election and the European elections in 2015 and 2019. The 2021 national election is only visible among politicians, with a spike in retweets, replies, and mentions in the month of the election.

Figure 3: Twitter Affordances
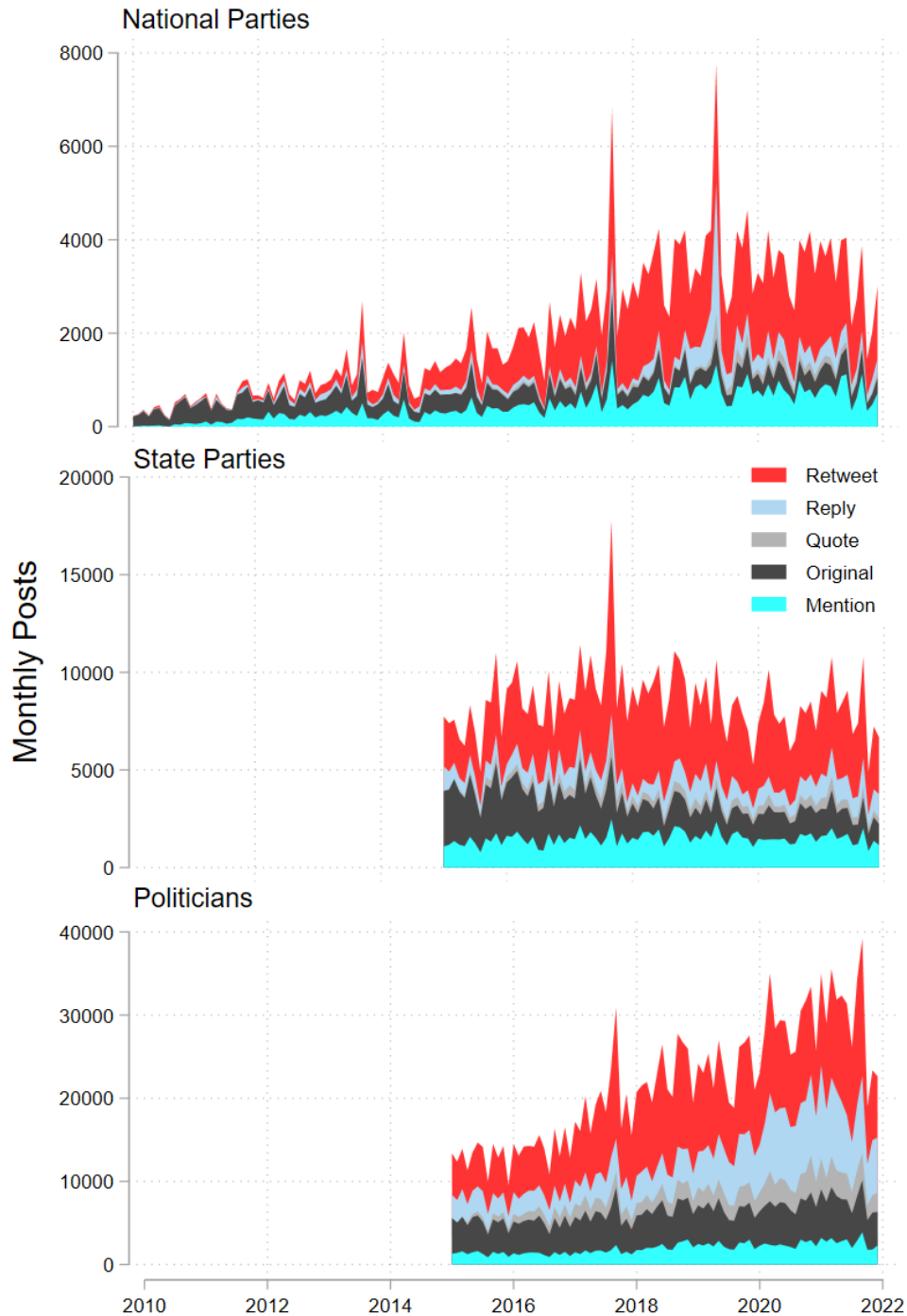
The shifting use of affordances is even starker in the Facebook trends shown in Figure 4. Initially, links were the most common type of post by national parties (panel 1), but from 2016 onwards, photos and—later—videos became more prevalent, with non-visual posts virtually disappearing. The trends for state parties (panel 2) and politicians (panel 3) indicate similar shifts

toward visual content, although at a somewhat slower pace than national parties. Both state parties and politicians increasingly used photos, especially during election cycles, where spikes in photo use are visible in the 2017 and 2021 national election campaigns. Unlike for state and national parties, the volume of links posted by politicians remained static.

Figure 4: Facebook Affordances
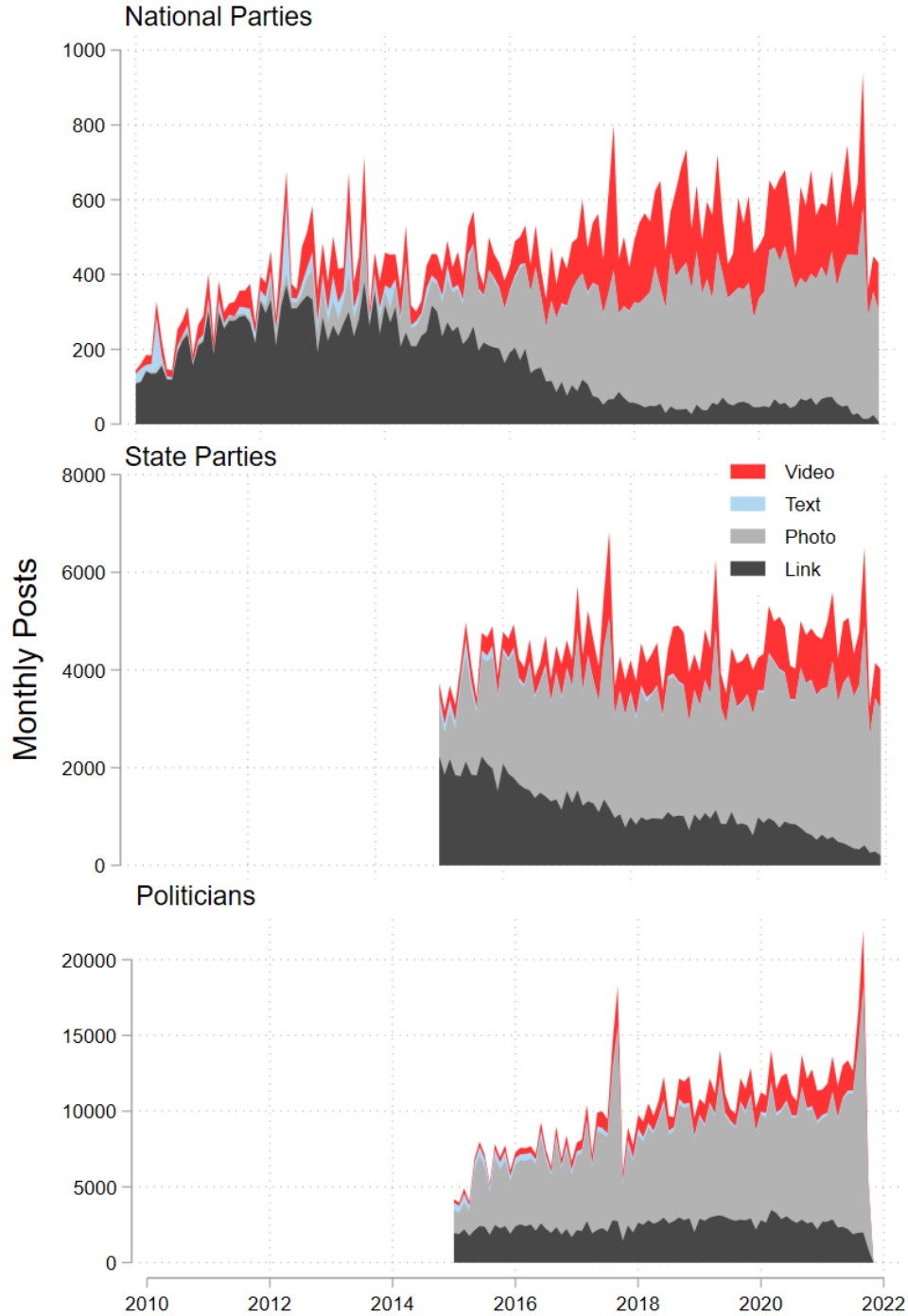
To better understand when these political actors used different affordances beyond the descriptive timeline, we perform a multinomial logistic regression with fixed effects for actor type,

party, and state, to predict the probability of each outcome.[14] We use multinomial logistic regression because our dependent variable—the affordance of a post—has more than two categories and these categories do not have an order. We use the most basic form of post, featuring nothing but text content, as our reference category, separately analyzing posts on Twitter and Facebook. We present our results in Table 2 with robust standard errors clustered at the account (actor) level.

<div align="center">Table 2: Affordances</div>

	Twitter				Facebook		
	Mention	Quote	Reply	Retweet	Link	Photo	Video
Time (*H2a*)	0.013***	0.022***	0.020***	0.014***	0.013***	0.034***	0.040***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Campaign Period (*H2b*)	-0.002	-0.138***	-0.161*	0.051	0.219***	0.533***	0.781***
	(0.036)	(0.048)	(0.091)	(0.037)	(0.057)	(0.060)	(0.068)
Rhetoric (*H2c*)	0.106***	0.060***	-0.013	-0.073***	0.002	0.537***	0.269***
	(0.016)	(0.017)	(0.019)	(0.015)	(0.031)	(0.029)	(0.029)
Actor Type FE	✓	✓	✓	✓	✓	✓	✓
Party FE	✓	✓	✓	✓	✓	✓	✓
State FE	✓	✓	✓	✓	✓	✓	✓
Observations	2,828,249	2,828,249	2,828,249	2,828,249	1,265,188	1,265,188	1,265,188

Baseline = Original Text; Model is a multilevel logistic regression with fixed effects for actor type, party, and state. Coefficients presented are differences between "text only" post and use of each different affordance. Robust standard errors clustered at the account level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

As in the descriptive trends shown in Figure 3 and Figure 4, Table 2 indicates a clear and statistically significant positive time trend in the adoption of all affordances on both Twitter and Facebook, indicating a move away from text-only original content on these platforms. As expected, political actors made greater use of the affordances of these platforms over time (*H2a*). We also see distinct patterns in terms of political actors' use of Facebook in the campaign period, with a shift towards more 'campaign-oriented' content, especially photo and video (*H2b*). On Twitter, we observe little in the way of change during the campaign period, other than these actors quote-tweeting less often. Our finding for *H2b* is likely connected to our distinct cross-platform operationalization of affordances and their connection to the concept of campaigning.

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[14] Given statistical concerns about conducting fixed effects multilevel logistic regression (see e.g., Allison 2014; Schunck 2013), we instead use a multilevel logistic regression and control using fixed effects for actor type (national party, state party, politician), party, and state.

We also expected that the use of affordances would be accompanied by more positive text content (*H2c*). This expectation is somewhat borne out on Twitter, with more positive sentiment in Twitter mentions and quotes, but more negative content in retweets. Retweets were the most negative type of post, likely because negative content has more propensity to go viral and be deemed "shareworthy" (Trilling, Tolochko, and Burscher 2017). On Facebook, text accompanying visual content was more positive.

Rhetoric

In Table 3 we present a cross-sectional fixed effects model using ordinary least squares (OLS) regression with our measure of rhetoric as the dependent variable.[15] We use fixed effects to control for individual-specific attributes that do not vary across time because we are interested in within account change. We use OLS because our outcome variable is continuous and ranges from −1 to +1 (distribution shown in the supplementary material). As shown in Table 2, political actors are more likely to use platform affordances during the campaign period, meaning we also control for variation in message affordance.

Table 3 indicates that the sentiment of posts by political actors on Twitter became more positive during our period of analysis (*H3a*), meaning that account sentiment was more positive than they had been at earlier periods in time. For Facebook we find no such effect and report null results, indicating that political actors did not use more positive or negative language in their posts over time. On both platforms, our results did not align with our expectation that political actors would become more negative over time. In the supplementary material, we demonstrate that this time trend is highly contingent on the classifier used. Overall, we do not find sufficient evidence to enable us to reject the null hypothesis, pointing to a more complicated picture in terms of political actors' rhetoric on social media over time.

Table 3: Rhetoric

	Twitter	Facebook

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[15] We control for the post affordance, shown in the supplementary material. Model performed using Stata's `xtreg` command (StataCorp 2017).

Time (*H3a*)	0.001***	-0.0001
	(0.00007)	(0.00008)
Campaign Period (*H3b*)	0.011***	0.040***
	(0.004)	(0.003)
Constant	-0.003	0.175***
	(0.009)	(0.011)
Observations	2,828,249	1,265,188
R^2	0.003	0.011
Number of accounts	743	851

Model shown is an ordinary least squared model with fixed effects at the account level. Robust standard errors in parentheses are clustered at the account level. Dependent variable is sentiment measured using Rauh's (2018) sentiment classifier. Control for post affordance not shown (Reference Category = Original Text). *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results in Table 3 do however indicate clear support for our second rhetoric hypothesis (*H3b*). Political actors adopted much more positive rhetoric on both Twitter and Facebook in the month before election day on both platforms. This finding aligns with empirical results from the United States (Vasko and Trilling 2019) and is robust to the classifier being used (see supplementary material).[16]

Engagement

Having examined the changing communication of these political actors, we now turn to audience reception. Whereas the previous analyses considered the supply-side production, our focus here is on the demand-side response. As before, we are interested in how engagement at the account level changes given certain conditions, meaning we again use fixed effects models. Yet, because our dependent variable of engagement—operationalized as the number of shares and likes—are count variables that strongly tend towards zero (zero-inflated poisson), we use cross-sectional negative binomial regression (Lawless 1987).[17]

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[16] See Note 5, supplementary material, for further discussion.

[17] Using the `xtnbreg` Stata command (StataCorp 2017). Distributions of our dependent variables are presented in Figure A.7 of the supplementary material.

Table 4: Engagement

	Shares		Likes	
	Twitter	Facebook	Twitter	Facebook
Time (*H4a*)	0.004***	0.010***	0.020***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)
Campaign Period (*H4b*)	0.065***	0.021***	0.007**	0.047***
	(0.003)	(0.004)	(0.003)	(0.002)
Rhetoric (*H4c*)	-0.095***	-0.122***	-0.015***	0.046***
	(0.001)	(0.002)	(0.001)	(0.001)
Observations	2,828,240	1,265,187	2,828,212	1,265,187
Number of accounts	738	850	737	850

Model is a cross-sectional negative binomial fixed effects model. Robust standard errors in parentheses are clustered at the account level. Dependent variable is the number of shares or likes that a post has. Baseline affordance is text only posts on each platform. Controls for post affordance not shown (Reference Category = Original Text). *** p<0.01, ** p<0.05, * p<0.1

Our first engagement hypothesis (*H4a*) expected that posts would receive more engagement over time. As shown in Table 4, we see a clear and statistically significant positive trend for likes and shares on both platforms over the period of our analysis. We next expected an increase in engagement during the campaign period (*H4b*). Again, we observe a statistically significant relationship in the theorized direction, with accounts receiving more likes and shares on both platforms in the month before an election. These relationships suggest that those members of the German public who are politically interested enough to choose to follow parties and politicians on Twitter and Facebook do adapt their behavior in the campaign period and are more likely to engage and share political content when they perceive that it is their time to 'do politics'.

Finally, we expected that posts with more negative sentiment would receive more engagement (*H4c*). On both platforms, negative content was shared more often. This finding aligns with extant literature that finds that negative content by political elites elicits wider engagement on social media (MacDonald, Russell, and Hua 2023; Rathje, Van Bavel, and van der Linden 2021). Our finding for likes is more mixed, with posts using negative language on Twitter receiving more likes, but positive posts receiving more likes on Facebook.[18]

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[18] One potential explanation for the Facebook 'likes' finding is the range of reactions available on the platform, we empirically test this in the supplementary material.

Discussion

Taken together, our results, summarized in Table 5, demonstrate the changes in how German political actors communicated and were engaged with on the two leading social media platforms across this period. As the volume of content shifted from parties to politicians, actors made more use of the distinct affordances provided by Twitter and Facebook. These shifts were particularly prominent during campaign periods before elections and likely continued to influence the way these actors communicated after the election concluded. Election periods were also notable for their more positive rhetoric, and posts that made use of platform affordances also contained more positive sentiment. On the demand side, we find that posts received more engagement during the campaign period. Users were also more likely to share negative posts on both platforms.

Table 5: Summary of Results

Hypothesis	Evidence of Support
Volume (H1)	
H1a: Political actors will post more over time.	✓ politicians only
H1b: Political actors will post more during campaign periods.	✓
Affordances (H2)	
H2a: Political actors will increase their use of affordances over time.	✓
H2b: Political actors will increase their use of affordances during campaign periods.	✓ supported on Facebook Twitter = little change
H2c: Political actors' posts that use these affordances will be more positive.	✓
Rhetoric (H3)	
H3a: Political actors' posts will become more negative over time.	Twitter = more positive Facebook = no change
H3b: Political actors' posts will be more positive during campaign periods.	✓
Engagement (H4)	
H4a: Political actors' posts will receive more engagement over time.	✓
H4b: Political actors' posts will receive more engagement during campaign periods.	✓
H4c: Political actors' posts will receive more engagement when they are more negative.	✓ supported on Twitter Facebook = + shares, – likes

Beyond depicting the temporal changes in the use of these platforms by political actors in this period, our results suggest that the election period continues to matter in several important ways. Our data do not indicate that a 'permanent campaign' by German political actors is taking place on digital platforms, in line with results from the United States (Vasko and Trilling 2019). Yet,

the overall amount of content has increased dramatically over the period analyzed here, suggesting that content from political actors has become more infused into the social media feeds of at least those Germans who choose to follow these parties online.

The diverging trends in terms of the quantity of content between parties and politicians may reflect the increasing personalization of the German political system in the digital era (Bukow and Angenendt 2019; Zittel and Gschwend 2008), with politicians increasingly communicating through digital platforms (Angenendt et al. 2022). This trend may be contributing to the individualization of politics, where voters are less attentive to political parties because they receive more content from their preferred politicians. Interestingly, our trend of increasing social media use by politicians does not align with Bundestag members self-reported data (Kelm, Dohle, and Bernhard 2019).

That we do not see such a spike in the volume of content from parties in the 2021 election on Twitter comes as an additional surprise given that election was conducted when COVID-19 restrictions were still in place, potentially serving as an incentive to move campaigning to the digital sphere (Poguntke, Scarrow, and Webb 2021). The declining volume of posts on Twitter from parties could also be a signal that they no longer think the platform is as useful and have pivoted to newer platforms such as TikTok. Alternatively, they may perceive algorithmic benefits of posting less frequently, for example getting more eyes on each post. This trend might therefore indicate a more sophisticated digital campaign infrastructure.

We observe closer alignment between different types of affordances on Facebook than on Twitter. This finding could be connected to the platform structures, with networks on Facebook originally constructed around a series of bidirectional 'friend' relationships, whereas Twitter has always maintained a unidirectional 'follower' relationship.[19] Alternatively, it could be that our distinct operationalizations of affordances on Facebook are more aligned with campaigning behavior than the types of post we identify on Twitter. In other words, videos and photos are better indicators of 'campaigning' than retweets or mentions are. Other studies show that politicians—especially those with more resources—increasingly use features associated with more Facebook interactions (Jost

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[19] Facebook introduced a unidirectional 'subscribe' feature similar in September 2011 (Parr 2011).

2023). We find a similar trend among (comparatively well-resourced) parties, with evidence that these actors increasingly used visual affordances—which garner more engagement—over time and during the election campaign.

Concerningly, we find that negative content was shared more on both platforms. Given that parties and politicians want to maximize their online reach and actively respond to social media engagement (see e.g., Ennser-Jedenastik et al. 2022), we might expect them to use more negative rhetoric so that their messages are seen by more people. The incentives for political actors are therefore to be negative on these platforms, yet, they are more positive during the campaign period. This relationship suggests that political actors follow traditional campaigning practices and are not simply adhering to the incentives and logics afforded to them by platforms (but see Steffan and Venema 2020).

Previous research into the uses of digital media by political actors initially suggested lofty (Chadwick 2019; Yang and Kim 2017), sometimes Habermasian (Gripsrud et al. 2010; Matassi and Boczkowski 2023), visions of actors congregating in online public spheres. Later insights have problematized this position, pointing instead to the growth of harassment and hostility as a result of the affordances of social media platforms (Esser and Pfetsch 2020; Koiranen et al. 2022). Whereas this research largely found quote tweets to be critical of the original post, our findings suggest that quote tweets are more positive than original tweets (see Table 2). One potential explanation of this is the disproportionate focus on political actors in the United States, suggesting the need for further research into a greater diversity of national contexts, ideally using comparative research designs (Matassi and Boczkowski 2023).

Conclusion

Our analyses document the evolving role of Twitter and Facebook in German political campaigning across election and non-election periods between 2010 and 2021. We find that campaign periods still exert a discernible impact on the communication patterns of political actors in terms of the volume of posts, affordances used, rhetoric, and audience engagement. The secular temporal shifts suggest a

growing sophistication of digital campaigning techniques or concerns about message saturation among parties, meaning that individual politicians drove long-term increases in posting frequency, potentially contributing to an increasingly personalized political environment.

Focusing on the German case, we attempt to bridge the gap in the literature concerning longitudinal multi-platform campaigning in democracies other than the United States. The increased reliance on social media for engagement during campaigns suggests that political actors are adapting to platform incentives, potentially shifting public expectations of political figures and fostering more direct relationships between politicians and voters. The pattern of increased engagement with negative content raises concerns about potential incentives for political actors to adopt more adversarial or divisive rhetoric, yet political actors continue to be more positive at election time, responding to the perceived preferences of their audiences rather than the logic of platform architectures.

Some limitations should also be acknowledged. Our focus on Facebook and Twitter may not capture the full breadth of digital campaigning, especially as newer platforms emerge with different interaction dynamics. Additionally, sentiment analysis may not capture the contextual subtleties of political messaging. Future research could extend these findings by incorporating newer platforms such as Instagram or TikTok, using natural language processing techniques, or considering heterogeneity in audience responses to digital campaign content engagement. As social media environments continue to evolve, understanding these shifts is increasingly essential for scholars and practitioners interested in the changing dynamics of democratic engagement.

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Supplementary Material

In this supplementary material, we start by providing some additional notes that did not fit into our main manuscript. Next, we present general descriptives about our data, including the number of posts and accounts at different periods in our data. We then expand on each of our sets of analyses following the same format as the main paper: volume, affordances, rhetoric, and engagement. Where we have not provided distributions of the key dependent variables in the main paper, we provide them in the relevant sections here. In addition, we present models that show all of our control variables, dropped from the main paper for ease of presentation. We also present a series of robustness checks and validations, elaborated on in detail in the relevant sections.

Additional Notes

Due to space constraints, we moved some additional descriptions, details, and examples of some of the phenomena we describe in our main text to this section. These notes are referenced in the footnotes of the main manuscript.

Note 1

When Facebook replaced the simple "like" button with five different kinds of interaction or popularity cues in 2016, user behavior also changed (Porten-Cheé et al. 2018). These interactions are not equally weighted algorithmically, with the "anger" reaction weighing five times as much as a simple "like", amplifying and pushing messages that evoke angry reactions (Merrill and Oremus 2021). In 2019, several European parties filed a complaint that Facebook was structurally incentivizing them to communicate in an increasingly negative way (Klinger, Koc-Michalska, and Russmann 2023). Similarly, features that allow for the redistribution of content—such as Facebook sharing or Twitter quoting or retweeting—are similarly pointed to as important for increased spread on each platform (Gerlitz and Helmond 2013), though the meaning of these actions is dependent on the poster-

respondent relationship (Hayes, Carr, and Wohn 2016). Thus, the "shareworthiness" (Trilling, Tolochko, and Burscher 2017) of content becomes important, as gaining spread in this way will secure a larger audience.

Note 2

The United States is an outlier compared to other consolidated democracies, with a two-party system defined by "weak parties and strong partisanship" (Azari 2016), multi-year campaign periods, disproportionate influence and levels of financial resources, and a distorted relationship between votes and representation due to a combination of the Electoral College, Senate apportionment, and gerrymandering in the House of Representatives (Klinger, Kreiss, and Mutsvairo 2023). Not only are the campaign logics fundamentally different, but the media landscape—with little regulation on advertising or voter data collection—is distinct to such an extent that "campaigns in other countries necessarily lag far behind the US due to structural reasons" (Magin et al. 2017), with evidence that U.S. politicians communicate far more on social media (Geber and Scherer 2015).

Note 3

Digital platforms appear to have altered campaigning so profoundly towards data-centered practices that we have entered a new era of campaigning (Magin et al. 2017; Roemmele and Gibson 2020), beyond the original "three ages" postulated by Blumler and Kavanaugh (1999). Parties and politicians have been quick to adopt social media platforms as another broadcasting channel, with a perceived trend towards hypermedia campaigning (Klinger and Russmann 2017; Lilleker, Tenscher, and Štětka 2015). The emergence of new platforms with primarily visual affordances (Russmann, Svensson, and Larsson 2019) has incentivized political actors to communicate more visually on Facebook in particular (Farkas et al. 2022; Larsson 2022; Marchal et al. 2021; Steffan 2020). Despite the visual turn on Facebook, Twitter remains a primarily text-based platform and remained understood as such at the end of the period of analysis (McCoy 2023), meaning we define our Twitter affordances as distinct ways that users can interact textually. Given our focus on Twitter and Facebook in this

study, we therefore speak of affordances in terms of the specific structures of these platforms and focus on the opportunities for engagement and communication that these different platform technologies provide.

Note 4

After setting up our account on Meta's CrowdTangle platform and receiving approval, we created a dedicated dashboard to collect posts from German political parties and politicians on Facebook. In CrowdTangle, we set up lists that included verified pages and public profiles for each major German party and relevant political figures. This allowed us to easily track and monitor the posts in one place. By using CrowdTangle's search tools, we could also quickly locate official accounts, ensuring that all data collected was reliable and represented the parties and politicians accurately. We defined the date range from the start of 2010 to the end of 2021 to capture all posts during this period.

Once the lists and filters were in place, we used CrowdTangle's export function to download the data as CSV files, which included post text, engagement metrics, timestamps, and links to the original posts. To ensure accuracy, we cross-referenced a sample of posts directly on Facebook, as some content can be removed or modified after publication.

The national SPD account geoblocks access to their posts. Because CrowdTangle is hosted on U.S. servers the service is unable to access these data. For the SPD, we therefore manually scraped the posts from the national party accounts using the open-source application Facepager (Jünger and Keyling 2024). Facepager uses Facebook's Graph API to assemble a list of the URLs of all posts from the selected account over a specified period. We then used the application's query function to extract the data points and metadata of each post that match the data provided by CrowdTangle to ensure continuity across accounts.

Note 5

Access to Twitter's Academic API allowed us to retrieve historical data with higher request limits. Using the API keys and bearer token generated through our project, we authenticated our R session,

enabling data collection through the academictwitteR package. With academictwitteR (Barrie et al. 2022) loaded, we configured the bearer token and began data collection by specifying the Twitter handles and keywords relevant to German political parties and politicians. Using `get_all_tweets()`, we queried tweets from user timelines, pulling tweets within designated date ranges.

The data collected included comprehensive metadata for each tweet, such as tweet text, timestamps, engagement metrics, and user information, which provided a rich dataset for our analysis. We specified the fields we needed, storing files locally in structured CSV files, ready for text analysis (performed in R) and statistical modeling (Stata). This setup streamlined data retrieval and organization, enabling us to work with both raw tweet text and engagement data across time.

Note 6

Though the explanatory power of these models, expressed by the R^2 values, is low, they can nevertheless be seen as in line with those reported for similar analyses (REFS). With this in mind, we follow Zeh and Hopmann (2013, 234) in suggesting that these results should be "interpreted as indicative of the absence or presence of relationships" rather than as making definitive statements regarding the strengths of relationships. Our goal is not to explain all variation at the account (individual-platform) level but to better understand how rhetoric changes over time and during election periods.

General Descriptives

In Tables A.1 and A.2, we present some basic information about the number of accounts and posts in our dataset. Table A.1 shows the number of accounts and posts per year.

Table A.1: Accounts & Posts by Year

Year	Accounts	Posts
2010	16	7,195
2011	17	11,511
2012	19	15,393
2013	20	19,332
2014	19	18,611

2015	901	390,705
2016	994	444,559
2017	1,358	571,963
2018	1,338	611,935
2019	1,378	623,051
2020	1,419	688,191
2021	1,477	690,991

Table A.2 shows the number of accounts and posts by state.

Table A.2: Accounts & Posts by State

State	Accounts	Posts
Germany	24	360,263
Baden-Württemberg	195	393,458
Bayern	226	434,125
Berlin	79	340,221
Brandenburg	61	144,517
Bremen	32	48,885
Hamburg	43	103,140
Hessen	104	228,316
Mecklenburg-Vorpommen	45	88,006
Niedersachsen	129	255,512
Nordrhein-Westfalen	277	697,086
Rheinland-Pfalz	90	237,801
Saarland	39	92,701
Sachsen	75	177,993
Sachsen-Anhalt	56	139,949
Schleswig-Holstein	66	155,661
Thüringen	53	195,803

Table A.3 shows the number of accounts and posts by affordance.

Table A.3: Total Affordance Count

Affordance	Accounts	Posts
Facebook: Link	288	317.841
Facebook: Photo	440	744,233
Facebook: Text	60	33,117
Facebook: Video	63	169,997
Twitter: Mention	72	356,446
Twitter: Original	328	580,964
Twitter: Quote	25	193,099
Twitter: Reply	84	499,606
Twitter: Retweet	234	1,198,134

Volume

Figure A.1 shows the distribution of the total number of Twitter posts by each account in our dataset.

Figure A.2 similarly shows the total number of Facebook posts. Both of these variables are heavily

right-skewed, with many accounts posting a relatively small amount of time, and a few accounts posting very frequently.

Figure A.1: Total Twitter Posts Distribution by Account

Figure A.2: Total Facebook Posts Distribution
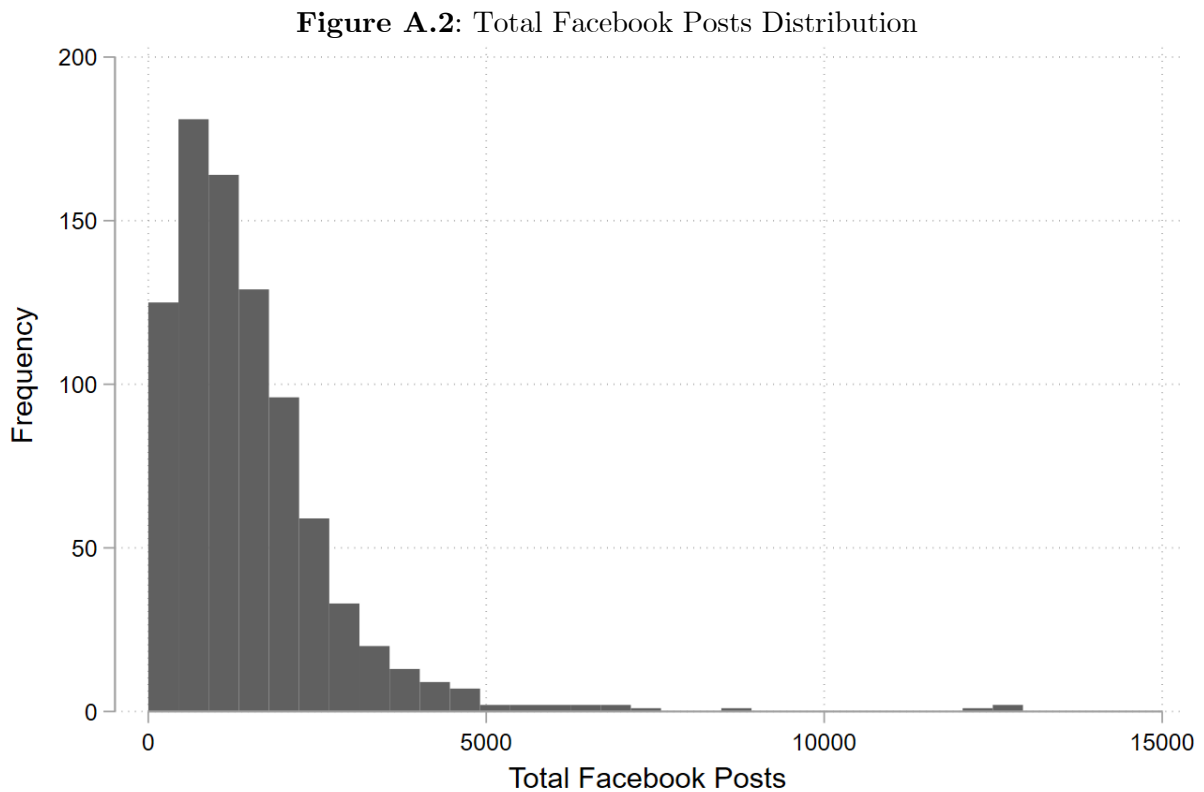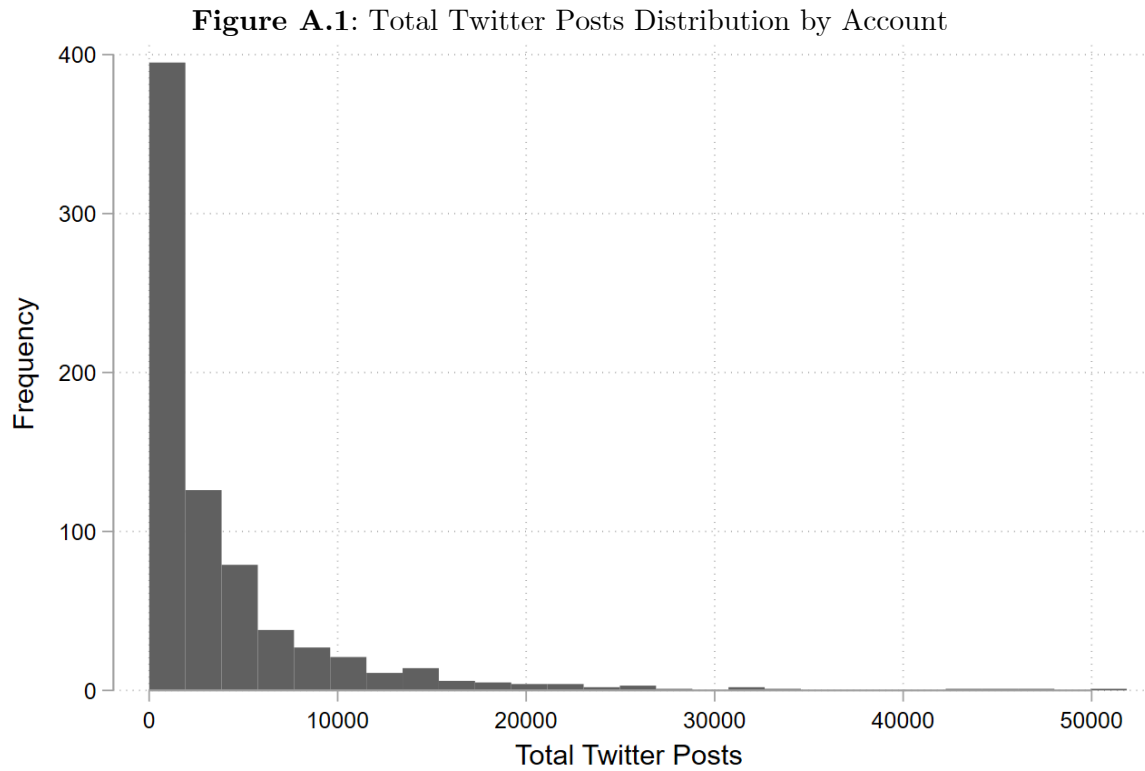
In Figure A.3 we present the same data as in Figure 1 but with the y-axis on a squared-rooted scale. This presentation has the advantage of more precisely showing the smaller changes in the volume of national party posts, at the expense of flattening the large differences in the volume of politicians' posts and at national election time. Given that we think the most important takeaway

from this figure is the clear spikes in the number of posts during national election periods and the divergence in the volume of posts by politicians and parties, we present the raw data in the main paper and add this figure here for readers who are specifically interested in temporal change in posting by national parties.

Figure A.3: Square-Root of Volume of Posts
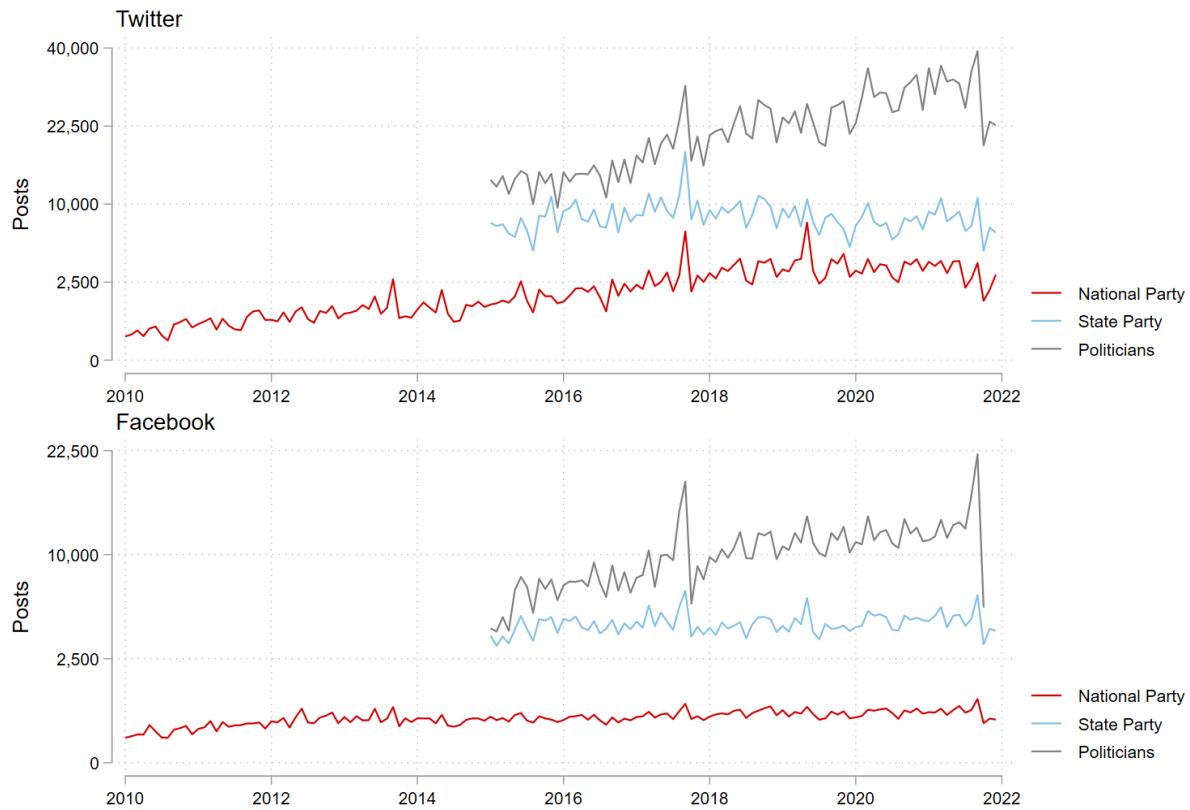
Affordances

In Figure A.4 (Twitter) and Figure A.5 (Facebook) we present the temporal trends of affordance use as line graphs in case readers want to see these trends over time without stacking them in the area plots shown in the main paper. We recognize that for some readers, these line graphs may be more intuitive to see exactly how many posts of a certain type were made in a given month, while, at the same time, recognizing their overall presentation is somewhat messier and potentially harder to read that the graphs presented in Figure 3 and Figure 4 in the main paper.

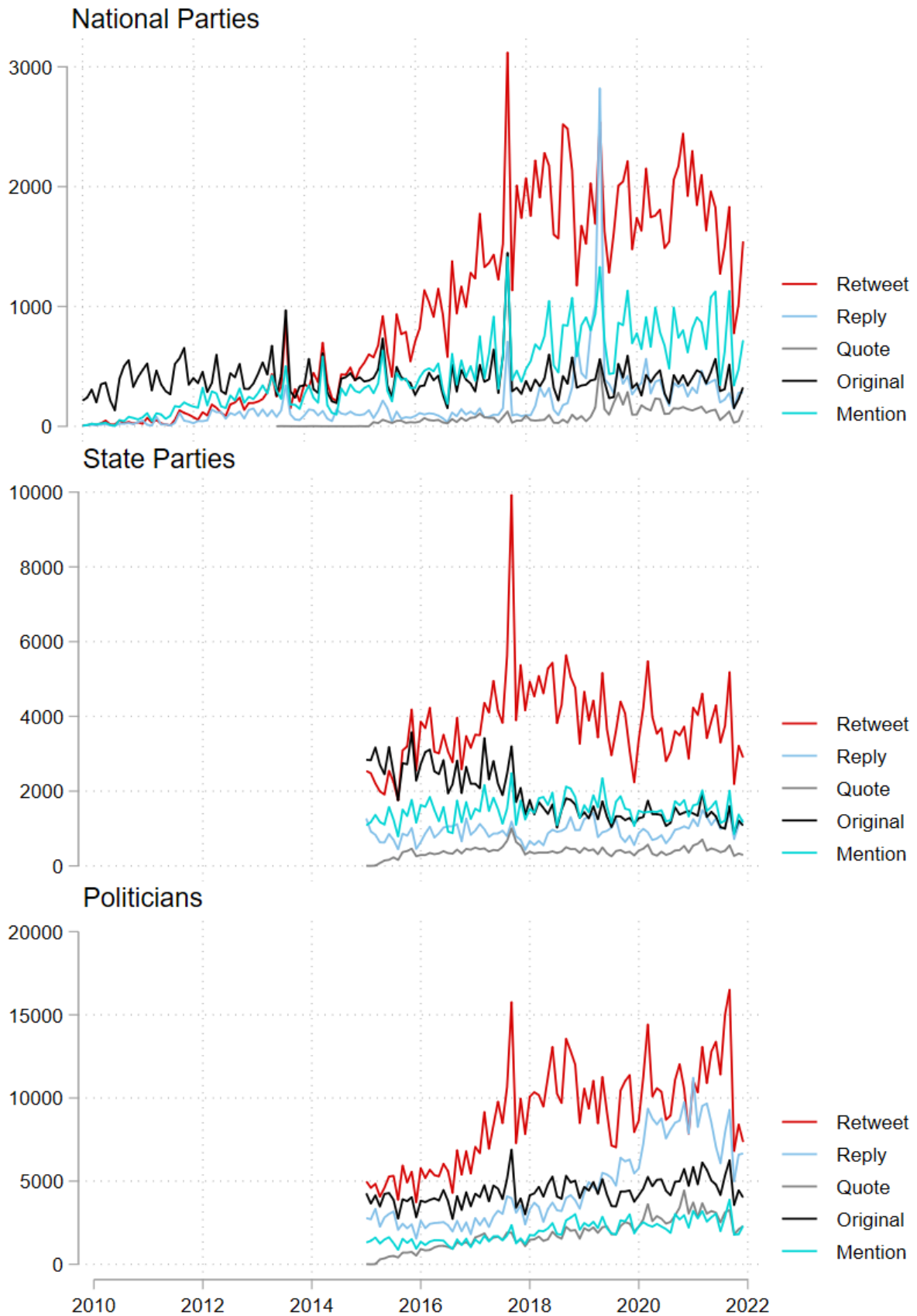**Figure A.4**: Twitter Affordances as Line Graph

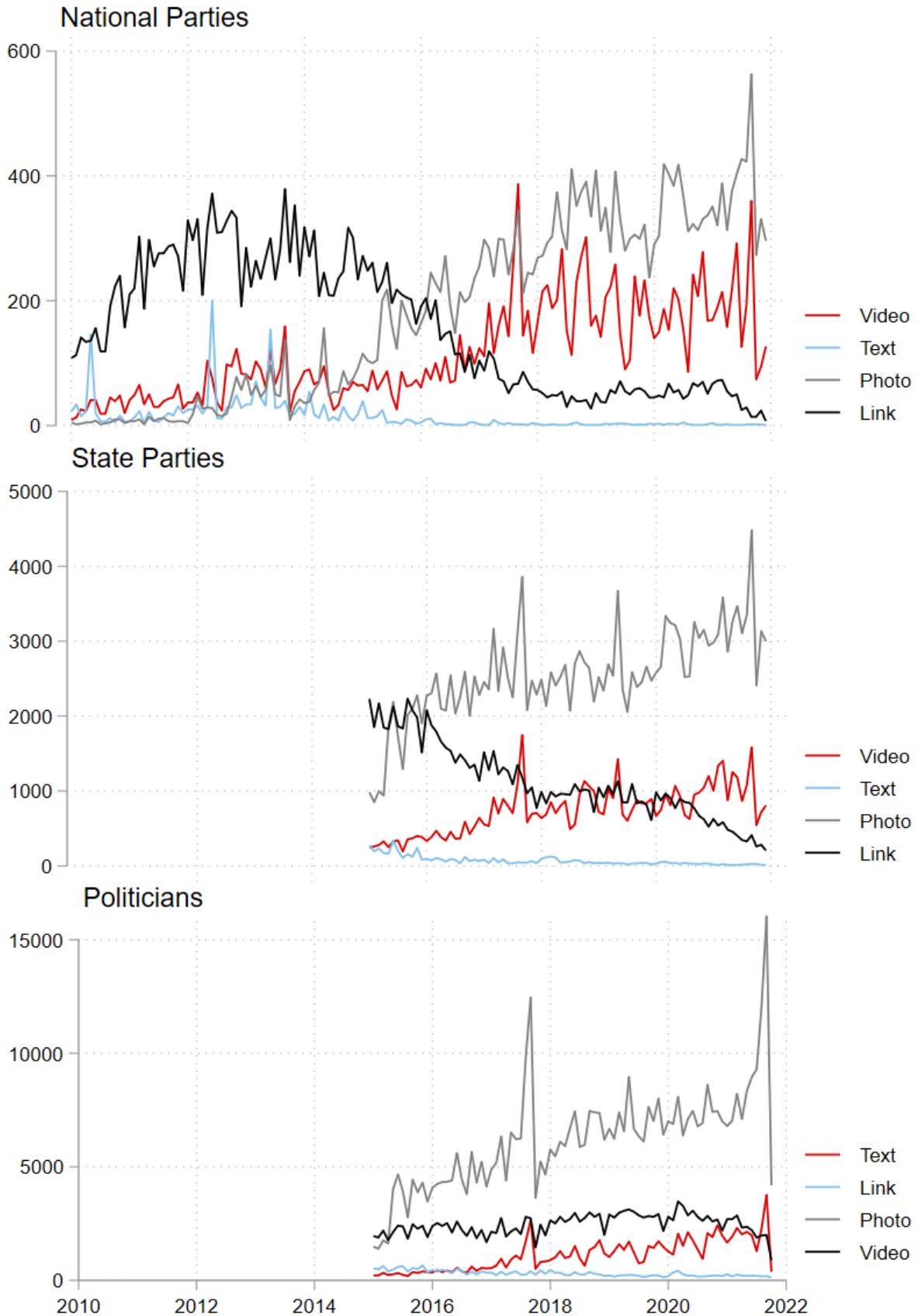**Figure A.5**: Facebook Affordances as Line Graph

Table A.4 shows the affordances model with all control variables shown. Politicians were consistently

less likely to use the identified affordances than national parties (the reference category). State parties

were less likely than national parties to post videos on Facebook or mention other accounts on

Twitter but were otherwise the same. In terms of the parties, the AfD was more likely to post original

content on Twitter than the CDU/CSU (the reference category), with negative coefficients for all the other types of posts. On Facebook, they were more likely to include links in their posts but less likely to include photos. The FDP behaved similarly to the CDU/CSU on Twitter, though it had more links and fewer photos and videos on Facebook. *Die Grünen* was markedly different from the CDU/CSU on Twitter with more mentions, fewer quotes, replies, or retweets, and fewer photos on Facebook. Both *die Linke* and the SPD used Twitter in a similar way to the CDU/CSU, though posted fewer videos—and in the case of *die Linke*, fewer photos—on Facebook. For reasons of space, we do not present the full results from the state fixed effects though note that there were few regional patterns present in our data.

Table A.4: Affordances with Control Variables Shown

	Twitter				Facebook		
	Mention	Quote	Reply	Retweet	Link	Photo	Video
Date	0.013***	0.022***	0.020***	0.014***	0.013***	0.034***	0.040***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Campaign Period	-0.002	-0.138***	-0.161*	0.051	0.219***	0.533***	0.781***
	(0.036)	(0.048)	(0.091)	(0.037)	(0.057)	(0.060)	(0.068)
Sentiment	0.106***	0.060***	-0.013	-0.073***	0.002	0.537***	0.269***
	(0.016)	(0.017)	(0.019)	(0.015)	(0.031)	(0.029)	(0.029)
Politician	-1.118***	0.805***	0.510**	-0.363*	-0.881***	-0.899***	-2.106***
	(0.141)	(0.308)	(0.254)	(0.197)	(0.291)	(0.259)	(0.305)
State Party	-0.351**	0.276	-0.030	-0.216	-0.124	0.102	-0.719**
	(0.146)	(0.322)	(0.259)	(0.205)	(0.323)	(0.289)	(0.340)
AfD	-1.160***	-0.441**	-0.980***	-0.479*	0.383**	-0.645***	-0.135
	(0.223)	(0.213)	(0.260)	(0.263)	(0.188)	(0.179)	(0.196)
FDP	0.012	-0.087	0.447*	-0.261	0.438***	-0.556***	-0.347**
	(0.140)	(0.175)	(0.237)	(0.185)	(0.158)	(0.160)	(0.163)
Gruene	1.355***	-0.323**	0.241	-0.299*	0.046	-0.988***	-0.368*
	(0.112)	(0.147)	(0.186)	(0.174)	(0.197)	(0.193)	(0.209)
Linke	0.206*	0.295*	0.311	0.177	-0.296	-1.130***	-0.590***
	(0.113)	(0.155)	(0.200)	(0.171)	(0.209)	(0.192)	(0.199)
SPD	-0.174	0.038	0.040	-0.013	-0.034	-0.182	-0.330**
	(0.130)	(0.193)	(0.291)	(0.199)	(0.142)	(0.128)	(0.132)
Fraktionslos	-0.291*	-0.027	0.023	-0.187	-0.288	-1.351**	-0.818***
	(0.164)	(0.176)	(0.269)	(0.197)	(0.199)	(0.557)	(0.308)
Constant	-8.748***	-17.461***	-14.672***	-8.678***	-5.735***	-19.336***	-24.434***
	(0.924)	(1.269)	(1.353)	(1.289)	(1.285)	(1.280)	(1.170)
State FE	✓	✓	✓	✓	✓	✓	✓
Observations	2,828,249	2,828,249	2,828,249	2,828,249	1,265,188	1,265,188	1,265,188

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Baseline = Original Text
Reference Categories: Hierarchy = National Party, Party = CDU/CSU

Rhetoric

In Figure A.6 we present the distribution of the sentiment measure used (Rauh 2018). Because each word in the classifier is given a positive (+1) or negative (−1) score, and the score for the posts is the total divided by the number of terms classified, our sentiment scores are heavily clustered around −1, 0, and +1.

Figure A.6: Sentiment Histogram
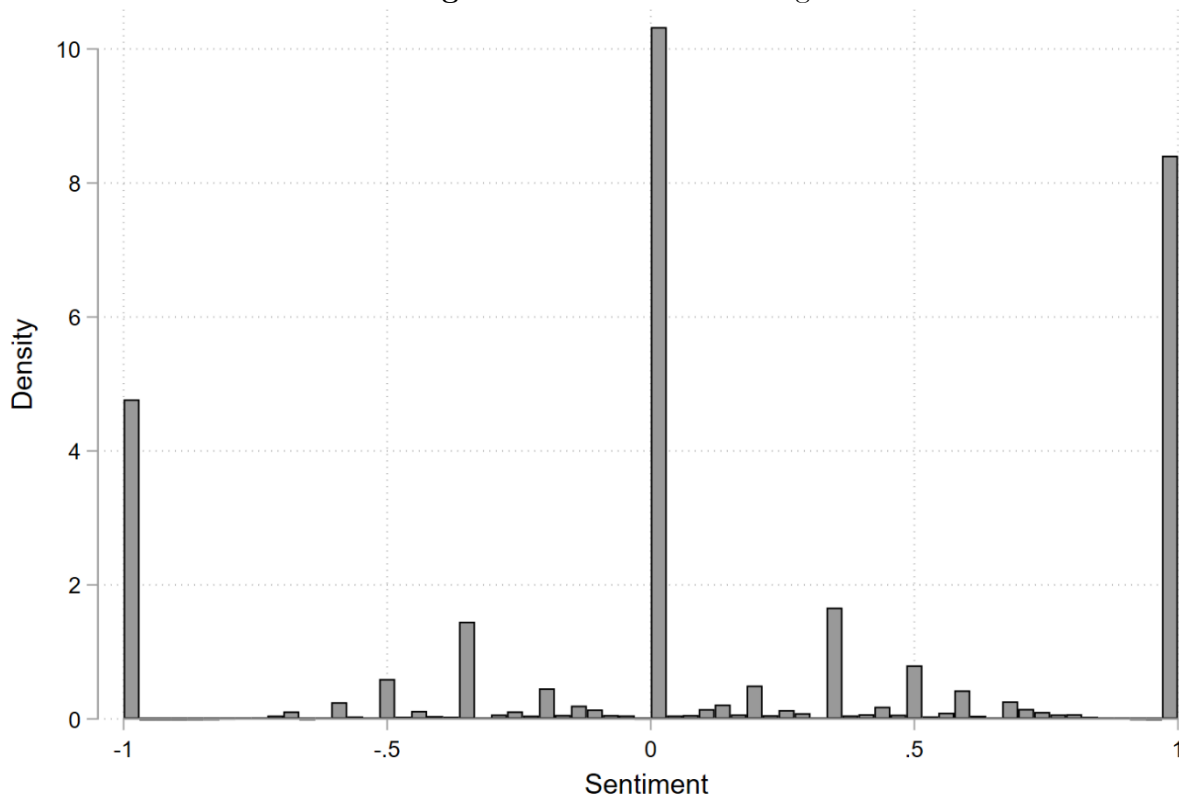
In Table A.4, we present our main rhetoric results with the control for post affordances shown. As expected text accompanying visual posts on Facebook was more positive. On Twitter, mentions and quotes were more positive than original messages (the reference category) whereas retweets were more negative.

Table A.4: Rhetoric, Full Results with Controls Shown

	Twitter Sentiment	Facebook Sentiment
Time	0.001***	-0.000
	(0.000)	(0.000)
Campaign Period	0.011***	0.040***
	(0.004)	(0.003)
Type: Mention (Twitter)	0.051***	
	(0.006)	
Type: Quote (Twitter)	0.029***	

	(0.007)	
Type: Reply (Twitter)	-0.001	
	(0.008)	
Type: Retweet (Twitter)	-0.044***	
	(0.006)	
Type: Link (Facebook)		0.004
		(0.008)
Type: Photo (Facebook)		0.137***
		(0.008)
Type: Video (Facebook)		0.077***
		(0.008)
Constant	-0.003	0.175***
	(0.009)	(0.011)
Observations	2,828,249	1,265,188
R-squared	0.003	0.013
Number of accounts	741	851

Robust standard errors in parentheses

Posts that feature no words from the classifier also receive a score of 0. Though we believe that the zero scores are a meaningful indicator of neutrality (i.e., the post is not obviously positive or negative), we also show that our main findings are robust to only include rhetoric that is classified in Table A.5. The only difference between this model and the model shown in the main paper is that our negative time trend for Facebook sentiment becomes statistically significant when we exclude posts that do not feature any words in the classifier. Our time trend for sentiment on Twitter remains positive as do the positive coefficients for the campaign period.

Table A.5: Rhetoric, At Least One Word Classified

	Twitter Sentiment	Facebook Sentiment
Time	0.001***	-0.001***
	(0.000)	(0.000)
Campaign Period	0.016***	0.059***
	(0.005)	(0.004)
Type: Mention (Twitter)	0.058***	
	(0.008)	
Type: Quote (Twitter)	0.045***	
	(0.009)	
Type: Reply (Twitter)	0.007	
	(0.010)	
Type: Retweet (Twitter)	-0.051***	
	(0.008)	
Type: Link (Facebook)		0.037***
		(0.009)
Type: Photo (Facebook)		0.185***
		(0.009)
Type: Video (Facebook)		0.153***
		(0.009)
Constant	0.013	0.240***
	(0.012)	(0.013)

Observations	2,194,900	1,050,563
R-squared	0.003	0.013
Number of accounts	741	851

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

To ensure our findings are not an artifact of our use of the Rauh sentiment dictionary, we demonstrate their robustness to the use of two alternative dictionaries: SentiWS (Remus, Quasthoff, and Heyer 2010) and GermanPolarityCues (Waltinger 2010). For both approaches we follow the same method as with the Rauh sentiment dictionary in the main paper, dividing the sum of positive and negative terms by the total number of terms identified. Each post therefore receives a sentiment score between –1 (negative) and +1 (positive). In Table A.6, we first present some brief descriptive statistics comparing the three classifiers in terms of how they relate to our dataset. The main difference is that the Rauh sentiment dictionary classifies our data slightly more positively than the two other classifiers, with an average sentiment per term of 0.135 versus 0.005 for SentiWS and –0.023 for GermanPolarityCues.

Table A.6: Sentiment Classifier Comparison

	Rauh	SentiWS	GermanPolarityCues
Number of Terms			
Mean terms per post	3.548	4.480	15.266
Min terms per post	0	0	0
Max terms per post	145	128	343
Total Sentiment			
Mean sentiment	0.542	−0.05	−0.377
Min sentiment	−98	−60.567	−101
Max sentiment	76	11.086	62
Sentiment per term			
Mean sentiment per term	0.135	0.005	−0.023
Min sentiment per term	−1	−1	−1
Max sentiment per term	1	1	1

In Table A.7 we present our results using the SentiWS and the GermanPolarityCues classifiers. Our main result for the campaign period remains statistically significant for Twitter and Facebook using both of these alternative classifiers. The time trend, which, using the Rauh measure was positive for Twitter and null for Facebook appears highly dependent on the sentiment classifier used. We reference this in the main paper, suggesting that our results provide relatively little evidence

as to whether accounts are becoming more positive or negative over time. Our main finding for the campaign period, with highly significant positive coefficients on both platforms, is robust to the sentiment classifier used. Again, we provide some brief commentary about this in the main paper.

Table A.7: Sentiment, Alternative Classifiers

	SentiWS		GermanPolarityCues	
	Twitter Sentiment	Facebook Sentiment	Twitter Sentiment	Facebook Sentiment
Time	-0.000	-0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Campaign Period	0.006***	0.013***	0.015***	0.031***
	(0.001)	(0.001)	(0.003)	(0.002)
Type: Mention (Twitter)	0.009***		0.012***	
	(0.001)		(0.004)	
Type: Quote (Twitter)	0.013***		0.058***	
	(0.002)		(0.004)	
Type: Reply (Twitter)	0.002		0.050***	
	(0.002)		(0.006)	
Type: Retweet (Twitter)	-0.006***		-0.037***	
	(0.002)		(0.005)	
Type: Link (Facebook)		0.003*		0.004
		(0.002)		(0.005)
Type: Photo (Facebook)		0.039***		0.050***
		(0.002)		(0.004)
Type: Video (Facebook)		0.026***		0.023***
		(0.002)		(0.005)
Constant	-0.002	0.020***	-0.067***	-0.058***
	(0.002)	(0.003)	(0.011)	(0.006)
Observations	2,828,249	1,265,188	2,828,249	1,265,188
R-squared	0.001	0.011	0.006	0.006
Number of accounts	743	851	743	851

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Table A.8 we present (the start of) the text in the 150 posts that we also validated by hand. To ensure that our approach to sentiment analysis accurately measures the target concept it is supposed to capture in our research context we randomly selected 50 posts that the Rauh sentiment classifier classed as positive (with a score of 1), 50 posts that our classifier identified as neutral (0) and 50 posts that the classifier identified as negative (-1). One of the authors then hand coded these 150 posts as either positive, neutral, or negative. The overall correlation between these variables was 0.848 with 40/50 positive posts identified correctly, 43/50 neutral posts identified correctly, and 41/50 negative posts identified correctly. There was only a single post that was classified as negative by one method that was classified as positive under the alternative method, meaning all other

differences related to positive-neutral or neutral-negative differences. We provide the opening lines

of the text to enable readers to assess the validity of the sentiment analysis tool that we used.

Table A.8: Hand Coded Validation

Post ID	Text	Hand Coding	Sentiment Analysis
9057	„Wie viele Geheimnisse verträgt die Politik ?" #UdLDigital-Talk am 14. 9. mit Frank-Walter #Steinmeier >> http://t.co/zSZF45P	0	0
20313	#Sommerinterview mit Christian Lindner verpasst ❓ Hier kannst Du es noch einmal in Ruhe anschauen	1	1
45715	#MeinStandpunkt - @ThomasOppermann erklärt @spdbt-Projekte wie #Mietpreisbremse, #Doppelpass, #ElterngeldPlus, etc. http://t.co/WDpwChzpHW	1	1
60757	Stefan Liebich: LINKE beantragt Sondersitzung des Auswärtigen Ausschusses zu Türkei http://t.co/2tiIGYDyDO	0	0
66661	Und jetzt: @ErikMarquardt. #BDK15	0	0
89104	RT @mz_de: Die sogenannten #Reichsbürger treten immer aggressiver auf. @HeikoMaas fordert eine Verschärfung des Waffenrechts https://t.co/T...	-1	-1
93824	.@eckhardtrehberg kritisiert: "Das BMUB macht mit Steuermitteln einseitig Stimmung gegen Landwirte" https://t.co/pZLKgb8Lz6	-1	-1
102627	RT @cem_oezdemir: Es ist mir eine große Ehre Botschafter des Deutschen #Brotes 2017 für das @Baeckerhandwerk zu sein! #Brotschafter #TDDB...	1	1
108486	RT @BMJV_Bund: Später Akt der Gerechtigkeit: Gesetz zur Rehabilitierung verurteilter Homosexueller tritt in Kraft https://t.co/fJjlArRVBi h...	1	1
122967	Monatlich fast 123 Mio. Euro Hartz IV-Zahlungen für Flüchtling in Berlin: Einwanderung in die Sozialsysteme stoppen	-1	-1
144803	Unser politisches Fußball-Lexikon. ⚽ Heute der Buchstabe F wie Flagge. #PolitikErklärtFussball #WM18 #FRAAUS #ARGISL #PERDEN https://t.co/ECEC2T4F9n	0	0
156017	RT @DorisAchelwilm: Die von #Ryanair angedrohte Schließung des renitenten Standorts in #Bremen passt zu einem Unternehmen, das Beschäftigte...	-1	-1
161099	RT @b_riexinger: #unten: Ich bin ein #Arbeiterkind und in meinem Elternhaus gab es kein einziges Buch. - Vor zwei Jahren hatte ich zu Erib...	-1	-1
162128	RT @Katrin_Werner: Mehr Sozialleistungen für Kinder führt dazu, dass Kinder eher in die Kita, zum Turnen oder Musikunterricht gehen. Endlic...	1	0
163837	RT @b_riexinger: Die Verteilung des Reichtums ist auf dem Stand von 1913. Da schreibt der @janboehm statt ner Neuauflage von #LastChristmas...	0	1
174351	#Nüsselein zum #TSVG: „Eines der größten Gesetzespakete, das je im Gesundheitsbereich verabschiedet wurde. Gesetzlich Versicherte sollen schnelleren Zugang zu Arztterminen bekommen." https://t.co/CankhXfR6C	1	1
221870	RT @BMAS_Bund: ❗ Auf unserer Website beantworten wir Ihre wichtigsten Fragen zum Thema #CoronaVirus und Arbeit: https://t.co/9TipW9MB1h htt...	1	1
229660	RT @simonimous: Klartext von ⊠@Lambsdorff: „Die Bundesregierung und der Außenminister müssen glasklar Position beziehen und die chinesisch...	0	0
238718	Das 4. Lichtlein brennt - wir wünschen euch zum 4. Advent einen schönen Sonntag mit einem wunderbaren Blick auf den Nördlinger Christkindlmarkt.	1	1
241793	Zur Klima-Einigung erklärt CSU-Chef und Ministerpräsident Markus Söder auf Twitter:	0	1
245607	RT @spdbt_netz: .@FalkoMohrs: Wir brauchen klare Regeln, damit der Wettbewerb auf und mit den digitalen Plattformen fair abläuft. Die Apple...	1	1
247511	RT @jensspahn: Die Zahl der #COVID19-Patientinnen und -Patienten auf den Intensivstationen hat sich binnen zwei Wochen auf über 2.000 verdr...	1	0
319982	Der religionspolitische Sprecher der FDP-Bundestagsfraktion, Benjamin Strasser, bezeichnete einen Kirchen-Lockdown an Ostern als „völlig überzogen". Die Kirchen hätten an Weihnachten gezeigt, dass sie in der Lage seien, verantwortungsvoll Gottesdienste zu feiern und dabei mit ihren Hygienekonzepten den Gesundheitsschutz zu gewährleisten.	1	1
327076	+++ Plenum aktuell: Dr. Hans-Thomas Tillschneider, MdL, Abgeordnete der #AfD-Fraktion & Sprecher f⊠r Bildung, Kultur & Wissenschaft, zur Gro⊠en Anfrage der Fraktion Die Linke mit dem Thema "Theater und Orchester in Sachsen-Anhalt". #ltlsa #lsa #AfDwirkt #SachsenAnhalt #Magdeburg https://t.co/RFtf25I1Wv	1	1
340074	Deutschland gibt mittlerweile 918 Milliarden Euro f⊠r #Sozialabgaben aus - fast ein Drittel der Wirtschaftsleistung.	-1	-1
349475	RT @Alice_Weidel: Der #Mittelstand ger⊠t in eine M⊠hle aus Preissteigerungen, explodierenden #Energiekosten & dr⊠ckend hohen #Steuern. Es d⊠	-1	1
358363	Retweeted A. Kramp-Karrenbauer (@_A_K_K_): Gemeinsame Kabinettssitzung Saarland und Rheinland-Pfalz. http://t.co/PEYl6G4EmE=:https://twitter.com/_A_K_K_/status/648791676752891904/photo/1	0	1
378041	Auseinandersetzung mit der Volksinitiative kann Diskussion beleben #ltbb #Brandenburg #Reform	0	0
402431	Willkommen zurück Erwin Sellering!	1	1
411466	RT @CarolinMatthie: Ich hoffe, ihr hattet einen friedlichen 1. Mai! ?? Mein Programm war heute https://t.co/hGQlLfWbba	1	1

ID	Text		
451647	Wenn n�chste Woche die Schule wieder werden die steigenden Infektionszahlen Auswirkungen auf den Unterricht in RLP haben. Wir schlagen vor, eine personelle Lehrerreserve aufzubauen ??https://t.co/UcDTOrNvau	-1	-1
452996	Nahles: F�r Landwirtschaft und Ehrenamt gibt es Verbesserungspotenzial bei der Umsetzung der Dokumentationspflichten. #Mindestlohn #kb2015	0	0
455773	Landtagavizepr�sidentin Beate Schlupp sagt: �Man muss auch manchmal schweigen k�nnen - selbst wenn einem der Kamm schwillt.�#jil18 #jugendimlandtag https://t.co/XUoxz5FaYQ	0	-1
461810	Ein Interview über Griechenland von Sahra Wagenknecht, der stellvertretenden Vorsitzenden der Linke.	0	0
497051	RT @KS_MdL: Ich kandidiere im Stimmkreis M�nchen-Land S�d als Direktkandidatin. In M�nchen und Oberbayern auf Liste 1 Platz 4 und bitte ums�	0	-1
498196	RT @MarkusBlume: Wir freuen uns auf den weltgr��ten Stammtisch - morgen live und digital aus Passau! ?? #gemeinsAM #dahoAM #csuam21 #politis�	1	1
508310	Dem ist nichts mehr hinzuzufügen!	-1	-1
511777	RT @linke_sachsen: Es geht weiter. Jetzt: 250.000 � "marktgerechte Provision". Kannst du dir nicht ausdenken. Kannst du aber verhindern: Mi�	-1	-1
514129	@GFSchulze @watch_union @dieLinke Die beiden Stimmen f�r den AfD-B�rgermeister in Lebus kamen nicht von der LINKEN sondern von parteilosen, die �ber unsere Liste in die Gemeindevertretung gew�hlt wurden. Es gibt dort keine Fraktion. Wir fordern Herrn Karcher und Herrn Buchheim dazu auf, ihre Mandate niederzulegen	-1	-1
540168	Deutschland und Indien verbinden viele gemeinsame Inetressen. Sehr wichtig sind die regelmäßigen Deutsch-Indischen Regierungskonsultationen, die demnächst wieder stattfinden. Es hat mich sehr gefreut, beim Deutsch-Indischen Wirtschaftsforum 2019 ein Grußwort zu halten, um damit unsere Partnerschaft zu unterstreichen.	1	1
592673	Jetzt #B�rgerdialog in #Herrenberg: Mehr als 600 Menschen sind gekommen! Winfried #Kretschmann �ber die vielen ehrenamtlich engagierten Menschen in unserem Land: �So ein Land regiert man gerne!� https://t.co/Cx3Vtjz75e	1	1
638009	RT @Bolalowo: Mal wieder ein Beispiel wie der Senat die Weichen falsch stellt... https://t.co/jaEXGET2aP	-1	-1
669250	Die regelmäßigen Hammelsprünge halten zum Glück fit!	1	1
722541	In Berlin findet heute ein spannendes Kolloquium zum Thema „Sexualisierte Kriegsgewalt seit dem Zweiten Weltkrieg: Bedingungen, Folgen und Konsequenzen" statt. Gemeinsam mit der Heinrich Böll Stiftung und Medica Mondiale habe ich die Konferenz organisiert. Für alle, die nicht vor Ort dabei sein können, gibt es auch einen Livestream. Um 9.00 geht's los! 💪	0	0
724697	Carola Bluhm und @UdoWolfMdA unterst�tzen #unteilbar, f�r eine solidarische und offene Gesellschaft. Kommt am 13.10, 12 Uhr zum Alexanderplatz! @Unteilbar_ @dielinkeberlin https://t.co/oRprJsrhqq	1	1
725236	RT @tagesspiegel: Europ�ischer Gerichtshof #EuGH kippt anlasslose #Vorratsdatenspeicherung https://t.co/qHlNxAjcDf https://t.co/lkmcvecIum	-1	-1
739313	RT @StephanJersch: Ich baue darauf, dass diese Ordner nicht in der ber�chtigten Ablage des Senats landen sondern auch ein unterst�tzendes A�	-1	-1
748440	Thomas Lippmann: Die Zeit, in der das #Volksbegehren gegen den #Lehrermangel den jetzigen Einschr�nkungen unterworfen ist, darf nicht auf die Eintragungsfrist angerechnet werden. #Nachtragshaushalt #corona #ltlsa	-1	-1
755983	Corona hat gezeigt wie gefährlich es sein kann, wenn man von anderen Staaten in der Medikamentenversorgung abhängig ist. Deshalb brauchen wir künftig eigene Produktlinien. Hans-Jürgen Irmer	-1	-1
756992		0	0
763484		0	0
772102	RT @FunkeBerlin: Heute will das Kabinett Entsch�digung f�r Opfer des #Schwulenparagraf-en beschlie�en. �berf�llig, so @HeikoMaas https://t.�	0	-1
800006	Regierungserkl�rung Saarland zu Coronavirus: Aus Kapazit�tsgr�nden in R�gion Grand Est keine Regeltests. Sorge um Pendlerstr�me. Gespr�che mit Beh�rden in Frankreich �ber Wiederaufnahme.	-1	-1
801656	F�r die Rettung und den Wandel der #Stahlindustrie: Daf�r m�ssen wir entsprechende Energie bereitstellen, Kurzarbeit bieten als kurzfristige Hilfe, #EU leistet zudem Unterst�tzung. Rolf M�tzenich @spdbt	1	1
827068	RT @JEF_de: �Die JEFs verk�rpern das Lebensgef�hl einer ganzen Generation�, sagt das Radio @EuranetplusDE ab Minute 21:50. https://t.co/R1z�	0	0
854709	Wie funktioniert eine nachhaltige und faire Wirtschaft in der Praxis - das haben wir heute im "solution space" in Köln diskutiert. Wir Grünen fordern verpflichtende Sorgfaltspflichten entlang der Lieferkette, Qualitätsstandards für Zertifizierung und Auditberichte und eine verbesserte Verbraucherinformation. Mit Grüne Köln, ARMEDANGELS und FOND OF BAGS	1	1
869324	RT @DietmarBartsch: Keine Nation kann sich herausnehmen zu sagen: Wir bomben jetzt mal. Beweise damals im #Irak waren alle gelogen. #Trump�	-1	-1
884032	RT @klauslederer: Ich denke, @ElkeBreitenbach hat da ein paar Ideen... ?? https://t.co/1G5yx9ow5T	0	0
932353	RT @cehzett: Jamaika-Verhandlungen sind an #Soli-Abschaffung gescheitert, sagt @Wissing. @c_lindner habe Merkel angefragt, die verneint.�Fr�	-1	-1
945350	RT @Die_Gruenen: Wow! Tausende Jugendliche demonstrieren gerade in #Berlin f�r #Klimaschutz und den #Kohleausstieg. Es ist an der Zeit, den�	1	1
951954	RT @al_f: Green Christmas record: 81% of German power demand were covered by #renewables at noon on the 26th of December 2015! https://t.co�	1	0

| ID	Text		
952354	Unser Landesparteitag startet mit einer Rede vom Sprecher von @chemnitzgruene Dan Fehlberg. Sch⊠n dass ihr alle da seit! #ldksn #Gr⊠ne #Sachsen	0	-1
956423	https://www.bild.de/regional/hannover/hannover-aktuell/tochter-von-fluechtlingshelferin-vergewaltigt-bewaehrung-fuer-zwei-syrer-75598386.bild.html	0	0
975066	Es kann losgehen. #SPD #tsg18 https://t.co/oAOp8yixRB	0	0
985501	Jetzt redet Martin Schulz	0	0
1056424	Schon bei der Er⊠ffnungsrede wir klar: Geb⊠hrenfreie Bildung gibt es nur mit Malu #Dreyer und der SPD Rheinland-Pfalz! #MALU16	1	1
1063017	No comment...	0	0
1070344	RT @larsklingbeil: Eine Unterst⊠tzung der AfD-Kandidatin bei der Wahl zur Bundestagsvizepr⊠sidentin ist ein Schlag ins Gesicht f⊠r alle Dem⊠	-1	-1
1082437	Lesenswert	0	0
1082854	RT @filizgreen: Heute ist der Internationale Tag gegen #Rassismus. Deutschland hat ein Rassismusproblem! Wir dürfen nicht wegschauen und ni...	-1	-1
1090051	#ausgruenden	0	0
1124652	Endlich die Einreise legalisieren http://t.co/i6a0g3pehS #LINKE	0	-1
1142435	Es lebe die #Freiheit! #neverforget https://t.co/ZKQ4mmYwaj	1	1
1165287	Grüße vom 31. Bundesparteitag der CDU aus Hamburg. #cdubpt18	0	0
1178498	WTF! https://t.co/reW7H1aHSU	0	0
1180048	RT @ChelseaClinton: Good morning Mr. President. It would never have occurred to my mother or my father to ask me. Were you giving our count...	0	0
1194246	RT @mongrel43: 105-year-old refugee traveled 20 days on foot to make it to Europe https://t.co/PjRZFdkC45 via @mashable	0	0
1224025	Herzliche Grüße aus Berlin! Bevor es gleich in die Fraktionssitzung geht, noch schnell durch einige Akten schauen. Vor mir liegt wieder eine ereignisreiche und spannende Berliner-Woche.	1	1
1225399	RT @staedtetag: #staedtetag19: Die Reden des heutigen Tages von Bundespräsident Frank-Walter #Steinmeier, Städtetagspräsident @LeweMarkus &...	0	0
1255244	Der Chef von BlackRock, dem größten Vermögensverwalter der Welt, könnte unter Clinton Finanzminister werden-... https://t.co/2J8s1lR6qd	-1	-1
1261158	Fällt ihm das jetzt erst auf? Das Kapitel " Türkei in die EU" gehört endlich in die Tonne, Herr Oppermann. Dazu hätte ich gerne eine klare Aussage der linken Parteien. http://www.spiegel.de/politik/ausband/spd-fraktionschef-zu-tuerkei-oppermann-wirft-erdogan-angriff-auf-rechtsstaat-vor-a-1103407.html	-1	0
1297424	@roderakete @tiisbosbi Sind noch 5 da.	0	0
1325102	RT @gruenderszene: "Wenn Musk auf dem Mars landet, sollte die deutsche Verwaltung digital sein" - FDP-Politiker Christian Lindner beim Poli...	0	0
1363190	@ZDFheute Sachfremde Entscheidung - #Wohnungspolitik hat mit Innen nix zu tun. Es drohen bei einem solchen irren Zuschnitt des #BMI bei der Bau- und Wohnungspolitik erst mal Stillstand! #fail #GroKo	-1	-1
1369417	RT @klima_allianz: Aufbruchstimmung für ambitionierte Klimapolitik beim #Zukunftsbankett im @mfnberlin. @LittleSun und das Orchester des Wa...	1	0
1472161	RT @PPinzler: Was für ein Unterschied: Nach einer wolkigen Merkel spricht Macron auf der #COP23 nicht darüber, was schwer ist - sondern was...	0	-1
1522203	RT @Junge_Freiheit: Der Ostbeauftragte der Bundesregierung, Marco #Wanderwitz (CDU), bezeichnet die Wahlerfolge der #AfD in den neuen Bunde...	1	1
1536783	RT @FelixWllr: Morgen treffen sich in der Staatskanzlei MV Landrät*innen und (Ober)Bürgermeister*innen mit der Landesregierung und beraten...	0	0
1544402	Selbsthilfegruppen-Tag in Neuwied. Im Ehrenamt wird viel für betroffene Patienten geleistet. Selbsthilfe hat gute Unterstützung verdient. https://t.co/j06i48Cx26	1	1
1569095	@dpwes Voll 90er.	0	1
1606945	@theliberalfrank @juergen_martens Danke! 😊	1	1
1626487	Wir müssen das dramatische Insektensterben stoppen. Es braucht eine Landwirtschaft die mit der Natur zusammen arbeitet. #Agrarwende https://t.co/T0et0kVlh7	-1	-1
1639577	@Amira_M_Ali https://t.co/1HntS53PAL	0	0
1670538	Unterstützung DEs, auf EU-Ebene Mechanismus zur turnusgemäßen Überprüfung nach Vorbild des Menschenrechtsrat-UPR sowie Sanktionen einzuführen, hat @fdpbt schon vor 1 Jahr gefordert. Gut, dass BReg die Vorschläge unterstützt #Serviceopposition #Ungarn https://t.co/1B7KVInbGj https://t.co/PEnvDAJvVg	1	1
1703889	@berlinerzeitung Neue Radschnellverbindungen #RSV sind auch für #Spandau eine Chance. https://t.co/Ri4N8XYLNT	1	1
1760888	Heute um 17.30 Uhr: Sommerinterview im SAT1 Regionalfernsehen. http://t.co/wiJzVA6dn1	0	0
1765025	👍 https://t.co/JfSOCn5gc1	0	0
1771930	RT @cducsubt: Die #Widerspruchslösung sei eine Möglichkeit, vielen Menschen dank eines neuen Organs das Leben zu retten, sagt @jensspahn, d...	1	1
1782121	RT @ZDFheute: Bundesgesundheitsminister @jensspahn hat seine #Corona-Infektion überstanden. Im ZDF ruft er zu einer nationalen Kraftanstren...	0	-1
1838292	RT @cducsubt: Zu den Ergebnissen des Treffens von US-Präsident Trump mit Russlands Präsident Putin sagt @JoWadephul: "Absprachen vage - Erg...	-1	-1
1849224	Debating if #Trump is right or wrong with @RepMikeTurner https://t.co/dWlDyr6zif	0	0
1869206	Cool! Schule #Johanneum aus #Lüneburg hat Schülerfirma jojo energy gegründet, will neben Solaranlage noch mit #Kleinwindrad Strom erzeugen und speichern. #Ideenpitch beim #Energiekongress2018 von @greenpeace_nrg #Bürgerenergie https://t.co/c9HjoJBuV5	1	1
1870113	RT @HoernchenCecile: Die Polizei hat heute 28.12. das Handy des EA (Ermittlungsausschus) / Legal team vom #hambibleibt beschlagnahmt, hier...	0	0

ID	Text		
1880067	RT @cdurlp: Lob von Angela Merkel für die Entscheidung von @JuliaKloeckner, Kommunal-Experte Dr. Matheis zum mögl. Leiter der Staatskanzlei...	1	1
1912221	RT @dpomondi: Lapidar festzustellen, dass das 2020-Klimaziele nicht mehr erreichbar sei, ist eine politische Bankrotterklärung. Damit mache...	-1	0
1928116	RT @janineuhl: #Russland: Amnesty International fürchtet um das Leben der russischen Journalistin Elena Milashina. Der tschetschenische Prä...	-1	-1
1961086	Max 3 Kita-Kinder unter 3J. pro Erzieher:@SylviaLoehrmann @gruenenrw @svenlehmann fordern Kita-Qualitäts-Gesetz #NRW https://t.co/36Vv1Ns86l	-1	-1
2005641	@juliusmagapfel @nilsnto 💪💪✌	0	0
2086061	Der #srle hätte gestern tagen sollen, da war der längste Tag des Jahres. Sitzen jetzt gleich 7 Stunden und noch ist nicht Schluss.	-1	-1
2108548	@grafwer @s_k_walter Und ich hab Dein biologisch abbaubare Glitzer in meiner Tasche auf Norderney... Shame on ne !!! 🌈🚫👠😜😄	-1	-1
2111651	RT @klauslederer: Richtig so.	1	1
2119721	RT @Eure_LeylaBilge: Das hat Deutschland wirklich nicht verdient! Am 26.09.21 #AfD wählen DE🖤 https://t.co/WhfKRkDIYv	0	0
2203723	@netzpolitik Geheimdienste lieben Namenvergabe in Serien: Götter, Edelsteine, Fußballer, alles mit Eis usw. Warum nicht auch Schnaps. https://t.co/NwEXJuUgd4	0	0
2240119	Was konkret unternimmt @HeikoMaas für die Deutschen, die derzeit (nachts nach 24 Uhr in #Kabul) vor dem Flughafen stehen, aber nicht reinkommen? Sie sollten gemäß @AuswaertigesAmt zur Evakuierung dort hinkommen und wissen nicht, wo sie die Nacht halbwegs sicher verbringen können.	-1	0
2269890	RT @fdpbt: Die @AfDimBundestag beantragt kurz vor Sitzungsende im #Bundestag einen #Hammelsprung wegen Beschlussfähigkeit - und wer ist von...	0	-1
2274928	RT @berndulrich: Ärzte heilen, Züge fahren, Kinder gehen zur Schule, Wachstum brummt. Aber @DerSPIEGEL schreibt: D ist im Ausnahmezustand. ...	1	1
2348753	@W_Schmidt_ @AchimTruger @SDullien @CanselK @arneschneider @MartinGreive @PhilippaSigl @GustavAHorn @KatjaRietzler @KeineWunder Das könnte man ja dann tatsächlich mal thematisieren, dass die Union so die Konjunktur abürgt, die Modernisierung verschläft und zur Zukunftsbremse wird ...	0	1
2361649	RT @DB_Info: #Zugstörung zwischen #Lutherstadt Wittenberg Hbf und #Bitterfeld. Sperrung. #Umleitung über #Dessau Hbf. Verspätungen von 30 b...	-1	-1
2376484	Wir wollen eine Familienpolitik, die den Namen auch verdient hat!!! https://t.co/fLvMKNLM0G	1	1
2410950	Ich frage mich, in was für einer Welt unsere Kinder groß werden sollen - um so mehr müssen wir zusammen stehen für die Demokratie	0	0
2415610	@RalfFalcoLeyva Dann müssen Sie sich wohl welche wortwörtlich basteln.	-1	-1
2434128	@Elmal96 Ok, seine ehemalige Partei.	0	1
2447651	@tauss @JoergRupp Bei Anerkennungsquote aus Georgien von 0,3 % würde ich sagen: ziemlich sicher	1	1
2466252	Grünen wollen Online-Handel regulieren, um Verödung von Innenstädten entgegenzuwirken? Das grüne Autoverbot für Städte wird jedenfalls das Gegenteil bewirken https://t.co/8DO8p4Ode6	0	1
2582969	Roger Miller - King Of The Road 1965 (Country Music) HQ Mein Musiktipp für euch da draußen im digitalen Orbit ;-) https://t.co/vN64fDuhY7	0	0
2593611	Weil die Trolle heute wieder einmal so hyperaktiv sind +gefährliche Desinformation betreiben,hier noch einmal die FAKTEN zum Mitschreiben: Wer sich gegen das Coronavirus impfen lässt: 1. Schützt sich selbst gegen potentiell schwer verlaufende oft lebensgefährliche Erkrankung.(1)	-1	-1
2609174	Habe ihn auch kennengelernt. Das war ein aufrechter Sozialdemokrat! https://t.co/bHsdFFpdXV	1	1
2641277	RT @GMWatch: As the UK Govt prepares for the introduction of #GMO crops, citizens create a visual petition http://t.co/hNGL2N6jiU http://t...	0	0
2645890	Gestern bei ntv #timeline mit @MickyBeisenherz und @NikolausBlome diskutiert zu #Tönnies , #BeraterGabriel, #KFrage , Boykott bei #Facebook und #Maskenpflicht-Debatte. /TK https://t.co/QLWBg6kPkN	-1	-1
2656791	@weristmo @GrueneBundestag @WAZ_Redaktion @MartinHaeusling @Die_Gruenen @ebner_sha @MarkusTressel @fbrantner @Oliver_Krischer @dirkfisser @AFPde @dpa @FunkeBerlin Landwirtschaft ist aber nicht das Windradgenre, sie #Troll	-1	-1
2689177	RT @cathibruns: Aha. Ohne Selbstständige? Wohl eher Rat der alten Arbeitswelt.	0	0
2763438	Protipp: Einschalten und zu #moria befragen. #LeaveNoOneBehind #moriaevakuieren https://t.co/TS65mcSbgw	1	1
2768492	RT @KreuzAcht: IB-Chef Martin Sellner wurde die Einreise nach GB verwehrt. Er wartet in London auf seine Abschiebung. Ist doch mal ne Erfah...	-1	-1
2807883	@LillyBlaudszun @BerndWestphal4 @spdbt Guter Mann....	1	1
2820211	RT @eliistender10: FFS, that's all we need, the return of Sauron! https://t.co/4RZMNjEgQf	0	0
2842636	@isaloewe Und wie! So ein Gebrülle gab es selten. Offener kann man Panik nicht kommunizieren.	-1	-1
2867553	Das Gewerbe vor Ort leidet seit Jahren an der Konkurrenz aus dem Internet. Corona hat die Krise noch einmal verschärft. Unsere Innenstädte drohen zu veröden. Und was macht Verdi - klagt gegen einen (!) verkaufsoffenen Sonntag. Lebensfremd! https://t.co/BSiOTPuwfJ	-1	-1
2898307	So kommt's mir vor...Gute Nacht, viel Glück morgen (in Supermarkt, Baumarkt, Bank, Sparkasse & Co.) und danke - für die Zeichnung - an: https://t.co/8AgqLVVNGx https://t.co/uOHGUrFRiz	1	1
2918577	Göttinger Wissenschaftler rufen zum "March for Science" auf https://t.co/jZlVT9VuaP	0	0
2932181	RT @Linksfraktion: »Wir brauchen einen #Rettungsschirm auch für die #Menschen, nicht nur für die #Wirtschaft«, mahnt @SusanneFerschl & krit...	-1	-1
2943448	RT @danielreitzig: Wisst ihr noch, als berichtet wurde, dass @jensspahn einen #Maskendeal mit Hubert Burda hatte, sein Ehemann, der die Ber...	0	0

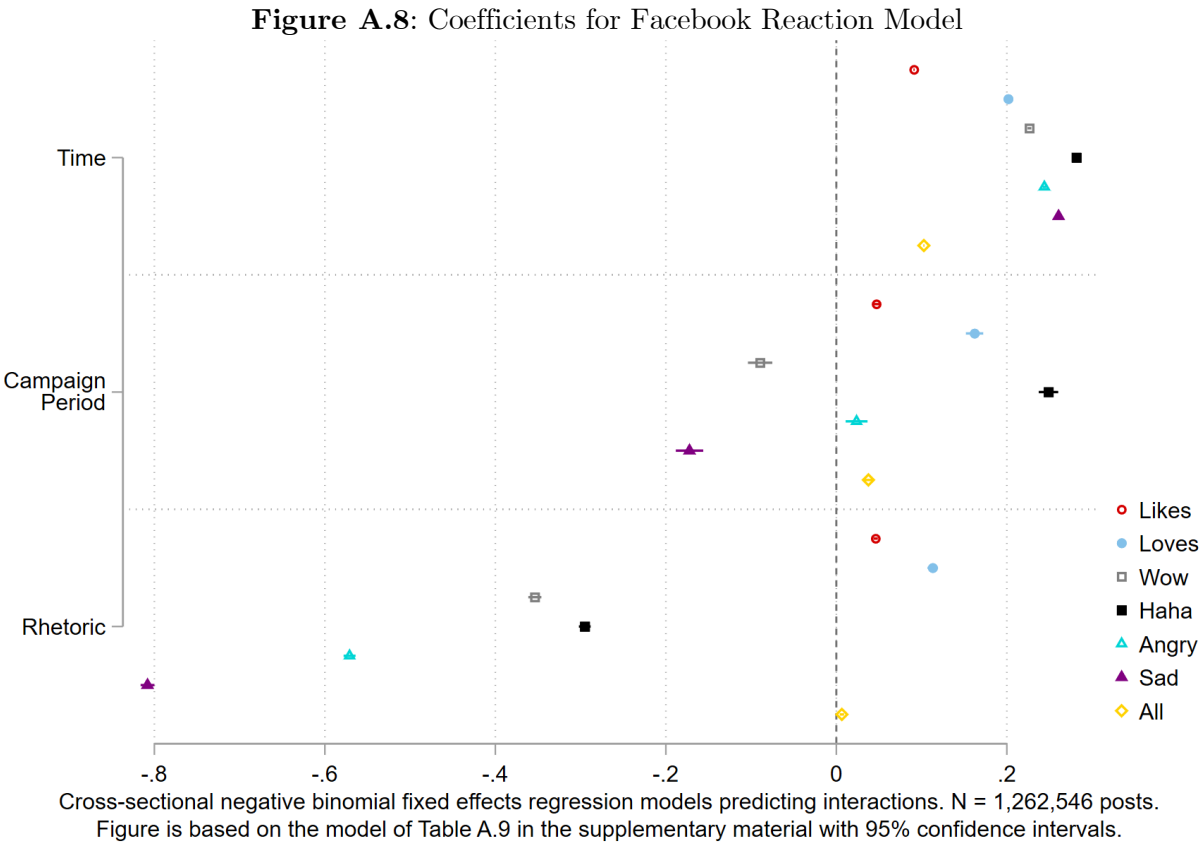| 2947094	Schöner Empfang von @GrueneLtNds in d. Landesvertretung in Berlin @Anja_Piel @StefWenzel @GruenMeyer @julia_verlinden http://t.co/YNMpmzyfyh	1	1
3026747	RT @RoHeinrich: Ein Nachtzug von Berlin nach Paris? Ich höre schon das Rattern der Schienen in der Dunkelheit und rieche die Croissants am...	0	-1
3051688	RT @sofia_koller: #Deutschland - Kontroverse Diskussion bei #Querschuss Veranstaltung mit MdBs von #CDUCSU #SPD #FDP und #Grünen in der @dg...	-1	-1
3060079	📰 Warum das milliardenschwere #Baukindergeld nur Mitnahmeeffekte hat und was stattdessen wirklich funktionieren würde, die Wohneigentumsquote zu erhöhen, darüber habe ich mit @MDRAktuell gesprochen ... https://t.co/WVuje9KbV9	0	1
3089445	@_CG10 @Vermindertlebe1 @n84kt1v @Lady_Carpaint Oh doch. Schon mal was von Kündigungsschutz gehört? Geh in die Gewerkschaft, da hast du Rechtsschutz.	0	0
3091188	@Spaxbatman @polit_mikesch22 @LetKiser Die einzige andere Partei, die Merkel garantiert nicht zur Kanzlerin wählt: @dieLinke	0	0
3116142	RT @SPIEGEL_Top: SPD-Frau geht zur CDU: Ramelows Koalition in Thüringen schrumpft https://t.co/6OSqbwrbLs	-1	-1
3120610	RT @hoshiyama: #Gauland "versucht, die Geschichte umzuschreiben. Wie die ganze AfD. Das ist geschichtsvergessen und schändlich", stellt @wa...	-1	-1
3138839	RT @fdprlp: #FDP #RLP fordert politische Demaskierung der #AfD statt #Ächtung oder gar #Verbot... https://t.co/LyyqhvX9NG #SPD #Grüne #CDU ...	-1	-1

Engagement

In Figure A.7 we present the distribution of the likes and shares on both platforms. As shown, there is a strong tendency towards zero (zero-inflated poisson) in the distribution of all four variables. Accordingly, we use cross-sectional negative binomial regression for our main engagement analyses.

Figure A.7: Distribution of Likes & Shares on Twitter and Facebook by Post
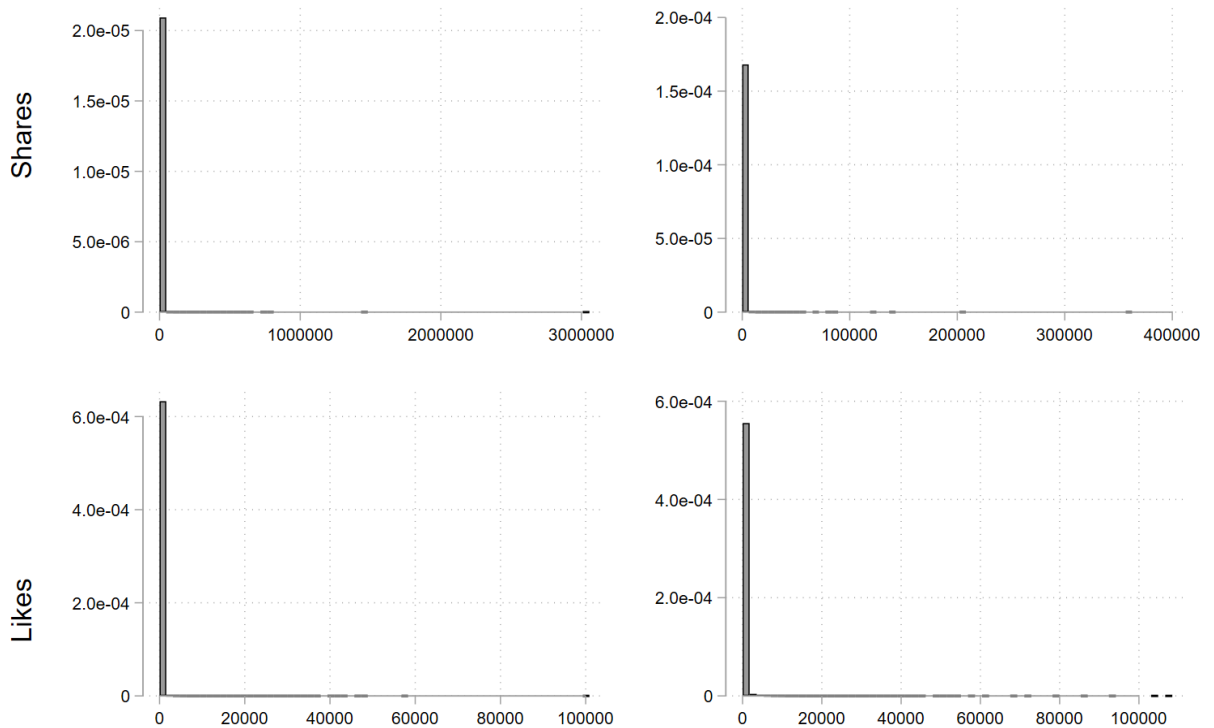
One potential explanation of the positive finding for Facebook is the series of different reactions that the platform allows, including "loves", "wow", "haha", "sad", and "angry" (also see Eberl et al. 2020). In Figure A.8, we show that reactions associated with positive rhetoric (likes, loves)

were more common during the campaign period. Conversely, some reactions associated with negative rhetoric (wow, sad) were less prevalent during this period, likely as the engaged subset of the electorate sought to demonstrate support during the campaign (model details in the figure). Overall, positive posts on Facebook received more engagement but fewer shares, offering parties and politicians diverging incentives when posting on the platform. On Twitter, negative posts received more likes and shares.

Figure A.8: Coefficients for Facebook Reaction Model

Cross-sectional negative binomial fixed effects regression models predicting interactions. N = 1,262,546 posts.
Figure is based on the model of Table A.9 in the supplementary material with 95% confidence intervals.

We present the full Facebook reaction model in Table A.9. All types of reactions increase over time (H4a), but their use in the campaign period varied (H4b) in ways that somewhat align with the positive or negative rhetoric commonly associated with these messages (H4c).

: Full Facebook Reaction Model

	Likes	Loves	Wow	Haha	Angry	Sad	Total
Time (*H4a*)	0.008***	0.017***	0.019***	0.023***	0.020***	0.022***	0.009***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Campaign Period (*H4b*)	0.047***	0.162***	-0.089***	0.249***	0.024***	-0.172***	0.038***
	(0.002)	(0.005)	(0.007)	(0.006)	(0.007)	(0.008)	(0.002)
Rhetoric (*H4c*)	0.046***	0.113***	-0.354***	-0.295***	-0.571***	-0.808***	0.007***
	(0.001)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.001)
Type: Link (Facebook)	-0.157***	-0.294***	0.246***	0.092***	0.258***	-0.097***	-0.124***
	(0.005)	(0.013)	(0.016)	(0.014)	(0.014)	(0.014)	(0.005)
Type: Photo (Facebook)	0.197***	0.297***	0.152***	0.044***	-0.010	-0.304***	0.189***
	(0.005)	(0.013)	(0.016)	(0.014)	(0.014)	(0.014)	(0.005)
Type: Video (Facebook)	-0.057***	0.414***	-0.049***	0.087***	-0.057***	-0.486***	-0.082***
	(0.005)	(0.013)	(0.016)	(0.015)	(0.014)	(0.015)	(0.005)
Constant	-0.661***	-3.498***	-3.425***	-4.659***	-4.428***	-4.472***	-0.751***
	(0.005)	(0.014)	(0.018)	(0.017)	(0.016)	(0.017)	(0.005)
Observations	1,265,187	1,265,187	1,262,518	1,262,546	1,262,303	1,264,537	1,265,187
Number of accounts	850	850	834	833	835	841	850

*** p<0.01, ** p<0.05, * p<0.1
Reference Category for Type = Original Text
Model is a cross-sectional negative binomial fixed effects model. Robust standard errors in parentheses are clustered at the account level.
Dependent variable is the average number of interactions that a post has. Baseline affordance is text-only posts.

In Table A.10 we present the full model shown in Table 3 with the inclusion of controls for affordances. Platform affordances also conditioned the level of engagement, with posts that make greater use of these affordances receiving more attention online. Post type was highly informative of the level of engagement, with original posts (baseline category) on Twitter getting more likes and shares than quotes and retweets. Mentions received more likes and shares than original text, with retweets receiving more shares, but did not attract more likes. Given the viral nature of retweeted posts on Twitter, the finding that retweeted posts attract more retweets is unsurprising: followers were likely motivated by the virality and perceived "shareworthiness" (Trilling, Tolochko, and Burscher 2017) of the original content to further spread these posts. On Facebook, links, photos, and videos were all shared more than text-only posts, with a direct relationship between the level of media content and the propensity for sharing. Beyond the descriptive trends shown in Figure 4, this pattern further suggests that visual media has now assumed a dominant role in the sphere of political communication on Facebook.

Table A.10: Engagement Model with Controls for Post Type Shown

	Shares		Likes	
	Twitter	**Facebook**	**Twitter**	**Facebook**
Time (*H4a*)	0.004***	0.010***	0.020***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)
Campaign Period (*H4b*)	0.065***	0.021***	0.007**	0.047***
	(0.003)	(0.004)	(0.003)	(0.002)
Rhetoric (*H4c*)	-0.095***	-0.122***	-0.015***	0.046***
	(0.001)	(0.002)	(0.001)	(0.001)
Type: Mention (Twitter)	0.180***		0.080***	
	(0.002)		(0.002)	
Type: Quote (Twitter)	-0.243***		-0.212***	
	(0.003)		(0.003)	
Type: Reply (Twitter)	-1.753***		-1.200***	
	(0.004)		(0.002)	
Type: Retweet (Twitter)	0.711***		-28.305	
	(0.002)		(795.617)	
Type: Link (Facebook)		0.047***		-0.157***
		(0.007)		(0.005)
Type: Photo (Facebook)		0.157***		0.197***
		(0.007)		(0.005)
Type: Video (Facebook)		0.109***		-0.057***
		(0.007)		(0.005)
Constant	-2.149***	-2.036***	-2.502***	-0.661***
	(0.003)	(0.008)	(0.004)	(0.005)
Observations	2,828,240	1,265,187	2,828,212	1,265,187
Number of accounts	738	850	737	850

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Reference Category for Type = Original Text

Model is a cross-sectional negative binomial fixed effects model. Robust standard errors in parentheses are clustered at the account level. Dependent variable is the average number of number of shares or likes that a post has. Baseline affordance is text only posts on each platform.

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