The Battle for Britain

MPs' use of Facebook during the EU referendum campaign

Esmeralda Valentine Bon*
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* PhD candidate at the University of Nottingham, School of Politics and International Relations; Research associate at the University of Manchester, Department of Politics. Student number: 14273798.
E-mail: Esmeralda.Bon@manchester.ac.uk

Abstract

This is the age of the permanent campaign and professionalised political communication. Politicians must deliver and perform on a day-to-day basis. This includes UK members of Parliament. Notorious for taking their time in adopting digital means of communicating with their constituencies, especially in the 2000s, the majority can now be found both offline and online. This thesis presents an investigation into the online communication of politicians on Facebook about the EU referendum. The referendum provides a clear-cut context with two opposing camps in which differences and similarities in communication and campaigning between MPs, if any, come to light. This thesis consists of 6 chapters. In Chapter 1, I introduce this research, and in Chapter 2, I outline the method used for analysing and collecting the data, which is unique to this project. I thereafter present three empirical papers in Chapters 3-5. These papers each revolve around the study of MP communication at the time of the EU referendum campaign, using a novel data set of MP Facebook posts, published between February 19 and June 23, 2016. In the first empirical chapter (Chapter 3), I examine the active involvement of MPs in the EU referendum, on the Facebook platform, considering MP characteristics and using the corpus of relevant posts. Thereafter, in Chapter 4, I study how MPs communicate in these relevant posts, focusing on their use of emotion and argument. This is followed by the last empirical paper, in which I use time series analysis to investigate the dynamics of the EU referendum campaign of MPs on Facebook, to gain an understanding of the patterns in the prominence of campaign communication on this platform (Chapter 5). In the final chapter of this thesis, Chapter 6, I provide a conclusion.

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List of Abbreviations

Abbreviation	Meaning
ACF	Sample autocorrelation function
AIC	Akaike Information Criterion
API	Application Programming Interface
ARIMA	Autoregressive Integrated Moving Average
BIC	Bayesian Information Criterion
CCF	Cross correlation function
EU	European Union
EULA	End-User License Agreement
EU Ref	EU referendum
LIWC	Linguistic Inquiry and Word Count
MP	Member of Parliament
OLS	Ordinary Least Squares
PACF	Partial autocorrelation function
SNS	Social Networking Site

1 Introduction

> *The internet will be tested politically before it develops as a technology. If there is a referendum about the Euro within the next two or three years the information battle will be fought out partly online, especially for the younger generation who look to the web for trusted information. The 2001 election was not a tight race; a referendum on the Euro could be the vigorous test of online information provision and discussion facilitation that could make the internet's political reputation.*
>
> *(Coleman, 2001, p, 687)*

Through professionalisation, and with the help of external experts and digital technology, politicians have learned to communicate and campaign better and more efficiently (e.g., Negrine, 2007). Their toolkit has expanded. They no longer must rely on the local party organisation or face-to-face meetings with voters to obtain support. Instead, politicians can use digital technology to present themselves and their policies. Today, this is less of a choice and more of a necessity. This is the era of the 'permanent campaign' (Blumenthal, 1982), and politicians must therefore be present and campaign even when there is no election in sight. This is part of the third phase of electoral campaigning, characterised by the use of new, web-based communication technologies, such as e-mail and websites, the use of external experts and consultants, such as those who specialise in marketing, advertising and PR, and the use of scientific methods to obtain data about public opinion. As part of this process, over the last two decades, politicians have gradually moved toward the online realm and toward using social media more specifically, and due to the need to continuously campaign, their activity on these platforms does not cease in the absence of an upcoming election.

As politicians, Members of Parliament (MPs) also increasingly communicate and campaign online (Zittel, 2003; Norton, 2007), to reach different publics with multiple and heterogeneous interests (e.g., Larsson & Moe, 2012), and to campaign for re-election (e.g., Stanyer, 2008). MPs now use web 2.0 applications such as social networking sites to communicate politics. For MPs in particular, communicating through digital means has become necessary for meeting constituent demands. Constituents require MPs to be more accessible and to be in contact. Whereas in the mid-90s only a few members of Parliament (MPs) used email, by 2002 email was used by 3 out of 4 MPs (Coleman & Spiller, 2003), and in 2002 the UK Parliament's Information Committee drafted a report with guidelines on the use of ICT by MPs (House of Commons Information Committee, 2002). In this report, the MPs were asked to be more accessible, through remote access, the use of mobile devices, networked computers, adequate storage and response times of emails and the

use of additional technology. Today, MPs are still accused of living in a Westminster bubble. They therefore actively build an online presence and use multiple platforms for establishing and maintaining contact with constituents. Technology advances rapidly and the range of communicative technologies is ever-changing. Like a cat chasing a mouse, to maintain contact and stay in touch, MPs follow constituents to relevant platforms. This can be seen in their adoption of social networking sites and increasing reliance on visual media.

Whilst it is clear that digital technology provides opportunities for MPs to campaign and to communicate, to meet the demands of the permanent campaign, the political party, and constituents, it is yet unknown to what extent MPs exploit these opportunities under the unusual circumstances presented by a referendum campaign. The EU referendum does not only represent a pertinent, highly impactful event with international implications, but it also makes it possible to dive deeper and to examine which factors play a role in MP communicative activity when re-election is not immediately at stake. At election time, party line and ideology play a role. However, on the matter of EU membership, political parties were internally divided (e.g., Glencross, 2016). Therefore, whether an MP aligns with either of the two camps or with neither, is unlikely to have been perceived by their party or by their colleagues in terms of party loyalty.

Furthermore, whereas in the lead-up to an election MPs will increase their social media activity to communicate about their performance to manage impressions and to gain support, less is yet known about how referenda affect the social media activity of MPs. It is possible that the unusual circumstances presented by the EU referendum, a referendum on a highly salient issue, has shifted the focus of the MPs from themselves and their constituency work to the EU as a policy issue, changing the MPs' posting activity and how they communicate in their posts.

In this thesis, I investigate whether this is the case, by considering the contemporary campaigning and communication of UK MPs on Facebook.[1] Facebook is the most used social networking site (SNS) in the UK and, compared to similar sites, still the main SNS for accessing news (Newman, Fletcher, Schulz, Andi, & Nielsen, 2020). This thesis relies on three configurations of a novel data set, uniquely created through the innovative use of a combination of (automated) quantitative as well as qualitative methods. By analysing this data, this thesis addresses the following questions, focusing on the EU referendum campaign. First, which MPs use their Facebook pages to communicate and campaign? This first empirical paper focuses on the extent to which the

[1] Campaigning is a specific form of communication, used to support a person or a cause or to achieve a certain goal. It, therefore, differs from communication in general. However, in this thesis, communication about the EU referendum, published during the referendum campaign, in the Facebook posts of MPs, is treated the same as campaigning. After all, MPs are politicians and we can assume that their posting about the EU referendum is politically motivated, for instance to support a camp (”Leave” or ”Remain”) or voter registration, and to publicise activities for informing voters about the EU and membership (e.g., a debate).

personal and professional characteristics of MPs predict this activity (Chapter 3). Second, to what extent do MPs use their Facebook pages to communicate deliberatively? This empirical paper specifically considers the use of argument, anger, and anxiety in the text of posts about the EU referendum, on Facebook (Chapter 4). Third, does the posting activity of MPs respond to external events and developments that take place during the campaign? This final empirical paper (Chapter 5) investigates the degree to which posting activity and the content of the posts of MPs evolve and interact with specific events, or with changes in the public's vote intention ("Leave" versus "Remain").

This introduction proceeds by first presenting the innovation and normalization hypotheses and by outlining the professionalisation of politics. Thereafter, I reflect on the role of the MP, in theory and practice. This is followed by a description of MPs' political communication online, by referring to the rise of web 1.0 and web 2.0, and a discussion of what MPs use social media for. Next, I list several obstacles which negatively affect whether and to what extent MPs use social media and I also explain why there is a need for them to use these platforms. For example, by using social media, MPs can influence how they themselves and their choices are perceived. Thereafter, I describe the event of interest: the EU referendum campaign. This includes a brief discussion of the data. I present a summary of the key findings and implications, and I also mention how my findings contribute to what we know about how politicians communicated during the EU referendum campaign and how MPs communicated on Facebook about the EU referendum. Finally, this introduction concludes with an outline of the general content of this thesis.

1.1 The professionalisation of politics

Some say that, more generally, the rise of digital media has radically transformed politics (e.g., Gibson & Ward, 2000). According to this innovation hypothesis, online services and technologies that enable the creation and maintenance of social networks, the use of algorithms and the creation of user-generated content have changed how political information is created, presented, and shared. According to this hypothesis, the web has led new online political communication practices and content to increasingly differ from their offline forms. From this perspective, SNSs have transformed political communication, by making it possible to share messages easily and to reach a larger audience, creating exposure (Vaccari & Valeriani, 2015). The absence of the traditional mass media as gatekeepers also makes it possible for politicians to become familiar with novel styles and strategies of communication (e.g., Schweitzer, 2008).

Yet, evidence suggests that the rise of the Internet has not fundamentally transformed elite political communication, neither in the UK (e.g., Allan, 2006), nor elsewhere (e.g., Vergeer &

Hermans, 2013). In many cases, political communication online still constitutes business as usual, in line with the normalisation hypothesis: politics and deliberation are simply adapted for new functionalities (Margolis & Resnick, 2000), and online political communication is an extension of the original (Anderson, 2007). Aragón et al. (2013) has argued that in the UK, the biggest change to MP communication has been the adoption of word-processors for efficiently communicating with constituents. Social life and politics simply moved to a different medium (Margolis & Resnick, 2000), since more and more traditional players have moved to the online realm (Siapera, 2011). For example, it is still the case that major parties have the resources to create and maintain personal websites, whereas minor parties turn to social media to communicate instead (Gibson & McAllister, 2015).

Setting aside these questions about the extent to which politics has transformed, it is evident that due to modernisation, politics and the media as institutions have changed, and so has the relationship between these two systems (Holtz-Bacha, 2007). For example, today, political actors must navigate a 'hybrid media environment', with a more 'fluid media infrastructure' (Chadwick, 2013; 2017).[2] The logic of the media, based on 'newsworthiness', now informs the choices that they make (Strömbäck, 2008).[3] The practices of politics and communication have gradually changed following a process of professionalisation: due to the improved and more purposeful "organisation of resources and skills", both politics and communication have become 'more efficient' and 'more reflective' (Negrine, 2007, p. 29). It is through reflection and learning that political parties and their members have gained a better understanding of how to use digital technology to communicate and to campaign.

Whilst political communication has therefore become more 'professional', this does not mean that previous communication was 'amateur': instead, as Negrine and Lilleker (2002) point out, they were less technological, and politicians were simply less apt at appearing in and dealing with the media. Other examples of professional practices of political communication are the use of political marketing, personalisation, consultants, technological know-how, and a move from part-time to permanent communication (Scammell, 1998; Norris 2000; Farrell, Kolodny & Medvic, 2001). According to Negrine (2007), professionalisation originated in the United States, in the 1920s and 1930s, with the rise of propaganda. In contrast, in the UK, professionalisation only appeared after the Second World War, because this is when personnel were hired to advise about campaign strategy. Over decades, the range of campaign techniques, and knowledge about

[2] The media system is referred to as 'hybrid' because there is not a specific media channel (or logic) for political actors to choose and follow for sharing campaign messages. Instead, in this contemporary media environment, they have a wealth of options and will choose the channel and logic that suits best.

[3] Social media platforms in particular follow a network media logic, which affects how content is created, processed, and used (Klinger & Svensson, 2015).

campaigning, has increased and improved. The range of advisory positions has also grown, as political parties increasingly rely on external, professional experts to advise strategy. As a result, internal party strategists have taken a back seat (Scammell, 1998), and the hired experts are now the professionals (Negrine, 2007).

These professionals are especially in demand at election time. Unlike elections, which take place every set number of years, a referendum is a sporadic event. Still, the infrastructure – the tools, experts, and techniques – in place for electoral campaigning may be consulted and employed in a referendum campaign. Therefore, studies about the development and increased professionalisation of election campaigns shed light on the potential influence of the professionalisation on referendum campaigns. Political campaign scholars have observed that in many liberal democracies, over the last couple of decades, campaign techniques and campaign styles have merged. They broadly agree with the identification of three phases of campaigning (Blumler & Kavanagh, 1999; Farrell & Schmitt-Beck, 2002). The phases of campaigning are divided by shifts in communication practices and processes, fuelled by the gradual expansion of tools available for running a campaign (Gibson, 2020). Generally, these have been shifts toward increased professionalisation. The first phase, which roughly lasted from the 1920s until the second world war, is referred to as the pre-modern era. At this time, campaigns relied on in-person contact and the local party organisation. The move from communication between voters and parties through the local organization and face-to-face contact to mass media communication, facilitated by the introduction of television, brought about the second phase of political communication. In this phase, party attachment and party identification started to play less of a role and consequently, politicians and parties had to campaign to gain the support of undecided voters. To concentrate these campaign efforts, the party headquarters instead of the local party organisation became more powerful.

In the early 1990s, election campaigning enters a third phase. In this postmodern era of political campaigning, campaigns have become professionalised.[4] Campaign scholars generally agree that this era is characterised by a change in campaign techniques and campaign-style, due to the increased availability of novel communication technologies, including e-mail and the Internet. Blumler and Kavanagh (1999) refer to this as the rise of 'cyber politics'. Other characteristics of this era include a shift in power toward the party leader and consultants (Lilleker, 2005), the adoption of digital technologies for election campaigning, and the increased use of

[4] The label 'postmodern' for this second phase of election campaigning is derived from Norris (2000). Negrine and Papathanassopoulous (1996) refer to the professionalised campaigning in this era as campaigning that follows a more 'American' or 'Americanized' style, reflecting advancements that first and most rapidly took place in the United States and gradually started to influence political campaigning elsewhere (e.g., Scammell, 1995).

methods such as field experiments, surveys and focus groups to measure and pool public opinion (Römmele & Gibson, 2001; Römmele & Von Schneidmesser, 2016). Campaigning became more professional, with politicians and political parties hiring PR consultants to help build a political brand, and to help them market their proposals to voters as consumers (e.g., Lees-Marshment, 2001). Therefore, in this phase of electoral campaigning, political advertising has become more prominent.

These phases have preceded a fourth phase of campaigning, the beginnings of which we can observe today (Magin et al., 2017; Strömbäck, 2008; Römmele & Von Schneidmesser, 2016). In this era, the distinction between online and offline campaigning has been replaced by a 'total campaign' (Römmele & Von Schneidmesser, 2016), and politics and citizen engagement with politics have radically changed. This drastic change is due to rapid technological development, the widespread adoption of new online platforms for communication and campaigning, by politicians and citizens, increased use and reliance on data, and the process of mediatization. The latter of these, mediatization, has changed the relationship between media and politics and has led to the rise of mediatized campaigning. The media now has a larger influence on society: politicians and political parties now need to cooperate with and are dependent on both the traditional media and social media platforms. In the fourth era, data is more intensively used to inform where and how campaign resources are obtained and spent.[5] This data is also more precise due to the increased accuracy and the ability to personalise digital tools (Gibson, 2020). In this sense, it is likely that election campaigning has and will become more 'scientific' (Römmele & Gibson, 2020).[6]

Whilst these tools and techniques are primarily used to support the election campaign efforts of political parties and their candidates at election time, politicians can use these tools, the existing expertise and the knowledge and skill that they have obtained to support and inform their communication. For example, whilst Foot and Schneider (2002) refer to the low cost of mobilising citizens digitally, in terms of time, energy and finances, by studying an election campaign, we can assume that this method of mobilisation likewise serves as an inexpensive tool for a referendum campaign. Additionally, Tenscher (2013) provides evidence that campaigning, in general, has been subject to professionalisation, by finding an increase in professionalisation in both first- and second-order election campaigning in Germany. Thus, I argue that MPs can use what they have

[5] For example, data is used to inform political micro-targeting. This is one of the four key changes that Römmele and Gibson (2020) link to the fourth era of election campaigning. The remaining three changes are 1) a reliance on 'big data' and 'digital technology', 2) a dependency on "networked communication" and 3) the "internationalization of the campaign sphere" (p. 595).

[6] More research needs to be done to determine how far political campaigning has processed in terms of adopting the techniques of data-driven campaigning. For example, it is not yet known to what extent political parties are actually capable of effectively employing political micro-targeting (Baldwin-Philippi, 2017; Dommett, 2019).

acquired through professionalisation – these tools, the existing expertise, knowledge, and skills – to support and inform their referendum campaign communication, and also their communication more generally: they can use the existing digital infrastructure, such as their social media accounts, to campaign, to communicate with voters and to perform their role as MPs.

1.2 Being an MP: MPs' communication as representatives

What then is the role of the MP? Given the importance of political trust in democracy, it is crucial that constituents perceive MPs positively. This requires MPs to communicate about their performance and activities to their constituents, to show that they meet, preferably even exceed, the requirements for the job. Thus, MPs use communication to show that they can be trusted (Auel & Umit, 2018). However, there is not just one job description for being an MP. It is possible to distinguish at least four different perspectives relating to the role of the MP: the delegate, trustee, party, and constituency service models.

In short, from the MP as delegate perspective, the constituents inform the MP about their preferences and wishes and the MP travels to Parliament to make sure that these are made known. By giving the MPs a mandate, citizens participate in the democratic process: they delegate power to the MPs and trust that they will act in the constituent interest, even if these go against those of the MPs themselves. In the 18th century, Edmund Burke introduced the trustee model as an alternative to the delegate model. According to this second model, once elected, the MP should be given free rein by constituents to perform his duties. The constituents trust the MP to do what is best for both the constituency and the nation. These two models consider MPs as individuals with their own, individual responsibilities.

However, there has been a shift in focus from individual MPs to MPs as members of (more or less disciplined and cohesive) parties. It has since been argued that political representation, therefore, revolves around the party (e.g., Norton & Wood, 1993), because the party dominates the selection and management of MPs. While both the delegate and trustee perspectives consider MPs to be centrally involved in decision-making, this new party-focused perspective considers how they operate as delegates not of their constituents but their party. More recently, the constituency service model has been introduced (Butler & Collins, 2001; Lilleker, 2006), and Jackson and Lilleker (2009) have observed the beginnings of a fifth model that revolves around self-representation online, also referred to as e-representation.

According to the constituency-service model, the MP prioritises constituency work over other aspects of the role, because this can have electoral benefits (e.g., Johnston, Cowley, Pattie & Stuart, 2002). Indeed, MPs have increasingly become more constituency-oriented and

approximately as constituency-oriented as their voters (Campbell & Lovenduski, 2015). Finally, the e-representation model states that web 2.0 applications are crucial for representation. Through these apps, MPs directly communicate about their interests with like-minded citizens, who do not have to belong to their geographically defined constituency. They use Web 2.0 to express their personality, to present themselves in a positive light and to show constituents that they are just like the average person: they are not stuck in the Westminster Bubble (Jackson & Lilleker, 2009). These applications are thus mostly used for hosting personal web pages for political branding and marketing, allowing the MPs to show their personality and to be present for constituents.

Whereas these different models have been created over time, there has not been a succession or transformation of roles. The five roles are not to be considered mutually exclusive: depending on the context, an MP may take on either persona (Wahlke, Eulau, Buchanan, & Le Roy, 1962). For example, MPs who need more local support, such as junior MPs and MPs in marginal seats, focus more on the constituency and communicate more with constituents, compared to more senior MPs and MPs in safer seats (e.g., Heitshusen, Young & Wood, 2005; Auel & Umit, 2018), in the hope that it will provide them with an incumbency advantage (e.g., Cain, Ferejohn & Fiorina, 1984; Smith, 2019). Backbenchers who do not stand much of a chance to become frontbenchers may also focus on constituency service finding this work more rewarding than their frontbench peers (Norris, 1997).

The five role descriptions feed into the expectations and preferences of political parties and constituents relating to MP behaviour. Political parties assume that the MP is loyal to their organisation (e.g., Crowe, 1986). After all, MPs are with few exceptions elected based on political party membership. The party also expects MPs to contribute to the party by obtaining an executive role (Wright, 2010). The preferences and expectations of constituents about the role of MPs vary, especially between societal groups, distinguished based on social class and level of education (Carman, 2006). Some constituents value the party loyalty of MPs, others are more concerned with the constituency service of MPs (Whiteley & Seyd, 1999). These days, constituents generally prefer MPs to act independently of the party line, to have a mind of their own, to focus on the constituency and to work on national policy, at least 2 out of the 7 days of the week (Vivyan & Wagner, 2015).

Furthermore, they prefer an MP who is local (Childs & Cowley, 2011; Campbell & Cowley, 2014; Evans, Arzheimer, Campbell, & Cowley, 2017), who focuses on the local (Wright, 2010), and who treats being an MP as a full-time job to stay in touch with the public (e.g., Van der Eijk & Bon, 2017). Depending on their background, MPs themselves view their role differently and as they gain experience, MPs move away from the delegate model and increasingly align with the party rather

than with their constituents (Sudulich, Trumm & Bridgewater, 2019). In the absence of a job description, these expectations, and preferences, as well as a core set of responsibilities, guide the political activities of the MP. The individual responsibilities include interacting with constituents, voting in divisions and sitting on committees (Wright, 2010). Jointly, as Parliament, MPs must fulfil a range of functions. These functions for example include evaluating, approving and, as such, achieving the implementation of public policy (e.g., Norton, 2001), and holding government to account (Geddes, 2018). Parliament also must make sure that citizens are given a voice, as individuals and as a collective.

Thus, the public depends on Parliament to represent their interests. For MPs to become aware of these interests, they must spend time listening to citizens, to identify relevant issues which can be addressed in Parliament. For citizens to initiate contact, both Parliament and individual MPs should appear accessible and for MPs to have the opportunity to regularly communicate to citizens and constituents, resources need to be available. Constituent demands on MPs have increased, and this requires an increase in supply: the increased presence of MPs. MPs perpetually must campaign and market themselves to gain and maintain public support, and they must constantly keep an eye on public opinion and their constituents.[7] They also need to react to and reflect on observed changes and developments (Coleman & Spiller, 2003). Fortunately, today, MPs facilitate contact and communication with their constituents in a wide range of ways.

1.2.1 Means for MP-constituent contact and communication

MPs represent a constituency, a geographically bound unit, and they are therefore bound to a locality. Constituents can contact MPs by writing letters, through a phone call, by contacting the local party organisation, by making a personal appointment or by visiting the surgery (Dowse, 1963; Norris, 1997). Most MP-constituent communication used to take place through post (Searing, 1994). At surgeries, which can be held at varying local locations, such as supermarkets, town halls and pubs, constituents can meet MPs in person and address the concerns that they have, for instance about housing and pensions. MPs can then choose to provide casework assistance - to help these individual constituents with their government-related problems, with the help of caseworkers. They can decide to become involved in the problem of a group of individuals or the constituency more broadly. Buck and Cain (1990) refer to this as MPs taking on a project and

[7] This is especially the case for backbenchers, who are not necessarily in the public eye. Backbenchers market themselves by continuously showing how they contribute to the constituency (Butler & Collins, 2001), in the hope of gaining re-election. Although backbenchers generally believe that constituency service pays off, Smith (2019) shows that this may not be the case. Still, because of the assumed importance of this service by the MPs, we should interpret their behaviour from this perspective.

identify the remaining tasks of the MPs in their constituencies as that of maintaining visibility, for instance through attending meetings and functions, and maintaining support within their political party by being available. At the same time, traditionally, MP-constituent communication also takes place face-to-face, for instance at town meetings, party meetings and even in the street.

Technological advancements have increased the opportunities for MPs and constituents to communicate. Today, it is likely that the communication of MPs involves the use of both traditional and more novel media (e.g., Ross & Bürger, 2014). Straightforward evidence supporting this view is that mass media content is 'shovelled onto' digital media platforms, such as social media and blogs: it is uploaded online to different platforms, unedited (Schweitzer, 2008). The recycling of unedited content is characteristic of 'web 1.0' communication. Web 1.0 is the period between 1989 and 2005, which saw the web become a medium of mass information and the rise of online political communication. The web 1.0 campaign is characterised by unilateral communication and hierarchy, where the politician or party publishes and archives static content using 'standard technology' and uses 'shovelware', offline material that is not revised for publication in the online realm (Schweitzer, 2008). For MPs, web 1.0 presented an opportunity to create, maintain and/or distribute personal websites, (we)blogs and electronic newsletters at a relatively low cost and without a gatekeeper (e.g., Jackson, 2006). At the turn of the century, research into online political communication by politicians focused on these media.

By the early 2000s, most MPs used email (Coleman & Spiller, 2003). There was no widespread use of personal websites by MPs (Coleman, 2001; Ward & Lusoli, 2005), and these MP websites featured little original content (Jackson, 2003). Specifically, in 2001, 28% of MPs had a personal website (Halstead, 2002). The use of websites by UK MPs was optional and to some extent predicted by the marginality of the seat (e.g., Ward & Gibson, 2003), as well as by party and cohort: Liberal Democrat MPs were most likely to have a website compared to MPs of other parties, and so was the post-1990 cohort of MPs, compared to those who entered before 1980 or in the 80s (Coleman & Spiller, 2003). At the time, a lack of necessary funding and training limited the use of websites by MPs (Jackson, 2003). The content on these websites was often copied from party publications (Auty, 2005), and most of the time, these websites were visited by the politically interested or fellow party members, instead of potential new supporters and voters (Norris, 2001). Within a few years, these MP websites became more personal. It became typical for UK MPs to use websites to support their communication with and to constituents (e.g., Williamson, 2009a; 2009b; Jackson, 2011), and the websites were to specifically remind constituents of the party identity of the MPs, as well as their involvement with the constituency, their knowledge, experience, and ability to represent effectively (Stanyer, 2008).

Weblogs were also used by MPs. These blogs showed constituents the local activity and policy interests of the MP (Auty, 2005). Many of the visitors of these blogs were not MPs' own constituents (Ferguson & Griffiths, 2006; Jackson, 2008c). Instead, the blogs provided a platform for the MPs to present their substantive interests (Francoli & Ward, 2008). They facilitated the creation of an e-constituency: a constituency that is not bound by geography and asks for the attention of their MP (Jackson, 2008b). MPs can use the e-constituency as a sounding board for testing ideas and collecting relevant information. As such, these blogs were not primarily used for campaigning, but they instead sparked conversation and the opportunity to create a community (Jackson, 2008b). Consequently, the content posted on the blogs was more about the MPs, their interests, and activities, than that published on the website.

Compared to the website, and like the blog, electronic newsletters and electronic mail were used to disseminate constituency and national news to voters and showcase constituency service (Ward & Lusoli, 2005). Evidence suggests that these e-newsletters rather than websites can mobilise and translate into electoral gain (e.g., Jackson, 2008a; Jackson, 2011). The content of these e-newsletters, customised by or for the MP, aligned with the official party campaign (Jackson, 2004). In fact, the provision of templates by the Conservative and Labour parties has facilitated the adoption of e-newsletters by UK MPs (Umit, 2017). In the early 2000s, MPs were slow to adopt these electronic media, there were party differences in the extent of their adoption and the MPs who did adopt e-newsletters were mainly those in marginal seats (Jackson, 2004; 2006). The rise of digital media and, more significantly, the introduction of 'web 2.0' in 2006 increased the opportunities for political communication. The term web 2.0 is attributed to O'Reilly (2005). It refers to the belief that we have entered a 'second phase' of the Web, with new services, technologies, and social networking sites, of which Google, Wikipedia, YouTube, Twitter, and Facebook are just a few examples. Social networking sites (SNS) are also referred to as social media. SNS are defined as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (boyd & Ellison, 2008, p. 211).

In short, in general, SNSs are used for maintaining and building an online profile and relationships. The introduction of these new digital tools has given the political communication practices of MPs a 'significant boost' and made them more varied (Vergeer, 2012). MPs primarily use SNSs like Twitter and Facebook to manage constituent impressions of their performance and suitability as a representative (e.g., Jackson & Lilleker, 2011; Ross & Bürger; 2014). Until recently, the use of these applications by MPs was limited (e.g., Jackson and Lilleker, 2009). For example, a

decade ago, political candidates were hesitant to use Twitter (e.g., Vergeer, Hermans & Sams, 2013). Twitter was only occasionally used by just 1 in 10 UK MPs (Jackson & Lilleker, 2011), and in the 2010 UK election campaign, only 1 in 5 MPs used their official Twitter accounts (Graham et al., 2013). MPs used their Twitter accounts for impression management first, and constituency service second (Jackson & Lilleker, 2011), and during the 2010 UK election campaign, most of their tweets contained information about campaign activity, self-promotion or critique of other candidates and parties (Graham et al., 2013).[8] Only 7% of these tweets contained references to policy.

Similarly, on Twitter, American politicians focus on their activities and self-promotion. For example, Golbeck, Grimes and Rogers (2010) find that American members of Congress, like UK MPs, use Twitter to disseminate information about their daily activities and themselves. However, Hemphill, Otterbacher & Shapiro (2013) find that congresspeople also advertise their issue positions and provide information. Finally, only a minority of the US members of Congress and a minority of the UK members of Parliament use Twitter to mobilise voters (Hemphill et al., 2013; Graham et al., 2013).

Regarding Facebook, which allowed public use starting in 2006, MPs initially used this platform as 'normal citizens', to stay in touch with friends (Jackson & Lilleker, 2009). More recently, MPs also use Facebook as representatives. For example, Ross and Bürger (2014) find that New Zealand MPs believe it is necessary to use Facebook to engage with the public, to be visible, to manage impressions, to promote and to campaign, and to complement traditional means of political campaigning. Skovsgaard and van Dalen (2013) who study Danish MPs likewise find that MPs use Facebook to complement their use of traditional media channels. This explains why the Facebook activity of candidates increases when an election is near (Larsson, 2016): this is when MPs give it their all.

The adoption of these social networking sites by MPs was influenced by their personal and professional characteristics.[9] For example, Jackson & Lilleker (2011) find that gender, party, and length of service play a role in whether the MPs adopt Twitter: female MPs between 35 and 54 years old were most likely to use this platform, as were senior MPs and MPs from the three largest parties. Another example is that members of opposition parties more often adopt Facebook than ruling parties (e.g., Williams & Gulati, 2013). By facilitating exposure for MPs of minor parties, who

[8] In this study, campaign-activity tweets refer to those tweets in which the candidates provide up-to-date information about their campaign activities. This includes tweets about locations visited on the campaign trail and news about the turnout at campaign events. Self-promotion tweets include those in which the candidate promotes him/herself or another political actor (a peer, the party, or an organisation). Finally, in critiquing tweets, the candidate "criticised, challenged or contradicted another politician, party or other organisation in a political context" (Graham et al., 2013, p. 704).

[9] Appendix A1 shows how UK MPs gradually adopted Twitter, an example of an SNS.

gain less attention from traditional media than members of major parties, these applications could, at least in theory, contribute to equalising electoral competition (e.g., Gibson & McAllister, 2015). The focus on the individual MP on these platforms limits party influence on the published content (Ross & Bürger, 2014). MPs use these applications to show a personal side, to represent their party and to highlight their constituency service (Jackson and Lilleker, 2009).

However, contrasting findings in studies about the use of these applications by politicians highlight a difficulty with predicting who, when and why they use this media. For example, Jackson and Lilleker (2011) have found that the most Twitter-active UK MPs are not the usual suspects. Twitter is instead more appealing to senior MPs, MPs from the three largest parties and female MPs who are between 35 and 45 years old. MPs do use Facebook and Twitter differently. Whereas MPs use Twitter on the go and for giving an immediate response to current affairs, the Facebook page is a more curated public space to learn about the activities of the MP, for example through videos linked to in posts (Ross & Bürger, 2014).

1.2.2 What MPs use their official social media accounts for

Regarding MPs' use of social media, many studies have asked whether MPs only use these web 2.0 platforms for broadcasting messages or to also engage with voters and constituents. Web 1.0 is symbolised by the static, passive sharing of information and limited interaction between MPs and constituents, through email, websites, blogs, and e-newsletters (Coleman & Spiller, 2003; Jackson, 2003; Jackson, 2006; Jackson & Lilleker, 2009).

Instead, web 2.0 applications are more dynamic and, in theory, facilitate collaboration and co-creation.[10] Nevertheless, in reality, the interaction between politicians and citizens on SNSs like Twitter and Facebook is still limited (e.g. Jackson & Lilleker, 2009; Macnamara & Kenning, 2011; Aragón, Kappler, Kaltenbrunner, Laniado, & Volkovich, 2013).[11] Politicians still prioritise broadcasting campaign messages (Lilleker & Jackson, 2011), and they have therefore primarily adopted SNSs for sharing information (Williamson, 2009a), and for self-promotion (e.g. Jackson & Lilleker, 2009; Lassen & Brown, 2011). For example, on Facebook, MPs frequently broadcast their

[10] An early example of the use of web 2.0 by a politician for collaboration is Barack Obama's use of social media for running his 2008 presidential election campaign. This campaign was organised around the use of web 2.0 applications such as YouTube to raise funds and to invite citizens to participate (Chadwick, 2009; Bimber, 2014).

[11] For example, MPs only secondarily use Twitter to interact with members of the public and peers (Small, 2010; Grant, Moon & Grant, 2010; Grusell & Nord, 2012; Graham et al., 2013; Jungherr, 2014b; 2016; Graham, Jackson & Broersma, 2016). On Twitter, they are not inclined to interactively engage in 'authentic talk', although the platform does enable this type of informal and two-way conversation (Sørensen, 2016; Margaretten & Gaber, 2014, p. 346). Like Twitter, communication on Facebook is still predominantly unilateral, one-way (Jackson & Lilleker, 2009; Macnamara & Kenning, 2011; Ross & Bürger, 2014; Ross, Fountaine and Comrie, 2015).

contributions to the constituency (e.g., Jackson & Lilleker, 2009; Ross & Bürger, 2014).[12] In brief, MPs do use web 2.0 applications to connect with constituents (Coleman, 2005a; Jackson & Lilleker, 2009), but they communicate about their party and themselves to and not with constituents (e.g., Williamson, 2009a; 2009b; Lassen & Brown, 2011).

Overall, these studies of the engagement of MPs with constituents on Twitter and Facebook suggest that generally speaking, MPs do not take the opportunity to use SNSs to strengthen and maintain relations with the party base, supporters and journalists (e.g. Graham, Broersma, Hazelhoff, & Van 't Haar, 2013), or to mobilise younger voters who are overrepresented on social media (Freelon, Wells, & Bennett, 2013; Livingstone, Couldry, & Markham, 2007; Östman, 2012; Wells, 2010; Xenos and Foot, 2008; Zukin, Keeter, Andolina, Jenkins, & Delli Carpini, 2006), and who can be mobilised to engage in politics offline (e.g. Bennett, 2008; Vromen, Loader, Xenos & Bailo, 2016). By not using or engaging in social media, MPs miss the chance to obtain greater constituent support, for themselves and their policies (e.g., Utz, 2009; Lee & Shin, 2012a; 2012b; Gilmore, 2012), the chance to be evaluated more positively (Matsubayashi, 2013), and the chance to communicate with voters and constituents directly without the influence and scrutiny of traditional news media (Skovsgaard & Van Dalen, 2013).

1.2.3 Obstacles to MPs' use of social media as representatives

MPs' desire to use social media as representatives and to engage with citizens depends on their characteristics, such as their party and personality, their preferences, and their experiences. For example, MPs from minor parties are more inclined to use these applications than MPs from major parties, to compensate for a lack of attention from traditional mass media (e.g., Bruns & Highfield, 2013). In many countries, younger MPs are more likely to actively use these platforms than older MPs, and so are MPs who are comparatively higher educated than their peers (e.g., Lassen & Brown, 2011; Peterson, 2012; Skovsgaard & Van Dalen, 2015).[13] For gender, findings are mixed.

[12] Lilleker (2015) has found that a minority of 'pioneer' MPs use Facebook to build a personal brand through interaction, by conversing with constituents in comments to published posts. In a more recent study, Gerodimos et al. (2020) examine whether political parties use these 'indicators of engagement' and find limited and controlled responses from political parties and candidates to citizens interacting with their posts. There is still little dialogue, and comments to posts are largely ignored.

[13] Whereas Jackson & Lilleker (2011) have found that more senior MPs are more likely to *adopt* social media, studies such as Lassen and Brown (2011) also suggest that younger members of Congress in the US are more likely to actively communicate on these websites than older members. These findings are not necessarily contradictory: once adopted, perhaps younger members are more familiar or comfortable with communicating through these sites, and therefore use them more than their older peers. However, Lassen & Brown (2011) also find that, comparing members of Congress to senators, senators, who tend to be older and more senior than the former, are more likely to adopt *and* use social media. The influence of age and seniority on social media use and activity is therefore complex and the findings of these studies should be treated as tentative. Furthermore, we need to acknowledge that these studies focus on Twitter and, in the

Whereas Jackson and Lilleker (2011) conclude that women more actively use these applications, Ross and Bürger (2014) find that women MPs are reluctant to use Facebook as a representative because they are more likely to face intimidation. Regardless of whether female or male MPs are more present on social media, we know that hostility on social networking sites (Theocharis & Lowe, 2016; Binns & Bateman, 2018; Ward & McLoughlin, 2020; Gorrell, Bakir, Roberts, Greenwood, & Bontcheva, 2020), and the inability to control content once used and shared (Ross & Bürger, 2014), limits their use for representation. Misinformation and misleading information spreads fast on these platforms, and more swiftly than the truth (Marwick & Lewis, 2017; Vosoughi, Roy & Aral, 2018). Social networks do after all attract the ideologically extreme (Barberá & Rivero, 2015). Voters with more extreme views are less likely to be open to changing their minds, and therefore, whilst SNSs do give politicians the possibility to discuss policy with citizens, they may refrain from doing so because it is unlikely to lead to opinion change. [14]

These circumstances can limit the extent to which MPs freely engage with the medium. Considering that there are standards that MPs, as public office holders, are expected to adhere to, social media constitutes treacherous territory. These standards – the Nolan Principles – require MPs to be selfless, to have integrity, to be objective, accountable, open, and honest, and to show leadership. (Bew, 2015). It is therefore crucial that the information they provide, and share, is accurate and perceived as accurate. Yet, online news and online information are generally perceived as less credible, especially when the source of information is an individual and not an institution (Rieh & Belkin, 1998). Traditional sources of authority are no longer necessarily seen as credible (Lankes, 2007).[15] Whilst MPs can navigate and mitigate the risks of using social media by following the logic of SNSs – such as the use of emotion, which can lead to virality and therefore more views and followers – this logic will have to be learned.[16] Despite these challenging

case of Lassen and Brown (2011), on the US rather than the UK. These findings therefore do not necessarily apply to the adoption and use of Facebook by UK politicians. I specifically test the influence of seniority and age on the Facebook adoption and Facebook activity of MPs in Chapter 4.

[14] In other words, these users are unlikely to be 'reasonable' and a deliberative discussion is therefore unlikely to affect views about policy. It is only when users are reasonable that reasoned deliberation can occur and contribute to changed views about policy (Barabas, 2004; Himmelroos & Christensen, 2013; Suiter, Farrell, & O'Malley, 2016).

[15] The recommendations for quality journalism provided by Lacy and Rosenstiel (2015) give insight into how to raise the perceived credibility: more credibly perceived information includes transparency about the source of information and interactivity with the news and a critical stance, indicating accountability and independence. More credible information also includes references to multiple news sources and perspectives (e.g., Lankes, 2007; Lacy & Rosenstiel, 2015). By making sure that they meet these criteria, MPs can raise the credibility of the information they publish and share online, and they can maintain this credibility by sharing neutral or attitude-consistent news. News that challenges existing beliefs is instead perceived as less credible (Metzger, Hartsell, & Flanagin, 2015).

[16] This adjustment to the online platform used does not always occur. Traditional media does still play a role: the political messages published online during the campaign may closely follow the coverage of political actors in traditional media and contain references to and content from newspapers and TV (e.g., Jungherr, 2014a). As such, while MPs learn to follow social media logic, to strategically navigate Web 2.0 applications, they also operate in a 'hybrid media system' (Chadwick, 2017), which joins old and new media. However, an example of MPs using social media logic is their use of

circumstances, the majority of MPs still use social media to communicate to their constituents.[17] In the next section, I argue that MPs use these platforms because they need to: not only is this communication part of their remit as representatives, but the Facebook page also allows MPs to communicate as their person when their standpoints and views differ from the party.

1.2.4 The need for MPs to use social media as representatives

Admittedly, the trustee perspective does not explain the use of social media by MPs. After all, from this perspective, constituents should trust that the MPs will perform their duties in such a way that constituent interests will be met. The MPs do not need to update the constituents about their activity once elected. The delegate perspective, however, does shed light on the potential motivations of MPs. For example, from the MP as delegate perspective, to represent their constituents, MPs need to be aware of the interests of their constituency. This will require MPs to be in touch with those they represent and to listen to their concerns. Facebook and the Facebook page, in particular, do present a platform for this communication. Considering that, in 2016, 95% of UK citizens used Facebook (see Table 1.1), MPs can use this platform to reach and learn from a diverse group of constituents. The Facebook page also allows constituents to receive updates and to contact the MP directly and privately.[18] Lilleker (2015) has found that a minority of 'pioneer' MPs do use their Facebook pages to engage in a dialogue with constituents, by replying to the comments that constituents leave on their Facebook page posts.

Compared to the delegate perspective, the more recent party-organisation, constituency service and e-representation perspectives better explain why MPs use social media. On social media, MPs primarily take on the party and constituency service roles, but there is also a shift in focus to the personality of the MP (Jackson & Lilleker, 2009). On social media, MPs communicate about their party and themselves to and not with constituents (e.g., Williamson, 2009a; 2009b; Lassen & Brown, 2011), and the Facebook page presents a curated web page. The political party of MPs primarily provides context to the online profiles and MPs' interests and activities. Thus, in line

hashtags on Twitter for reaching outside of their network (Enli & Simonsen, 2017). To support their political campaigns and spread information, MPs have also learned to rely on emotional appeals and negative campaigning, aimed at the incumbent (e.g., Borah, 2016). The strategic use of emotion pays off: emotional content is generally more likely to be shared and to go viral on the Internet (e.g., Berger & Milkman, 2010; Berger, 2011), but also on SNSs such as Facebook and Twitter (e.g., Bail, 2016; Brady, Wills, Lost, Tucker, & Van Bavel, 2017). As such, emotion increases exposure.

[17] According to my own data, include in the first data set (See Appendix B2), out of the 653 MPs who were in office at some time during the EU referendum campaign, 416 (64.4% of MPs) published at least one post on Facebook and 348 (63.7% of MPs) published at least one Tweet between February 19 and June 23, 2016.

[18] Facebook users can send a private message to the owner of the page to establish direct contact. In this case, the official owner of the official Facebook page will be the MP or their communications team. Users can also comment on and react to posts published on the page.

with the party-organisation perspective, the party provides a backdrop that informs the decisions of MPs, also on social media platforms.

In turn, from the constituency service perspective, MPs should prioritise their constituency work and Facebook is indeed a platform MPs use for branding themselves, showcasing their constituency service (e.g., Lilleker, 2015). Web 2.0 does allow MPs to show their personality, to share a personal rather than political side, which they may not have been able to do otherwise. By 2008, only a minority of MPs did take this more personal approach to representation (Jackson & Lilleker, 2009). It remains to be seen to what extent there has been a shift from a focus on the constituency to the personality of the MP. The fact that MPs cannot easily target their own constituents on these platforms suggests a move away from the constituency toward a focus on the personal presentation of MPs.

At the same time, there are instances when MPs will want to present their views explicitly as their own. For example, sometimes the views of MPs do not correspond with the views of their political party. This is when MPs choose to divert from the party line to rebel. One can imagine that this rebellion is not well-received by fellow party members and this, in turn, could negatively impact the career opportunities of the MP. Thus, when MPs do make the costly decision of presenting and campaigning for an alternative view or proposal, they will need their views to be heard. By actively presenting their views as their own and by explaining why they hold these views, MPs can obtain support from their constituents and voters and, potentially, change their minds. Thus, by communicating their views via their social media accounts, such as the Facebook page, the costs associated with making the risky decision of diverting from the party line can be mitigated.

1.3 The EU referendum campaign on MPs' Facebook pages

This review of earlier work indicates that political communication has professionalised: it has become more efficient and more reflective, largely due to rapid advances in digital technology.
There is now a wider range of means available to MPs for campaigning and communicating with constituents. MPs do use these platforms, albeit primarily for disseminating messages and for managing impressions. Whilst the presence of misinformation and extreme opinions are just two characteristics of social media communication that make it potentially risky for MPs to use social media, it is necessary for MPs to navigate this treacherous terrain to perform their roles as representatives, at least from the delegate, constituency service and e-representation perspectives.

In this thesis, I study MPs' use of web 2.0 for political communication and representation during the EU referendum campaign, focusing on Facebook. This is an exploratory study. The literature aforementioned has given insight into how MPs communicate on social media in general and during an election campaign. However, we know less about how MPs communicate in a referendum campaign. What we know about how these politicians communicate and campaign as representatives outside and during election time does not necessarily apply to their EU referendum campaign communication, for several reasons.

First of all, unlike an election campaign, where politicians compete for re-election, marketing themselves and the party, in this referendum campaign, party lines were not drawn. The matter of EU membership presented a divisive issue for both the UK public and its politicians. Instead, the referendum campaign is primarily associated with the work of the two official campaign organisations. *Britain Stronger in Europe* also referred to as *'StrongerIn'*, led by Will Straw, became the official pro-Remain campaign organisation, opposed by Matthew Elliot's pro-Brexit campaign organisation *'VoteLeave'*. Both *StrongerIn* and *VoteLeave* were cross-party campaign groups. It is therefore a reasonable expectation that, in this case, the communication and behaviour of MPs on the topic of the EU referendum was less affected by the party and existing allegiances. This gives us grounds to treat the communication of the MP as individual. What communicative choices do MPs make when party and allegiance play less of a role? Which characteristics of MPs influence these choices?

Secondly, compared to the general election, a referendum presents a simpler arena to study. At a general election, voters elect an MP. Seats are allocated among candidate MPs from multiple political parties: Conservatives, Labour, SNP, Liberal Democrats and so forth. The political party organisation focuses on winning the overall election by obtaining 326 or more seats (more than half of the 650 seats available), while individual candidates focus on winning the most votes in the constituency. Parties and candidates, together and separately, strategise to gain support and win seats. Thus, a general election campaign revolves around the election or re-election of candidates, who in their campaign activities and communication emphasise why they are the best person for the job. Faced with a general election, MPs become (more) active on social media (Aragón et al., 2013; Nuernbergk & Conrad, 2016), where they primarily discuss their achievements, their contributions to the constituency and their suitability for the role (e.g., Jackson & Lilleker, 2011; Ross & Bürger, 2014; Umit, 2017).

In contrast, a referendum is a direct vote. With a referendum, there are only three camps: those who are against the proposal, those who are in favour and those who are unsure or indifferent. If we only consider those actors who do declare a position either in favour or against,

then we can straightforwardly group actors and study their opposing views. At the EU referendum, citizens were asked whether they accept or reject the proposal to leave the European Union. If we group the MPs in favour and against the proposal to leave the EU into two groups, then we can treat their communication about the EU referendum as dichotomous: the preference for one decision translates into an aversion of the other, with consequences for the communication. This simplified arena facilitates the identification of patterns of characteristics of the MPs themselves and their communicative activity.

To the best of my knowledge, compared to the general election campaign, little is known about how MPs communication about a referendum on social media. The EU referendum campaign focused on a substantive policy issue. Did MPs use this platform to campaign to stay or leave the EU? Did they become more active on social media over time as the referendum drew near? How did they communicate about the EU, EU membership and relevant policy? It is referenda that provide the opportunity for in-depth discussion and for settling an issue (Qvortrup, 2005). Much of the literature on the online political campaign communication of MPs focuses on national elections. Because of the unusual circumstances brought about by an EU referendum campaign, and the infrequency with which referenda have been held in the United Kingdom, this event would be poorly explained given what we know about first-order electoral campaigning by UK MPs.[19]

Therefore, by focusing on the EU referendum campaign, I intend to contribute to existing knowledge about the contemporary online communicative practices of UK MPs. This thesis will add to our understanding of the extent to which MPs use web 2.0 for political communication and representation. I focus on the EU referendum campaign communication of UK MPs on their official Facebook pages, published between February 19 and June 23, 2016. On February 19, the EU member states, and the UK reached an agreement, regarding what the EU would do if the UK government would campaign for continuing EU membership. Although the two leading campaign organisations were already launched in 2015, it is then Prime Minister Cameron's return from Brussels that marks the start of the campaign (e.g., Menon & Salter, 2016). On the 23rd of June 2016, the day on which the UK cast its vote about EU membership, 51.9% of voters opted to "Leave" and 41.8% to "Remain".[20] The campaigns focused on matters such as sovereignty, economic consequences of leaving and the threat of immigration. Elite communication affects

[19] Introduced by Reif and Schmitt (1980), in parliamentary systems, the first-order election is a national election. Examples of second-order elections are by-elections, local elections, and European elections. In these second-order elections, voters are less likely to participate: they see these elections as less important and are less likely to turn out (Heath, McLean, Taylor & Curtice, 1999).

[20] The remaining percentage of votes constitute rejected ballots. Results of the EU referendum can be found at www.electoralcommission.org.uk

public opinion about the European Union (Steenbergen, Edwards & De Vries, 2007). This is why it matters how MPs communicate and campaign about the EU referendum. At the time of the campaign, Facebook was the UK's top social media site (Ofcom, 2017) as shown in Table 1.1.[21]

Table 1.1: UK ranking of social media platforms by popularity

Rank	Network	Users (%)
1	Facebook	95
2	WhatsApp	45
3	Instagram	31
4	YouTube	30
5	Twitter	26
6	Snapchat	23
7	LinkedIn	17
8	Google+	16
9	Pinterest	12
10	Tumblr	3

Note: The percentages refer to the number of respondents who indicate that they use the social media site. The sample consists of UK adults aged 16 and over who have a social media profile or account (N = 1136 in 2016), and the data used is from Ofcom's Adults' Media Literacy Tracker, obtained November-December 2016.

Facebook was also the most popular social network for accessing news (Newman, Fletcher, Levy, & Nielsen, 2016), as shown in Table 1.2.[22] This means that out of all SNSs available, the information communicated on this platform had the greatest potential reach.

Table 1.2: UK top social media platforms weekly used for news

Rank	Network	All users	Younger than 35
1	Facebook	28%	41%
2	YouTube	12%	20%
3	WhatsApp	7%	11%
4	Twitter	3%	5%
5	Instagram	2%	3%

Note: The percentages refer to the number of respondents who indicate that they use a social media platform as a source of news.

This thesis includes three exploratory empirical studies to find new explanations for what is when communicated on social media by which of these representatives about the upcoming EU referendum. I have chosen to focus on Facebook rather than alternative SNSs, such as Twitter, for

[21] This data is from the Ofcom report on Adults' media use and attitudes. This report from 2017 uses data obtained in Autumn 2016.

[22] For the Reuters Institute report (Newman et al., 2016) data was obtained in February 2016, shortly before the start of the EU referendum campaign.

several reasons. First, in this thesis, I am interested in the communication between MPs and the general public. However, Twitter is mostly used by journalists (Ross & Bürger, 2014), and less by the general population (e.g., Parmelee, 2013). Second, Twitter has been subjected to more research than Facebook (Tufekci, 2014). Third, as mentioned, Facebook is the main social network for accessing news and it facilitates political participation, by making it possible for users to engage in political discussion, through posts, comments, and messages and by making political news and information available through the news feed. It even has a mobilisation effect on those who are politically active (Casteltrione, 2016). In short, Facebook presents an SNS where political information is shared, and political communication and discussion takes place. I, therefore, argue that it is worthwhile to study how MPs communicate about the EU referendum on Facebook. To contextualise and understand the results of my research, I refer to work in the sub-fields of political communication, political psychology, and political campaigning. I specifically draw on (i) studies about the use of social media by UK MPs, (ii) research that considers the use(s) of anger and anxiety in political communication and (iii) studies of electoral campaign dynamics. The findings of these explorative studies can lay the foundation for further research that considers different events.

1.4 Summary of the key findings and implications

This thesis sheds light on three aspects of MPs' communicative and campaign activity as representatives on their official Facebook pages. First, it provides insight into whether and to what extent UK MPs use Facebook pages as representatives during the EU referendum campaign. Second, it adds to our understanding of the extent to which MPs used argument, anxiety, and anger in the content of their EU referendum posts. The use of these devices could indicate an attempt by MPs to persuade and to deliberate. Finally, this thesis sheds light on the dynamics of MPs' referendum campaign activity: whether there are patterns to be found in the prominence of their campaigning and whether their campaign was affected by external events and developments.

First of all, concerning the extent of activity of MPs on Facebook pages, I find that older and MPs who have held public office for a long time are less likely to use an official Facebook page during the EU referendum campaign and that predictors traditionally considered in the literature, such as gender and age, and the camp of the MP ("Leave"/"Remain"), do not explain the EU referendum activity of MPs on their official Facebook pages.

Second, relating to the content of these posts, I find evidence that in the text of most of these posts MPs do not explicitly deliberate using logic to support a standpoint and use little emotion, suggesting the limited use of emotion as an argument strategy. Overall, only 1 out of 5 posts includes an explicit argument structure and the posts feature little anger and anxiety. An

argument advanced by an elite actor like an MP can affect the predispositions of voters. Anxiety can be used to encourage voters to avoid risks while anger instead encourages voters to take risks. Since these devices are only seldomly used in the EU referendum posts, I find that MPs generally do not use these posts for deliberation. While "Remain" MPs use more argument posts than "Leave" MPs, this difference is not significant. Furthermore, compared to "Remain" MPs, "Leave" MPs use more anxiety and less positivity in their posts.

Third, to further consider the communication of MPs on their Facebook pages, I study how and to what extent their campaign communication on this platform relates to external events and developments. I specifically focus on how and to what extent these events and developments influence their posting activity and their use of argument, anger, and anxiety in their posts. I consider two events: the news that the Queen allegedly backed Brexit and the murder of Jo Cox. I also consider a possible interaction between posting activity and the content of the posts and changes in vote intention for "Leave" versus "Remain". I find that the posting activity increases sharply near the end of the campaign, but I find no such pattern for the use of argument, anger, and anxiety. Considering the absence of systematic changes in posting activity and the use of argument and emotion in the posts, I find no evidence that MPs communicate as a group. Furthermore, my findings suggest that of these two events, only the murder of the MP affects posting activity. This implies that, overall, MPs do not turn to their Facebook pages to campaign reactively.

These findings have several implications. It has become clear that the EU referendum activity of MPs on their Facebook pages cannot be explained by traditional predictors. Thus, more research is necessary to uncover what MP characteristics and circumstances, if any, predict this activity. Furthermore, it appears that based on their limited use of an explicitly and logically expressed argument, anger and anxiety, overall MPs do not communicate deliberatively in their EU referendum posts. "Leave" MPs did use more anxiety than "Remain" MPs, indicating that "Remain" MPs do not take the opportunity to use anxiety to motivate voters to vote "Remain". More research is needed to uncover how anxiety may have benefited "Leave". Moreover, the lack of a relationship between the campaign dynamics, the two events and changes in the vote intention of the general public, indicates that the campaign activity did not respond to these developments. The lack of systematic changes in the activity or content of the posts also suggests that there are few patterns to be found in the prominence of campaign activity over time.

Taken together, these empirical findings contribute to what is known about MPs' use of web 2.0 applications like Facebook to communicate and to campaign in a referendum. The findings reported sometimes conform to common wisdoms, and to what we might expect, based on earlier

studies about politicians' use of digital media and campaign communication during the EU referendum. At other times, the findings are unexpected.

First, in Chapter 3, I test the common wisdom that the EU referendum presented unusual circumstances for MPs to communicate and to campaign. I do this by considering the extent to which traditional predictors of MP activity apply to their Facebook use, EU referendum activity and 'other' posting activity. We know that younger generations compared to the older generation are more apt at using social media and more active on social networking sites. Thus, it comes as no surprise that compared to younger MPs, older MPs use Facebook less. However, what is unexpected following the analyses performed in the first empirical study (Chapter 3), is the fact that the usual suspects identified in the election campaign literature are not those who are most EU referendum active on Facebook. This finding, as well as the inability of traditional predictors of election campaign activity to explain EU referendum activity, indicate that the EU referendum did indeed provide unusual circumstances for MPs to communicate and to campaign.

Next, in Chapter 4, I test the common wisdoms that argument and appeals to negative emotions were pervasively used in the EU referendum campaign. The EU referendum campaign evolved around appeals to fear (Banducci & Stevens, 2016). However, I find that, in their Facebook page posts, MPs seldom attempt to deliberate by logically presenting an argument. From this perspective, it also makes sense that they infrequently use emotion as an argument strategy. Having learned that anxiety was only used to a limited extent by "Remain" and "Leave" MPs alike tells us that the referendum campaigning in the text of the posts on MPs' Facebook pages is not one of fear. Thus, I find no support for the widespread use of argument and appeals to fear in these posts. Based on these insights, we can tentatively conclude that MPs did not prominently use these Facebook page posts to persuade voters to take a side in the EU referendum.

Finally, in Chapter 5, I explore the dynamics of the EU referendum campaign as played out on the Facebook pages of MPs, to determine whether they conform to what we know about political campaigns more generally. Often, there is an increase in intensity near the end of the campaign. Thus, as we might expect, the posting activity of MPs grew in the lead-up to Referendum day. What is unexpected, however, considering what we know about campaign dynamics, is that the EU referendum campaign activity is not linked to extraneous campaign-related events. I also find a lack of patterns in the prominence of studied aspects of campaign activity: the use of argument, anxiety, and anger. The missing relationship between events and the campaign dynamics and the absence of patterns suggest that the Facebook pages are not a platform that MPs use to react to developments. This leads me to tentatively conclude that the Facebook page is not one of the main platforms that MPs use for campaigning. This improved understanding of

MPs' Facebook page referendum campaign communication contributes to what we know about MPs' communication on social media, much of which has focused on Twitter and election campaigns.

In the end, in these empirical studies, I test common wisdoms and I shed light on one aspect of MPs' campaign behaviour during the EU referendum, a key event with major policy implications, on the most popular social media application at the time. Our knowledge of the contemporary campaign behaviour of UK MPs is enriched by a better understanding of how and when MPs communicate as representatives on this platform and under unusual circumstances.

1.5 Structure of the thesis

I will now present an overview of the structure and contents of my thesis. I study the contemporary communication of UK MPs in three ways. First, I consider which MPs communicate and campaign on Facebook about the EU referendum. Second, I study the extent to which they communicate and campaign deliberatively on this platform.[23] Third, I examine whether external shocks and events affect their communicative activity on their Facebook pages and whether there are patterns to be found in the prominence of this campaigning over time. I begin by introducing and describing the research strategy employed in the next chapter.

Chapter 2 includes a detailed description of the methodological approach taken in this thesis. I explain how the data has been selected, gathered, and analysed and highlight the conditions for and merits of using Facebook (data). Chapter 3 investigates the extent to which MPs communicate on Facebook. It considers questions such as: How active were UK MPs during the EU referendum? Can we explain this activity using traditional predictors, based on political science literature? I consider the potential influence of aspects such as the gender, age, and length of service of the MP. Chapter 3 finds that none of these traditional predictors, nor the camp of the MP ("Leave"/"Remain"), explain EU referendum activity. Yet, some do predict whether MPs used Facebook at the time of interest or their other communicative activity on this platform. Younger and MPs with fewer years of service were more likely to post during the campaign. Newly minted and SNP MPs posted more frequently on matters other than the EU referendum.

After identifying the Facebook and EU referendum activity of the MPs, when the MPs are grouped by different characteristics, in Chapter 4 I consider the extent to which the EU referendum activity – the relevant posts of the MPs – actually feature deliberative communication. I explore which characteristics of the MP and the post predict the use of argument, anxiety and anger in the

[23] What constitutes deliberative communicative behaviour is explained in Chapter 4.

EU referendum posts. I find that the MPs only occasionally use argument, anger, and anxiety in their posts about the EU referendum. The length of the post consistently predicts the presence of argument, anger and anxiety in these posts, and "Leave" MPs use more anxiety and less positive sentiment in their posts compared to "Remain" MPs.

Following this identification of the actual activity and content of MPs' communication about the EU referendum on Facebook, in Chapter 5, I consider the time-dimension of this data. I ask whether the MPs responded in their posting behaviour to external shocks and events, as well as to poll changes, which took place during the campaign. My analysis shows that the posting activity of the MP did decrease after the murder of Jo Cox on June 16, but not because of the news of less prominent events, such as the news that the Queen supported Brexit, published on March 9, 2016. The activity of the MPs is not related to changes in vote intention and no clear discernible pattern can be found when it comes to their use of argument, anxiety, and anger.

Finally, in Chapter 6, I present the conclusion of this thesis. At the beginning of this chapter, I refer to the theoretical insights and academic findings shared in this introduction. After this overview, I present a summary of the findings of the empirical studies. This is followed by a discussion of their implications for contemporary representative democracy. At the end of this chapter, based on my findings, I provide suggestions for future research.

2 The analysis of MP Facebook page activity

Today, representative democracy is practised both offline and online. Representatives curate an online presence by using platforms such as personal websites and social media. On social media, UK MPs often communicate about themselves, to manage impressions (e.g., Lassen & Brown, 2011; Jackson & Lilleker, 2011; Ross & Bürger, 2014). In the United Kingdom, MPs gradually moved toward using social media as representatives. Early adopters used websites, web pages and weblogs. More recently, these have been replaced by the official Facebook page and the verified Twitter account. Much of the research into MP social media use focuses on Twitter. The activity of MPs on Twitter is regularly studied (e.g., Graham et al., 2013; Jungherr, 2014b; Graham et al., 2016). With this project, I instead contribute to the understanding of what characterises contemporary MP communication on Facebook, by focusing on the EU referendum campaign. Before presenting the characteristics of UK MP communication on this platform, it is important to be clear about the collection and nature of the data and the research strategy employed. In this chapter, I explain how the Facebook data has been collected and used to create three data sets, and how the values are distributed on key variables included in these data sets. I also reflect on the methodological approach I have taken, and I discuss the conditions for and merits of researching Facebook and Facebook data.

2.1 The data collection and data sets

In this project, I focus on the posting activity of MPs on their public Facebook pages about the 2016 EU referendum. I take the period between February 19 and June 23 as the time of the EU referendum campaign. On February 19, then Prime Minister Cameron returned from negotiating EU membership with the European Council. He released a public statement which outlined these negotiations to secure a deal to grant the UK special status in the EU. On June 23, the UK referendum on EU membership was held. My choice to take these two dates as the starting and end points of the campaign influenced data collection and shaped the data sets. It determined how many MPs and pages would be included in my study (653 MPs with 416 pages), how many posts (34,256 posts), and how many days (126 days).[24] There are alternative starting and end points that could have been considered for delineating the EU referendum campaign period.

[24] The population of MPs that I study consists of all 653 MPs who were in office sometime between these two dates. Not every MP served for the entire campaign period and there are therefore more than 650 MPs.

For example, I could have considered starting at an earlier moment in time, such as May 27, 2015, which is when the EU referendum campaign was referred to in the Queen's Speech, or May 28, 2015, which is when the EU Referendum Act was introduced in the House of Commons.[25] However, it was on February 19, 2016, when Cameron returned from Brussels, that it became clear that an EU referendum would be held, and that it would be held the same year.[26] This is also when Cameron announced that he would be campaigning to "Remain" and when it became apparent that the government would be split on the matter of EU membership, to "Leave" or to "Remain".[27] After all, Cameron had asked Conservative MPs to refrain from declaring their position on whether to "Leave" or to "Remain" until negotiations had finished (Smith, 2018). These circumstances would not have been as clear at an earlier time point. At the same time, had I chosen a starting point later than February 19, such as early April, which is when the campaign period formally started, then I would have missed these earlier weeks during which the stance of Cameron was publicly known, and which is when the main themes of the campaign materialised (Curtice, 2017).[28]

First, to identify their public Facebook pages, I used a manual keyword search. I used the formal name and colloquial names of the MP as well as their constituency as search terms. I am only interested in the official, public Facebook pages of MPs, and not their personal accounts or other pages they are possibly affiliated with because I study MPs' use of Facebook as representatives. After locating what appear to be the MPs' official pages, I checked whether the page has been verified, indicated by a blue tick behind the name of the MP (see Figure 2.1).

Figure 2.1: Example of a verified Facebook page of a UK politician

[25] The EU Referendum Act is an Act applicable to the UK and Gibraltar and laid out the rules for a consultative referendum to be held on EU membership.

[26] At the Bloomberg Speech on the European Union in January 2013, he had promised to deliver a referendum on the EU before the end of 2017. This pledge was made by Cameron to manage the Conservative Party, which was divided on the matter of EU membership, and within the context of rising Euroscepticism (e.g., Copsey & Haughton, 2014). However, this date was moved forward to June 2016, fuelled by Cameron's desire to "take the European question off the Conservatives' agenda" and his fear for further increases in Euroscepticism (Smith, 2018, p. 7).

[27] Prior to this moment, then PM David Cameron was still hedging his bets. To negotiate a better deal, Cameron mentioned that he might advocate leaving the EU, although most believed that Cameron saw a better future for a UK that would remain in the union (Smith, 2018). Furthermore, the battle lines had not been drawn yet: his Conservative Party was greatly divided on the matter of EU membership, and both MPs and ministers were given permission to vote as they wished. Consequently – whilst the Cabinet agreed that the Government would support "Remain" – during the campaign, several of his Cabinet members were amongst those most actively campaigning to "Leave" (Smith, 2018).

[28] Curtice (2017) lists the following themes: the effects of leaving the EU on the economy and sovereignty and the matter of immigration.

Not all these Facebook pages of the population of MPs were verified. In those cases where the Facebook page of MPs was unverified - meaning that Facebook has not confirmed that the page is officially affiliated with the MP - I performed several checks. First, I confirmed whether there was a verified Twitter account or another reputable source, such as information provided by the website of the UK Parliament, a quality newspaper article or the MP's website, which referenced to the Facebook page.[29] I also scrutinised the content of up to 20 of the latest posts on the pages, determining whether these posts would be relevant to the MP. For those official MP pages which passed these tests, I recorded the corresponding page-IDs: the unique identifiers Facebook generates to distinguish between Facebook pages.

Next, to download the posts as data from these identified Facebook pages, it was necessary to gain access to the Facebook Graph API and to acquire an access token. This required me, as a researcher, to have a personal Facebook account and to agree to terms of service. See Figure 2.2 for a screenshot of this interface. The access token is found near the top and could be copied by clicking on" Get Token". From here, I could choose between at least two different approaches.

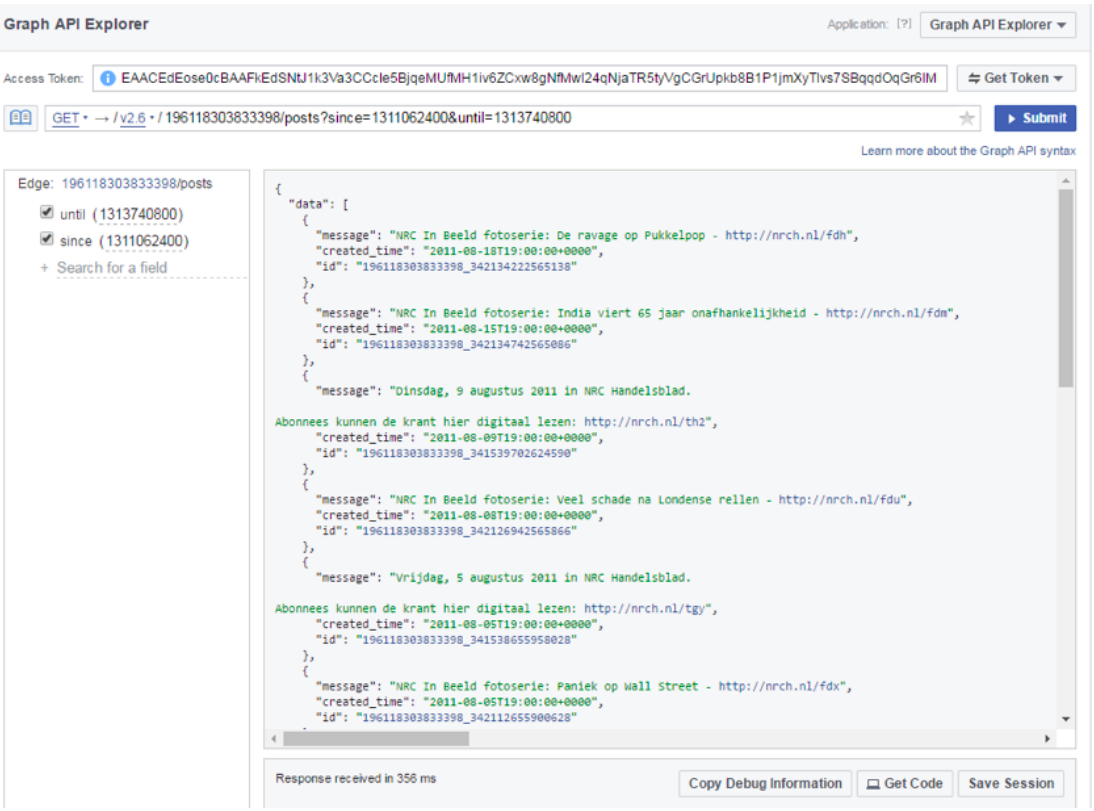
One approach is adding the necessary details in the bar below the access token: a numerical code representing the ID of a Facebook page and UNIX timestamps indicating the period of interest, which could be hours, days, weeks, months, or years). The interface would then return information relating to each post published on the page within the specified period. In Figure 2.2, we can see the posts on the Facebook page of a Dutch-language newspaper as an example, with 'message' indicating the title of the post, 'created time' referring to the time the post was published and the 'id' referring to the unique ID of the post. This version of the API (2.6) would allow the researcher to download this data in a JSON format.

Another approach is using the RFacebook package developed by Pablo Barberá (Barberá, Piccirilli & Geisler, 2017), developed for R. I explain my choice for this approach later in this chapter, in section 2.3.2. To use the RFacebook package to collect all posts on the pages, published during the campaign, the access token had to be copied into a script in R, an environment for statistical computing (see Text Box 1 for an excerpt from this script). By running this script, the text of the posts is stored in a data frame, as well as limited meta-data, such as the date of the post and the likes it has received. The contents of this data frame can be extracted from R in the form of a CSV file, which stores tabular data. After downloading these posts, inputting the Facebook page details, and accessing the Facebook Graph API, I collected and created a CSV file for every MP, which

[29] Contact details for the MPs - including their Twitter and Facebook accounts - are provided by the website of the UK Parliament. One way to recover this information is to use the search function on this page, by selecting the relevant constituency: https://members.parliament.uk/constituencies/.

together contain 34,256 posts with meta-data. For an overview of the collected data, please see Figure 2.3.

Figure 2.2: The Graph API Explorer



Text Box 1: Excerpt from RFacebook-script

`install.packages("devtools")`
`library(devtools)`
`install_github("Rfacebook",`
`"pablobarbera",`
`subdir="Rfacebook")`
	Installing the necessary packages for Rfacebook to run

`require (Rfacebook)`	Checking if Rfacebook has been installed, loading Rfacebook.

`fb_oauth`
`= 'FJKDIEJKdmfnkFKIGJENDKdnken,`
`FKOCNMCMNLWOFJKDIEJKdmfnkFKIGJE`
`NDKdnken,FKOCNMCMNLWO'`
	Copying the authorisation code from the Facebook Graph API

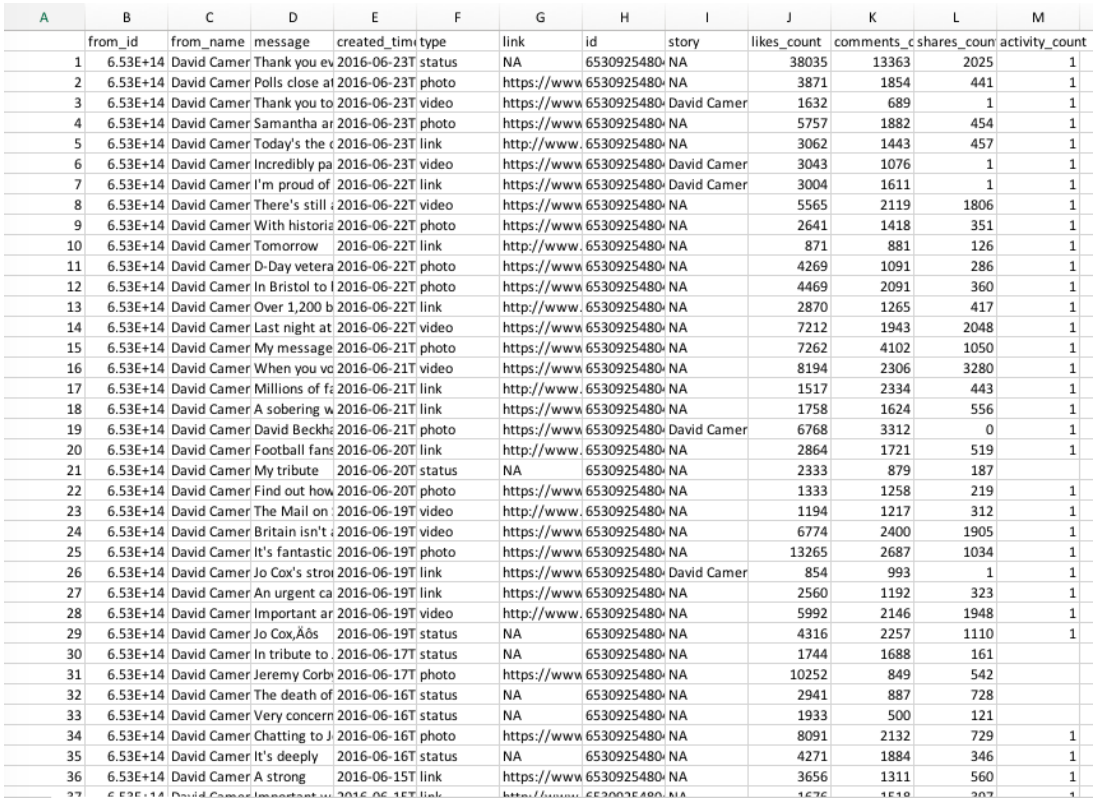
`getUsers("me", token=fb_oauth,` `private_info=TRUE)`	Confirming that the authorisation has worked

`page <- getPage("DonaldTrump",`
`token=fb_oauth, n=200,`
`reactions=TRUE, api="v2.9")`
	This line downloads the 200 most recent posts on the Facebook page of Donald Trump

In Figure 2.3, we can observe 13 columns with data. The first three can be used for identifying the numbered post, the Facebook page ID and the name of the Facebook page. A preview of the text of the post can be found in the 'message'-column (the separate cells can be clicked on to reveal the text of the entire post). The 'type'-column indicates the type of post (e.g., status, photo, or video) and the 'link'-column indicates whether a URL has been included in the post. The 'id'-column shows a preview of the ID of the post, the 'story'-column refers to other activity, such as whether MPs have shared something in the post from elsewhere on Facebook or added pictures in the post, and the three adjacent columns refer to the number of likes, comments and shares the post has received. Finally, the 'activity'-column, refers to whether the post features a link or any of the activity listed under 'story'.

Versions of these CSV files which only include the EU referendum campaign-relevant posts (and not all posts published) are used for the analyses in Chapters 3, 4 and 5 (see section 2.2 for an explanation of how irrelevant posts were removed). However, to perform the keyword and frequency analyses in Chapter 4, I also turned the CSV files of all posts per MP and those of all the EU-referendum relevant posts per MP into TXT files, containing just the raw text of these posts, included in the 'message column'. Having these raw text TXT files facilitates the removal of stop words, which are the most common words in a language. These words need to be filtered out to uncover the meaning and focus of text. Common stop words include articles such as 'the', 'a' and 'an', pronouns (e.g., 'herself', 'yourself', 'I') and adverbs (e.g., 'moreover'). Three data sets have been created building on this data, including information relating to the MP and aspects of the campaign. This information was obtained from several sources, including the profiles of MPs on the UK Parliament website section (https://www.parliament.uk), the verified Twitter profiles of the MPs, the 'about'-sections of the Facebook pages and the 2015 General Election results published online. An overview of the variables included in the data sets that underlie the analyses reported in Chapters 3, 4 and 5 of this thesis can be found in appendices B1-B4.

Figure 2.3: The RFacebook CSV output



	A	B	C	D	E	F	G	H	I	J	K	L	M
		from_id	from_name	message	created_tim	type	link	id	story	likes_count	comments_c	shares_coun	activity_count
1		6.53E+14	David Camer	Thank you ev	2016-06-23T	status	NA	6530925480	NA	38035	13363	2025	1
2		6.53E+14	David Camer	Polls close at	2016-06-23T	photo	https://www	6530925480	NA	3871	1854	441	1
3		6.53E+14	David Camer	Thank you to	2016-06-23T	video	https://www	6530925480	David Camer	1632	689	1	1
4		6.53E+14	David Camer	Samantha ar	2016-06-23T	photo	https://www	6530925480	NA	5757	1882	454	1
5		6.53E+14	David Camer	Today's the d	2016-06-23T	link	http://www.	6530925480	NA	3062	1443	457	1
6		6.53E+14	David Camer	Incredibly pa	2016-06-23T	video	https://www	6530925480	David Camer	3043	1076	1	1
7		6.53E+14	David Camer	I'm proud of	2016-06-22T	link	https://www	6530925480	David Camer	3004	1611	1	1
8		6.53E+14	David Camer	There's still a	2016-06-22T	video	https://www	6530925480	NA	5565	2119	1806	1
9		6.53E+14	David Camer	With historia	2016-06-22T	photo	https://www	6530925480	NA	2641	1418	351	1
10		6.53E+14	David Camer	Tomorrow	2016-06-22T	link	http://www.	6530925480	NA	871	881	126	1
11		6.53E+14	David Camer	D-Day vetera	2016-06-22T	photo	https://www	6530925480	NA	4269	1091	286	1
12		6.53E+14	David Camer	In Bristol to l	2016-06-22T	photo	https://www	6530925480	NA	4469	2091	360	1
13		6.53E+14	David Camer	Over 1,200 b	2016-06-22T	link	http://www.	6530925480	NA	2870	1265	417	1
14		6.53E+14	David Camer	Last night at	2016-06-22T	video	https://www	6530925480	NA	7212	1943	2048	1
15		6.53E+14	David Camer	My message	2016-06-21T	photo	https://www	6530925480	NA	7262	4102	1050	1
16		6.53E+14	David Camer	When you vo	2016-06-21T	video	https://www	6530925480	NA	8194	2306	3280	1
17		6.53E+14	David Camer	Millions of fa	2016-06-21T	link	http://www.	6530925480	NA	1517	2334	443	1
18		6.53E+14	David Camer	A sobering w	2016-06-21T	link	https://www	6530925480	NA	1758	1624	556	1
19		6.53E+14	David Camer	David Beckha	2016-06-21T	photo	https://www	6530925480	David Camer	6768	3312	0	1
20		6.53E+14	David Camer	Football fans	2016-06-20T	link	http://www.	6530925480	NA	2864	1721	519	1
21		6.53E+14	David Camer	My tribute	2016-06-20T	status	NA	6530925480	NA	2333	879	187	
22		6.53E+14	David Camer	Find out how	2016-06-20T	photo	https://www	6530925480	NA	1333	1258	219	1
23		6.53E+14	David Camer	The Mail on	2016-06-19T	video	http://www.	6530925480	NA	1194	1217	312	1
24		6.53E+14	David Camer	Britain isn't a	2016-06-19T	video	https://www	6530925480	NA	6774	2400	1905	1
25		6.53E+14	David Camer	It's fantastic	2016-06-19T	photo	https://www	6530925480	NA	13265	2687	1034	1
26		6.53E+14	David Camer	Jo Cox's stro	2016-06-19T	link	https://www	6530925480	David Camer	854	993	1	1
27		6.53E+14	David Camer	An urgent ca	2016-06-19T	link	https://www	6530925480	NA	2560	1192	323	1
28		6.53E+14	David Camer	Important ar	2016-06-19T	video	http://www.	6530925480	NA	5992	2146	1948	1
29		6.53E+14	David Camer	Jo Cox‚Äôs	2016-06-19T	status	NA	6530925480	NA	4316	2257	1110	1
30		6.53E+14	David Camer	In tribute to J	2016-06-17T	status	NA	6530925480	NA	1744	1688	161	
31		6.53E+14	David Camer	Jeremy Corb	2016-06-17T	photo	https://www	6530925480	NA	10252	849	542	
32		6.53E+14	David Camer	The death of	2016-06-16T	status	NA	6530925480	NA	2941	887	728	
33		6.53E+14	David Camer	Very concern	2016-06-16T	status	NA	6530925480	NA	1933	500	121	
34		6.53E+14	David Camer	Chatting to J	2016-06-16T	photo	https://www	6530925480	NA	8091	2132	729	1
35		6.53E+14	David Camer	It's deeply	2016-06-16T	status	NA	6530925480	NA	4271	1884	346	1
36		6.53E+14	David Camer	A strong	2016-06-15T	link	https://www	6530925480	NA	3656	1311	560	1

Chapter 3 uses the meta-data of the EU referendum posts of MPs on Facebook to analyse differences in the frequency of MPs' posting behaviour in general and on the topic of the EU referendum more specifically. This required the identification of relevant posts: which of these posts relate to the EU referendum? I used keywords to search for posts relating to the EU referendum and/or EU membership. These keywords include campaign slogans (e.g. 'better together'), campaign-specific terms and phrases, referendum-related hashtags, terms referring to the EU as an institution or political union, interaction with official and unofficial campaign groups in the posts (@-referrals)[30], procedures relating to leaving the EU, synonyms for "Leave" and "Remain", Brussels, and policy issues which were prominent during the campaign (relating to the fields of fishing, farming, migration, the environment, and so forth). See Appendix B5 for a list of these keywords.[31]

Using these keywords, about 120,000 keyword hits were returned. I manually analysed each of those posts which contained one or more keyword hits, to determine whether based on its text and the text of adjacent posts, the posts could be linked to the EU referendum, because

[30] On social media sites like Facebook, users can use an @-referral to tag another user. The other user is then notified that s/he has been tagged and directed toward the post.

[31] This list was added to until no more potentially relevant keywords could be found, in the literature or in posts themselves.

the presence of a keyword is insufficient for determining the relevance of a post.[32] For example, references to the EU can be made without referring to membership. MPs can refer to existing EU policies, funds, and EU-territory in passing, instead. When an MP post with a keyword only contains one or two lines and/or it is ambiguous whether the post is linked to the MPs' views regarding EU membership or the EU referendum, the content of adjacent posts can provide clues. If a post with a keyword is published after or just before another post in which MPs clarify their stance regarding Brexit, then there is evidence that the keyword post has been written within the same context and, thus, relates to the EU referendum campaign. By confirming the relevance of posts that contain these keywords, the population of relevant EU referendum posts, published by MPs on their public Facebook pages can be more accurately defined. The codebook with instructions that guides this analysis of the content of the posts can be found in Appendix B6.

Based on these results, I create the first data set used in this thesis. See Appendix B2 for an overview of the variables in this data set. In this data set, the MP is the unit of analysis. It includes variables relating to the personal and political career characteristics of MPs, such as their gender and political party affiliation, and the frequency with which they post in general and about the EU referendum more specifically. This chapter contributes to understanding which MPs are more likely to adopt and use Facebook to communicate with constituents and to campaign in a referendum about the EU.

Chapter 4 considers the textual content of these EU referendum posts. This requires a reconfiguration of the original data, with the post as the unit of analysis. In this chapter, I treat the posts as a collection of text: a corpus. I am interested in the use of *argument*, defined as reasoning and not as disagreement (see Chapter 4), and *anxiety* and *anger* as discrete emotions.[33] Politicians can use argument, anxiety, and anger strategically, to influence voting behaviour.

The creation of this second data set required extensive linguistic analysis to obtain a variable relating to the presence of an argument in the text of the post. To identify those posts that contain an argument, I single out those that include conjunctions such as 'therefore', 'that is why' and 'because'. These are connectors that tie propositions together, to build an argument and support a standpoint, to persuade the reader.[34] Using these conjunctions as keywords, about 3,000 keyword hits were returned. Each paragraph with a keyword hit and the adjacent paragraphs were

[32] Naturally, in the same vein, the absence of a keyword does not indicate that a post is necessarily irrelevant to the EU referendum campaign.

[33] With this definition of argument as reasoned discourse and not disagreement between two parties who interact and advance conflicting claims, I follow other studies of political communication, such as Jamieson (1993), who relies on the work by Willard (1989) and O'Keefe (1977).

[34] See Appendix D1 for the Argument codebook, which includes a full list of these conjunctions, and Appendix D6 for an elaborate, worked-out example of the main arguments of the two camps.

analysed manually, with the help of the codebook (see Appendix B6), to determine whether the conjunction was used to connect a standpoint relating to the EU referendum with a supporting proposition (see Appendix D1 and Chapter 4 for more information about this approach and procedure and Appendix D6 for an example reconstruction of EU referendum argumentation).

Next, to identify the use of emotion, and anger and anxiety, I use automated text analysis software and opinion mining: Linguistic Inquiry Word Count-software (LIWC) and SentimentR. I explain my choice for an automated approach to identify emotion in section 2.3. LIWC and SentimentR rely on validated dictionaries. I use LIWC to count the presence and to return a percentage of anxiety- and anger-words in the text of the entire post. SentimentR returns an estimate of the sentiment of a sentence, which can be positive, neutral, or negative, for each sentence of the post, and calculates an average for the entire post. SentimentR measures sentiment on a scale ranging from negative (-1) to positive (+1) with a neutral zero (0). Using the results of these analyses, argument and emotion variables are added to this second data set. This newly configured data set makes it possible to study the use of these devices in the posts and to potentially distinguish a pattern of use. The results of this study are reported in Chapter 4.

Chapter 5 acknowledges that the posts have been published over a period and that the temporal context may influence not only posting activity but also the use of argument and emotion in the posts. In this chapter, I specifically investigate whether external events which occur during the campaign influence the subsequent posting behaviour of MPs. This requires data that is sequentially ordered over time. I, therefore, create a data set that reconfigures the obtained data as time-series data, with the day of the campaign as the unit of analysis. Only then is it possible to conduct an ARIMA time-series-analysis, to determine the extent to which the events affected the dynamics of the campaign (see Chapter 5 for an explanation of the ARIMA procedure). By reviewing relevant literature and media articles about the campaign, I identify significant events during the campaign, such as news about the Queen's alleged support for "Remain" and the murder of MP Jo Cox (see Chapter 5 for further detail). For each of the 126 days of the campaign, this data set includes data about the number of posts, the number of posts with an argument, average anger, and average anxiety. To consider the interaction between this gathered data and external developments that occurred during the campaign, I also include variables indicating whether a significant event has taken place and data from a poll of polls, run by NatCen Social Research, which indicates changes in public support for "Leave" versus "Remain".[35]

[35] The poll of polls-data is available at https://www.cfo.com/content/uploads/2016/06/EU-Referendum-Poll-of-Polls-%E2%80%93-What-UK-Thinks_-EU.htm. See Chapter 5 for further detail.

Further data sets could be constructed by reconfiguring the data obtained for this thesis: the three configurations presented here are not exhaustive. In this way, the data can also be used to study other, related phenomena and to address novel research questions. I describe opportunities for further research in detail in Chapter 6.

2.2 The distribution of key variables in the data sets

As mentioned, the three studies presented in empirical chapters 3, 4 and 5 rely on three data sets, two of which are reconfigurations of the original data set. This original data set is used for the first study, presented in Chapter 3, and it is based on a corpus of all Facebook posts published on the public Facebook pages of all 646 MPs in office at the time of the EU referendum. These three data sets include three key outcome variables and six key explanatory variables.[36] In this sub-section, I describe how the values have been distributed across these variables, to shed light on the characteristics of the MPs and posts studied.

2.2.1 The outcome variables

The analysis of the EU referendum activity by MPs on their public Facebook pages is based on three key outcome variables. The first of these variables is Facebook use. This variable is contingent on whether the MPs have a Facebook account. The process of finding MPs' Facebook accounts has been described in section 2.1. The Facebook use variable measures whether MPs did or did not use Facebook at the time of the Referendum, by confirming whether they did publish at least one post on their Facebook pages during the campaign. Out of the 646 MPs, 230 MPs (35.6%) did not have any post on their page between February 19 and June 23. Most MPs, therefore, did use their Facebook page at some point during the campaign (N = 417, 64.4%). This indicates that by 2016, most of these politicians did have and use a Facebook page.

The other two outcome variables of interest in this Chapter are EU referendum activity and 'Other' posting activity. Both variables focus on the number of posts that MPs published during the campaign. EU referendum activity refers to the number of published posts that are about the EU referendum and/or EU membership. The procedure for acquiring this corpus of posts has also been specified in section 2.1. Out of the 416 MPs who did publish on their Facebook pages, 47 (11.3%) did not post about the EU referendum. On average, MPs published 13 posts about the EU referendum, but most MPs seldomly posted about the EU referendum: 50% of MPs published

[36] The variables discussed in this section will occur in every chapter. There are several other variables that are only relevant in specific chapters, and those will be discussed there instead.

between 0 and 6 EU referendum posts.[37] Andrea Leadsom posted most frequently about the EU referendum, with 247 posts about the referendum. This is more than half of the 429 posts that she published during this period. 'Other' posting activity refers to the number of posts that were published by MPs on their pages and do not address the EU referendum or EU membership. In other words, these are the posts that are left once the EU referendum posts are excluded. On average, MPs published 69 'other' posts. Only about 1:4 MPs published more than 100 'other' posts during the campaign period, which lasted roughly five months.[38] Thus, most of the posts by MPs during this period did not concern with the EU referendum.

2.2.2 The explanatory variables

There is a set of key explanatory variables which relate to the characteristics of the MPs. Relating to the personal profile of MPs, I focus on two demographic characteristics: age and gender. I recovered the age and gender of the MP by collecting information from MPs' websites and online biographies. The average age of all 646 MPs in office for the entire EU referendum campaign period, on February 19, 2016, was 51 years. In contrast, for those 416 MPs who were active on Facebook, the average age was 48 years, and this was also the case for the 369 EU referendum active MPs.[39] This suggests that these MPs who used social media in general and to campaign about the EU referendum activity were slightly younger than the average MP. In terms of gender, out of the population of 646 MPs, 7 out of 10 MPs are male (and 3 out of 10 are female). Therefore, unsurprisingly, most of the Facebook active MPs are likewise male (7:10), and this is also the case for EU referendum active MPs.[40] Considering that male MPs considerably outweigh female MPs, that 7 out of 10 MPs are male, the fact that 1 out of 3 MPs active on Facebook and the referendum are female, it appears that female MPs are slightly more likely to use this platform and to use this platform to campaign.

At the same time, I consider the influence of political profile, which can also be referred to as political career, characteristics of MPs. These four characteristics are camp ("Leave" or

[37] More information about the distribution of values on the EU referendum posting-variable can be found in Appendix B7 and more information about the operationalisation of this variable can be found in Chapter 3, section 3.3.1, and Appendix B7.

[38] Dividing the values on this variable into percentiles indicates that a quarter of MPs published 20 'other posts', a quarter published between 20 and 44 'other' posts, another quarter published between 44 and 98 'other' posts (97.75), and the remaining quarter published between 97.75 and 432 of these posts. More information about the distribution of values on the 'other posting'-variable can also be found in Appendix B7 and further details about the operationalisation of this variable can be found in Chapter 3, section 3.3.1, and Appendix B7.

[39] More information about the distribution of age for the population and these two sub-sets of MPs can be found in Appendix B8.

[40] Tables that show these distributions in further detail can be found in Appendix B9. The distribution of values on this gender-variable is also briefly discussed in Chapter 3, section 3.4, Table 3.2.

"Remain"), seniority (in terms of length of service), MP-constituency alignment and electoral vulnerability. First, the 'camp' of MPs was determined by considering their positions as reported in reputable media sources and the content of their EU referendum posts.[41] Out of the population of 646 MPs, and out of those who declared a position sometime during the campaign, most MPs advocated remaining in the EU: 3 out of 4 MPs aligned with "Remain". There are therefore also more "Remain" MPs among those MPs that are Facebook active and among those that posted about the EU referendum (in both cases, roughly 3 out of 4 MPs). Based on these descriptive results, it is not evident that one camp of MPs is more active or more EU referendum active on Facebook.

Regarding the length of service, or seniority, of the population of MPs, this information was gathered from the UK Parliament website and, more specifically, the sub-section about the parliamentary careers of MPs.[42] Most MPs first entered office six years before the EU referendum campaign. Instead, most of the Facebook active and EU referendum active MPs had, at the time of the referendum campaign, only been in office for a year. Most of these MPs will have gained office following the 2015 General Election. Furthermore, the Facebook active and EU referendum active MPs were on average more junior than the population of MPs. Whereas, on average, all MPs had been in office for ten years, for Facebook and EU referendum active MPs, the average length of service lay between seven and eight years. These descriptive results suggest that MPs who are less established are more likely to be active on social media.

With regards to MP-constituency alignment, this variable is the composite of two variables, one relating to the estimated proportion of "Leave" vote in MPs' constituencies and the other the camp of the MP ("Leave" or "Remain"). The combination of these variables, explained in Appendix B10, indicates whether the camp of the MP aligns with that of the majority of the constituency, i.e., whether the MP and the majority of the constituency are together against or in favour of leaving the European Union. In most cases, the MP and most of the constituents do align in their support for either "Remain" or "Leave" (35.6%). For 1 out of 3 MPs there is a misalignment between their position and that of the majority of their constituency (33.9%), and for the remaining MPs, their alignment with the constituency is unclear (30.5%). It can be expected that MPs are aware of the socio-demographic characteristics of their constituents and that they therefore also have some notion of the extent to which their constituents lean toward "Remain" or "Leave". MPs

[41] More information about the operationalisation of this variable can be found in Appendix B10. This Appendix also includes more detailed tables that show the distribution of the MPs between the two camps as well as the number of MPs who did not declare a position. The distribution of values on this camp-variable is also described in Chapter 3, section 3.4, Table 3.2.

[42] See Appendix B11 for more information about the operationalisation and distribution of years of service among MPs. The distribution of values on this seniority/length-of service-variable is also described in Chapter 3, section 3.4, Table 3.2

who believe that most of their constituents have similar positions to themselves will expect less disapproval or criticism when they campaign in favour of a proposal such as staying in or leaving the European Union. These MPs would therefore be more likely to campaign actively.

Next, I consider the variable of electoral vulnerability, which can also be referred to as marginality. This variable is based on the difference in vote share between the first and second candidate at the 2015 General Election, which can also be referred to as marginality.[43] The majority of MPs who were in office during the EU referendum, and who therefore belong to the population of MPs studied in this thesis, will have won, or have kept their seat following this General Election. MPs who score low on electoral vulnerability – who won or kept their seat by a greater margin – are more secure of their position. This sense of security can affect the communicative behaviour of MPs. On average, there is approximately a 24% difference in vote share between the first and candidate for MP.

Finally, I consider how the position of the MP on the frontbench or backbench affects their communicative behaviour. I categorised MPs as frontbench rather than backbench MPs based on whether they were part of the (shadow) cabinet, had a portfolio, were party leaders or deputy party leaders. This information was gathered from the UK Parliament website and MPs' websites and the biographic information provided on MPs' social media accounts (including their Facebook pages). Out of the population of MPs, 1 in 11 MPs (roughly 9%) is a frontbencher, and this is also the case when we study just the Facebook active or EU referendum active MPs.[44] Backbenchers outnumber frontbenchers in the population of MPs, and therefore they also outnumber frontbenchers in the two sub-sets of MPs that we study: EU referendum active and Facebook active MPs. Since the ratio of frontbench and backbench MPs in the data sets reflects that of the population, backbench MPs are not overrepresented in my data.

2.3 A mixed research strategy

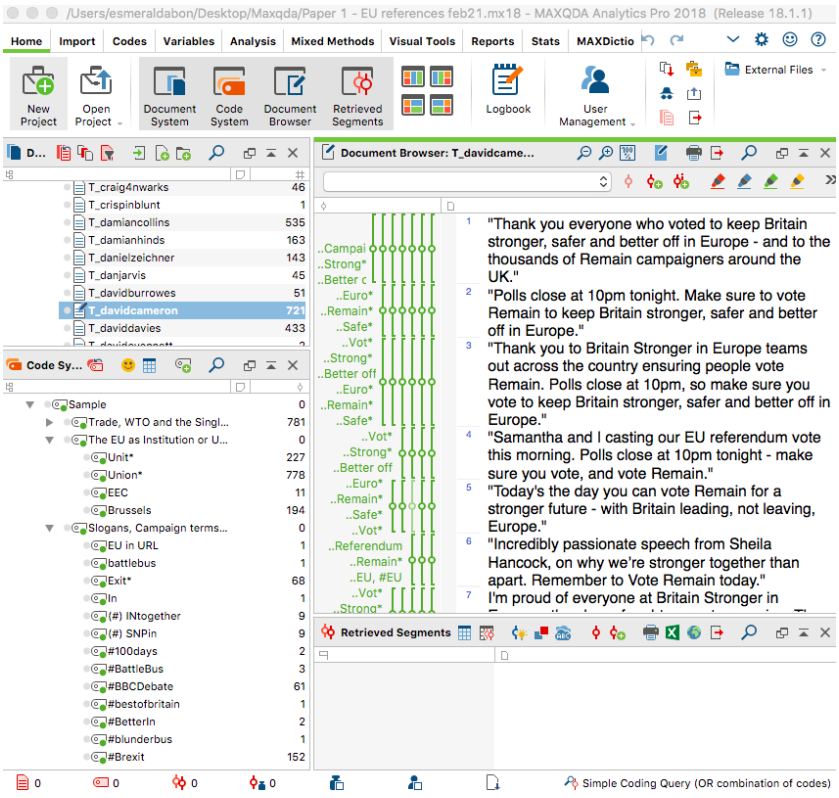
Rains and Brunner (2015) find that the then most used methods in Facebook research were multiple methods and content analysis (41% versus 31% respectively). Other research methods used are ethnography, experiment, focus group, interview, social network analysis and the survey. In this project, both qualitative and quantitative methods are used in the analysis of Facebook

[43] Appendix B13 includes more detailed information relating to the distribution of values on this variable.
[44] Appendix B14 includes more detailed information relating to the distribution of values on the frontbencher-variable.

data.[45] Qualitative methods can provide us with rich insight into communication and the use of rhetorical devices, such as argument and emotion.

To identify the EU referendum campaign-relevant posts through a qualitative analysis, I used MAXQDA 2018/2020, and a codebook developed for this thesis. Figure 2.4 shows a screenshot of the MAXQDA 2018/2020 interface. In this figure, the top left panel shows a list of the documents included. Each of these documents corresponds to an MP and includes the raw text of all the posts published on the Facebook page. In the lower-left panel, we can see the keywords used to identify potentially relevant posts, here referred to as 'codes'. In the right panel, we can see the raw text of the posts published by David Cameron. The brackets indicate instances in which the keywords are used. This image shows the final stage of the qualitative analysis. In the first stage, in which the keyword hits are automatically returned, I coloured these codes (and therefore also the brackets) red. While analysing one of the keyword hits, such as "#Brexit", I used the colour orange. After determining which instances referred to the EU referendum campaign and removing those that did not, I coloured the remaining instances of these keywords green.

Figure 2.4: The identification of EU referendum posts in MAXQDA



[45] In this section, I describe the qualitative and quantitative methods that I used to obtain the data that is included in the three data sets and that has been used in the analyses reported in Chapters 3, 4 and 5. In this section, I do not mention an expert survey that I conducted as part of my PhD project, which was meant to contribute to data set 1 about the active actors, because there was an insufficient number of responses to this survey and the responses were also contradictory. More information about this expert survey can be found in Appendix B16.

Thereafter, I identified which posts of MPs contained these keywords by cross-referencing this text to the text included under the 'message' column in the CSVs of MPs' Facebook page posts. For each MP, new versions of these CSVs were created, including all 13 columns but removing those posts which are not relevant to the EU referendum campaign. These CSVs were used in the analyses of EU referendum activity, performed in Chapters 3, 4 and 5.[46]

While time-consuming, using this analysis of several stages, I can accurately identify which posts are relevant to the EU referendum. The automatic coding of keywords, using the MAXQDA software, returned 48,458 hits in all posts of the population of MPs, with 5,330 for 'vot*', 5,348 for 'campaign*' 3,614, for 'EU', 717 for 'Brexit' and 2,841 for 'Euro*'. In the far majority of cases, instances of 'Brexit' and 'EU' did refer to the EU referendum (between 95.1% and 100%, see footnote), but only in 34.6% of the cases did the keyword 'campaign*' actually refer to the EU referendum campaign.[47] This indicates that there are differences in the extent to which the keywords are relevant to the EU referendum and highlights that potentially relevant keywords can have multiple meanings, leading to the inaccurate identification of posts.

Another example of how this approach aids the identification of relevant posts is the common use of the word 'election'. In the posts gathered, several MPs made references to the Police and Crime Commissioner elections and the 2016 Scottish Parliament election, urging citizens to vote. These elections coincided with the EU referendum campaign period, as defined in this project. Out of context, it would be difficult to determine which campaign and election (first-order or second-order) these references refer to, especially since posts tend to be short. This requires a contextual analysis.[48] Second, by going through these posts manually, EU referendum-related slogans and terms are caught, which would otherwise have been missed from the analysis. Once known, I also used these slogans and terms to identify EU referendum-related posts. As a result, by taking this thorough approach of a manual analysis, the corpus of EU referendum posts and the data sets are both more complete and more valid than they would have been if posts were automatically selected based on just the keywords.

Furthermore, the qualitative analysis enabled me to determine whether the posts include an argument. Figure 2.5 shows a screenshot of the argument analysis in the MAXQDA 2018/2020

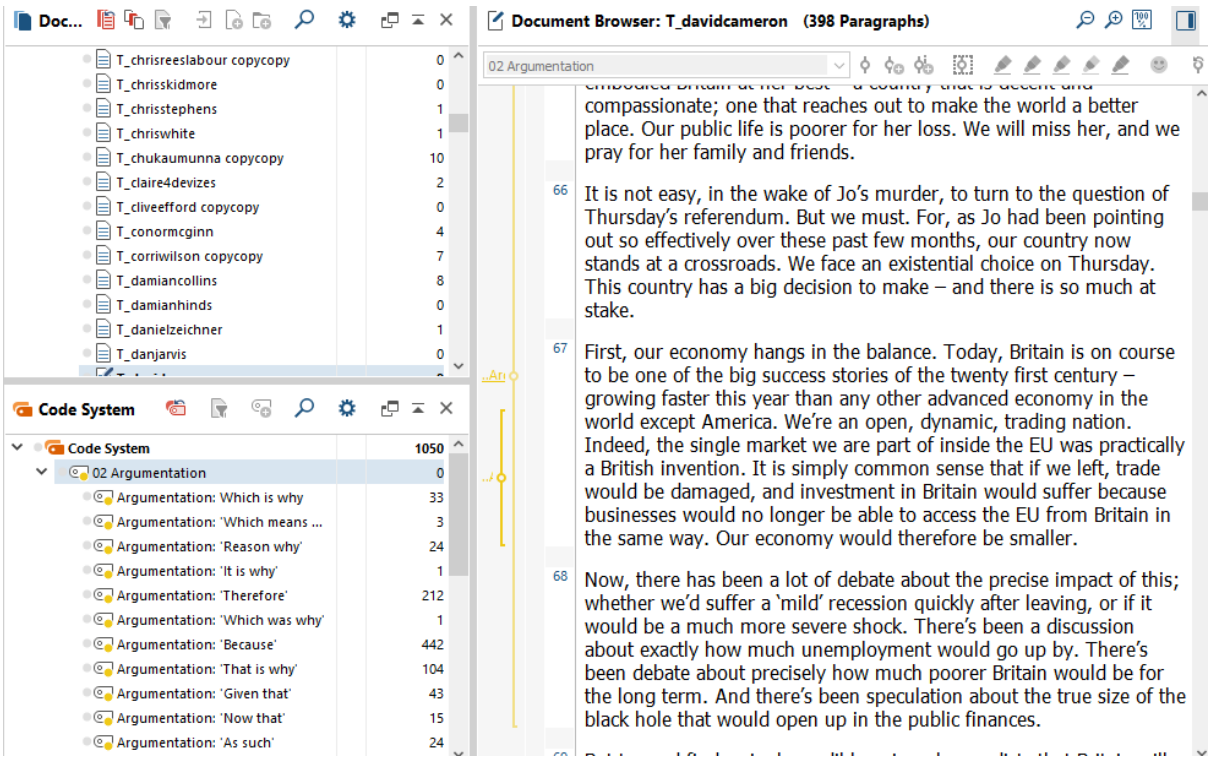
[46] At the same time, I also used the original CSVs to compose the data set used in Chapter 3 (which informs the data sets for Chapters 4 and 5). These original CSVs had to be used to derive the number of posts and (EU referendum) posting activity of MPs.

[47] The wild card (*) for 'vot' indicates that all words that begin with 'vot', such as 'vote', 'votes' and 'voting' should be included, and 'campaign*' will also include 'campaigns', 'campaigning', and so forth. By using the wildcard, 'Euro*', words such as 'Europe', 'European' and 'Eurozone' are also included. For 'vot*', only 2,966 instances (55,7%) were relevant to the EU referendum, for 'campaign*' 1,251 (34.6%), for 'EU' 5,088 (95.1%), for 'Brexit' all 717 (100%) and for 'Euro*' 2,386 (84,0%).

[48] While automating this task is possible, it is complex and therefore time-consuming and not cost-efficient, until the number of posts to be processed increases considerably.

interface. The documents included can be found in the top left panel, the conjunctions which serve as keywords in the left bottom panel and the actual posts can be viewed in the right panel. I take this approach to identify the use of argument because argumentation is often implicit and needs to be reconstructed and identified based on the knowledge of the parties involved. With knowledge of the platform, the communicative practices of MPs, the assumptions that MPs hold and developments during the campaign, I can more accurately identify the use of argument than a trained algorithm. After all, we can expect that MPs continuously, but not necessarily consciously, write from the assumption that they hold knowledge and/or views shared by the reader. MPs will then presuppose that the reader has at least some basic knowledge of UK politics, its MPs and party leaders. MPs may also be wary of diverting from the views of the parties or groups that they are affiliated with, so in this analysis, the communication of the political party should also be considered as a predictor variable of use of argument.

Figure 2.5: The identification of argument-posts in MAXQDA



Whilst qualitative approaches to the analysis of discourse and text are therefore invaluable, there are several limitations to the more qualitative and manual approach that I have taken to identify the EU-referendum relevant posts and the use of argument in the sub-sample of posts that,

according to keywords, would potentially be relevant.[49] First of all, the identification of relevant posts and the use of argument was entirely guided by instructions listed in codebooks, which were created and interpreted by myself. I created the codebook and instructions for the identification of relevant posts, based on my knowledge and insights and only in consultation with my supervisory team. These instructions are therefore subjective and potentially incomplete and more implicit, contextual references to the Referendum may have been missed, causing relevant posts to be ignored, or irrelevant posts to be included.[50] Besides, my interpretation of these instructions was entirely subjective: no second, independent coder was employed to determine whether my coding of the posts followed the codebook instructions.

An alternative to this manual identification of EU-referendum relevant posts would be the use of automated techniques. Quantitative and automated analyses aid the identification of patterns in large data sets, which would be missed or more difficult to identify manually (Boumans & Trilling, 2016). One advanced method for the automated analysis of data is supervised machine learning.[51] After supplying a supervised machine learning algorithm, a defined set of rules, with a sufficiently large sample of data annotated by a human coder, the algorithm classifies this data and models are built. With the input of human coders, automated techniques are better equipped to recognise the meaning of a text (Grimmer & Stewart, 2013), and the algorithm would then be able to classify any number of posts more accurately as either relevant or irrelevant to the EU referendum.[52] However, for this annotation to be accurate, the human coder needs to have sufficient contextual knowledge to formulate classification criteria for the application of the algorithm. In other words, the human coder will have to formulate explicit rules for what constitutes an EU referendum-relevant post and for what constitutes an argument.

[49] It must be noted that my approach to creating a sub-sample of *potentially relevant* posts, using keywords and software, did involve some automation. However, in this section I contrast the manual identification of EU referendum posts to the automated identification of EU referendum posts among the sub-sample of posts (and not the original population).

[50] To the best of my knowledge, to this day there are no tried and tested codebooks available for the identification of discourse that is relevant to the 2016 EU referendum. Had there been such codebooks available, then it would be possible to say with more certainty that all possibly relevant posts had been identified by means of a manual content analysis.

[51] Another related approach is unsupervised machine learning. Unlike supervised machine learning, unsupervised machine learning does not require the input of a human coder. Using data that is not annotated or labelled in any way, the unsupervised machine learning algorithm sets out to discover patterns in the data and returns model data and a prediction algorithm. This approach can be used to inductively discover patterns in the text such as topics and narrative frames but is less useful for the classification of relevant posts.

[52] An example of a training data set that could be used is one that contained examples of references to the referendum and the elections, indicating that only references to the Referendum should have been included. This way, posts which, for example, referred to voting but not to voting in the Referendum could be excluded and removed from the population of posts. However, creating this training data set and testing it using machine learning would be a task of such magnitude that it would require resources (e.g., time) that could not be spent on other parts of the project (such as the necessary process of reconfiguring the data sets for Chapters 4 and 5). This would have led to a different thesis, in which other research questions would have been asked. Therefore, for this thesis, I opted to use the multi-stage, keyword-based analysis to accurately derive at the population of EU referendum posts.

Thus, even though this analysis is automated, it will still be necessary for the human coder to spent time and other resources in becoming familiar with the data. An inductive, manual analysis of MPs' posts to obtain contextual knowledge would necessarily precede the use of automated techniques for the quick, deductive identification of relevant Facebook posts. Considering the exploratory nature of this thesis, the unavailability of an already existing codebook with instructions about coding EU referendum-related discourse, and the improved ability to interpret the meaning of a text by taking an inductive and manual instead of a deductive and automated approach, I opted to manually analyse the sub-sample of potentially relevant Facebook posts for their EU referendum-relevance and the presence of an argument. Fortunately, the volume of data was not too large for this manual coding of the posts to be impossible.[53]

However, I do rely on an automated approach that needs limited manual input for identifying the use of anger and anxiety in the Facebook posts. This dictionary-based approach is ideally suited for measuring the presence and extent of emotion, as it concerns counting words and syntactic building blocks that indicate or (de-)amplify emotion. When counting is automated, mistakes are not due to the difficulty that human coders face in counting large volumes of data, but rather due to inexhaustive or non-exclusive search criteria (Boumans & Trilling, 2016). Furthermore, the dictionaries used for identifying emotion in my thesis were available, tested and validated.[54] Whereas I as a researcher have been trained to recognise and analyse the use of argument, I have no such experience with identifying emotion in text.[55]

Considering these advantages to using dictionaries for the identification of emotion and the implicit nature of emotion when communicated through text, I have decided to use a dictionary approach for analysing the use of emotion in the text of MPs' Facebook page posts. I primarily use LIWC, which includes the most common American and British-English spellings of words.[56] LIWC returns the percentage of words that count as markers of up to 82 language dimensions. These

[53] As mentioned previously, using keyword-based searches in MAXQDA, 48,458 hits were returned, spread across 34,256 posts, which was the population of all MPs' Facebook posts published on their official Facebook pages during the EU referendum campaign.

[54] Whilst it is true that there are words with multiple meanings or meanings that are specific to a speech community, a group of people who have a common use, interpretation, and way of speaking a language (Gumperz, 1968), and that this leads to 'false negatives' (words counted which should not be counted), the dictionaries can be validated through application. For example, LIWC dictionaries are widely used. Tausczik and Pennebaker (2009), for instance, provide an extensive review of more than a hundred studies that use LIWC.

[55] I have received two years of training at the University of Amsterdam to analyse discourse and argumentation from the perspective of pragma-dialectics, a normative branch of argumentation theory. For a researcher like myself, to accurately identify and measure the use of emotion in text, training would have been required to obtain more knowledge about how emotion is communicated, as well as insight into the linguistic idiosyncracies of MPs. It was not possible to obtain this training, knowledge and insight within the scope of this PhD project.

[56] The LIWC 2015 operator's manual indicates that British spellings are included (Pennebaker, Booth, Boyd & Francis, 2015). Since I use an internal default dictionary of LIWC for analysing the English-language text of the posts, it is possible that misspelled words have been missed in the analysis. Besides LIWC I also use SentimentR to perform robustness checks in Chapter 3.

language dimensions constitute sub-dictionaries, including words that indicate emotion, grammatical terms, and so forth. The LIWC dictionary includes approximately 4,500 words and word stems. Each of these defines one or more word categories.[57] The validity of LIWC for the analysis of social media text is unknown (Panger, 2016), but it is commonly used for the analysis of social media posts (e.g., Golder & Macy, 2011; Kramer, Guillory & Hancock, 2014).

Alternative sentiment-dictionaries also referred to as sentiment-lexicons, include SentimentR, SentiStrength, AFINN, bing, NRC, and most recently, Syuzhet. AFINN, bing, NRC and Syuzhet are lexicons based on single words, also referred to as unigrams, and these words have been given a positive sentiment and a negative sentiment score. NRC also assigns words a score for emotions including sadness, anger, and joy. More information about the different ways in which these lexicons assign sentiment scores can be found in Appendix B15, which includes a general comparison of the sentiment analysis approaches mentioned in this thesis. The fact that the four dictionaries, AFINN, bing, NRC and Syuzhet only consider single words and not the sentiment of a sentence as a whole, limits their accuracy. Instead, LIWC and SentimentR do take syntax into account. Therefore, these algorithms will be better equipped to accurately identify sentiment in sentences that, for example, include negation (e.g., Naldi, 2019).[58]

2.4 Facebook as an object of research

Facebook is a social media platform that allows people to connect and collaborate. Its focus lies on information provision (Pariser, 2011). Yet, the quality of information and news featured on Facebook has been questioned considering the recent interest in disinformation and misinformation online. These developments underline several conditions for working with Facebook data. In this section, I will first elaborately list the conditions and merits specific to using Facebook as an object of study in political communication research. To start, I will describe the way this data could be obtained and has been obtained from Facebook, before the Facebook-Cambridge Analytica data scandal and subsequent access restrictions, in 2018.[59]

[57] For example, the word 'laughed' is part of multiple word categories, including positive emotion, overall affect, verb, and past tense verb. These categories are hierarchical, meaning that 'laughed' is part of the 'verb'-category first, and the 'past tense verb'- sub-category second. The scores of the text on each of these sub-categories are incremented when the token 'laughed' is observed. Whilst the exact content of the dictionary is proprietary, a summary can be found in Table 1 of the LIWC2015.

[58] An example sentence that includes negation is: "I do not think this is a happy occasion". Whilst 'happy' indicates positive sentiment, this sentence – overall – suggests the opposite of joy or happiness.

[59] In early 2018, it became known that data company Cambridge Analytica harvested the personal data of millions of Facebook users, without consent. Based on this personal data, psychological profiles were built, and these profiles were to be used for political advertising.

2.3.2 The conditions for using Facebook data

A first condition of using Facebook data is that access needs to be obtained. Between 2017 and 2018, I obtained data from Facebook using its Graphical Application Interface (API). In the early stages, I used this interface, specifying the name of the Facebook page and the time of interest (February 19 until June 23) to gather all Facebook posts published during the EU referendum campaign, to be downloaded in a JSON format[60]. These JSON files had to be parsed to extract the text of the posts. This proved to be a lengthy process, which involved a search for parsing software and practice with parsing JSON files using Python code. Unsuccessful, I moved on to using Pablo Barberá's RFacebook package for extracting these posts more efficiently (Barberá et al., 2017). However, this did require me to become familiar with R. The necessity to become familiar either with Python or R, or the knowledge to acquire the necessary software, to obtain and analyse social media data, limits the accessibility of this data.

Second, relating to the issue of access, the control that Facebook has on what data can be acquired affects the possibilities for analysis. This influence of Facebook is therefore problematic. Facebook specifically restricts what data can be accessed and downloaded through its Graph API. It also legally limits how the data can be used through terms of service. This impedes the scientific study of Facebook data and therefore also reduces the opportunity to reproduce earlier studies.

Third, this reproduction is also hindered due to ethics and privacy concerns. Facebook data cannot be made readily available. Much of the controversy relating to privacy and Facebook relates to the dissemination and third-party use of personal data. For example, Lewis, Kaufman, Gonzalez, Wimmer and Christakis (2008) published an anonymised data set that included the personal Facebook data of a cohort of University students. This cohort and the university were, however, easily identified, highlighting the need to develop strategies for the release of personal, social network data. By willingly publishing personal information on their public pages, and by having search engines link to these pages, MPs already voluntarily publicise this personal information. Likened to being observed in a panopticon (Penney, 2015), the Facebook corporation has access to a wealth of information and when publicly available, this can be accessed by any user, at any time. Users quickly accept an End-User License Agreement (EULA) to join the Facebook network, but it is unclear to what extent this constitutes informed consent (Bechmann, 2014).

Similarly, focusing on the need to have a Facebook page, MPs and/or their staff may not be fully aware of the terms of service. In general, users may be little aware of their privacy settings and the privacy policies of Facebook, not least because these policies are subject to change (Caers

[60] JSON stands for JavaScript Object Notation. This is a type of format. JSON files store basic data structures and objects using this format. JSON-files are used transmitting data between a web application and a server.

et al, 2013), and because the knowledge and experiences of a user relating to their private information play a role (e.g., Külcü & Henkoğlu, 2014). For example, whereas boyd and Hargittai (2010) find that 90% of interviewed students were aware of their privacy settings, Sarikakis and Winter (2017) conclude that users are generally unaware of the privacy settings and privacy policies on SNSs. Therefore, we do not know whether MPs as users of Facebook are aware of their privacy settings and whether they know what they have given consent for. Considering that MPs are public figures and that these are their official Facebook pages - the pages on which they present themselves as representatives - it is less likely that these pages are used for sharing private information, compared to the pages of regular citizens. MPs' Facebook pages could be mined using the Facebook Graph API in 2017 and at the beginning of 2018, indicating that these MPs did agree to the terms of service set by Facebook, the latter which allowed me to collect this data.

Fourth, on a related note, the generalisability of the findings derived from a study of Facebook data to other social media is hindered by the fact that Facebook data is shaped by the technological framework of Facebook, which provides the functionalities (e.g., Jürgens & Jungherr, 2016), and the fact that Facebook as a platform is continuously subject to re-engineering (e.g., Lazer et al., 2014). Thus, the communication and behaviour of MPs on Facebook is moulded by temporal 'platform-specific behavioural norms' (e.g., Ruths & Pfeffer, 2014). Therefore, even if we find patterns based on the high volume of these data sets, this does not mean that these patterns persist and exist in other contexts. Our findings based on studies of Facebook data may therefore mostly and perhaps even solely apply to Facebook, limiting the extent to which we can use Facebook data to learn about MPs political communication on social media more generally.[61]

Fifth, also regarding the nature of this data, there are concerns about quality. Is the data obtained complete? Data can be lost or missed. This can be due to the temporary nature of online data. Data can be removed by users, be replaced, or disappear without notice. Users have access to their account and posts, meaning that they can decide what to delete and when. Users can also edit the information and content that they make available. Data can disappear when a hyperlink breaks. This means that it is difficult if not impossible to say whether the data gathered at any given point in time is complete. At the same time, social media data can also be incomplete due to flaws or unknown parameters built into the software made available by companies for the collection of the data: companies such as Facebook determine and limit the information returned with API queries. These data quality concerns are known to affect research about Facebook.

[61] Since I focus on a single event in this thesis - the EU referendum campaign - my findings may not apply to other events on the same platform. However, on a higher level, we can expect studies of Facebook to bear similarities, due to the functionalities available and a potential shared purpose with which Facebook pages are used. Still, conclusions drawn using Facebook data may not be generalisable to other social media platforms, such as Twitter.

For example, Rieder et al. (2015) observe differences between the counts given for likes and comments in the CSVs downloaded through the API and the counts shown on Facebook, by visiting the post. They find that the API recorded 23.3% fewer comments than shown by the post. Furthermore, Lomborg and Bechmann (2014) mention the impossibility for researchers to test the reliability of the API for collecting data, explaining that Facebook would be free to censor particular kinds of data, such as posts that include the words 'terrorism' or 'anonymous' (p. 260). It is possible that data has similarly been filtered out when I collected the posts on MPs' public Facebook pages.[62] Unfortunately, social media platforms do not necessarily inform researchers about procedures like these, about changes to the filtering and sampling procedures (e.g., Ruths & Pfeffer, 2014). Incomplete or compromised data negatively affects the validity of the data. The conclusions drawn using this data will then be inaccurate and obstruct rather than contribute to a better understanding of the (campaign) communication of MPs on Facebook pages.

Besides, the raw data obtained from social media requires cleaning if the researcher desires to use an automated dictionary-based analysis. For example, social media text includes emoticons ('emojis'), abbreviations, URLs, and so forth. This language is specific to the platform and cannot necessarily be identified and analysed by software. Cleaning data is a subjective process and requires the researcher to make well-informed decisions regarding the analysis (boyd & Crawford, 2012).[63] The benefit of using a dictionary is that it helps with getting rid of noise. Using a dictionary, the researcher will learn the extent to which pre-defined and categorised words or phrases occur in the text. In addition, since this approach is automated, it also removes human decision making from the analysis of the text and commonly involves the use of lemmatisation. This means that the dictionary and analysis is potentially more thorough, by including all transformations of inflected word forms (e.g., "vote", "voting", "voted"), but also potentially less accurate. After all, compared to a researcher who knows the context in which text has been posted, uttered, or shared, a dictionary is unlikely to successfully identify implicit, hidden, or novel

[62] It is impossible to retrospectively establish the extent to which data has been missed, because over the years Facebook pages and posts have been deleted or disappeared, sometimes with or without a political motive. However, there is no reason to assume that the data I collected was not filtered by the Graph API explorer and that my data is therefore likely to be incomplete.

[63] As indicated earlier in this chapter, the data and data sets created have also been shaped by my subjective choices. In this thesis, I choose to focus on the text of Facebook posts. This means that I do not address how Facebook presents a platform for visual political communication (e.g., Ionescu, 2013; Öngün, 2015; Lee & Campbell, 2016). My background, experiences, circumstances, and aims determine these choices. These choices affect my findings and, therefore, although the data set is large, my findings were by no means derived objectively and should not be treated as such. A researcher with a different perspective could observe the EU referendum campaign behaviour of MPs differently, for instance by taking a different approach to cleaning the text, to identifying relevant posts and by taking visuals into account.

meanings of references. In this thesis, I use LIWC, which does not require the removal of stop words and includes the most common American and British-English spellings of words.[64]

Sixth, the researcher cannot know who is truly behind the posts published on social media. How confident can we be that MPs published the posts themselves? Due to the rapid, spontaneous, and continuously evolving nature of social media, it presents a more 'intense' form of communication that requires more engagement from the MPs than traditional forms of MP-constituent contact, such as the irregular surgery. Social media communication can instead be experienced as a 'burden' (Tenscher, 2014, p. 317). Since Facebook has higher maintenance costs, those MPs with more financial resources are also more likely to adopt this platform (Quinlan, Gummer, Roßmann, & Wolf, 2018). These factors can prevent MPs from using Facebook themselves, and it can also motivate some to privately delegate this form of online political communication to their staff.

In fact, personal assistants can play a significant role in curating the image of politicians and in selecting the information that politicians receive and share (e.g., Busby & Belkacem, 2013). There is indeed evidence that personal assistants create content for and publish posts on MPs' Facebook pages (Lev-On, Ben-Porat & Lehman-Wilzig, 2017). It is impossible to know whether a personal assistant has written Facebook posts. Based on an analysis of the posts, assuming that they are written by the MP or that they are at least authorised by the MP, we may infer the characteristics and behaviour of the wrong author. It is important to acknowledge this complication when we draw conclusions based on the analysis of this data.

2.3.3 The merits of using Facebook

Several merits relating to the use of Facebook for researching political communication become clear when it is compared to other social media and Twitter in particular.[65] First, unlike tweets, the Facebook page posts of MPs can include both short and long text. On Facebook, unlike Twitter, Instagram and Snapchat, MPs can also include actionable links in their posts, to direct users to other websites (e.g., Bossetta, 2018). Furthermore, while both Facebook and Twitter are used for self-promotion (e.g., Jackson & Lilleker, 2011), MPs use their public Facebook pages as their personal space, used to present carefully organised, personal content.

[64] The LIWC 2015 operator's manual indicates that British spellings are included (Pennebaker, Booth, Boyd & Francis, 2015). Since I use an internal default dictionary of LIWC for analysing the English-language text of the posts, it is possible that misspelled words have been missed in the analysis. I did clean the text by removing references to the header of the original csv.

[65] In this thesis, I look at the text-based communication of MPs in post on their public Facebook pages. However, communication on Facebook can also occur through videos, images, gifs, reactions and emojis (emoticons). Had the focus been on visual communication, then there would be other merits to consider.

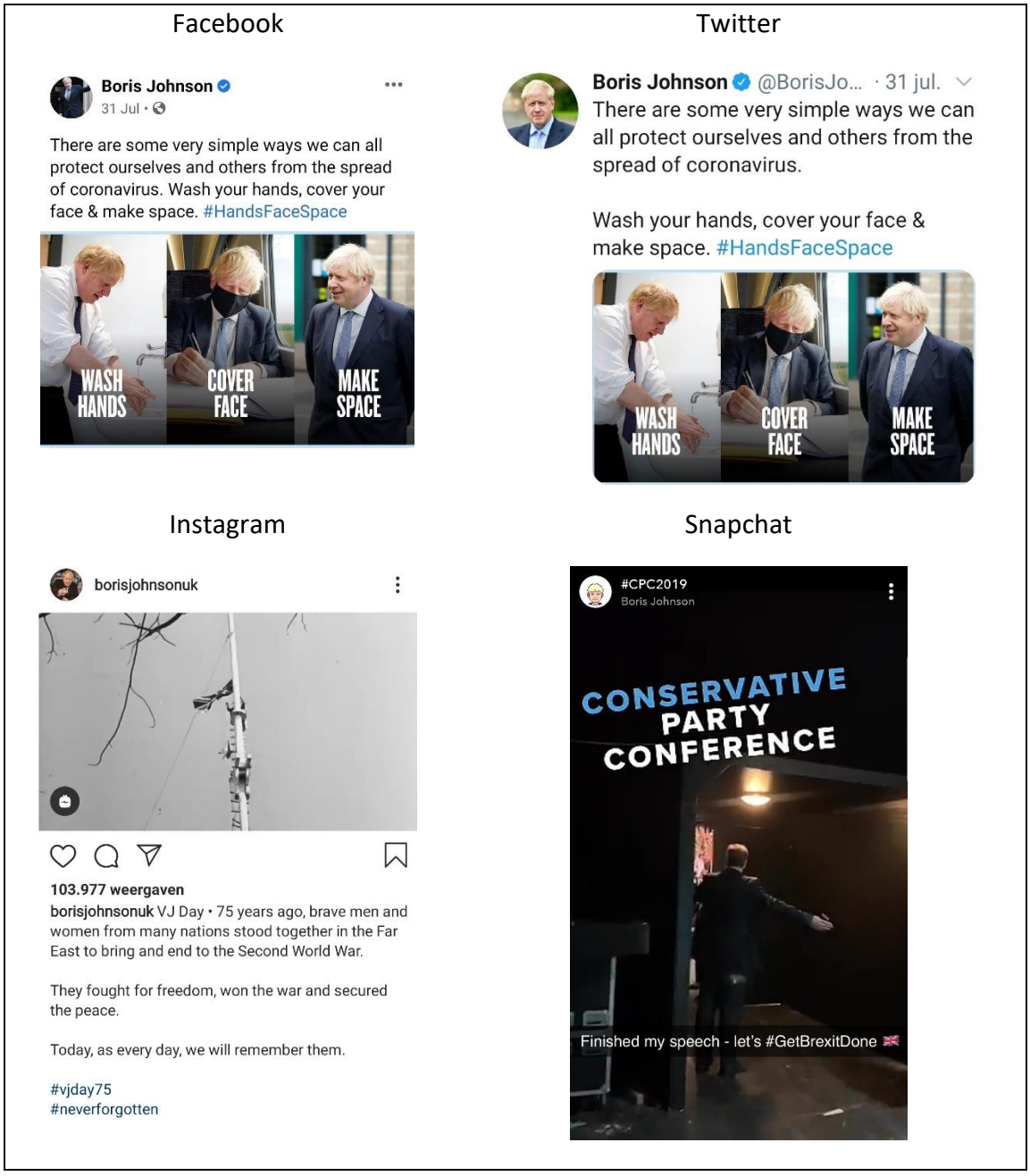
Instead, generally, to be visible on Twitter, MPs need to tweet on the go, and Twitter requires MPs to readily respond to other users. Thus, compared to Facebook, MPs are asked to communicate on Twitter at a high pace and they are to expect more interaction and more responses to what they publish. This means that MPs have less opportunity to carefully curate information and devise a strategy. This is also the case for Snapchat, which does not allow MPs any time or functionalities for editing or filtering content: it only allows the immediate uploading of content from mobile devices. In contrast, Instagram does allow MPs to curate content before publishing. However, Instagram focuses on visual content and in this thesis, I study only one dimension of the communication of MPs: their use of text. The possibility for Facebook page posts to be longer and curated leads the text of Facebook posts to show greater variation than the text of Tweets. [66] This variation makes it possible to more elaborately study differences in their textual campaign communication, and it provides us with more data to analyse: not only is it possible to study a larger quantity of text, but also whether a paragraph of the post contains an explicit argument, which is studied in Chapter 4. This is why Facebook is the platform of choice for this project. Figure 2.6 shows what politician content on these different social media platforms looks like when viewed on a mobile device.[67]

These example posts by now Prime Minister Boris Johnson - each recently uploaded to the platform - highlight differences between Twitter and Facebook, and Snapchat and Instagram. On the two latter platforms, the Prime Minister uses a video to communicate a message. This underlines how these two platforms focus on visual communication. Instead, the content of the tweet and Facebook post is nearly identical. The Snapchat example included in Figure 2.6 shows that this application does not support the use of long text. Instead, it allows the adding of captions to audio-visual content.

[66] In 2016, at the time of interest, Twitter users could only post tweets that contained up to 140 characters. This forced politicians to adopt Twitter-specific strategies of communication (e.g., Coesemans & De Cock, 2017). This has since been increased to 280 characters. The limit for Facebook posts is about 60,000 characters (60,000 characters according to Lin & Qiu, (2013) and 63,206 according to Bossetta (2018)). Bossetta (2018) uses data from 2016 and also mentions the maximum the length of text allowed on Instagram and Snapchat, with 2,200 characters for Instagram and 31 characters for Snapchat.

[67] Instagram is exclusively accessible by mobile device and the three remaining platforms can be used as both mobile and Desktop applications. To provide an example of the content posted on each of these platforms, Figure 2.6 shows how the content is viewed on a mobile device. To highlight the differences and similarities in content, these examples are, at the time of writing, the most recent posts on each of these applications, focusing on the now Prime Minister Boris Johnson's social media accounts.

Figure 2.6: A comparison of the content published on different social media platforms



Second, the Facebook page posts of MPs give insight into how the MPs communicate with the general public, and not just the news media and politically minded. Whereas Facebook is used by a 'cross-section of society', and used more frequently and widely than Twitter, (Newman et al., 2016; Newman, Fletcher, Kalogeropoulos, & Nielsen, 2019), Twitter is primarily used by journalists (Broersma & Graham, 2012; Parmelee, 2013), and 'political junkies' (Ross & Bürger, 2014, p. 55).[68] MPs gravitate to the social media channel that their voters use (e.g., Quinlan et al., 2018).

[68] This is possibly since on Facebook, public pages can be found with relative ease using the search function, which makes these pages accessible and lets politicians gain a large group of followers (Bossetta, 2018).

Therefore, compared to Twitter, Facebook is the more appropriate platform to study if we specifically want to investigate how MPs communicate to and with their voters, instead of the media or a specific group of enthusiasts. This allows us to consider the possible influence of the constituency on the communication and campaigning of MPs on their Facebook pages.[69]

Third, there is still much to learn about the Facebook posting activity and the content of Facebook posts, especially in comparison to Tweets (e.g., Tucker et al., 2018). Social media research has disproportionally focused on Twitter rather than Facebook (Tufekci, 2014).[70] However, because each social networking site has its functionalities and infrastructure, it cannot be assumed that the Twitter communication of MPs as representatives is like their Facebook communication. For example, comparing the Tweets and Facebook updates of college students, Lin and Qiu (2013) have found that Facebook updates are more 'emotional' and 'interpersonal', in contrast to more 'causal', 'explicit' and 'impression-management'-oriented tweets. Thus, discourse depends on the medium and research and findings relating to one social media platform cannot be generalised to social media in general (Papacharissi, 2009; Bossetta, 2018). The data obtained for this thesis includes the text of all Facebook page posts during the EU referendum campaign by all UK MPs. By studying the communication of MPs on Facebook and, in particular, in their Facebook page posts, we gain unique, platform-specific knowledge. This knowledge can be compared to and complement insights about MPs' communication through text on Twitter and, more generally, findings about their communication through other means, on other platforms.

[69] For example, in Chapter 3, I consider the influence of the estimated "Leave" vote in the constituency and the extent to which this aligns with the support of the MP (for "Leave" or "Remain") on the communicative and campaign activity of the MP. Similarly, I consider whether the MPs electoral vulnerability affects this behaviour.

[70] Admittedly, as pointed out by Rains and Brunner (2015), Facebook has been studied more than several other SNSs, such as Myspace, Cyworld and Hyves. However, in terms of the number of users, out of these SNSs, Facebook is the only platform still active and large enough to be included in Reuters' Digital News Reports (e.g., Newman et al., 2016; 2018; 2019; 2020)

3 MPs' Facebook use and campaign posts during the EU referendum campaign

Under normal circumstances, MPs' public communication is predominantly used to enhance re-election prospects by addressing constituency issues and managing their public image. When they also address substantive issues and policies, party-line usually plays a role. However, what happens when there is no authoritative party line because parties are internally divided on a highly salient political issue? Does this encourage MPs who otherwise would be relatively silent to address such matters, and are positions that are championed driven by other constraints, such as constituency preferences? I approach these questions by focusing on the EU referendum, using original data of the posting activity of UK MPs between February 19 and June 23, 2016, on their Facebook pages. I examine to what extent the MPs' personal and political profile explain their EU referendum posting. At a first glance, the data suggests that less prominent MPs were more active on the topic of the EU referendum, on Facebook, at the time of the campaign. This would demonstrate how the absence of an authoritative party line provided MPs with otherwise severely limited opportunities to promote contested substantive political positions. However, the results of Heckman regression analyses indicate that while age and length of service explain MPs' general Facebook use neither of these factors helps explain their EU referendum posting on Facebook. This underlines that the referendum did present an unusual context for MPs to communicate and suggests that other, less-investigated factors may have influenced MPs' communication about this substantive issue.

Members of Parliament (MPs) perform several roles, each of which come with their expectations. MPs are expected to work for both the constituency and the nation (Vivyan & Wagner, 2015; 2016). In this era of the 'permanent campaign' (Blumenthal, 1982), they showcase these efforts constantly. For this communication, there is a world of platforms at their disposal. MPs increasingly use a variety of these, including TV, (e-)newsletters, personal websites, web pages and social media, to provide information, to mobilise and to manage constituent impressions of their performance (e.g., Jackson, 2011; Jackson & Lilleker, 2011).

They also communicate about policy (e.g., Ward & Lusoli, 2005), in their fight for their ideals: their views of what society should ideally be like. The MPs' adherence to these ideals is tied to the ideology of the party. Under normal circumstances, we would expect the MPs to dedicate much of their time to communicating about their constituency service. However, does MP communication follow this same pattern in anticipation of a potentially major overhaul of regulation and policy? In this chapter, I look at the communication of MPs during the EU referendum campaign. Even though this referendum does not revolve around constituency representation, Brexit would have a major impact on policy areas. Parties were internally divided on the issue of EU membership. Did this unusual circumstance influence the patterns of behaviour and communication of MPs on social media? For the

analysis, I use Facebook. In the United Kingdom, Facebook is the top social media website and people turn to online platforms, including social media, as their main source of news (e.g., Newman et al., 2016, 2019). I draw on unique data on the content of the public Facebook communication of the MPs in the campaign period.

With this study, I aim to provide insight into MP communication today, in the following two ways. First, I intend to contribute to knowledge about the extent to which MPs, relatively late adopters of IT and social media (e.g., Norton, 2007), now communicate and campaign online. Second, I wish to provide insight into which MP characteristics relating to their personal and political profile play a role in their communication about the EU referendum, to discover whether (any) of these affect MPs' likelihood of discussing policy on Facebook. A preliminary, descriptive analysis suggests that the most EU referendum active MPs are not the usual suspects: not party leaders, deputy party leaders or frontbenchers more generally. In this case, SNP MPs, and MPs with fewer years of service post more frequently. These descriptive findings suggest that the EU referendum was indeed an abnormal event, a different political arena for MPs to manoeuvre. However, the results of regression analyses indicate that none of the traditional predictors of the social media use and communicative practices of MPs significantly explain the EU referendum posting of the MPs. When posts about the EU referendum are excluded, only party and length of service do predict the posting by MPs. More research is needed to uncover what factors predict the MPs' posting activity about policy on Facebook.

3.1 MPs and their roles

MPs connect the local and the national, the constituency and the national government (Crewe, 2015), performing various roles, subjected to the expectations of peers, the party, and constituents. Searing (1994) identified eight specific roles, equally divided between the frontbench and backbench MP, including the 'policy advocate', 'ministerial aspirant', 'constituency member', 'parliament man', 'parliamentary private secretary', 'whip', 'minister' and 'junior minister'.[71] Rush (2001) speaks of 3 interwoven roles instead: the 'partisan', the 'scrutiniser of the executive' and the 'constituency representative'. Yet, much of the literature focuses on the distinction between the constituency role and policy advocacy role of the MP. Whereas the role of policy advocate relates to policymaking on a national level, the constituency role entails spending time in the constituency (Norton, 2013). These are what Norton (1994) refers to as the '2 faces of representation'. Over the last decades, the constituency role has grown and expanded (Norton, 1994; Rush, 2001; Campbell, Childs, &

[71] Variations of these theoretical perspectives relating to the role of MPs are also provided by Norton (1994), Rush (2001), and Andeweg (2014)

Lovenduski, 2010; Rush & Giddings, 2011). Constituents often are not particularly interested in national policy (Crewe, 2015), and they make more demands on the MP than previously (Norton & Wood, 1993; Norton, 2013).

These demands relate to perceptions of MP conduct. Constituents expect the MPs to be present, to spend time in the constituency (Norton, 2013). However, they also hold the MP to a higher standard of behaviour, all the while rating their conduct increasingly negatively (Allen & Birch 2015). A focus by the media on the negative, such as cases of corruption and scandal, feeds negative perceptions of MP conduct and creates mistrust of the incumbent MP (Norris, 2011), and MPs in general (Allen & Birch, 2015). This affects the activity of the MP, who seeks to be re-elected and therefore requires support from his constituents. Being an MP is a full-time position: it has become a career (Rush, 2001). In this permanent campaign, MPs are continuously in conversation with their constituents (Coleman & Spiller, 2003). Citizens become a 'standing jury' and public office holders take on the role of 'advocates' of policy (Coleman, 2005b). The stakes are higher and electoral defeat has great implications for the career of the MP. Constituents consistently rate and evaluate their own, local MP higher than MPs in general (Allen & Birch, 2015). This suggests that attention to the constituency and constituency work pays off in electoral gain and victory.[72] Thus, MPs focus on constituency service to strengthen their position (Norton, 1994), believing in a personal vote, even though this electoral benefit is not ensured (Studlar & McAllister, 1996).

The MP physically campaigns at Westminster and in his constituency. Before, TV was the main platform for electoral campaigning (Gibson & Cantijoch, 2011), but today much of this is digital. MPs use web applications (2.0) and personal websites (e.g., Jackson & Lilleker, 2009; Jackson, 2011), and their use of social media blogs and websites has increased (e.g., Norton, 2013). Estimates differ but suggest that in 2008 and 2009, no more than 1 in 4 MPs used web 2.0 applications (Jackson & Lilleker, 2009; Williamson, Miller, & Fallon, 2010). In 2009, nearly 1 in 3 MPs used Facebook (Williamson et al., 2010), and, according to my research, this increased to 64.4% by 2016. They use social media to circumvent past gatekeepers and to provide low cost, more individualised content (Klinger & Svensson, 2015), to provide information about themselves or their party (Norton, 2007; Golbeck et al., 2010; Jackson, 2011; Baxter & Marcella, 2012). Some MPs also use social media to mobilise support (Jackson, 2011). It is a marketing tool for 'impression management, for sharing a political brand (Jackson & Lilleker, 2011; Lilleker, 2015), and for constituency service (Jackson & Lilleker, 2011). Although the personal experiences of the MP and 'technological factors' surely play a role in determining MPs' social media use and behaviour (Ross & Bürger, 2014), the literature does suggest

[72] Recent work does suggest that this is not the case. For example, see the thesis by Timothy Smith, titled "Incumbency Advantage of UK Members of Parliament 1959-2010"

that the adoption, use and content of MPs on social media is dependent on characteristics of the MP. These characteristics give rise to my expectations about the characteristics of MPs and their posting activity.

3.2 MP characteristics and communication: expectations

Under normal circumstances, we may expect that the social media activity of MPs addresses the constituency (Jackson, 2006; 2011), that it will focus on the individual rather than policy (Jackson & Lilleker, 2009), and to feature self-promotion (Golbeck et al., 2010; Jackson & Lilleker, 2011). As stated by Lilleker (2015), 'political ideas' are shared on blogs and Facebook is used for sharing 'activities' and 'press clippings' instead (p. 122). Considering the many constituency demands imposed on MPs (e.g., Norton, 2013; Rush, 2001; Campbell et al., 2010; Rush & Giddings, 2011), I expect MPs to focus most of their resources on the promotion of constituency work. At the same time, since they also serve as policy advocates (e.g., Coleman, 2005b), a proportion of the remaining posts should address the EU referendum. Following the literature, I expect the Facebook use and EU referendum posting by MPs to depend on the personal and political profile characteristics of MPs.

First, I consider how personal experience influences communication. There is evidence that MPs, regardless of their career, party, or other professional characteristics, are either less or more likely to communicate and to use social media depending on their age and gender. For example, Jackson and Lilleker (2011) find that middle age MPs were most likely to have a Twitter account, and Lilleker and Koc-Michalska (2013) conclude that younger MEPs are more likely to use social networking sites. Umit (2017) explains that older MPs are less likely to use e-newsletters, also because they are less likely to seek re-election or to be concerned with potential votes lost. I thus expect older MPs to be less likely to use Facebook and to be active in the EU referendum, on this platform. Compared to male MPs, female MPs are more concerned with constituency cases and more likely to use Twitter and e-newsletters (Jackson & Lilleker, 2011; Crewe, 2015; Umit, 2017). Yet, they are less inclined to repeat themselves (Childs, 2004), more selective with appearances and providing statements to the press (Ross & Sreberny-Mohammadi, 1997), and reluctant to use Facebook as a representative out of fear of intimidation (Ross & Bürger, 2014). Hall, Nesbit, and Thorson (2012) also find that female representatives spend less of their budget on communication than their male peers. I, therefore, expect female MPs to use Facebook less frequently compared to male MPs.

Second, I test whether electoral context affects MPs' communication on their Facebook pages during the EU referendum campaign. MPs have limited resources to spend on their communication with constituents and these resources depend on their political profile, such as their political party.

For example, minor parties previously used social media to communicate, because they have less financial support compared to major parties and posting on social media is free (Gibson & McAllister, 2015). In this chapter, I consider the following aspects of the political profile of MPs to be potential predictors of their communication about the EU referendum on Facebook: political party, length of service as MP, electoral vulnerability (in terms of marginality), position as frontbencher or backbencher, alignment with the constituency, and camp ("Remain" or "Leave").

Based on previous findings, I formulate several expectations relating to the influence of these MP characteristics. Earlier research shows that the major parties differ in the extent to which they are 'internet-savvy' and engage online, with Lib Dem MPs communicating most actively online (Halstead, 2002; Coleman & Spiller, 2003; Jackson & Lilleker, 2011; Lilleker, 2015). Members of minor parties are comparatively more likely to adopt Twitter as a political marketing tool (Lassen & Brown, 2011), and more likely to have a website. While larger parties and prominent political figures can be expected to have a greater internet presence both on- and offline (Lilleker et al., 2011), MPs of minority parties do use Twitter and personal websites for providing information about their service (Lilleker & Koc-Michalska, 2013), and for promoting their local role Jackson (2011). I, therefore, expect the party to play a role in the use of Facebook by the MP at the time of the EU referendum campaign: minor party MPs are more likely to use this platform than their peers. However, I do not expect this to be a predictor for their EU referendum posting on Facebook. After all, MP opinion on EU membership differs within party organisations. In fact, the divided nature of opinions regarding the EU contributed to David Cameron calling for an EU referendum in the first place (Glencross, 2016).

Regarding the influence of service length on the communicative behaviour of MPs, Coleman and Spiller (2003) have found that MPs with fewer years of service were more likely to have a personal website. MPs who have only recently entered public office communicate more with constituents, hoping that this increased communication will translate into an incumbency advantage (e.g., Smith, 2019). Considering this as well as the potential negative influence of age on social media activity, I expect MPs who have had more years of service to be less likely to use Facebook and, in extension, to be less EU referendum active on Facebook, compared to MPs who have fewer years of service.

Likewise, seeking to increase support from constituents, backbench MPs and electorally vulnerable MPs can be expected to communicate more about the constituency. Backbench MPs need the support of constituents to get re-elected and advance their careers. Backbench MPs do not necessarily receive public notice and attention. As a result, to gain re-election, they must actively promote both themselves and their constituency work (e.g., Butler & Collins, 2001), using personal websites to win votes and to promote their activity (Jackson, 2011). In view of this need for self-promotion and attention and considering that younger and MPs with fewer years of service tend to

be backbenchers, I expect backbenchers to use Facebook more and to post more about the EU referendum than frontbenchers. Because of this desire for re-election, electorally vulnerable MPs are similarly looking to increase support through increased communication. For example, US Members of Congress spend more on franking, defined as mass mailing, when their position in office is less secure (Hall et al., 2012). In addition, UK MPs in marginal seats are more likely to use e-newsletters, to increase the chances of re-election (Umit, 2017), and they write about constituency activity rather than an upcoming election Jackson (2011).

Therefore, I expect the electorally more vulnerable MPs to use Facebook more. At the same time, I expect these MPs to be less EU referendum active. After all, taking a stance on a matter as contentious as EU membership could negatively affect the support from their constituency and, consequently, their chance of being re-elected. This is also why I expect MPs to communicate more in general, and about the EU referendum more specifically, if their views align with most of their constituents. In other words, I expect a greater alignment between MPs and most of their constituents to positively affect both Facebook use and EU referendum posting. Together, these findings underline that the political profile of MPs affects the extent to which they communicate for the sake of re-election. The expectations are summarised in Table 3.1. I have not formulated any expectations about the influence of camp ("Leave" or "Remain") on the Facebook use and EU referendum posting of MPs. While it has been noted that the official "Vote Leave"-campaign posted more frequently than its counterpart, "Stronger In" (e.g., Keaveney, 2016), I do not necessarily expect to find such a difference for MPs. In other words, I do not expect "Leave"-affiliated MPs to be more active than "Remain"-affiliated MPs.

Furthermore, I recognise that the specific context of the referendum can influence the strength and direction of the effects of these predictors on the communicative activity of the MP. While the majority of Conservative MPs, like David Cameron, advocated and voted to "Remain", a number of these MPs was reluctant to do so (e.g., Lynch & Whitaker, 2018). A Conservative MP who is a reluctant "Remainer" may have been less active in advocating to "Remain" than an MP who truly believes in keeping Britain in the EU. Likewise, I would expect the reluctant "Leave" MP to be less active than one who passionately wants Brexit. This advocacy of Conservative MPs was affected by the ministerial status of the MP (Heppell, Crines, & Jeffery, 2017): backbenchers were more likely to support Brexit. Any differences found, especially relating to the predictors included in this study, provide insight into the extent to which the EU referendum campaign provided a different arena for MP communication.

Table 3.1: Summary: Expectations of MP Facebook use and EU referendum posting

Pers profile	Gender	FB use	Female MPs use FB less than male MPs
	Age	FB use	Younger MPs use FB more than older MPs
		EU ref posting	Younger MPs post more about the EU ref than older MPs
Pol profile	Party	FB use	Minority party MPs use FB more than majority party MPs
	Length of service	FB use	MPs with fewer years of service use FB more than MPs with more years of service
		EU ref posting	MPs with fewer years of service post more about the EU ref than MPs who have more years of service
	Elect. Vuln.	FB use	MPs in marginal seats use FB more than MPs in safe seats
		EU ref posting	MPs in marginal seats post less about the EU ref than MPs in safe seats
	Position	FB use	Backbench MPs use FB more than frontbench MPs
		EU ref posting	Backbench MPs post more about the EU ref than frontbench MPs
	Const. align.	FB use	MPs use FB more when their camp aligns with the constituency than when it does not
		EU ref posting	MPs post more about the EU ref when their camp affiliation aligns with that of most of the constituency than when it does not

3.3 Data and methods

For this study, I constructed a unique data set, consisting of all available Facebook posts published by all UK MPs in office for the entire EU referendum campaign period (February 19 until June 23, 2016), on their public Facebook pages.[73] The text of these posts was collected using the Facebook Graph API explorer and the RFacebook package (Barberá et al., 2017). The resulting data set consists of 34,256 Facebook posts, out of which 5,569 posts by 369 MPs relate to the EU referendum. To test the expectations, I created three separate measures of communicative activity, as well as the predictors listed below. Data relating to the political background of the MPs, such as party, position (frontbencher or backbencher) and length of service were gathered from the UK Parliament website

[73] These is not a population of 650 MPs as we would expect. In fact, due to changes in appointment, no less than 653 MPs were in office at some point during this period, and only 646 of these MPs were in office for the entire duration. I have no data on who is involved in managing the Public Facebook page of the MP. I recognise that MPs have personal assistants (PAs) who may be in control of their social media. However, the MPs still authorise their PAs and the content that appears on their pages. They can choose to follow the party line or to rebel and to affiliate themselves with one of the two camps. Therefore, following previous research, I consider characteristics of the MP as potential determinants of their posting activity (or posting activity on their behalf) on their Facebook pages.

section which provides a profile for each MP (https://www.parliament.uk). After determining the extent to which the Facebook use and EU referendum posting on Facebook can be predicted by the personal profile and political profile of the MPs, I consider whether there are any common characteristics, any patterns, relating to these profiles, which distinguish the most EU referendum active MPs. I compare the characteristics of the top 20 most active MPs, in terms of the number of posts, party and camp ("Remain"/"Leave"), to the characteristics of prominent frontbenchers, such as (deputy) party leaders. This gives further insight into the question of which characteristics potentially predict the EU referendum posting behaviour of MPs, on Facebook.

3.3.1 Outcome variables

I analyse the posts of MPs by considering their Facebook use, their EU referendum posting on Facebook and other posting on this platform. These are the three outcome variables of interest. Facebook use is binary, with the MP either active (= 1) or inactive (= 0), measured by the existence of any written Facebook post in the period under observation. According to this measure, out of the 646 MPs who were in office for the entire campaign period, 416 MPs used Facebook during the period of the campaign (64.4%). This sub-sample is used for examining the EU referendum posting and other posting behaviour of the MPs on Facebook, to test the expectations.

EU referendum posting on Facebook is measured by counting the number of Facebook posts on the topic of the EU referendum and/or EU membership. This variable was logarithmically transformed to aid statistical analysis. To identify the relevant posts, I used a list of keywords and I conducted a content analysis (see Appendices B5 and B6 for the keywords and codebook used). A list of keywords was created to determine which of the 34,256 posts refer to the EU referendum and/or EU membership. These keywords include slogans, campaign-specific terms and phrases, referendum-related hashtags, references to the EU as an institution or political unions, interaction with campaign groups in the posts, procedures relating to leaving the EU, synonyms for "Leave" and "Remain", for Brussels, and so forth). This list was added to until no more potentially relevant keywords could be found, in the literature or the posts themselves. Posts flagged by these keywords and adjacent posts were subjected to a manual, qualitative analysis, to make sure that they do refer to the EU referendum and/or EU membership. This enhances the validity of the sample of relevant posts and the accuracy of the measures.[74] A logged 'other Facebook posting'-variable was created to complement this

[74] Automated methods of analysis proved less appropriate for this study, as explained in Chapter 2, section 2.3. For example, due to an overlap with the police and crime commissioner and Scottish elections, I performed a manual, qualitative analysis to make sure that only true references to the EU referendum were included among the identified EU referendum posts. This supplementary analysis of the content of potentially relevant posts also ensured that missing keywords were caught. This resulted in a more complete sample of relevant posts and increased the validity of the measure of EU referendum posting on Facebook.

measure, by subtracting the number of EU referendum posts from all posts of each MP. For the sake of robustness, additional regression analyses were performed with alternative measures of EU referendum posting and 'other' posting. The results of these analyses are included in Appendices C5 and C6. [75]

3.3.2 Explanatory variables

This study includes two sets of explanatory variables.

Personal profile

Gender — a binary variable indicating whether an MP identifies as female (= 1) or male (= 0), based on the available biographic information about the MP.[76]

Age — a numeric variable that measures the age of the MP on February 19, 2016, based on the birth date of the MP.

Age group — an ordinal variable, indicating the age group that the MP belongs to (20-39 years = 1; 40-54 years = 2; 55-69 years = 3; 70-85 years = 4). The banding of this variable serves to avoid multicollinearity with the length of service variable.

Political profile

Party — a nominal variable indicating which party the MP belongs to: Conservative, DUP, Green Party, Independent, Labour (including Labour Cooperative), Liberal Democrats, Plaid Cymru, SDLP, SNP, Sinn Fein, UKIP and UUP. For the analyses, the MPs are categorised into four groups: Labour (= 1), Conservative (= 2), SNP (= 3) and Other (= 4).[77]

*Cam*p — a nominal variable indicating whether the MP declared to support "Remain" (= 0), "Leave" (=1) or did not declare their position ('undeclared' = 2), based

[75] Several robustness checks were performed with this variable relating to the EU referendum posting of MPs on Facebook. In the end, this paper uses the log of the number of EU referendum posts per MP as the indicator of EU referendum posting. The variable is skewed and not normally distributed. By logarithmically transforming the variable, the data approximately conforms to normality. If alternatively, a ratio variable is used for EU referendum posting on Facebook, which concerns the ratio between the EU referendum posts and all posts of the MP, then there are slightly different results (see Appendices C5 and C6). However, this ratio could be misleading. If an MP only posts once on Facebook and this happens to be on the EU referendum, then s/he would receive a score of 1 (equal to 100%) on EU referendum posting. Yet, an MP with hundreds of Facebook posts of which several hundred are on the EU referendum would receive a lower score. It does not follow that an MP who is disproportionally active on Facebook but only posts about the EU referendum twice is necessarily less invested than a colleague who likewise posted twice about the EU referendum, but only uses Facebook occasionally. In this case, the ratio would give misleading results. Thus, it cannot be used as a measure for comparing the level of EU referendum posting between different MPs.

[76] More information about the operationalisation of this variable can be found in Appendix B9.

[77] The aggregation of some parties into the group 'Other' was necessary because these parties had relatively few MPs in office during the campaign period studied: DUP (8 MPs), the Green Party (1 MP), Independent (3 MPs), Plaid Cymru (3 MPs), SDLP (3 MPs), Sinn Fein (4 MPs), UKIP (1 MP) and UUP (1 MP). Information about the political parties of the MPs is available at https://www.parliament.uk, a section of the official UK Parliament website.

on media reports, which could be confirmed or adjusted based on the content of their EU referendum posts.[78]

Leave — a binary variable indicating the camp that the MP declared to support before referendum day: "Leave" (= 1) and "Remain" (= 0), with undeclared MPs marked as 'missing'.

Length of service — a count variable for the number of years since the MP first entered Parliament, based on the available biographic information about the MP.[79]

Electoral vulnerability — concerns the electoral majority of the MP. This is the percentage difference between the votes for the incumbent MP and the candidate who came second in the 2015 General Election and can also be referred to as marginality.[80]

Position — a binary variable designating whether an MP is a frontbencher (= 1), or a backbencher (= 0). Under frontbencher, MPs who are part of the (shadow) cabinet, who have a portfolio, party leaders and deputy party leaders are included. All remaining MPs were coded as backbenchers.[81]

MP-constituency alignment — a trichotomous variable which measures the extent to which the position of the MP with regards to EU membership ("Leave" or "Remain") aligns with that of the majority of the constituency (1 = MP and constituency camp align; 0 = no clear constituency camp; -1 = MP and constituency camp do not align). It is based on the multiplication of a dichotomous "Leave" variable ("Leave" = 1; "Remain" = -1) and the probable proportion of support for "Leave" in a constituency (less than 45% = -1, between 45% and 55% = 0, greater than 55% = 1). The latter variable is based on a ratio variable originally devised by Hanretty (2017).[82] Multiple versions of this variable were created for the sake of robustness. The results of these alternative analyses, included in Appendix C7, do not lead to substantively different results.[83]

[78] More information about the operationalisation of this variable can be found in Appendix B10.

[79] Information about the parliamentary career of the MPs, including when they first held public office, is available at https://www.parliament.uk, a section of the official UK Parliament website. More information about the operationalisation of this variable can be found in Appendix B11.

[80] I borrow data about the difference in vote share between the first and second candidate from the BES data set "2015 BES Constituency Results with Census and Candidate Data", available at https://www.britishelectionstudy.com/data-object/2015-bes-constituency-results-with-census-and-candidate-data/. More details about the operationalisation of this variable can be found in Appendix B13.

[81] This information can also be found in the sub-section about the parliamentary careers of the MPs that is available at https://www.parliament.uk. More information about the operationalisation of this variable can be found in Appendix B14.

[82] This data is available at: https://medium.com/@chrishanretty/revised-estimates-of-leave-vote-share-in-westminster-constituencies-c4612f06319d. This website was accessed September 21, 2019. When this data set does not include data about the position of the majority of the constituency, no alignment between the MP and the constituency can be computed. These cases are therefore reported as missing. Similarly, no MP-constituency alignment can be computed for those MPs whose position is undeclared.

[83] For the sake of robustness, to test the influence of MP-constituency alignment in multiple ways, alternative versions of this variable were created and included in descriptive, and the Heckman regression analyses. Appendix C7 includes Tables that show these results.

3.3.3 Empirical strategy

In this paper, I work with two related samples. After all, to be EU referendum active on Facebook, the MP must use Facebook in the first place. Not considering the dependency of these two samples could lead to a problem of misspecification, caused by the omission of a regression variable. In other words, if we were to estimate a model of EU referendum Facebook posting without first estimating an equation of whether the MP uses Facebook, we would have biased results. Therefore, in this study I rely on the Heckman sample selection model.[84] However, for the sake of completeness, poisson and negative binomial regressions were also computed, and these results can be found in Appendices C1-C3.[85] The Heckman model was developed as an alternative to these models for the regression analysis of dependent samples like the one used in this study, samples for which the value of the outcome (Y) depends on another variable z (which is 1) (Heckman, 1979).[86]

Following Heckman, to avoid potential bias relating to the influence of an implicit regression variable, I use a two-stage approach. This approach helps uncover the influence of the predictors of EU-referendum Facebook posting, taking Facebook use into account. I first establish the influence of the personal and political profile predictors on the Facebook use of the MPs, by computing a selection equation. This equation considers the number of MPs for which the outcome variable, EU referendum Facebook posting, is observed. It censors those observations without an observable outcome (Y). Second, bearing the influence of Facebook use in mind, I compute an outcome equation to determine to what extent these affect the EU referendum Facebook posting of the MPs. The outcome equation, therefore, considers the mechanisms that determine the outcome and gives more accurate results than a separate multivariate regression.[87]

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[84] Heckman sample selection models have previously been used successfully in studies relating to behaviour of voters and politicians (e.g., Sudulich et al., 2019; Timpone, 1998).

[85] Specifically, in Appendix C1, I have included poisson and negative binomial regressions for EU referendum activity and 'other' posting activity, which were computed for the population of MPs who were Facebook active (N = 416). Appendix C2 includes the results of a multivariate logistic regression to predict Facebook use, and Appendix C3 includes the results of multivariate linear regressions for predicting the logarithmically transformed EU referendum activity and logarithmically transformed 'other' posting activity variables. The results of these alternative analyses differ from the ones reported in this chapter, but these models are mis specified because of the mentioned omission of a regression variable.

[86] There are two sets of observations in the sample: the observations which have a 0 for outcome Y and those observations for which we have the value of X and Y*, a latent variable. It is necessary to censor those observations for which Y cannot be observed. A considerable number of MPs do not use Facebook. As a result, they are also not EU referendum active. This leads to a clustering of probabilities at the lower end of the scale for EU referendum Facebook posting. This is what gives rise to bias. By using a Heckman selection model, I do not remove the information I have for the censored observations. Instead, I run a model which includes a prediction equation for both Facebook use and EU referendum Facebook posting. This provides a different set of coefficients which determine the probability of censoring and the value of the dependent variable if it is observed. These can be similar or differ to a great extent. It is important to note that for variables that appear in both the selection and outcome equations, the coefficient in the outcome equation is affected by its presence in the selection equation. In the end, by including both samples in the same model, there is also a greater opportunity to draw further theoretical conclusions using the data.

[87] Whereas the Heckman model allows me to disentangle the influence of the predictors on Facebook use and EU referendum posting and other posting within the same model, this is not possible using a separate set of multivariate logistic and linear

3.4 Findings

Table 3.2 gives a descriptive overview of how Facebook use, EU referendum posting and other posting on Facebook differs between MPs when grouped on the different predictor variables. Following expectations, for Facebook use there is a clear pattern for age, length of service, and electoral vulnerability. Older and MPs who have had more years of service were less likely to use Facebook and so were MPs in safer seats. There is also a difference in Facebook use between MPs of different parties: SNP MPs were more likely to use Facebook compared to Conservative MPs. However, contrary to expectations, a higher proportion of female MPs used Facebook at the time. Proportionally speaking, more "Remain" MPs had an active Facebook page than "Leave" MPs (66.5% versus 58.9%).

Next, with regards to EU referendum posting, this descriptive overview suggests that out of all the groups, the MP who posted most frequently about the EU referendum is male, between 40 and 54-years old, Conservative, a frontbencher, has been in office between 16 and 50 years, is affiliated with "Leave" and faces little electoral vulnerability in his constituency. These observations are largely confirmed by the other posting activity of the MPs, also added in Table 3.2. On average, female MPs post more frequently on matters other than the EU referendum, compared to male MPs. Furthermore, on average, older MPs post less overall than younger MPs. "Leave" MPs posted most frequently about the EU referendum, compared to the "Remain" and "Undeclared" MPs. SNP MPs post least frequently about the EU referendum and most frequently about other matters, compared to the MPs of other parties. MPs who have been in office between 15-50 years have the highest level of other posting activity compared to the other cohorts. MPs in safer seats have a higher number of other posts than MPs who are more electorally vulnerable. In addition, backbench MPs posted more other posts than frontbench MPs. Finally, MPs who align with the majority of their constituents in terms of camp ("Remain"/"Leave") posted more overall than those who did not.[88] Out of all MPs, 219 MPs align with the majority, for 188 MPs this is unclear, and 209 MPs do not align.

I also examine whether there are any patterns to be found in the personal profile and political profile characteristics of those MPs who were the most active on the topic of the EU referendum at the time of the campaign. This gives further insight into which of the traditional predictors may explain the EU referendum posting on this platform, even if these MPs are more active than their peers. Table 3.3 lists those MPs with the largest number of posts on their official pages, on Facebook, within the period of interest. The top 20 most active MP Facebook pages have between 448 and 243 posts. The

regressions. The same set of variables remain significant using either approach, but for some of the predictors, the size of the coefficients changes considerably (e.g., the significant effect of age on Facebook use changes from -0.05 to -0.03; the effect of camp ('Leave') on Facebook use changes from -0.3 to -0.0.

[88] However, it is crucial to point out that there were few MPs in the data set who do not align with the majority of their constituency in terms of camp ("Remain"/"Leave").

most active MP page belongs to Karen Buck. This top 20 does not feature most frontbenchers. It thus appears that the most active MPs on Facebook are backbenchers.

Table 3.2: Descriptive information relating to the predictor variables

		% in the data set	FB use	EU Ref FB posting		Other FB posting	
				Mean	St.Dev.	Mean	St.Dev.
All		100%	64.4%	13.4	25.6	69.0	70.0
Gender	Male	70.6%	61.0%	14.3	26.5	67.4	66.0
	Female	29.4%	72.6%	11.5	23.1	72.1	77.4
Age group	20-39	15.3%	81.8%	12.8	17.4	90.5	71.0
	40-54	47.5%	72.6%	14.5	31.6	60.8	59.4
	55-69	33.1%	47.2%	11.7	14.0	72.3	86.0
	70-85	4.0%	42.3%	10.7	17.5	45.4	66.3
Party	Lab	35.3%	59.6%	12.5	16.1	76.6	83.2
	Con	51.1%	65.2%	14.6	29.7	53.0	50.4
	SNP	8.5%	83.6%	9.2	8.2	126.5	77.7
	Other	5.1%	57.6%	16.5	47.3	56.4	58.7
Camp	"Remain"	73.8%	66.5%	11.0	15.3	73.6	73.3
	"Leave"	24.5%	58.9%	21.3	44.7	52.9	54.9
	Undeclared	2.0%	58.3%	17.1	24.5	74.4	67.6
Service length	0-1 years	27.1%	84.0%	9.9	11.6	89.0	70.9
	2-6 years	31.0%	68.5%	16.0	32.0	59.3	59.9
	7-15 years	20.6%	55.6%	13.9	30.4	45.2	54.1
	16-50 years	21.4%	42.0%	15.5	26.3	71.4	91.8
Electoral vuln.	0.1-11.99	23.1%	71.1%	12.3	22.6	77.0	80.9
	12-22.99	23.7%	68.0%	9.6	13.7	66.2	58.0
	23-33.99	28.3%	61.7%	13.9	26.7	69.6	73.1
	34-72.30	24.9%	57.8%	18.2	34.9	62.2	64.7
Position	Frontbench	9.0%	63.8%	26.1	50.2	64.8	65.7
	Backbench	91.0%	64.5%	12.2	21.3	69.4	70.4
Alignment	Yes	35.6%	70.3%	13.8	23.6	81.6	77.5
	Unclear	30.5%	62.8%	20.5	38.8	68.0	63.8
	No	33.9%	62.7%	11.9	12.5	74.4	71.2

Note: N fluctuates due to missing demographic information and the occasional absence of analysable posts. Between 19 Feb – 23 June 2016, 416 out of 646 MPs published at least one post with text on their page. Out of the 646 MPs, 369 posted at least once on the topic of the EU referendum. The group-based percentages show the proportion of the MPs who used these pages (out of 100%). For EU referendum posting and other Facebook posting, the estimates refer to the approximate number of posts. For electoral vulnerability, the lower bands indicate marginal seats. The 34-74.20 group of MPs are in the safest seats. "Electoral vuln." refers to the variable "electoral vulnerability". "Alignment" refers to the variable "constituency alignment".

This conforms to expectations. Backbench MPs tend to be younger and to have fewer years of service, and they are therefore more open to using platforms like Facebook for communicating with their constituents. After all, the move to new media for political communication is a phenomenon of the last two decades. Since backbench MPs tend to be more junior and at the beginning of their career, it is also to be expected that they are more active on a platform such as Facebook. With regards to the referendum position of the MPs with the highest number of posts, 14 MPs voted "Remain" and 6 voted "Leave". This reflects the distribution of "Leave" and "Remain" MPs in the population of MPs who used their Facebook page at the time of interest: "Remain" MPs far outnumber those who voted to "Leave".

In contrast, the top 20 MPs with the highest number of EU referendum posts mostly voted "Leave". In fact, just considering the top 10 of these MPs, 8 advocated leaving the EU, in no less than 1,150 posts. Most of these vocal MPs belong to the Conservative Party. Considering that the Conservative Party - and the party leader David Cameron - generally aligned with "Remain", this suggests that these MPs deliberately chose to go against the party line. This data and the findings indicate that these MPs were the most invested in campaigning to leave the EU on Facebook. There are no SNP MPs among the top 20 EU referendum active MPs. Considering their significantly higher number of posts on matters other than the EU referendum, it appears that these MPs were most interested in the Scottish elections instead.

Contrary to what we would expect under the usual circumstances, party leaders were not the most active in campaigning to stay or leave in the European Union. Neither were other frontbenchers. Jeremy Corbyn, David Cameron, Boris Johnson, Tom Watson, George Osborne, and Nick Clegg, to name a few, posted less frequently. Some of the top 20 Facebook active MPs are also part of the top 20 of MPs who post about the EU referendum, such as Andrea Leadsom, Chuka Umunna and Steve Baker. However, in this case, prominent MPs are again found lower in the ranking. This suggests that other members of Parliament, who were perhaps in lower-ranked positions, campaigned more actively to stay or leave the European Union.

There are clear differences in terms of position, party, camp, and gender. Backbenchers are over-represented amongst the most active and most EU referendum active MPs. They published the highest number of posts on their Facebook pages at the time of interest and they also posted about the EU referendum most frequently. More Labour and "Remain" MPs are the most active on Facebook. However, when it comes to the topic of the EU referendum and campaigning for a camp, the Conservatives and "Leave" campaigners take over. In this sense and for this limited number of actors, "Leave" was indeed more active during the EU referendum campaign on Facebook. Finally, it appears that females are less outspoken about the EU referendum than males (1:9 of the top 20),

even though more of them (about 1:3 of the top 20) had very active Facebook pages. This is in line with expectations. Female MPs are indeed generally less vocal on Facebook and, in extension, also on the topic of the EU referendum.

Table 3.3: The Top 20 most active MP Facebook pages at the time of interest

Number of posts					**Number of EU referendum posts**				
Rank	MP	#	Party	Pos.	Rank	MP	#	Party	Pos.
1	Karen Buck	448	Lab	R	1	Andrea Leadsom	247	Con	L
2	Philippa Whitford	431	SNP	R	2	Steve Baker	222	Con	L
3	Andrea Leadsom	429	Con	L	3	Douglas Carswell	207	UKIP	L
4	Gordon Marsden	368	Lab	R	4	Liam Fox	165	Con	L
5	Douglas Carswell	354	UKIP	L	5	Chuka Umunna	125	Lab	R
6	Siobhain McDonagh	354	Lab	R	6	David Cameron	119	Con	R
7	Steve Baker	353	Con	L	7	David Davies	80	Con	L
8	Anna Turley	331	Lab	R	8	Tim Loughton	80	Con	L
9	Mark Tami	305	Lab	R	9	Anne-Marie Trevelyan	75	Con	L
10	John Nicolson	283	SNP	R	10	Henry Smith	74	Con	L
11	Chris Heaton-Harris	280	Con	L	11	Huw Merriman	72	Con	U
12	Damian Hinds	276	Con	R	12	Richard Benyon	64	Con	R
13	Ian Murray	271	Lab	R	13	Stephen Doughty	64	Lab	R
14	Christina Rees	269	Lab	R	14	Alan Haselhurst	62	Con	R
15	Bob Blackman	262	Con	L	15	Chris Heaton-Harris	60	Con	L
16	Richard Burgon	260	Lab	R	16	Bob Blackman	58	Con	L
17	Chuka Umunna	251	Lab	R	17	Sam Gyimah	58	Con	R
18	Matt Warman	246	Con	R	18	Boris Johnson	57	Con	L
19	Frank Field	245	Lab	L	19	Damian Collins	55	Con	R
20	Alison McGovern	243	Lab	R	20	Gordon Marsden	52	Lab	R
49	Jeremy Corbyn	196	Lab	R	22	Jeremy Corbyn	50	Lab	R
64	David Cameron	166	Con	R	25	Tom Watson	44	Lab	R
103	Boris Johnson	115	Con	L	48	Amber Rudd	27	Con	R
150	Stephen Barclay	79	Con	L	52	George Osborne	27	Con	R
150	Tim Farron	79	LD	R	102	Tim Farron	14	LD	R
152	Tom Watson	78	Lab	R	154	Nick Clegg	9	LD	R
179	Amber Rudd	66	Con	R	270	Stephen Barclay	3	Con	L
227	George Osborne	47	Con	R	…	Nigel Dodds	0	DUP	L
320	Nigel Dodds	23	DUP	L	…	Philip Hammond	0	Con	R
357	Nick Clegg	13	LD	R	…	Theresa May	0	Con	R
…	Philip Hammond	0	Con	R	…	Jacob Rees-Mogg	0	Con	L
…	Theresa May	0	Con	R					
…	Jacob Rees-Mogg	0	Con	L					

Note. 'Pos.' = position toward EU membership; 'U' = undeclared. (Former) party leaders and important MPs after the Referendum are included for context. Labour Cooperative is included under Labour.

3.4.1 Heckman regression results

To analyse the extent to which these characteristics serve as predictors of Facebook use and EU referendum posting, I conduct a multivariate analysis using the Heckman sample selection method and the logarithmically transformed EU referendum posting variable, to reduce the influence of outliers.[89] I include all predictors in the model. A positive coefficient indicates an increased likelihood of using Facebook, an increase in EU referendum posting or an increase in 'other' posting. A negative coefficient indicates a decrease in the likelihood of using Facebook and, respectively, a decrease in EU referendum posting and 'other' posting. Taking Heckman's approach, in the first stage of the two-stage model, I compute a selection equation and evaluate the extent to which the personal and political profile characteristics of MPs predict their Facebook use.

The results of this analysis show that only length of service and age are related to Facebook use. Older MPs were significantly less likely to use Facebook, and so were MPs who had more years in service. In the second stage, I compute an outcome equation to uncover which predictors, considering the Facebook use of the MPs, influence the EU referendum posting of the MPs on this platform. Table 3.3 shows the results. I find that none of the predictors significantly influence this posting: no effects of length of service or age are found. Therefore, as expected, party does not significantly predict EU referendum posting on Facebook. However, the expected difference in the extent of social media activity between younger and older MPs and MPs with more and fewer years of service does not translate to EU referendum posting. The camp of the MP also does not affect the EU referendum posting of the MP. "Leave" MPs were not more active than "Remain" MPs.

To determine whether the characteristics do predict the posting on MP Facebook pages in general, or for EU referendum posting on Facebook more specifically, I likewise use the two-stage Heckman selection model to perform another multivariate analysis. I consider the posting activity of the MPs on Facebook, but I exclude those posts that relate to the EU referendum. This gives rise to a population of 'other' posts, the other Facebook posting of the MPs. Table 3.4 shows the results.

In the first stage, age and length of service are the two significant predictors of Facebook use. In this model, older and MPs with more years of service are also significantly less likely to use Facebook. In the second stage, considering the other Facebook posting of the MPs, taking their Facebook use into account, age no longer has an effect. Length of service still plays a role, but only for MPs who first gained political office between seven and 50 years ago. These MPs who have had more years of service post less about matters other than the EU referendum on Facebook than their peers. More specifically, the effect of length of service on Facebook use and other Facebook posting is equally

[89] In this case outliers are those MPs who are either extremely EU referendum active or not EU referendum active at all, having published no posts.

negative and similar in size for the MPs with two to six years of service. For those MPs who first gained office seven to 15 years ago, length of service has a greater effect on their other posting activity than Facebook use, though both are significant. In contrast, for the MP cohort with 16-50-years of service, there is no such effect: they are less likely to use Facebook than MPs who have been in office for a shorter amount of time, but they do not necessarily publish fewer posts.

For this other posting activity, party becomes a relevant predictor. SNP MPs published a higher number of other Facebook posts on their Facebook pages, compared to the Conservative MPs. The difference between SNP and Conservative MPs in terms of their other Facebook posting is significant at the 0.001 level. Table 3.2 supports this finding. It shows that a high proportion of SNP MPs were Facebook active: 83.64% of SNP MPs, compared to 65.15% of Conservative MPs. This is in line with earlier research such as Baxter and Marcella (2012), who conclude that at least in the 2010 UK General Election Campaign, generally, Scottish politicians wanted their online presence to be known. In 2011, out of these politicians, the SNP as a party started posting more frequently on its Facebook page (Baxter & Marcella, 2013), while there was a decrease in activity and support on the pages of other political parties.

While the SNP thus differs significantly in terms of other Facebook posting, no such effect was found for the Facebook use and EU-referendum posting activity of their MPs.[90] The significantly higher number of non-EU referendum posts of SNP MPs could be due to several factors. The overall number of posts by the SNP could be higher due to the Scottish Elections of 2016, which took place on the 5th of May. The MPs combined their calls to vote for the Scottish Elections and the EU referendum. The research mentioned previously also suggests that party strategy plays a role: as a party, the SNP has already been more active on Facebook and social media more generally. Table 3.2 shows how the SNP has the highest proportion of MPs who use Facebook, compared to the MPs of other parties. The SNP and its MPs may have simply embraced the use of social media more so than other parties and their MPs.

Like party, the effect of length of service on the other posting activity of the MPs is significant. Thus, length of service has a significant negative effect on both Facebook use and the other Facebook posting of the MPs. MPs who have had more years of service were significantly less likely to post on their Facebook page at the time of the EU referendum campaign (see Table 3.1), and they also posted less frequently on matters other than the EU referendum. These results suggest that other factors influence this activity and that these are not accounted for in traditional studies of UK MP behaviour on social media.

[90] It has to be noted that this could be due to sample size: there are only 46 SNP MPs who used their Facebook page at the time of the EU referendum, compared to 215 Conservative MPs

Table 3.4: Heckman selection model predicting EU referendum posting on Facebook, controlling for Facebook use

		FB use	EU ref FB posting
Female		.118	
		(.136)	
Age		-.027***	-.009
		(.007)	(.009)
Party (ref: Conservatives)			
	Labour	-.080	.188
		(.140)	(.159)
	SNP	.048	.286
		(.265)	.248
	Other	.658	.467
		(.475)	(.437)
"Leave"		-.116	.303
		(.157)	(.184)
Length of service (ref: 0-1 years)	2-6 years	-.398*	.209
		(.175)	(.177)
	7-15 years	-.705***	.085
		(.199)	(.249)
	16-50 years	-.649**	.299
		(.231)	(.284)
Electoral vulnerability		-.006	.008
		(.004)	(.005)
Frontbencher		.149	.335
		(.196)	(.229)
MP-constituency alignment		.072	.004
		(.078)	(.088)
Constant		2.259***	1.921***
		(.362)	(.386)
Observations		571	
Censored observations		212	
Uncensored observations		359	
Log-likelihood		-897	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: The Heckman selection model procedure requires one predictor variable to be removed after computing the selection equation, to compute the outcome equation. Due to the lack of expected differences in EU referendum posting activity based on gender, gender was removed from the outcome equation. N for EU referendum posting on Facebook is reduced due to the log transformation of the original variable (number of EU posts). The censored observations refer to those MPs who have no observable value for Y. In other words, these MPs were not Facebook active and it, therefore, is not possible to compute the extent of their EU referendum posting on Facebook. The censored observations refer to MPs who did use Facebook and who were also observably EU referendum active. To avoid multicollinearity, the age (ratio) variable and a broad length of service group variable are used. SE in parentheses.

Table 3.5: Heckman selection model predicting other Facebook posting, controlling for FB use

		FB use	Other FB posting
Female		.143	
		(.133)	
Age		-.028***	-.011
		(.007)	(.008)
Party (ref: Conservatives)			
	Labour	-.140	.270
		(.138)	(.143)
	SNP	-.031	1.015***
		(.261)	(.229)
	Other	.666	.662
		(.455)	(.377)
"Leave"		-.217	-.047
		(.156)	(.173)
Length of service (ref: 0-1 years)	2-6 years	-.375*	-.447**
		(.171)	(.155)
	7-15 years	-.611**	-.778***
		(.192)	(.201)
	16-50 years	-.607*	-.340
		(.227)	(.248)
Electoral vulnerability		.087	-.001
		(.077)	(.004)
Frontbencher		.049	.298
		(.193)	(.206)
MP-constituency alignment		.087	-.156
		(.077)	(.081)
Constant		2.400***	4.329***
		(.357)	(.350)
Observations		609	
Censored observations		212	
Uncensored observations		397	
Log-likelihood		-951	

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. *Note*: The Heckman selection model procedure requires one predictor variable to be removed after computing the selection equation, to compute the outcome equation. Due to the lack of expected differences in the EU referendum posting activity based on gender, gender was removed from the outcome equation. N for other Facebook posting is reduced due to the log transformation of the original variable (number of other Facebook posts). The censored observations refer to those MPs who have no observable value for Y. In other words, those MPs were not Facebook active and it, therefore, is not possible to compute the extent to which they published other Facebook posts. The uncensored observations refer to MPs who did use Facebook and who were also observably active on matters other than the EU referendum. To avoid multicollinearity, the age (ratio) variable and length of service group variable are used. SE in parentheses.

3.5 Conclusion

This chapter makes an original contribution to the literature on the 2016 European Referendum, by examining the Facebook use of MPs. MPs now use multiple communication channels, including social media, which they use to communicate about constituency and policy. This study considers the goals of the MPs: the need to be re-elected, as well as their striving for certain ideals. I focus on the EU referendum campaign to investigate whether, without the constraining influence of the party line and the immediate need for re-election, the MPs communicate differently. To determine the extent to which MPs post about the EU referendum on their Facebook pages and to identify which MPs decided to post about this referendum, I look at characteristics relating to the personal and political profile of MPs which research suggests are relevant for predicting their online behaviour. In this study, these characteristics include gender, age, party, camp ("Leave"/"Remain"), length of service, electoral vulnerability, position (Frontbench/Backbench) and constituency alignment. These have provided expectations, and the results of this study merely support a limited number of these expectations, and only regarding Facebook use.

As expected, only a minority of the posts refer to the referendum: about 1 out of 6. Grouped on different characteristics, the MPs differ in their likelihood to post on their official Facebook pages, most clearly in terms of gender, age (group), length of service and electoral vulnerability. Taking a closer look at the top EU referendum active MPs, I find that these are not the MPs who we might expect, not necessarily the usual suspects. Patterns can be derived relating to these top 20 MPs. Out of those who posted on Facebook, the majority belonged to the Labour party. In contrast, the Conservatives were proportionally less active on Facebook. However, they far outnumber the Labour MPs in terms of the top 20 EU active MPs, suggesting that the EU referendum was higher on their agenda. In addition, for both Facebook use and EU referendum posting, among these top 20 actors, male MPs and backbenchers are by far the most active.

These patterns suggest that some male and backbench MPs were more likely to speak up and make themselves vulnerable. To statistically test whether the characteristics predict the Facebook use, EU referendum activity and 'other' posting activity of MPs, two Heckman selection models are generated: one with Facebook use and EU referendum posting on Facebook, the other with Facebook use and other posting on this platform. The results indicate that age and length of service consistently predict the Facebook use of MPs. Older and MPs who have more years of service were indeed less likely to post at the time of the campaign. Yet, unexpectedly, backbenchers do not post significantly more often.

Next, concerning the extent of other posting by MPs, differences are only found in terms of party and length of service. Again, MPs with fewer years of service posted more. So did MPs from a

minor party: the SNP. None of these characteristics predicts the EU referendum posting of MPs. I, therefore, find no evidence that male or backbench MPs were significantly more likely to use Facebook, to post about the EU referendum or to publish other posts. Furthermore, contrary to expectations, younger MPs, and MPs with fewer years of service are not significantly more EU referendum active. There is also no difference in the EU referendum posting between MPs who affiliate with different camps: "Leave" MPs are not significantly more EU referendum active than "Remain" MPs. Finally, as expected, party is not a significant predictor for EU referendum posting.

These findings have several implications. One interpretation is that the EU referendum did present a new context for MP activity since the traditional predictors of activity do not apply. The MPs who communicated most frequently about the EU referendum are not the usual suspects, indicating that at least several MPs used their Facebook pages to indeed leave the side-lines and to assert their position on the matter of EU membership. However, I find no statistical evidence that the lack of a clear party line, the scale of policy implications involved with the loss of EU membership and the absence of immediate elections provided opportunities for the MP. I also find no evidence that the frequency with which the MPs of different camps communicated on Facebook and the EU referendum was substantially different. My findings instead indicate that the EU referendum posting of MPs was hard to predict, at least when considering the commonplace predictors, such as age and electoral vulnerability. Even length of service, which does influence the number of posts published on the Facebook pages of the MPs and their 'other' posting activity, does not affect their EU referendum posting on this platform. Further research is needed into the opportunities for MPs to take a stance and to uncover which factors if any did play a role in their Facebook use and EU referendum campaign posting. A better understanding of this communicative behaviour of the political elite is crucial. This is an age of fluctuating political trust and perceived populism. Do MPs embrace technology to substantially communicate to their constituents?

4 Deliberative communication and emotion in the EU referendum posts of MPs

It has been suggested that the public Facebook pages can present a platform for deliberation. While deliberation revolves around the use of logic and argument, it also has a rhetorical dimension: the choice for a rhetorical device can make an argument more effective. An argument encourages one to recall existing opinions and attitudes. An argument that includes an emotional expression also urges information-seeking or risk-taking. Argument and emotion can therefore be used to persuade and to influence behaviour. In this chapter, I study whether MPs communicate deliberatively in their EU referendum posts, by examining the extent to which MPs use argument, anxiety, and anger in these posts and whether these devices are used together. I also investigate whether the camp of the MP, "Leave" or "Remain", predicts the use of these rhetorical devices: which MPs were more deliberative in their Facebook page communication? To identify argument, I analyse the use of conjunctions in the text of the posts. I rely on LIWC to identify anxiety and anger in the text. I find that few of the posts contain an argument and overall, the posts contain little anxiety and little anger. Thus, MPs generally do not communicate deliberatively in their Facebook page posts. There is not a significant difference in the use of an argument and anger between MPs of the different camps, but for anxiety, MP camp does play a role. Compared to "Remain"-affiliated MPs, the posts of "Leave" MPs feature more anxiety.

Years ago, scholars rejoiced in the democratising potential of the Web. The Internet was to have an equalisation effect, in which anybody could participate in the democratic process. Some studies of deliberation on Facebook, which focus on interaction with posts, have suggested that the platform does not function as an ideal public sphere: there is no turn-taking, no indication of reflexivity and no indication that users deliberate to reach a consensus (Janssen & Kies, 2005; Wandhoefer, Thamm & Joshi, 2011). Other, more theoretical studies have instead considered how the functionalities available on Facebook, such as the ability to comment on and react to posts, in other words, the design of the platform, constrain but also encourage deliberation (e.g., Forestal, 2021).

In this chapter, I take an alternative approach. Borrowing from pragma-dialectics, a branch of argumentation theory, I explore how and to what extent the Facebook page posts function as a space for MPs to communicate deliberatively, where they participate in implicit disagreement about their views and issues. Assuming doubt and criticism, theoretically, they can use the platform to seek to defend and persuade about their performance and suitability for the job, but also their views on national policy. I investigate the extent to which MPs communicate deliberatively about the policy issue of EU membership, using a data set that contains all referendum-relevant posts by all MPs published on their Facebook pages, at the time of the EU referendum campaign (February – June 2016), and I identify MPs' use of argument, anger, and anxiety in these posts. I focus on these three devices for two reasons. First, each of these devices can be used in deliberation: an argument is used

to defend a standpoint, to recall predispositions, and emotion is to make an argument more effective, to persuade. As such argument and emotion typify deliberative communication. Second, it has been argued that both argument and appeals to fear were pervasively used by politicians during the EU referendum campaign (e.g., Martin, 2016; Crines, 2016; Polonski, 2016; Banducci & Stevens, 2016). An analysis of the use of these specific devices allows me to test and contribute to these observations. By focusing on the EU referendum campaign, I also shed light on the extent to which MPs engaged with the EU referendum on Facebook.

Thus, in this chapter, I consider the extent to which MPs communicated deliberatively in their posts about the EU referendum campaign, focusing on their use of argument, anger, and anxiety. I also test whether posts that include an argument also feature more anxiety and anger. Finally, I investigate whether camp ("Leave"/"Remain") plays a role. Anxiety encourages risk-aversion, and anger encourages risk-taking. Considering that leaving the EU presented a riskier choice than remaining, did "Leave" MPs, for example, use less anxiety and more anger than "Remain" MPs? More generally, answers to these questions shed light on how MPs communicate in their EU referendum posts on their official Facebook pages during the campaign. For this analysis, I draw on a new configuration of the data set of the EU referendum posts of MPs, with the post as the unit of analysis. I find that overall, MPs do not communicate deliberatively in most of their posts about the EU, EU membership and the EU referendum.

In fact, less than 5% of the posts contain an argument and taken together, the posts feature little anxiety and anger. As expected, compared to posts that do not include an argument, the posts that do feature an argument, also feature more anger and anxiety. This suggests that emotion has been used to make these posts more effective. Camp of the MP ("Leave"/"Remain") does not predict the extent to which the posts contain an argument, but it does predict the use of anxiety. Compared to "Remain" MPs, "Leave" MPs are not more likely to publish a post with an argument. "Leave" MPs are, however, more likely to publish anxious posts than "Remain" MPs. These findings contribute to an improved understanding of the deliberative communication by UK MPs on social media. MPs do not use their Facebook page posts for this type of communication, even if they are published at the time of a political campaign.

4.1 The Potential for deliberation within MPs' Facebook page posts

Deliberation is the public process of testing the validity of a presented opinion, to arrive at a consensus, and it involves the use of argument. MPs are expected to deliberate, argue for and against policy. At Westminster, MPs specifically deliberate about the purpose and impact of policies, and in the constituency, they primarily advocate and campaign for policy, instead (Wright, 2010). We have

already found that MPs referred to the EU Referendum on Facebook, even though the SNS communication of MPs is promotional and largely one-sided (e.g., Jackson & Lilleker, 2011; Lilleker, 2015).

On this social media platform, deliberation can take place in the comments and reactions to published posts, and deliberation can therefore also occur in the posts on MPs' public Facebook pages. The public Facebook page is a space that MPs can curate and where they can publish updates as posts, arguing in favour of their views. When MPs refer to a matter of politics, then their posts can be attributed to the general domain of political communication. Studies have reflected on the extent to which interaction occurs on Facebook, on its democratising potential and the extent to which it approximates a public sphere, where deliberation can occur (e.g., Janssen & Kies, 2005; Wandhoefer, Thamm & Joshi, 2011, Forestal, 2021). Studies like these limit deliberation to interactive communication, where at least two parties reflexively communicate. However, from the perspective of pragma-dialectics, we can observe deliberation even within a Facebook post about politics, without considering comments and reactions. Pragma-dialectics provides an advanced theoretical framework and methodology for analysing text-based argumentation, with insights for analysing, interpreting, and reconstructing argumentation.

According to this branch of argumentation theory, the ultimate goal of political communication is preserving democracy through deliberation, even if this deliberation is unilateral or implicit (Van Eemeren, 2010). In the political post, the author of the post contributes to the practice of democracy by taking a stance and by providing their standpoints with argumentative support, anticipating doubt or criticism. This doubt or criticism is anticipated and therefore implicit. Readers of these posts constitute the primary audience.[91] These efforts to convince the reader are facilitated by pre-existing knowledge about the author of the posts. A reader who has found or follows the Facebook page of an MP is likely to already know the political party and ideology of the MP as the author of the Facebook page posts. Therefore, from the outset, views and assumptions are attributed to the MP. These can be confirmed, adjusted, or rejected based on the value-laden descriptions of political matters in the posts.

In turn, MPs will communicate based on what they assume are shared premises between themselves and the audience. For example, in a post that focuses on the actions of an opposing political party, the MP assumes that the reader has some familiarity with British politics. Their communication will also be adapted to the platform. Facebook allows the publishing of posts that contain and/or embed textual, visual, and audio-visual content. On the Facebook page, these posts

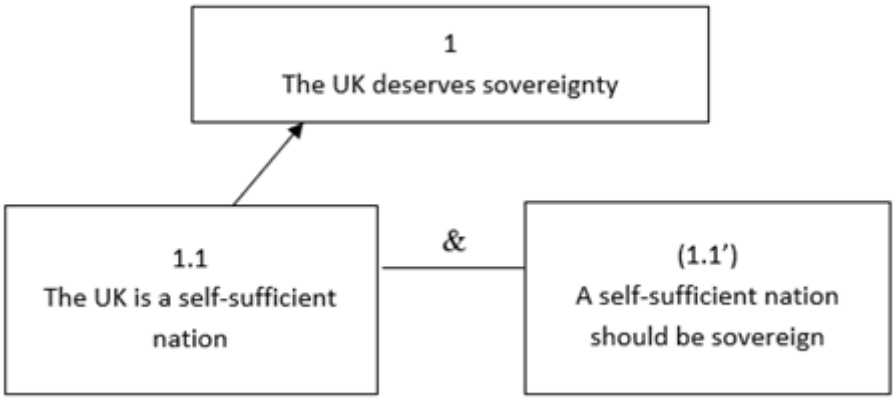
[91] According to pragma-dialectics, when the communicator (the MP) expresses a standpoint, he expects there to be an implicit disagreement: he expects the primary audience (in this case the reader) to at least doubt the standpoint and supporting argumentation and if advice is communicated, then recipients of this advice count as a secondary audience.

are presented on the same page, but in reverse chronological order, and standpoints introduced earlier can be explicitly but also implicitly referred to and supported in later posts. This is just one way in which the platform infrastructure of Facebook can shape communication. We can also expect the Terms of Service to constrain this communication since these terms determine what can be said and included in the posts. Whilst certain characteristics of this communication become typical, we can also expect that what is communicated depends on the preferences of the political party or the MP.

4.2 The Use of Argument and Emotion in Deliberation

In their posts, presented in reverse chronological order on their Facebook pages, as part of their deliberative communication, the MP can express arguments in support of a standpoint to remove doubt to persuade and to use strategies to make these arguments more effective. An argument is made explicit by verbal indicators (Van Eemeren, 2001). The single argument is the basic argument structure, signalled by conjunctions. These conjunctions link a standpoint and supporting expressed or unexpressed premises, which in its most basic form, together constitute a single argument. Figure 4.1 gives an example of this single argument.

Figure 4.1: Schematic representation of the single argument



In this schematic drawing, (1.1') refers to the unexpressed or implicit premise that links the expressed premise (1.1) to the standpoint it supports (1). In this example, we can imagine that the expressed premise and the standpoint are linked with a conjunction such as 'because', 'for that reason' or 'therefore' (Van Eemeren, Grootendorst, & Snoeck-Henkemans, 2002). The argument then becomes: The UK deserves sovereignty because the UK is a self-sufficient nation (and a self-sufficient nation should be sovereign). This argument can be expanded by including and linking additional premises, whether implicit or explicitly stated, which give rise to different, more sophisticated argument structures.

By presenting an argument in their deliberative communication, politicians argue in favour of their standpoint to convince the reader. By arguing in support of a standpoint relating to policy, MPs activate the predispositions of the public (e.g., Popkin, 1991; Zaller, 1992). These pre-existing attitudes, whether complex and delineated or 'non-attitudes' (Converse, 1964), influence their decision-making. As such, MPs can use an argument to remind constituents of attitudes and opinions and influence whether and how they vote. According to pragma-dialectics, using logic or 'logos' to persuade an actor comes across as reasonable, which is crucial to the success of deliberation (Van Eemeren, 2010). At the same time, an arguer also wants the argument to be persuasive. One way of making an argument more effective – to engage an audience - is by presenting the argument with emotion, by using an emotional appeal (Burke, 2014). The persuasive potential of these appeals, referred to as the use of 'pathos' has been well documented since the time of Aristotle. From the pragma-dialectic perspective, emotional appeals and especially incivility, can derail argumentation and therefore obstruct resolution. Weger Jr., Hinck and Seiter (2018), for example, show how Joe Biden successfully uses non-verbal emotional expressions in the 2012 US Vice-Presidential Debate to obstruct Paul Ryan's ability to oppose and defend. However, for this chapter into the use of deliberation or, in other words, the attempt to deliberate by MPs on their Facebook pages, I do not take this normative approach. Instead, I focus on the use of emotion as an argument strategy.

From this perspective, the use of emotion specifically indicates an attempt to increase the effectiveness of an argument or, more generally, an attempt to persuade the reader of a standpoint. Specifically, on social media, emotion boosts exposure. Emotional content is more likely to become viral (Bail, 2016), and more emotional content is shared more widely, both in general and on social networking sites (e.g., Berger, 2011; Brady et al., 2017). For example, looking at Trump's Twitter account, Ott (2017) finds that those tweets that contain words like 'good', 'bad' and 'sad' attract more attention than those tweets that do not. In this way, politicians have access to a wealth of terms to get exposure: the English language contains no less than several hundred words that indicate emotion (e.g., Storm & Storm, 1987; Johnson-Laird & Oatley, 1989). For example, we express sadness by mentioning how we are upset, and we show regret by apologising. In the same vein, when we express anxiety and anger, we use words such as 'angry', 'afraid' and 'uneasy'. Emotion on social media is contagious: when users read emotional tweets or posts, they are likely to respond similarly (e.g., Kramer, 2012; He, Zheng, Zeng, Luo, & Zhang, 2016).

4.3 The Persuasive Potential of Anger and Anxiety

To identify and interpret the use of emotion in text, I draw on contemporary research of emotions, including the valence model of emotion (e.g., Marcus, 2003), and cognitive appraisal theories, such as

the later developed affective intelligence theory (AIT).[92] These theoretical models underline how emotional discourse influences and can be used to influence political behaviour. The valence model treats affective reactions as being on a single dimension. This dimension ranges from positive to negative, from like to dislike. Studies that rely on this model, find that negative campaign messages call voters to action and motivate them to support a party (Ceron & d'Adda, 2016), and while positive emotions facilitate the broadening of people's ideas, negative emotions do the opposite: they narrow these ideas (Sander and Scherer, 2009).

In contrast, from the cognitive appraisal perspective, the appraisals that we make after being exposed to information lead us to enter one or multiple discrete emotional states. For example, when we face a threat, this gives us anxiety, and this can turn into anger (e.g., Salmela & Von Scheve, 2017). In this chapter, I focus on the use of these two emotions, anger, and anxiety, which are both preconscious and lie on the negative dimension (e.g., Wagner, 2014). These emotions are negative because the evoked cognitive appraisals are the result of being exposed to attitude-inconsistent information. Specifically, AIT, a cognitive appraisal theory, refers to the dispositional and surveillance systems. Our existing dispositional system informs our political judgments. It determines how we habitually interpret the information that we receive. Our surveillance system catches any threat to our existing information environment, like a radar, and triggers emotion as a signal or to provide comfort.

In this way, when our routine is interrupted and we find ourselves faced with different politics, cognitive reasoning is activated, to consider and update already existing political views. Whereas anxiety deactivates existing dispositions and urges people to (re)consider their political views, anger is instead more likely to activate existing predispositions. It is a defensive and aggressive response to being confronted by unexpected or unfavourable stimuli (MacKuen, Marcus, Neuman, & Keele, 2007). Anxiety and anger lead us down to different routes of judgment, with distinct effects (e.g., Redlawsk, Civettini, & Emmerson, 2010; Petersen, 2010; Valentino, Brader, Groenendyk, Gregorowicz, & Hutchings, 2011). They can therefore be evoked strategically to affect the information-seeking behaviour and decision-making processes of voters.

Recent studies suggest that while anxiety urges risk-aversion, the search for information for problem-solving and caution, anger encourages risk-taking and political action (e.g. Lerner & Keltner, 2001; Crigler, Just, & Belt, 2006; Druckman & McDermott, 2008; Valentino, Gregorowicz, & Groenendyk, 2009; Valentino et al., 2011; Smith, Cronin, & Kessler, 2008; Lamprianou & Ellinas, 2019),

[92] The valence model of emotions is also referred to as 'attitude theory'.

such as sharing political information online (e.g. Hasell & Weeks, 2016).[93] Anxious voters are more rational and concerned with candidate characteristics and issue positions (Marcus, 2002), and they prefer the status quo (e.g. Druckman & McDermott, 2008). In turn, because anger does not encourage attitude change (Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996), it can be used to tap into already existing discontent, for instance with EU membership, to urge voters to act (e.g., Garry, 2014). In sum, by rhetorically evoking anxiety and anger, politicians can influence voter behaviour and the election results that follow.

4.4 A research question, an expectation, and hypotheses

Thus, argument and emotion both belong to the rhetorical toolkit available to the MP. These devices can be used in deliberation for convincing a political opponent, or an audience of constituents and voters. In this chapter, I explore the research question: To what extent do MPs communicate deliberatively in their Facebook posts about the EU referendum? I also test the expectation that posts that feature an argument contain more emotion than posts that do not feature an argument. If supported, then this suggests that in Facebook posts, like other contexts, emotion is used as an argument strategy. Finally, based on academic insights relating to EU referendum campaign communication, I explore whether there is a difference in the use of emotion by "Leave" and "Remain" MPs in their posts. While little is known about the extent to which logic was used to explicitly present an argument, more is known about the strategic use of emotion.[94] There is evidence that emotional reactions to the EU were a key driver of the EU referendum vote (Clarke, Goodwin & Whiteley, 2017). Both camps, "Leave" and "Remain", used negativity to refer to the undesirable consequences of leaving or staying in the EU would have on the economy and immigration (e.g., Hobolt, 2016), perhaps even to a similar extent (Usherwood & Wright, 2017). The official campaigns and MPs of both camps - "Leave" and "Remain" - used crisis frames to describe the effects of staying or leaving the EU, to convincingly communicate their position and to influence the vote (Bennett, 2019).

I expect that, similarly, MPs used emotion in their posts. In this chapter, I focus on anger and anxiety as the two discrete negative emotions of interest. Considering the use of emotion as an argument strategy and the effects of anger and anxiety, I hypothesise that "Leave" and "Remain"-leaning MPs used emotion differently. We know that anger contributes to support for populist attitudes (Rico, Guinjoan & Anduiza, 2017), mobilises the far right (e.g., Marcus, Valentino, Vasipoulos,

[93] Lamprianou and Ellinas (2019) also indicate that the motivating influence of anger on citizens is itself affected by his/her level of involvement. The use of anger by politicians is more likely to mobilise those citizens who previously were not/barely politically involved. There may be no such mobilising effect on citizens who were already politically active.

[94] It has been observed that the official "Remain" campaign relied on fact and rhetoric, and "Leave" on myth (e.g., Martin 2016).

& Foucault, 2019), and motivates voters to leave the EU (Vasilopoulou and Wagner, 2017). We also know that anxiety demotivates risk-taking, instead (Druckman & McDermott, 2008). Thus, it would have been in the interest of "Remain" to use anxiety to convince voters to vote against leaving the UK. Indeed, the campaign by supporters of "Remain" was dubbed 'Project Fear'.[95] Based on these insights, I hypothesise that "Leave" MPs used more anger than "Remain" MPs and that "Remain" MPs used more anxiety than "Leave" MPs. Thus, I test the following two hypotheses about differences in the use of anxiety and anger between MPs:

> *H1:* Controlling for post length and a range of MP characteristics, "Leave" MPs use more anger than "Remain" MPs.
>
> *H2:* Controlling for post length and a range of MP characteristics, "Leave" MPs use less anxiety than "Remain" MPs.

To contextualise my findings relating to these negative, discrete emotions, I also consider whether there is a difference in negativity and positivity in the posts of "Leave" versus "Remain" MPs.

4.5 Data and methods

To perform this exploratory analysis, I create a new configuration of the data set introduced in earlier chapters. This new data set consists of all Facebook posts relating to the EU referendum, published on the official pages of MPs during the EU referendum campaign period (February 19 until June 23, 2016). This time, the post is the unit of analysis. As such, I focus on the 5,569 EU referendum relevant Facebook posts, published by 369 of the full population of 653 United Kingdom MPs at the time.[96] The remaining MPs did not post about the EU referendum. I use the raw text of the posts to identify the use of argument, anxiety, and anger.[97] Since the single argument is the basis of more sophisticated argument structures, I focus on the presence of the single argument as an explicit indicator of whether an argument is present. I first explore the content of the posts that feature a single argument and a high percentage of anxiety- and anger-words. Thereafter, I conduct a series of Chi-square tests to determine whether there is a relationship between the use of the single argument and emotion in the

[95] Boris Johnson used this label for "Remain" in an article published in *The Independent* on the 29th of February 2016. This article can be accessed here: https://www.independent.co.uk/news/uk/politics/the-campaign-to-stay-in-the-eu-is-project-fear-says-boris-johnson-a6903216.html

[96] While there can only be 650 MPs in office at any time, a total of 653 MPs were in office some time during the campaign period (between February 19 and June 23).

[97] No stop words were removed prior to the analysis. By removing these grammatical indicators, I would not be able to accurately identify the rhetorical use of reasoning. Furthermore, the LIWC software already takes stop words into account when creating estimates of the emotion variables.

EU referendum posts. Finally, I perform several clustered multivariate logistic and linear regressions to establish whether the camp of MPs predicts their use of the single argument, anger, and anxiety. This clustering is required because this is a hierarchical data set: the posts are clustered by MP.

4.5.1 Outcome variables

Argument is a binary variable, with the single argument either present (= 1) or absent (= 0). To identify whether the posts feature the structure of a single argument, I focus on whether they explicitly feature one of the following conjunctions: 'because', 'for that reason', 'therefore', 'after all', 'that is why', 'since' and 'in view of' (see Appendix D1 for a full list of these conjunctions). These conjunctions are standard indicators of this basic argument structure.[98] I used the raw text of the corpora and text-processing software to identify the posts in which these conjunctions were used to present a single argument. Thereafter, by manually analysing the immediate context (the concordance) and paragraph of the conjunction using a codebook, I confirm whether the MPs use a single argument about the EU referendum, for instance to support "Leave", "Remain", the need to show up to vote and to promote EU referendum-related activity. This codebook can be found in Appendix D1.[99] To identify the use of emotion, I use the default dictionaries of the 2015 version of LIWC (Pennebaker et al., 2015), which relies on psychological dictionaries.[100] For anxiety, it returns the percentage of anxiety words in the post. Example anxiety words are 'worried' and 'fearful'. A higher percentage indicates that the post contains more anxiety. In turn, for anger it estimates the percentage of anger-words in the post. Example anger-words are 'hate', 'kill' and 'annoyed'. Likewise, a higher percentage indicates that the post contains more anger.[101] To conduct the Chi-square tests I recode these variables, to distinguish between a low and high level of anxiety and a low and high level of anger. For the multivariate regressions, these anxiety and anger estimates are logarithmically transformed.[102]

[98] This is inspired by the description of the subordinate argument by pragma-dialectics, a normative branch of argumentation theory, as presented in Van Eemeren, Grootendorst and Snoeck Henkemans (2002).

[99] Additionally, more information about the distribution of values on this argument-variable can be found in Appendix D13.

[100] This method for estimating emotion in social media posts can be inaccurate. For example, Wang, Kosinski, Stillwell and Rust (2014) find that negative words in Facebook updates may indicate a good mood. Language idiosyncrasies, lack of context and the use of conventional phrases may cause algorithmic misinterpretation. In addition, I find that the use of slogan words by MPs skews the LIWC emotion estimates. LIWC recognises '*better* off' and '*stronger* in' as positive language. While it is important to recognise how these slogans influence the estimates, these automated sentiment analyses – inspired by psychology - remain useful for identifying the presence of emotional language. Words are still 'meaningfully' categorised into different categories (Tausczik and Pennebaker, 2010). Acknowledging that algorithms may misinterpret features of text, I also considered using the NRC emotion lexicon to identify anger and anxiety. I elaborate on my choice for LIWC rather than NRC in Chapter 2 of this thesis and in Appendices B15 and D9.

[101] More information about the distribution of values on these anger- and anxiety- variables and the logarithmically transformed versions of these variables can be found in appendices D10 and D11.

[102] The anxiety- and anger-estimates are not normally distributed. Due to a clustering around 0 (a positive skew) - accounted for in the recoding of these variables into bands (for the Chi-square tests), I also require logarithmically transformed versions of these variables to accurately include these in the multivariate linear regressions.

4.5.2 Explanatory variables

Camp of the MP is the explanatory variable of interest. Referred to as "Leave", this is a binary, nominal variable indicating whether the MP, the author of the post, declared to support "Leave" (=1) or "Remain" (=0). The posts by MPs who did not declare a position regarding EU membership, and whose position could not be deduced from the content of their posts, were not included in the analysis.[103] Other MP characteristics serve as control variables in the analysis.[104] I include word count as a variable relating to the post. This is a simple count variable and measures the number of words in the post.

Party	indicates the party of the MP: Conservative, DUP, Green Party, Independent, Labour (including Labour Cooperative), Liberal Democrats, Plaid Cymru, SDLP, SNP, Sinn Fein, UKIP and UUP. For the analyses, the MPs are categorised into four groups: Labour (= 1), Conservative (= 2), SNP (= 3) and Other (= 4).[105] Dummy variables are created for the multivariate regressions.
Gender	indicates whether an MP is female (= 1) or male (= 0).
Age	indicates the age in years of the MP on February 19, 2016, based on birth date.
Length of service	indicates the number of years since the MP first entered Parliament, grouped in four different bands (0-1 years; 2-6 years; 7-15 years; 16-50 years).
Position	indicates whether the MP is a frontbencher (=1), or a backbencher (=0). Under frontbencher I include MPs who are part of the (shadow) cabinet, who have a portfolio, party leaders and deputy party leaders. All remaining MPs are coded as backbenchers.
Electoral vulnerability	refers to the electoral majority of the MP and indicates the percentage difference between the votes for the incumbent MP and the candidate who came second in the 2015 General Election.
Constituency alignment	indicates the extent to which the position of the MP regarding EU membership ("Leave" or "Remain") aligns with that of the majority of the constituency (1 = MP and constituency camp align; 0 = no clear constituency camp; -1 = MP and constituency camp do not align).[106]

[103] To discover whether MPs officially and publicly declared a position, I first checked reputable media sources. I considered MPs' positions reported in the Guardian, as known by February 23 (https://www.theguardian.com/politics/ng-interactive/2016/feb/23/how-will-your-mp-vote-in-the-eu-referendum). Thereafter, I considered the positions reported by the BBC, which looked at the position of MPs on June 22nd, a day before the Referendum (https://www.bbc.co.uk/news/uk-politics-eu-referendum-35616946). When these sources reported a different position, I assigned the position declared by the MP on the 22nd of June. Based on these reports, I tentatively put down the MP as "Leave", "Remain" or "Undeclared" in the original data set. When, at a later stage, these posts were analysed for their relevance to the EU, I found no clear discrepancies in the content of these posts and the position assigned to the MP.

[104] The MP-variables have already been introduced in Chapter 3.

[105] Conservative, Labour and SNP are kept as separate categories, because they have the largest number of MPs in Parliament.

[106] This measure is based on the multiplication of a dichotomous "Leave" variable ("Leave" = 1; "Remain" = -1) and the probable proportion of support for "Leave" in a constituency (less than 45% = -1, between 45% and 55% = 0, greater than

4.6 Findings

Out of the 5,569 EU referendum Facebook posts, 258 posts by 140 MPs feature an argument (roughly 4.6% of the total number of posts). This means that less than 1 in 4 MPs explicitly present an argument for or against the EU, EU membership or relating to the EU referendum, in at least one of their posts. Table 4.1 on the next page shows four examples of posts in which the MPs present an argument. MP1 encourages the reader to vote to leave the EU, to "take back control", a common phrase in the official campaign communication of "Leave" and in this corpus of posts. MP2 shows how he concludes that the UK is in an undesirable position: it is because the UK lost its veto. MP3 borrows from slogans of the official campaign to "Remain", explaining that the UK is not just stronger, but also safer and better if it remains in the EU. Finally, MP4 shares the reasons why many actors have chosen to support "Remain" and why the voter should too.

Taking a sample of these posts, the results of frequency and keyword analyses indicate that in these posts that contain an argument, the MPs refer to identical or related policy areas and current affairs when arguing to "Leave" or "Remain".[107] See Appendix D2 for a list of the MPs included in the sample and lists of these frequent words and keywords. For example, compared to the British National Corpus, trade and immigration are keywords used significantly frequently by all MPs.[108] However, in these posts "Remain" MPs do more frequently discuss the safety of staying in the EU, businesses and the economy, whereas "Leave" MPs regularly refer to Brussels, the Eurozone and David Cameron.

55% = 1). The latter variable is based on ratio variable devised by Hanretty (2017). This is the same data used in Chapter 3, and therefore likewise available at: https://medium.com/@chrishanretty/revised-estimates-of-leave-vote-share-in-westminster-constituencies-c4612f06319d. This website was accessed September 21, 2019.

[107] For the purpose of a pilot study, 144 MPs were randomly selected from the population of MPs. The frequency and keyword analyses were performed with this sample of MPs.

[108] The British National Corpus (BNC) is a 100-million-word collection of a sample of spoken and written British English, taken from a variety of sources, such as academic literature, newspapers, letters, conversations, and fiction. By comparing the corpus of EU referendum posts to the BNC it is possible to identify keywords: words significantly more frequently than would be expected on the basis of standard spoken and written British English.

Table 4.1: Facebook posts that feature an argument

MP 1	MP 3
If you are still undecided, I urge you to Vote Leave because the EU will continue to travel in the wrong direction and this is our only chance to take back control and get the change that our country needs. Here's a quick clip from my visit.	*We believe that on the 23rd of June – when we have this EU referendum – it is absolutely essential that people vote for the UK to remain in the European Union because Britain is stronger, safer and better that way*
MP 2	**MP 4**
We can neither stop countries going ahead with ill-advised plans to create an economic government of Europe – since we explicitly gave up our veto in February – and nor can we protect the UK taxpayer from the demands of the eurozone countries for bail-out funds	*Our membership of the European Union helps us to do this and amplifies Britain's voice on the world stage, ensuring we can get the best outcomes – boosting economic opportunity, fighting poverty at home and overseas, tackling climate change, incentivising democracy around the world and so on. That is why organisations from the GMB union, representing over 600,000 workers, to many grassroots and civic organisations, campaigning to improve our environment are all backing the campaign to keep Britain in Europe. For the sake of generations of Brits to come, we hope you will join us.*

Out of the 258 posts, 59 posts written by 40 MPs list at least two single arguments, which can be combined to form a more elaborate argument structure.[109] Thus, in 1 out of 5 of these posts, MPs present more sophisticated argumentation by mentioning multiple reasons for supporting or criticising the choice for "Leave" or "Remain". On average, these posts contain 1,023 words. In contrast, the average EU referendum post in the corpus is 79 words long (SD = 196). Of these 40 MPs, 7 out of 10 belong to the Conservative party (28/40, 70.0%). More than half of the MPs support "Remain" (23 "Remain"; 17 "Leave"). Table 4.2 shows excerpts from two longer posts that feature multiple arguments for remaining or leaving the EU. MP5 presents a list of reasons for why the UK should remain in the EU, referring to the lack of a worked-out plan, consequences for the economy and international relations, workers' rights, the NHS, and immigration. MP6 explains that the UK should not be 'shackled' by the EU, that being in the EU means less democracy and that the financial contributions to the EU are better spent domestically.

[109] Appendix D4 includes three excerpts of posts with more than 1 argument and Appendix D5 provides an overview of all posts which contain two or more single arguments.

Table 4.2: Facebook posts in which MPs present multiple reasons for leaving/remaining in the EU

MP 5

You've probably made your mind up about today's vote already, but if you haven't, here's a few final thoughts which show why I've voted to Remain.

1. *There's no turning back if we get it wrong and it's a massive risk. Despite the months of debate, it's clear no one has a proper plan for what happens next if we leave.*
2. *Martin Lewis says we'll be poorer if we leave. The Bank of England Governor says jobs, pay and prices will be hit and there could be a recession. It's areas like ours that will be hardest hit.*
3. *Three quarters of young people want us to stay in Europe - and in the end this is about our kids' future. When their generation has to cope with future international crises, I want them to have as many friends and partners in the world as possible.*
4. *All the main trade unions want us to remain to protect workers rights - including the NUM, GMB, Unison, Unite and others. If we leave we've still got a Tory Government for the next four years and it's likely to become even more Thatcherite, as many of them are itching to cut workers' rights.*
5. *The head of the NHS, top doctors, nurses & midwives all say we need to stay because we need to stay part of major life saving medical research programmes in Europe - and also because the Tories will cut the NHS when the economy is hit.*
6. *Immigration does need reform - including stronger employment rules and border controls. But pulling out of Europe won't change immigration very much, so Michael Gove's promises are a con.*
7. *The British aren't quitters. Europe does need reform. But we're good at rolling up our sleeves and sorting things out, not running away.*
8. *In the end Britain's always been a strong, confident, outward looking country. We're stronger if we work together with others than if we leave each other to sink or swim alone*.

MP 6

I am no Little Englander and I am disgusted that so many have tried to paint those of us who want to leave the EU as regressive or in some ways intolerant. I don't want to leave the EU to return us to the Britain of fifty years ago. I want us out of the EU precisely because I am a progressive and I believe that the UK belongs in the modern world, not shackled to a political project of the past.

I respect anyone voting Remain today and agree with many that this debate has been unedifying on both sides. Locally, I've tried to raise above that.

For me, I will be voting Leave because I want our democracy back, because I believe the people of this country should be able to elect and boot out the people who govern them in elections. I don't believe that we should have our immigration rules determined for us by way of our EU membership, and I believe we can do a better job of spending the billions we send to the EU each year ourselves.

Considering that MPs infrequently include an argument in the text of their posts, do they rely on anxiety and anger instead? Overall, the posts also contain little anxiety and anger. On average, less than 1% of the text of all 5,573 posts consists of a word used to express anxiety (M = .33, SD = 1.18) or anger (M = .28, SD = 1.05). Thus, these discrete emotions do not feature prominently in the posts of the MPs. Table 4.3 presents excerpts from MP posts that contain a high percentage of anxiety- and anger-words compared to all posts in the corpus. The examples included in this table represent the complete text from posts by the MPs about the EU referendum. For the high scoring anxiety posts, at

least 11% of the text of the post consists of anxiety words and for the high scoring anger posts, at least 9% of the text of the post consists of anger words. In these posts, when the MPs express anger, they use words relating to aggression, fighting, protesting, war and bullying. The MPs express anxiety with words such as 'worrying', 'scaremongering', 'uncertainty', 'risks' and 'fear'.

Table 4.3: Posts that contain a relatively high percentage of anxiety and anger

	High scoring anxiety posts (> 11%)	High scoring anger posts (> 9%)
1	*Worrying signs of business investment falling. Brexit fears likely to exacerbate existing weakness.*	*Remain team hectoring and aggressive #BBCDebate*
2	*Shameful scaremongering on Immigration by Vote Leave. That leaflet showing Syria and Iraq is truly shameful. #BBCDEBATE #STRONGERIN*	*And I was there seconds later. For the sake of our kids and grandkids vote Remain today.*
3	*Wales is better off IN – huge risks to leaving the EU, and huge uncertainty for business and families.*	*Out in all weathers, fighting the good fight.*
4	*IMF warns Brexit threatens 'severe' economic impact: project fear or salutary warning? @nickherbertmp @StrongerIn*	*Don't make your vote a protest vote.*[110]
5	*Uncontrolled EU migration puts pressure on our NHS and school places. Important we implement a fairer, safer immigration system. #VoteLeave*	*Hate, lies and xenophobia - @SayeedaWarsi exposes the @voteleave campaign for what it is in a powerful interview on @BBCr4today*
6	*Why can't the Remain campaign explain the risks of remaining?*	*Remain campaigners turn nasty?*
7	*Blaming EU migrants for NHS pressures is utterly shameful & false, the queues would be longer if we left the EU.*	*Why I'm fighting to stay in Europe… in 25 seconds.*
8	*President Roosevelt said back in 1933 that we "have nothing to fear but fear itself". It's just as true today.*	*IN campaign know they are losing the arguments, so now are resorting to personal attacks. We have the stronger case. #VoteLeave*
9	*The financial markets aren't afraid of Brexit. They are afraid of the incompetence of global leadership.*	*Tory Civil War over Europe deepens*
10	*Worrying signs of business investment falling. Brexit fears likely to exacerbate existing weakness.*	*Do not be bullied do not be intimidated. Vote to Leave.*

[110] Whilst a 'protest vote' may or may not be indicative of anger, this example is identified as containing a high percentage of anger because it is short and the word 'protest' is on the 'anger'-dimension in the LIWC-dictionary used.

4.6.1 Do the MPs argue with anger and anxiety?

To test the expected positive relationship between the use of an argument and the use of emotion, I conduct a series of Chi-square tests, with anxiety and anger coded into equal bands. The tables which show these test results can be found in Appendix D3.[111] As expected, there is a significant association between the use of an argument and anger words, $\chi 2$ (1, N = 5,573) = 134.373, $p < .001$, V = .16 In approximately two-thirds of the instances (64.3%), the posts contain both this argument structure and a low level of anger, compared to the one-third of posts that contain both at least one argument and a high level of anger. There is also a significant association between the use of an argument and the presence of anxiety, $\chi 2$ (1, N = 5,573) = 157,566, $p < .001$, V = .17. In approximately two-thirds of the instances (63.6%), the posts contain both an argument and a low level of anxiety, compared to the one-third of posts that contain both an argument and a high level of anxiety.

More specifically, compared to posts without an argument, posts with an argument are significantly more likely to feature anger (35.7% versus 11.4%) and more likely to feature anxiety (36.4% versus 10.6%). This indicates that when MPs include an argument in the text of a post, the message is usually negative. In these posts, they most often mention the negative consequences of staying or leaving the EU, and they are more likely to use words that express anger and anxiety when doing so.

4.6.2 "Leave" versus "Remain" MPs and the use of argument, anxiety, and anger

To test hypotheses H1 and H2, I conduct several clustered multivariate regression analyses to determine whether the "Leave"- or "Remain"-affiliation of MPs influences their use of argument, anxiety, and anger. I include a range of MP and post characteristics as controls. Table 4.4 on the next page shows the results of these analyses. A positive coefficient indicates an increased likelihood of the use of argument, anxiety, or anger. A negative coefficient indicates a decrease. The camp of MPs does not predict the use of argument or anger. Thus, I find no evidence that compared to "Leave" MPs, "Remain" MPs referred more to information to support their standpoint regarding EU membership in their posts, or vice versa. I also find no evidence that "Leave" MPs use more anger than "Remain" MPs. However, camp does predict whether the posts feature anxiety.

[111] For the sake of robustness, for separate Chi-square tests, anxiety and anger were coded both into four and into two equal bands. Although I refer to the results of the Chi-square tests which have grouped anger and anxiety into two equal bands, the results still hold for the Chi-square tests with anger and anxiety in four equal bands. All Chi-square test results are presented in Appendix D3.

Table 4.4: Multivariate regression results for argument, anger, and anxiety

	Argument		**Emotion**			
			Anger		**Anxiety**	
	b (se)	O.R.	b (se)	Beta	b (se)	Beta
Word count	**.005*** **	1.005	**-.001*** **	-.535	**-.001*** **	-.536
	(.001)		(.000)		(.000)	
"Leave"	-.381	.684	.089	.092	**.141***	.146
	(.256)		(.067)		(.058)	
Party (ref: Conserv.)						
Labour	-.078	.925	**.129***	.127	-.012	-.012
	(.239)		(.064)		(.054)	
SNP	**-1.370***	.254	.038	.026	-.040	-.026
	(.555)		(.072)		(.069)	
Other	-.301	.740	**.227****	.111	.102	.050
	(.319)		(.077)		(.060)	
Female	-.025	.975	-.001	-.001	.042	.040
	(.194)		(.049)		(.047)	
Age	-.011	.989	.002	.043	-.000	-.001
	(.012)		(.003)		(.002)	
Frontbencher	.029	1.030	.042	.031	**.133***	.113
	(.289)		(.076)		(.057)	
Length of service (ref: 0-1 yrs)						
2-6 years	-.102	.903	.024	.024	.014	.015
	(.242)		(.064)		(.058)	
7-15 years	.157	1.170	-.027	-.023	-.022	-.020
	(.308)		(.063)		(.064)	
16-50 years	.458	1.580	.009	.007	.013	.011
	(.357)		(.082)		(.072)	
Electoral vulnerability	-.010	.990	**.004***	.134	.002	.074
	(.007)		(.002)		(.002)	
MP-const. alignment	.112	1.118	-.022	-.038	-.039	-.071
	(.125)		(.031)		(.029)	
Constant	**-2.831*** **	.059	-.032		.123	
	(.617)		(.145)		(.118)	
Pseudo R^2: Cox & Snell	.244					
R^2			.342		.353	
N of observations	5,444		736		753	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note:* 'Conserv.' Refers to the Conservative Party, and 'MP-const. alignment' refers to MP-constituency alignment. Lower N for the anger and anxiety variables due to the logarithmic transformation of these variables: most posts do not contain these emotions and these posts were therefore removed from the analysis once these variables were logarithmically transformed.

These findings are corroborated by robustness tests.[112] Thus, I find no support for H1: "Leave" MPs are not significantly more likely to publish posts that feature anger than "Remain" MPs. Furthermore,

[112] Appendix D19 shows the results of a multivariate negative binomial clustered regression that uses an alternative measure of argument, a count variable that measures the number of single arguments for each EU referendum post. The results of this test do not give substantially different results. Appendix D20 shows the results of two multivariate clustered linear

I find no support for H2: "Remain" MPs do not use more anxiety, words such as 'fear', 'uncertainty' and 'risk', than "Leave" MPs. I find the opposite: "Leave" MPs use more anxiety than "Remain" MPs. Several of the control variables also predict the use of argument and the use of anxiety and anger. For example, the length of the post (the word count) and the party of MPs influence whether they include an argument. Longer posts are significantly more likely to include an argument and, compared to MPs of the Conservative Party, SNP MPs are significantly less likely to use an argument. In contrast, the posts of Labour and DUP, Lib Dem, and UUP MPs (marked as 'Other') are more likely to feature anger. Furthermore, MPs in marginal seats are more likely to use anger. Finally, longer posts feature less anger and less anxiety than shorter posts. For anxiety, besides camp, the status of the MP also plays a role: frontbench MPs are more likely to use anxiety in their posts than backbench MPs.

4.6.3 Robustness tests for "Leave", "Remain" and the use of negative emotion

Several supplementary analyses were run to further test the results relating to the use of the negative emotions anger and anxiety by "Leave" and "Remain" MPs. In this study, I consider the use of anger and anxiety from the two-dimension view of emotion. Referred to as affective intelligence theory, this tradition focuses on enthusiasm, anger, and fear as discrete emotions, focusing on how these emotions affect information-processing and decision-making. However, much earlier work aligns with the attitude theory of emotion, which treats affective reactions as being on a single dimension, ranging from positive to negative. This perspective is referred to as the valence view. In this section, to further contribute to research about the observed negativity in the messages and arguments presented before and during the EU referendum campaign (e.g., Oliver, 2017; Ágopsca, 2017), I also briefly consider the presence of negativity versus positivity in the posts.

Oliver (2017) explains that hard Eurosceptic rhetoric, hostile opposition toward European integration, is commonplace in British politics. This Euroscepticism was highlighted by the success of UKIP in 2014 (Brack & Startin, 2015). Furthermore, before referendum day, the news media was dominated by anti-immigration discourse and Euroscepticism (e.g., Menon & Salter, 2016), depicting immigrants as taking advantage of UK resources (Morrison, 2019). This has been a common theme since discussions about EU enlargement (e.g., Balabanova & Balch, 2010). Before the EU referendum campaign, debates focused on a narrow range of superficial arguments relating to the costs and

regressions with alternative and logarithmically transformed versions of the anger- and anxiety-variables derived from the LIWC measure. These measures exclude those posts which contain less than 0.18% of anxiety words and less than 0.20% of anger. When posts score this low on anxiety and anger, it suggests that there is only a single word (perhaps two) that indicate emotion, and if these cases are included, then we are more likely to observe errors in classification and noise. The results of these regressions which use the alternative measure (excluding the aforementioned observations) do not differ substantially from the results reported in the text.

benefits of immigration (Balch & Balabanova, 2016), arguments which were mostly negative (Ágopsca, 2017), and relating to economics (Glencross 2016; Levy, Aslan & Bironzo, 2016). Since then, it has been observed that the actual rhetoric used in the 2016 EU referendum campaign, especially in the booklet sent to homes and the Treasury report, continued to focus on economics and that references to the economy from "Remain"-affiliated parties were 'essentially negative' (Menon & Salter, 2016).

Following these insights, extra multivariate regression analyses were performed with the LIWC measure of affect and with the positive and negative emotion measures of both LIWC and SentimentR.[113] Tables with the results of these robustness checks are included in Appendices D7, D8 and D18. I have found that the posts by "Leave" MPs contain more anxiety, a negative emotion, compared to the posts by "Remain" MPs, but do their posts also contain more negativity from the perspective of valence theory?

First of all, the affect measure identifies the combined percentage of positive and negative words in the text of the post. I find that out of the 5,569 posts, on average, 4.9% of the text of posts consists of positive or negative emotion words, referred to as affect (M = 4.94, SD = 4.55).[114] In contrast, SentimentR calculates a sentiment score between -1 and 1 for each sentence of the post and returns an average: a negative average score indicates that, overall, the message is negative rather than positive, and a positive average score indicates that, overall, the message is positive[115]. A more extreme average score, in either direction, indicates that the post contains more emotion. SentimentR estimates that the average sentiment of the posts is 0.09. Since sentiment is measured on a scale ranging from negative (-1) to positive (1) with a neutral zero, this indicates that most of the posts are slightly positive. When I separate the posts by whether SentimentR places them on the overall positive or negative dimension, I find that, on average, positive posts score 0.19 (N = 3,589, SD = .14), and negative posts score -0.13 (N = 1,304, SD = .12).[116] These results indicate that, on average, the positive EU referendum posts do not contain more emotion than the negative EU referendum posts.

In terms of camp, the results of a clustered multivariate regression indicate that the "Leave" or "Remain"-alignment of MPs does not predict their use of words that indicate affect.[117] This means

[113] There is a range of terms for referring to subjectivity and the human experience, including opinion, sentiment, affect, emotion and feeling. Geva & Skorick (2006) distinguish between affect and emotion, by referring to emotion as the 'extremely strong' response and affect as the 'less strong' response. One widely adopted definition of sentiment is "the disposition of an individual to rather consistently react toward an 'object', in a certain way", by Cattell (1940). I do not believe that it is not within the scope of this study to distinguish between these different terms. I therefore choose to refer to 'emotion', in general.

[114] These results are shown in Appendix D12.

[115] SentimentR takes valence shifters into account, such as negators and (de-)amplifiers. An analysis with SentimentR does not require the removal of stop words, because sentimentR scores sentiment against a dictionary. Stopwords are not a part of this dictionary and even if they are, they would have a score of 0, meaning that they would not affect the estimates derived from an analysis of the text.

[116] These results are shown in Appendix D8, Table 1.

[117] The results of this multivariate analysis are shown in Appendix D7.

that there is no significant difference in the combined use of positive and negative emotion in the posts of "Leave" versus "Remain" MPs.[118] However, the results of clustered multivariate regressions with the logarithmically transformed positive sentiment and negative sentiment measures of SentimentR indicate that "Leave" MPs are significantly less likely to publish an overall positive post or overall negative post than "Remain" MPs. This finding is supported by the results of Mann-Whitney U tests, reported in Appendix D18, which suggest that on average, compared to "Remain" MPs, "Leave" MPs used less affect and less positive emotion in their posts and that their posts were overall less positive.

4.7 Discussion

Referenda provide a platform for in-depth discussion, and social media can provide a platform for deliberation and persuasion. This paper makes a distinctive contribution to the growing body of literature on the 2016 EU referendum in the UK and contributes to knowledge about MPs' deliberative communication in the text of Facebook posts. To what extent did the MPs use argument and emotion in this text? Did they combine the use of argument and emotion in their posts, and is there a difference in their use between "Leave" and "Remain" MPs?

I find that the text of only a small portion of the Facebook posts, 5%, features an argument. Longer posts are more likely to include an argument than shorter posts. Overall, the posts also contain little anxiety and anger. On average, less than 1% of the text of all posts consists of a word used to express anxiety or anger. When the MPs use a single argument in their posts, they are also significantly more likely to use anger- or anxiety words than when no such argument is included. This suggests that in these cases emotion is, as expected, used as an argument strategy.

In terms of differences between MPs of the different camps, I find no evidence that "Remain" MPs are more likely to publish posts with an argument included in the text than "Leave" MPs. Argument can be used to remind readers of their existing opinions and attitudes regarding the EU and EU membership. The findings do not suggest that "Leave" and "Remain" MPs use this strategy differently. I do not find support for hypotheses H1 and H2. "Leave" MPs are not more likely than "Remain" MPs to include anger in their posts and "Remain" MPs are not more likely to reference anxiety in their posts than "Leave" MPs. Instead, "Leave" MPs use more anxiety. Anxiety motivates

[118] Similarly, according to the positive sentiment and negative sentiment measures of LIWC, which separately identify the percentage of positive and negative words, camp also does not influence the use of negative and positive sentiment. Thus, according to these measures, "Leave" MPs do not use more negative sentiment or positive sentiment than "Remain" MPs. These results can be found in Appendix D8, Table 2.

the search for information and the rational consideration of the standpoints and arguments advanced in the campaign. The use of anxiety would not benefit “Leave” if discouraging voters to support Brexit.

The greater use of anxiety by “Leave” MPs instead of “Remain” MPs could be taken to suggest that “Leave” MPs are more likely to use negative emotion strategically in their posts compared to “Remain” MPs. However, the additional findings paint a more nuanced picture. These findings indicate that “Leave” MPs are significantly less likely to publish an overall positive and an overall negative post, compared to “Remain” MPs. At the same time, they suggest that, on average, the text of posts by “Leave” MPs contained fewer words indicating affect and positive sentiment and that the posts were overall less positive. Thus, whilst the posts of “Leave” MPs contain more posts indicative of anxiety, a discrete negative emotion, in general, they do not contain more negative emotion than posts by “Remain” MPs.

In the end, the limited extent to which the posts feature argument and emotion suggests that most of these posts about the EU referendum are either not intended for deliberation or that MPs communicate their position and views without the explicit support of logically related statements, anger, or anxiety. For this reason, further analysis should be conducted to discover how MPs intend to communicate on these pages. Do they prefer to use these pages primarily for self-promotion, for disseminating political messages? Do they seek to discuss policy, deliberatively, on this platform? In addition, a similar analysis of Facebook posts by MPs published when there is no upcoming campaign will provide a baseline to better understand how MPs generally communicate using this platform. Facebook is a primary source of political information in the UK. Under what circumstances do and would MPs use Facebook to deliberate?

5 The Dynamics of MPs' campaigning on Facebook

UK MPs communicated on their Facebook pages in the lead up to the EU referendum. Using a unique data set of all EU referendum posts from UK MPs between February 19 and June 23, 2016, this paper explores the over-time evolution of their campaign activity on this platform. Did activity increase as the referendum drew near? Did specific events - such as the murder of an MP during the campaign - lead to changes in this activity? To answer these questions, time series analysis is employed. More specifically, the method analyses the effect of external shocks and developments on MPs' Facebook campaign activity. I specifically focus on two events, one which I assume would have a limited, and the other a considerable effect, on evolving Facebook activity. The first concerns the report in newspapers that the Queen would support Brexit (March 9). The second is the murder of Jo Cox (June 16). Additionally, I look at the effect of the evolving balance of public opinion (as reflected in opinion polls) on MPs' Facebook activity. The aspects of this behaviour that I analyse are posting activity and the use of argument, anxiety, and anger by MPs. I find that overall, the posting activity increased sharply at the end of the campaign. No such difference is found for the use of argument, anger, or anxiety. The murder of Jo Cox did influence the posting activity of MPs, but no other intervention effects are found. These findings indicate that, overall, there are few patterns in the prominence of this campaign activity over time, and this activity does not respond to events or changes in the poll.

As political campaigns progress towards their end, there is generally a rise in campaign activity and engagement (e.g., Vergeer et al., 2013; Nuernbergk & Conrad, 2016). Gradually, increased attention will be paid to the suitability of candidates standing for election and the choice of accepting or rejecting a proposal in the case of a referendum. In a referendum, a proposal is the focus of the campaign and therefore, in a referendum campaign, the debate is likely to be affected by events rather than party politics (e.g., De Vreese & Semetko, 2004). Little is still known whether insights like these from campaigns in general also hold for how campaigns play out on social media. An example of relevant work is Shephard and Quinlan (2016), who analyse the Scottish Independence referendum campaign in 2013 and 2014 and find a surge of online activity in general and in the form of support for the 'yes'-campaign in particular, in the last three weeks leading up to referendum day.

In this chapter, I focus on the dynamics of the EU referendum campaign communication of MPs. This study complements the studies and findings of Chapters 3 and 4. In these earlier chapters, I studied the predictors and prominence of MPs' EU referendum activity, focusing on the use of argument, anxiety, and anger. In this chapter, I instead focus on whether there are patterns to be found in the prominence of this campaigning over time. I am specifically interested in the reactivity and internal dynamic of this campaign activity. After all, a campaign does not take place in a vacuum, and campaigns tend to increase in intensity. I first ask to what extent the content and structure of EU referendum posts of the MPs has changed during the campaign. Second, I analyse whether the

campaign activity is influenced by external phenomena, such as changes in vote intentions of the general public and specific events. I build on the unique data set used in Chapters 3 and 4, which contains data on the content of all public Facebook page posts of MPs in the EU referendum campaign period. However, in this chapter, the data I use has a time element, which has not yet been considered in earlier chapters.

I find that in the last weeks of the campaign posting activity increases. However, the proportion of posts with an argument, compared to all posts, and the use of anxiety and anger in the text of the posts do not increase at the end of the campaign. For anxiety and anger, this is underlined by the fact that the best fitting models for the over-time evolution of anger and anxiety indicate that there is no systematic variation throughout the campaign period. Comparing the effect of two events in particular – the news that the Queen was alleged to support Brexit, published by the *Sun* on March 9, 2016, and the murder of the MP Jo Cox on June 16 – I find that MPs' posting activity only corresponded to the latter event.[119] More specifically, their posting activity in the two days following June 16 differ significantly from the forecasts based on the structure of the entire time series. The findings support the expectation of increasing campaign activity over time and in the last weeks of the campaign. Analyses of this time-series data indicate little systematic over-time variation in the use of argument, anxiety, and anger during the EU referendum campaign period. This indicates that, generally, there are few patterns in the dynamics of this EU referendum campaign activity, and that this communication does not react to external events.

5.1 Posting activity and the use of anxiety, anger, and argument

Most relevant research demonstrates that time affects both the intensity and content of offline and online political campaigning (e.g., Bruns & Burgess, 2011; Aragón et al., 2013; Nuernbergk and Conrad, 2016). Much of the research on campaign dynamics has focused on election campaigns and used activity on Twitter as the object of study. For example, we know that the Twitter activity of Dutch MEP candidates and German MPs increases near the end of their election campaign (Vergeer et al., 2013; Nuernbergk & Conrad, 2016). Studies like these suggest that peaks in activity can be found when there is a debate between leading candidates and in the immediate lead-up to election day, which Aragón et al. (2013) have observed for Twitter activity by Spanish MPs. Although these studies focus on other countries and campaigns, we can expect a referendum campaign in the UK to follow similar patterns. In terms of content, this Twitter activity features election-related activity, such as invitations to rallies

[119] The news article from the *Sun* about the Queen's alleged support for Brexit can be found at https://www.thesun.co.uk/news/1078504/revealed-queen-backs-brexit-as-alleged-eu-bust-up-with-ex-deputy-pm-emerges/

(e.g., Nuernbergk & Conrad, 2016). On Facebook, the content of posts will follow the publication of new political content in mainstream media (Larsson, 2016).

A large body of research has also focused on the use of anxiety and anger in political campaigns, the use of terms that express emotion to influence the political behaviour of voters. Anger and anxiety involve different 'routes' of judgment, with different effects: whereas anger activates existing political views, anxiety can motivate their reconsideration (e.g., Redlawsk et al., 2010; Valentino et al., 2011). As such, anger encourages risk-taking behaviour and anxiety risk-aversive behaviour (e.g., Druckman & McDermott, 2008; Valentino et al., 2009; 2011). MPs can thus use anxiety and anger to influence the behaviour of their audience, to encourage them to either vote to "Remain" or "Leave".

Meanwhile, less is known about the use of argument by politicians in a political campaign. The extant literature is unfortunately relatively silent about changes in the use of argument throughout a political campaign. We do know, however, that in referenda, voters rely on information to determine whether to vote in favour or against a proposal (e.g., LeDuc 2002a; 2002b). When a campaign becomes more intense, more information becomes available to voters (Hobolt, 2005). Argument can be used in a referendum campaign to provide information to voters. Like information, the use of argument may therefore increase when the campaign becomes more intense.

5.2 Analysing the posting activity and content as time series

The data used in this chapter consist of Facebook posts that each have their location in time and can thus be regarded as time-series data. More specifically, each specific aspect of the posts that has been recorded or coded - such as their presence, their content, their use of argument, anger, and anxiety - constitutes a univariate time series. A univariate time series is a list of observations for a specific variable for each moment in time or for successive time intervals. Although time can in principle be represented continuously, I represent it in the form of successive days, thus aggregating information from all posts that are located in the same way on the calendar.[120] These time series are therefore made up of observations for each of the 126 days of the EU referendum campaign.

Time series analysis consists of the use of statistical procedures to describe and analyse how the data in one or several univariate time series change over time, by considering the temporal component, and by accounting for the correlation between observations while acknowledging the

[120] This representation by days indeed makes it impossible to consider which of several posts in a given day was published first, and which others follow. Knowing which post was first matters when we have posts that react to each other. However, I do not find evidence for these dynamics in my thesis, and this also is not the focus of any of the empirical chapters. Therefore, I aggregate the posts to days for the purpose of simplification.

order of observations. Of the various kinds of procedures for analysing time series data, two are used in this chapter.[121]

The first type are Autoregressive Integrated Moving Average (ARIMA) models. ARIMA models compare present to past values and past prediction errors of a time series. They account for autoregressive (AR) and/or a moving average (MA), and/or integrative/differencing (I) processes, which are all different ways in which observations in a time series can be intercorrelated. The AR-component predicts the value of observations from immediately preceding values. The I-component predicts values from preceding values by differencing. It accounts for the non-stationarity of the level of a time series because of changes or increments that act as white noise.[122] Finally, the MA-component regresses observations on the noise of preceding observations. It incorporates past error into the model. Together, these three components form ARIMA and depending on the characteristics of the time series, the ARIMA-model specification receives different values. For example, a time series that best represents a model with one AR term can be described as an ARIMA(1,0,0) or an AR(1)-model. In the same vein, a model with two MA terms can be referred to as an ARIMA(0,0,2) or MA(2) model.

The second type of model that I will use in this chapter is the regression model that includes time-indices as predictor variables. This regression model describes the data, facilitates forecasting, and can be used to test the relations between time series as well as the influence of events on how these values change over time.

There are different approaches for the analysis of time-series data, but in this chapter, this involves taking the following steps. First, ARIMA-modelling is used to better understand the pattern of relationships between successive values of the time series. These models recognise that the errors of a time series are not necessarily independent. If these errors are correlated, the regression coefficients will have to be adjusted accordingly. Thus, the best fitting ARIMA model for a time series can inform a subsequent regression.

In the specification of the ARIMA model, one can consider the time series plot of the raw data, as well as the sample autocorrelation function (ACF) and partial autocorrelation function (PACF) of the model. After estimation of the specified model, information criteria and the (P)ACF of the residuals indicate whether the estimated model is acceptable (if not, a new cycle of (re)specification and estimation follows). The sample ACF reflects the correlations between the successive values of the time series for different lags. A lag refers to the time span between observations. Thus, for the data

[121] Other procedures for example include spectral analysis and analysis of seasonality.

[122] When a time series is non-stationary qua level, then we generally see a clear upward or downward linear or quadratic trend when we plot the time series. To achieve stationarity, differencing or detrending the time series may be required. Differencing can also be used for removing a trend. However, in some cases, differencing a time series is not enough to obtain stationarity. To remove trend effects, I instead detrend the time series when I perform the regression analyses.

set used in this chapter, one day is one lag. The PACF reflects the conditional correlations for successive values, in which the effect of correlations with smaller lags is partialled out. The ACF and PACF, in combination, have a shape or pattern that reflects the presence of AR, MA and I-components that operate at different lags. This helps to specify the character of the time series and therefore facilitates finding the most appropriate and best-fitting model among alternatives.

The AIC and BIC information criteria are statistics that combine the estimate of the variance with values of the sample size and number of parameters included in the model. Lower AIC and BIC values indicate a better fitting model than higher values. Thereafter, to assess the ACF of the residuals - to account for potentially significant remaining autocorrelation in the residuals - the Box-Pierce (Ljung) test can be used. The results of this test indicate whether all autocorrelations of the residuals are non-significant at all lags. Ideally, these autocorrelations are close to 0 for all lags; in that case, the residuals are not related and can be interpreted as white noise. If this is the case, if the residuals of the specified model generated after estimation are random, then no further model specification is necessary.

Having established which ARIMA specification is the most appropriate for the univariate time series, the specification can be used to create a forecast for that time series, before and after an intervention. An intervention is an exogenous change of the context of the time series that results in a change of values of the correlations between values of the series. An intervention analysis assesses whether a change in the context of the time series has affected the mean level of the series. For a stationary time series, the forecasted values eventually converge to the mean. Interventions can result from behaviour by persons or institutions that changes the context of the series and subsequently the values of the series (think of a procedure, law, policy, etcetera). However, interventions can also result from external events such as natural disasters, or from unintended consequences of policy or behaviour. The influence of these interventions on the time series may take several possible patterns, including a permanent and constant change to the mean level, a brief or temporary constant change to the mean level, a gradual increase or decrease to a new mean level and, finally, an initial change followed by a gradual return to the initial mean level.

Next, when we are interested in the relationship between two time series, we use the ARIMA specification most appropriate for each univariate time series to accurately estimate the cross-correlation between the series and to adjust the estimates of the lagged regression models on that basis. The relationship between time series is not necessarily immediate, but may be lagged, i.e., delayed. These lagged regression models include the predictor and outcome time series variables to assess how they are related. In the absence of any hypotheses about which of the two series is to be regarded as 'predictor' and which as 'outcome', one may consider lags in either one of the series to

establish at which lags the relationship is most pronounced. In this chapter, however, we have a clear distinction between potential predictors and outcomes; therefore, only lags in the outcome variable will be considered in our analyses.

To select potentially relevant lags, the sample cross correlation function (CCF) can be used. This function maps the relationship between the two time series by identifying at which lags the relationship between the predictor and the (possibly lagged) outcome is highest. These lags are then candidates for inclusion in the lagged regression model. Finally, in these models the predictor variable is detrended to consider the influence of the predictor (x) separate from the trend, creating the detrended predictor (dtx) and trend (t) variables.

5.3 The dynamics of posting activity and post content: expectations

In this chapter, I do not differentiate between MPs based on personal or political career characteristics. Instead, I study the dynamics of the campaign activity of the population of MPs on their public Facebook pages. Furthermore, the findings from Chapter 3 do not indicate that any of these characteristics affect MPs' EU referendum activity on Facebook. Additionally, the results presented in Chapter 4 suggest that campaign activity on Facebook is limited. This means that when dividing the data by the characteristics of MPs, there may be insufficient instances of argument, anxiety, and anger to accurately model the data [123]. I, therefore, focus on the EU referendum activity of all MPs, instead, and the data set thus includes aggregate information about all these posts for each day of the campaign. I have drafted several expectations, which guide the analyses performed. Table 5.1 gives an overview of the expectations with which I conduct this study.

First, based on research into the dynamics of offline and Twitter campaign activity (Bruns & Burgess, 2011; Vergeer et al., 2013; Aragón et al., 2013; Nuernbergk & Conrad, 2016), I expect activity to increase near to the end of the campaign: when the campaign becomes more competitive and especially when the prognosis and polls suggest that the vote can go either way. I also expect posting activity to increase at critical moments in the campaign when the campaign receives more attention in the news media and when there is therefore more content to share on social media. Meanwhile, we know that anxiety and anger can be used strategically to influence the decision-making processes

[123] No division was made between "Remain" and "Leave" posts, because I assume that the dynamics are the same for both camps.

and voting behaviour of constituents. I, therefore, expect MPs to use more anger and anxiety in posts published nearer to the end of the campaign and at turning points in the campaign.[124]

Table 5.1: Expectations of post activity, content and time point in the campaign

Day/Time	Beginning of the campaign	On average, relatively few posts published On average, less posts with an argument On average, posts contain less anger and anxiety
	Last weeks of the campaign	On average, more posts published On average, more posts with an argument On average, posts contain more anger and anxiety
Event 1	News: Queen backs Brexit	Significant positive effect on the: • Number of posts published • Number of posts with an argument • The percentage of anger and anxiety in the posts
Event 2	Murder of Jo Cox MP	Significant difference in the: • Number of posts published • Number of posts with an argument • The percentage of anger and anxiety in the posts
Poll change		There is a negative association between change in public support toward "Remain" versus "Leave" and: • Number of posts published • Number of posts with an argument • The percentage of anger and anxiety in the posts

In this chapter, I focus on two events that I consider potentially influential for the subsequent observations in the time series.[125] At the beginning of the campaign, on March 9, the *Sun* published a headline article stating that the Queen was in favour of leaving the EU. Buckingham Palace responded to this article by filing a complaint with the press watchdog. Still, this news sparked discussion about the reasons why the Queen would support a Brexit and therefore highlighted both the upcoming EU referendum as well as arguments pertaining to either camp. I, therefore, expect this event to lead to an increase in posting activity of MPs, as well as the use of argument, anxiety, and anger in these posts.

[124] In Chapter 4, I considered differences in the use of anger and anxiety by MPs divided by camp. While there are differences in the use of these two emotions between the different MPs, in this study MPs are studied as a coherent group. Therefore, although it is plausible that depending on these events, MPs will use anger and anxiety differently depending on whether they wish voters to support "Leave" or "Remain", I instead focus on the possible increases in the use of both emotions when, following key events and the progression of time, the campaign becomes more intense.

[125] A full list of all events originally considered can be found in Appendix E1. I did also consider an inductive approach to finding potentially meaningful events, based on sudden changes to the dynamics. However, this exploratory approach was unsuccessful: the univariate, time series data studied in this chapter do not include sequences of observations that suggest extraordinary events on specific days.

The other event of interest is the murder of MP Jo Cox, on June 16.[126] This event led to a temporary suspension of the referendum campaign, with speeches cancelled on both sides.[127] I explore whether this suspension is also reflected in the campaigning activity on the Facebook pages of MPs, expecting a temporary reduction of the number of posts and number of argument posts published. I also expect an increase in emotion – both anxiety and anger – following this event, reflecting a condemnation of the murder as well as a fear of violence and risks to safety.

While the EU referendum campaign was generally eventful, there are several reasons why these two events were selected for this study. First and foremost, these events were widely discussed in the mainstream media and may therefore have influenced the campaigning behaviour of MPs. Second, one of these events took place relatively early in the campaign and the other much later, about a week before the actual referendum. Since one of these events occurred at the beginning and the other at the end of the campaign period studied, it is unlikely that these events and their effects are linked. Were the events to influence each other, then changes found in the campaign dynamics following these events would not be attributable to a single event. This would impede interpretation. Third, and most importantly, I expect that these events affected the campaign dynamics differently, as shown in Table 5.1. At the same time, I expect to find a relationship between changes in vote intention for "Remain" versus "Leave" and posting activity, the use of argument, anger, and anxiety. From the beginning of the campaign, the polls predicted most of the public to support "Remain", instead of "Leave". However, there was a shift toward public support for "Leave" as the referendum grew near. The race between the camps tightened and public opinion about the question to stay or leave the EU became more balanced. As a result, the EU referendum campaign gradually became more intense. I therefore specifically expect a negative association between change in public support for "Remain" instead of "Leave" and MPs' posting activity, the use of argument, anger, and anxiety: the decrease of support for "Remain" can be expected to be related to an increase in these forms of engagement in the posts of MPs.

5.4 Data and methods

For this study, I have created a new configuration of the data set introduced in earlier chapters: the data set consisting of 5,569 posts by 369 MPs which relate to the EU referendum and which were

[126] The murder of Jo Cox MP took place on the same day when Nigel Farage unveiled the 'Breaking Point'-poster. This poster depicted a stream of dark-skinned people heading towards the camera, with the caption "The EU has failed us all", urging voters to "break free of the EU and take back control" (Stewart & Mason, 2016). While each of these events may have impacted the communicative behaviour of MPs, the posts of subsequent days focused on the murder and not the poster. This is why, in this study, the murder of Jo Cox is the event of interest.

[127] For a news article detailing this agreement, please see the following as an example: https://www.theguardian.com/politics/2016/jun/16/politicians-suspend-eu-rivalries-after-cox-killing

collected using the Facebook Graph API explorer and the RFacebook package. In this data set, the day is the unit of analysis. The data set includes several variables that constitute univariate time series, sequences of ordered observations. These time series variables correspond to the number of EU referendum posts and their content published on the public Facebook pages of the MPs in office for the entire EU referendum campaign period (February 19 – June 23, 2016). These variables each include observations for all 126 days of this campaign. I focus on changes in the nature and content of the posts as affected by the time dimension of the published posts, as well as how this is affected by the two events of interest and changes in the polls.

5.4.1 Outcome variables

The outcome variables in this study relate to posting activity and the content of these posts. The number of posts is a count variable, which refers to the number of EU referendum posts per day. Argument is a ratio variable, created by dividing the number of posts that include an argument by the total number of posts published, for each day. I also include two variables that measure two discrete emotions: anxiety and anger. These variables indicate the extent to which the text of the post features these emotions. The values of these variables are derived using LIWC software for calculating the percentage of either anxiety or anger words in the text of each post. I take the average of this percentage of anxiety and anger for all the posts, for each day, and logarithmically transform the resulting anxiety and anger variables before the regression analysis.

5.4.2 Explanatory variables

I am interested in the influence of the two events, the news about the Queen (March 9) and the murder of the MP (June 16), on each of the four outcome time series: posting activity and the use of argument, anxiety, and anger. These events can be regarded as interventions and can potentially lead to changes to the mean. To test a possible temporary effect of the intervention, I create a dichotomous variable for each of the two events, which indicate for each day whether the relevant event did (= 1) or did not (= 0) occur.[128] I also include a ratio variable that considers changes in public support for

[128] It is possible for an intervention to lead to both temporary and permanent changes to the mean. In this study, I only consider the temporary effect of the two events. This is because if we consider the development of posting activity (the number of posts), displayed in Figure 5.1, we can see a rapid increase in the number of posts near the end of the campaign. The approach taken for modelling the influence of an intervention on time series in this study considers changes in the average (in this case of posting activity) before and after the event. Since the first event occurs early in the campaign and because of this considerable increase in posting activity near the end of the campaign, the models will inaccurately identify the first event as a significant predictor for this later activity, if we consider the effect to be permanent (which is if we consider the event as affecting all remaining observations in the time series). This result of a supposed permanent effect of the event would be inaccurate. Additionally, since the second event occurs late in the campaign, there is insufficient data to consider a permanent effect of the second event.

"Leave" versus "Remain", by considering changes in the poll of polls. This variable reflects a shift in public support toward "Leave", instead of "Remain", and a tightening of the race between both camps. I thus consider the following explanatory variables in this study:

Day	a time variable indicating the day of the EU referendum, starting with February 19, and ending with June 23, 2016.
Event 1	indicates whether the event has occurred (=1) or not (=0). This event took place on March 9. Assuming a temporary effect, only the day of the event is marked 1, all other days are marked 0.
Event 2	indicates whether the event has occurred (=1) or not (=0). This event took place on June 16. Assuming a temporary effect, only the day of the event is marked 1, all other days are marked 0.
Poll changes	a ratio variable that indicates the direction and extent of change in support for "Remain" versus "Leave". To create this variable, I use the poll of polls-data from NatCen Social Research, published on their 'What UK Thinks'-website, indicating changes in support for "Leave" and "Remain" in the lead-up of the EU referendum campaign.[129]

5.5 Research strategy

To conduct the time series analyses I use R and the packages *ts*, *dplyr*, *astsa*, *sarima* and *sarima.for*. My approach largely follows a commonly recommended sequence of steps (see, for example, Shumway and Stoffer 2017). I use ARIMA modelling and (lagged) regression to accurately model the time series and to study the effect of exogenous events and processes. I first specify an ARIMA model for each of the time series, based on a visual inspection of the time series plot of the data, the significance of the values of the ACF and the PACF for different lags. The specified model is estimated and the ACF of its residuals is used to diagnose its adequacy. If necessary, the model is refined by further specification, until it is satisfactory. Occasionally, the plot and the (P)ACF may be ambiguous, so that more than one model specification seems plausible. In such cases, each of these is used, and the rivalling estimated models are compared in terms of their AIC and BIC and the ACF of their residuals to arrive at the best fitting model as the basis for the next steps of the analysis. After having arrived at a suitable ARIMA model, I assess whether exogenous events and processes influenced the time series. This is done by comparing forecasted values derived from the ARIMA models with the

[129] This data tracks the support for "Leave" and "Remain" using 168 polls conducted between 3 September 2015 and June 22, 2016. The poll of polls-data is available at https://www.cfo.com/content/uploads/2016/06/EU-Referendum-Poll-of-Polls-%E2%80%93-What-UK-Thinks_-EU.htm

actual values of the time series. Next, I use regression to test the relationship between the outcome time series and the potential temporary influence of the two events and changes in the poll of polls. As part of a pre-whitening process, I filter the x-variable with AR coefficients[130]. The resulting revised CCF values are used for identifying whether, and at which lags the explanatory variables, are relevant predictors of the outcome variables in this study.[131] I consider just the first 7 lags, which means that I do not consider effects that are delayed by more than a week.

Thus, based on the ARIMA and the CCF results, the regression coefficients, lags, and whitened time series, I identify the best fitting model amongst alternatives. I finally compare the R^2-value of the models as well as the significance of the predictors in the regression with just the predictor and the outcome time series to the lagged regression, which includes the relevant lags. Based on these models, can we say that external events and developments affect the posting activity and the use of argument, anxiety and anger in these EU referendum posts, by MPs?

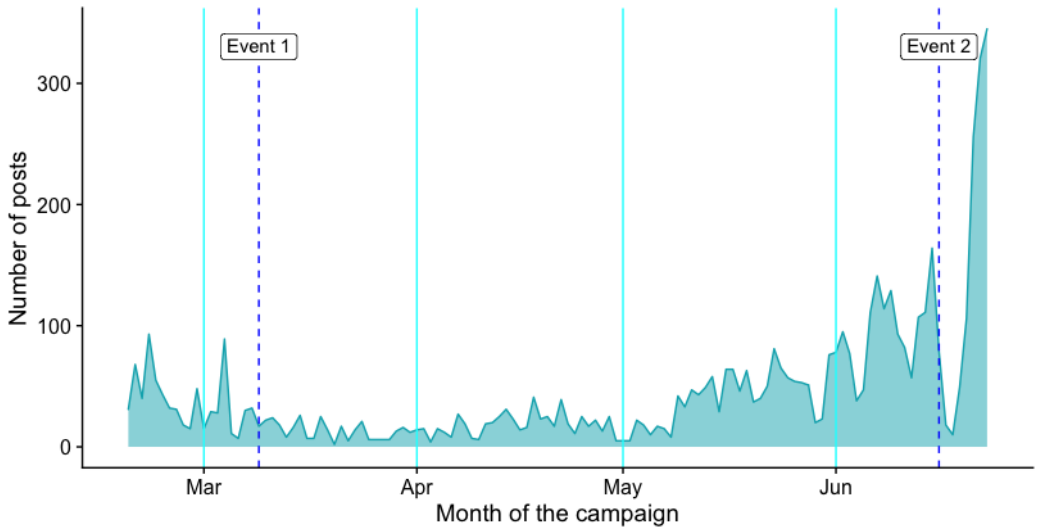
5.6 Findings

In this section I present the analyses of the evolution in the number of EU referendum-relevant Facebook posts, indicating posting activity and the presence of an argument, anger, and anxiety. First, to assess whether my expectations relating to changes in the number of Facebook posts hold, I analyse the number of posts per day. Figure 5.1 on the next page shows the daily volume of Facebook posts in the data set, with markers inserted for March 9 and June 16, the two events of interest: the news about the Queen and the murder of Jo Cox. Almost 100 posts were published in some of the early days of the campaign, in late February, and there is another peak in the number of posts in early March. In late March to early May, there is a very low level of posting activity. There is a clear increase starting mid-May and a steady increase from the end of May until the day of the referendum, culminating with 345 posts on the 23rd of June.

[130] Pre-whitening refers to an operation to remove auto-correlation in both x and y, to make it possible to accurately and efficiently identify an appropriate model based on the CCF (which can otherwise be distorted by the auto-correlation and therefore mislead model identification).

[131] I also do not consider a delayed effect of more than 3 days if the preceding days are not likewise significant predictors in the model. It is unlikely that the events studied in this chapter influenced the posting activity and content of the MPs' posts only a week later. Instead, it is more likely that if these events affected these outcome variables, these effects would be observed immediately after. Furthermore, other events in the campaign may also influence these variables. Delayed effects observed more than a week later could instead be caused by other events and developments Thus, by taking this approach, I recognise the potential influence of other events and idiosyncrasies in the data set (or, in this case, MP posting behaviour).

Figure 5.1: Number of posts published per day



Note: The dark-blue, dotted lines refer to the two events and the light-blue, unbroken lines indicate the first days of each month (e.g., March 1st, April 1st, May 1st, and June 1st, 2016)

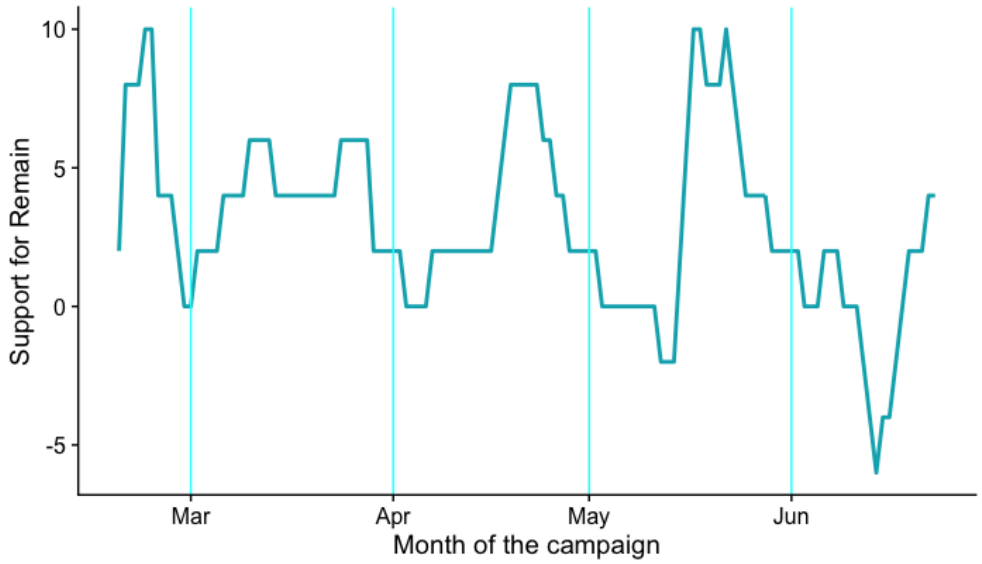
From the beginning of June, we specifically observe four peaks in activity before the last surge of activity in the final week of the campaign, with a significant drop on June 17, 2016. Between May 31st and June 3rd, MPs posted approximately 82 posts per day. Much fewer posts were published over the weekend, on the 4th and 5th of June: 38 posts on Saturday and 47 on Sunday. Next, between June 6th and June 11th, about two weeks before referendum day, the MPs posted 112 posts per day. Within these 6 days, the MPs discussed the June 7 deadline for voter registration for the EU referendum, urging citizens to register to vote, and they referred to issues with the voter registration site.[132] Shortly thereafter, between June 13th and June 16th, they posted about 115 posts per day, with 164 posts in total on June 15, the day before the murder of Jo Cox on June 17th, which is exactly one week before EU referendum day. This gradual increase in activity can be attributed to the increasing intensity of activity nearer to the end of a campaign: in the final 4 days of the campaign, MPs on average published no less than 257 posts a day. In contrast, throughout the campaign, MPs together published on average 43 posts per day. This is out of a total of 5,569 EU referendum posts for the entire campaign period.

Some of these findings are in line with expectations. Indeed, at the beginning of the campaign, we see fewer posts published than at the end. From this figure, it appears that the first event, the news that the Queen allegedly backs Brexit, had no effect. However, there is a significant - but very short-lasting - drop of posts after the second event, the murder of Jo Cox MP. This suggests that this event did impact the posting activity.

[132] An example of a news article discussing EU referendum voting registration (issues) can be found at https://www.bbc.co.uk/news/uk-politics-eu-referendum-36462425

Next, I examine whether there is a relationship between changes in public vote intention for "Remain" versus "Leave" and posting activity. Figure 5.2 shows the changes in vote intention.

Figure 5.2: Changes in support for "Remain" versus "Leave"



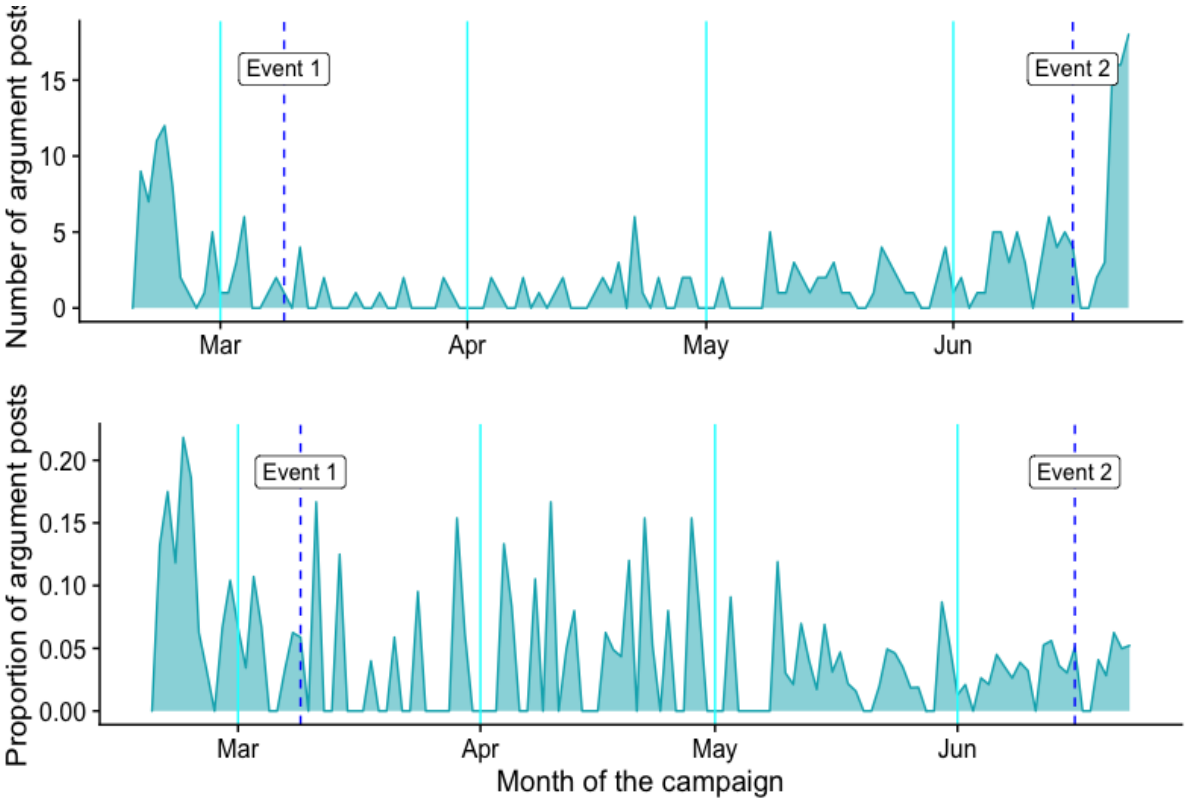
Note: The light-blue vertical lines indicate the first days of each month (e.g., March 1st, April 1st, May 1st, and June 1st, 2016)

This vote intention variable, based on the poll of polls, measures the percentage difference between support for either camp, with a positive number indicating increasing support for "Remain" and a negative number indicating increasing support for "Leave". In this figure, we can observe that until the second week of May, the public increasingly supports "Remain" instead of "Leave". There is a slight decrease in support for "Remain" Mid-May, followed by a spike in support up until the beginning of June. Mid-June, public support shortly shifts toward "Leave" instead and in the last week, support for "Remain" appears to recover. I conduct a Spearman correlation test using the raw data across the entire time series to test for a relationship between posting activity and changes in the referendum vote intention, based on changes in the poll of polls. Contrary to expectations, there is no association, $r_s(124) = -.04$, $p = .63$.[133] There is no negative association between change in public support for "Remain" versus "Leave" and posting activity.

[133] I also perform this Spearman correlation test for part of the time series: the first 25 days of the campaign. The first event - the news about the Queen - takes place on March 9, which is the 20th day. I consider the first 25 days instead, to consider any possible delays in the influence of the poll of polls on the posting activity time series. In this case there also is not an association between both time series: $r_s(23) = .30$, $p = .14$. The second event takes place near to the end of the EU referendum campaign (on the 16th of June) and I therefore do not perform a Spearman association test with another defined range of observations from the time series.

Likewise, I do not find an association between vote intention and the three rhetorical devices: for the number of posts with an argument, $r_s(124) = .00$, $p = .94$, for anger ($r_s(124) = -.06$, $p = .52$) and for anxiety ($r_s(124) = .02$, $p = .83$) This suggests that MPs did not change their use of argument and emotion based on changes in public support for "Leave" or "Remain".[134] Figures 5.3 and 5.4 show changes in the use of argument, anger and anxiety throughout the campaign period, again with markers for March 9 and June 16. A study of the fluctuations in the frequency of posting and the use of argument and emotion in the posts during the campaign period helps shed light on the internal dynamics of the system in which the MPs operate.

Figure 5.3: Daily number of argument posts and proportion of argument posts



Note: The dark-blue, dotted lines refer to the two events and the light-blue, unbroken lines indicate the first days of each month (e.g., March 1st, April 1st, May 1st, and June 1st, 2016)

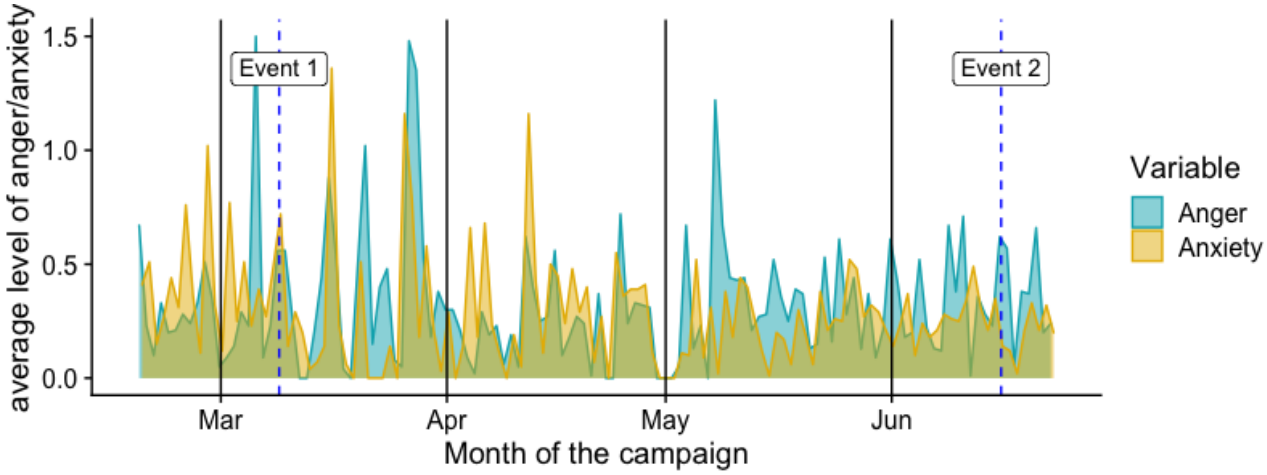
Also contrary to expectations, Figure 5.3 shows that there is not an increase in argument posts nearer to the end of the campaign. Instead, I find a relatively high volume of these posts in late February and I find that throughout the campaign, few argument posts are published. Based on this figure, I observe a brief spike in argument posts after the first event and a brief low in argument posts after the second

[134] For these variables, I likewise perform the Spearman correlation test for just the first 25 days of the campaign. I do not find an association between changes in the poll of polls and the use of argument ($r_s(23) = .33$, $p = .11$), changes in the poll of polls and the use of anger ($r_s(23) = -.16$, $p = .45$.), and changes in the poll of polls and the use of anxiety ($r_s(23) = .-.17$, $p = .43$).

event. While there may be a temporary effect of the events on the use of argument posts, a more refined test is required to definitively test their influence.

Finally, Figure 5.4 shows that overall, there is a low level of the use of anger and anxiety in the posts: on average, less than 1.5% of the words in the posts indicate anger or anxiety. Unexpectedly, on average, the posts do not contain more anger and anxiety in the final stages of the campaign. Instead, several peaks in anger and anxiety can be found in March and April. Based on the fluctuations depicted in Figure 5.4 and due to the low number of argument posts and low percentages of anger and anxiety, contrary to expectations, it does not appear that the two events have an impact on the anger and anxiety in the posts.

Figure 5.4: Average level of anger and anxiety in the posts per campaign day



Note: The dark-blue, dotted lines refer to the two events and the black, unbroken lines indicate the first days of each month (e.g., March 1st, April 1st, May 1st, and June 1st, 2016)

Table 5.2 on the next page provides a summative overview of the values on all key variables, at the time of the beginning of the campaign, at the time of each of the two events and at the end of the campaign, on referendum-day. Overall activity increased closer to the end date of the EU referendum campaign, with a small increase in the use of argument near the end of the campaign, but compared to the beginning of the campaign, a decrease in the use of anger and emotion. Since both events took place earlier in the day, I consider how they may already have influenced the values of the variables on the same day. [135] Thus, in my modelling of the events as shocks affecting campaign dynamics, I focus on March 9 and June 16 as the interventions.

[135] The news that the Queen supports "Leave" was released in an article by the Sun, online on March 8 (see: https://www.thesun.co.uk/news/1078504/revealed-queen-backs-brexit-as-alleged-eu-bust-up-with-ex-deputy-pm-emerges/), but released as a headline on the front page of the physical newspaper on March 9. Jo Cox MP passed in the

Table 5.2: Sum and average values of the variables on the days of the two key events

Variable	Day			
	Feb 19	Mar 9	Jun 16	Jun 23
	Start	"Queen backs Brexit"	Murder of MP	End
Number of posts	31	17	79	**345**
Number of argument-posts	0	1	4	**18**
Proportion of argument posts	0.00	**0.06**	0.05	0.05
Anxiety (average)	0.4	**0.7**	0.1	0.2
Anger (average)	**0.7**	0.6	0.6	0.2
Poll changes	2	4	-4	4

Note. For anxiety and anger, these numbers refer to the average percentage of words indicating anxiety or anger, taking all MP posts published that day. For poll changes, these numbers represent the percentage difference in changes in public support for "Remain" versus "Leave" (positive = increasing support for "Remain"; negative = increasing support for "Leave"). The highest values for each variable have been highlighted in bold.

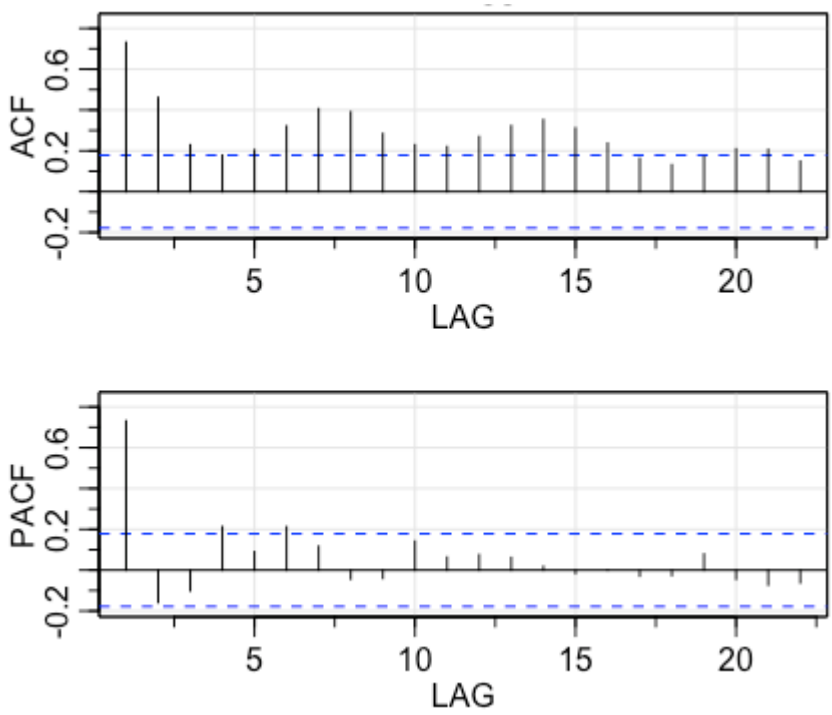
5.6.1 The effects of external shocks on MP posting activity

A visual inspection of a time series does not suffice to establish whether there is a relationship between the events, changes in public vote intention and the four outcome variables. Therefore, in this section I will perform a more explicit three-stage-analysis of posting activity, the number of posts with an argument, the use of anger and the use of anxiety. In the first stage, I determine the best fitting ARIMA model for the univariate dynamics, using the entire time series. In the second stage, I create two forecasts with 95%-confidence intervals for each variable using the ARIMA-model specification, for the period following each of the two key events. These forecasts graph the predicted trajectory of future observations, based on observations already included. By plotting these predictions, we can compare them with the actual observed values after the events and determine whether these are significantly different from what we would have expected. This provides preliminary evidence of an effect of the event and the observed values of the outcome variable. In the third and last stage, I estimate the effects of the different events by running a series of regressions, considering the possibility of delayed effects (lags). I will demonstrate my approach by using posting activity as an example and I will present the results for the other outcome variables in a more concise fashion.

afternoon on June 16. Jo Cox was shot a little before 1 pm (12:53 am) and pronounced deceased roughly an hour later (1:48 pm). The media started broadly reporting on this event at around 2 pm and continued to do so for the next 2 days. A live blog reporting on this event, with time stamps for news developments, can be found here: https://www.theguardian.com/politics/live/2016/jun/16/eu-referendum-live-osborne-brexit-budget-leave-tories?page=with:block-5762a46fe4b04ceead989114#liveblog-navigation

First, I compute the ACF and PACF for posting activity, using the acf2-function from the R-package *astsa*. Figure 5.5 shows the ACF and PACF plots. We can observe that the ACF tails off toward 0 and that the PACF cuts off after the first lag. This suggests an AR(1) model. Still, out of interest in obtaining the best fitting model, we could also consider the performance of an AR(2) model for posting activity. The *sarima*-function of the same R package can be used to obtain information about model fit, including the AIC and BIC values. Compared to the AR(2) model, the AR(1) has a lower BIC value, indicating a better fit: AR(1) has an AIC of 9.53 and a BIC of 9.60 and AR(2) has an AIC of 9.53 and a BIC of 9.62. To conclusively decide between these two models, we can also consider the residuals.

Figure 5.5: The ACF and PACF for posting activity



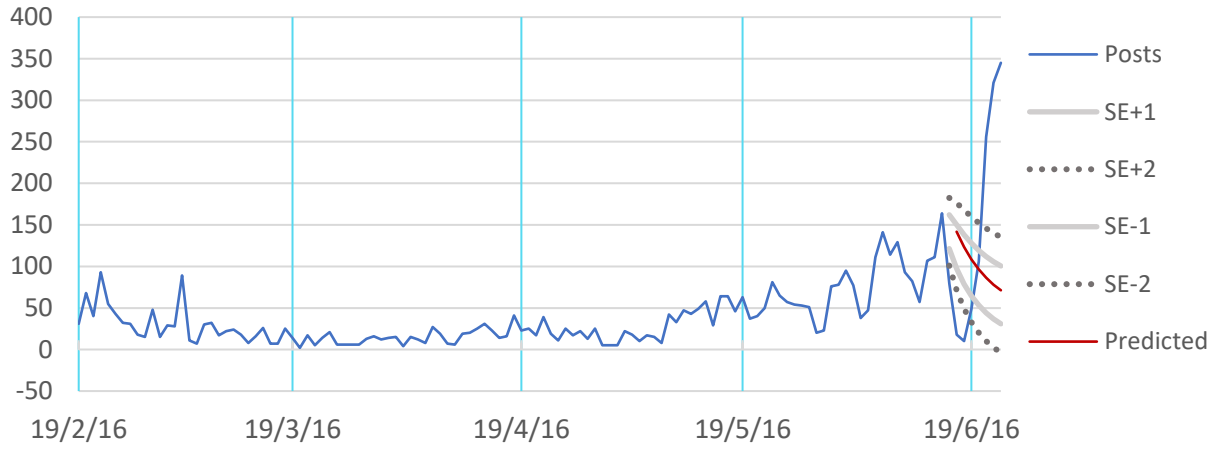
The *sarima*-function returns graphs that can be used for a residual analysis: a graph of standardised residuals, the sample ACF of residuals, the Normal Q-Q plot and Q-statistic p-values (the Ljung-Box statistic). These graphs for posting activity can be found in Appendix E2. The results of the residual analysis indicate that compared to the AR(1) model, the AR(2) model includes a similar amount of correlation in the residuals. Based on these insights - the similarity in model fit - the AR(1) model which is simpler is to be preferred to the AR(2). Thus, for posting activity, the AR(1) model or ARIMA(1,0,0) fits best. This means that for posting activity, the observations are regressing on yesterday's values.

Next, I compute forecasts using this AR(1) specification for predicting posting activity, considering both interventions: the news about the Queen and the murder of Jo Cox MP. Based on the values before the intervention, how can we expect posting activity to evolve during the campaign? Figure 5.6 shows the forecasted posting activity focusing on the murder of Jo Cox MP, and the graph

relating to the first event - the news about the queen - can be found in Appendix E3. In Figure 5.6, The blue line refers to the actual posting activity, the number of posts, published by the MPs about the EU referendum on their Facebook pages. The red line shows the predicted average posting activity after the event. The area between the light-grey lines refers to the +/- 1 SE and the area between the dotted grey lines to the +/- 2 SE.

Whereas the observed posting activity immediately following news about the Queen lies within the range of predicted values, this is not the case for activity after the murder of Jo Cox MP. Figure 5.6 shows an unprecedented drop in activity, outside of the +/- 1 SE range and +/- 2 SE range, suggesting that this event did impact posting activity.

Figure 5.6: Forecast for posting activity AR(1) considering the murder of Jo Cox MP



To examine the influence of the events on posting activity, I turn toward the results of a Poisson regression. I focus on the potential delayed effects of external events and shocks as predictor variables on the outcome variable, posting activity. Since the AR(1) model fits best, to account for auto-regression between successive days, I include the first lag of the outcome variable in the regression. Additionally, to avoid the possibility that any non-stationarity influences the estimation of effects, I detrend the predictor variable. This also reduces potential multicollinearity between posting activity and time. I examine the resulting regression for posting activity as the outcome variable on the detrended predictor variable (dtx) and the trend (t). The influence of the day of the EU referendum campaign (more towards the beginning, or more towards the end) is thus considered in the estimation of the effects of the external events on posting activity.

Table 5.3 shows the results of the Poisson regression analyses predicting the potential temporary effect of the two events and changes in the polls on posting activity. For each of these variables, I include the original model without lags, as well as the model with lags. I include lags of the predictor variable to test for a delayed effect of the event and lags of the outcome variable to account

for the auto-regression present in the time series. The models presented in the tables only show those lags that are significant. I decide on the best fitting model by considering the significance of the predictors, the R^2 and the adjusted R^2.[136] In the models, a negative coefficient indicates a decrease in posting activity and a positive coefficient an increase in posting activity.

Table 5.3: Poisson regression results for posting activity

	Event 1: Queen backs Brexit		**Event 2: Murder of Jo Cox MP**		**Poll changes**	
	Model 1A	Model 1B with lags	Model 2A	Model 2B with lags	Model 3A	Model 3B: with lags
intercept	2.367***	2.356***	2.363***	2.491***	2.342***	2.314***
	(.039)	(.043)	(.039)	(.040)	(.039)	(.073)
trend (t)	.019***	.013***	.019***	.012***	.019***	.014***
	(.000)	(.001)	(.000)	(.001)	(.000)	(.001)
dtx	.096	.010	-.219	-.636***	.038***	.012
	(.245)	(.245)	(.114)	(.114)	(.004)	(.011)
y-lag1		.007***		.007***		.007***
		(.000)		(.000)		(.000)
x-lag1				-1.555***		-.045**
				(.237)		(.017)
x-lag2				-1.744***		.095***
				(.318)		(.018)
x-lag3						-.063***
						(.012)
R^2	.408	.758	.411	.759	.434	.786
Adjusted R^2	.398	.752	.401	.749	.425	.774
DF	123	117	123	117	123	111

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Models 1A and 1B indicate that the first event had no temporary influence on posting activity: the coefficient of the detrended predictor variable (dtx), the event, is not significant. Compared to model 1A, the delayed effects model 1B performs better: 1A explains 40.8% and 1B 75.8% of the variance in posting activity across the entire time series. According to model 1B, instead of the first event, posting activity is influenced by the trend (t) and affected by auto-regression (the influence of yesterday's posting activity, indicated by a significant Y-lag1). Regarding the second event model 2B, which includes auto-regression with yesterday's posting activity, trend (t) and lags of the predictor variable (x) as significant predictors of posting activity, indicates that the murder of Jo Cox on June 16 had an impact on the dynamics of posting activity. This delayed-effects model performs better than model 2A, which does not include auto-regression or lags. Model 2B explains 75.9% of the variance in posting

[136] Compared to other models with lower R^2-values, the model with a higher (adjusted) R^2 indicates that the model explains more of the variance in the outcome variable.

activity across the entire time series and finds that the event (dtx) had a temporary effect: it caused a temporary decrease in posting activity for up to two days. In contrast, model 2A which does not include auto-regression or lags finds no effect and only explains 41.1% of the variance in posting activity across the entire time series. See Text box 2 for more information about the influence of this event on MPs' posts.

Text Box 2: Posting activity and references to Jo Cox after the murder

The murder of Jo Cox MP took place on June 16. We, therefore, expect reduced posting activity on the day itself and in subsequent days. Model 2B indicates a delayed effect. To gain more insight into the influence of this event, I have looked at the posts of the 20 most EU referendum active MPs, as identified in Table 3.5, in Chapter 3. Out of the 20 MPs who posted about the EU referendum most frequently, 12 MPs took a sudden break from posting, of between 2 and 4 days (mostly between June 17 and June 20). Only 2 MPs refer to the second event - the murder of Jo Cox - in the first Facebook page post they publish after taking a break from posting. In their first posts after the event, the other MPs refer to their campaign activity, reiterate their stance, urging voters to vote "Leave" or "Remain" or share news articles. One MP continued posting. The event did not affect his posting activity. Had the event not taken place, this sudden decrease in activity would be difficult to explain. After all, at this stage, near the end of the campaign, politicians were campaigning actively.

Finally, models 3A and 3B consider the impact of changes in the poll of polls on posting activity. Only model 3A, which includes no auto-regression or lags, finds an effect of changes in the poll of polls on posting activity because the detrended predictor variable (dtx) is significant. According to this model, changes in the poll of polls do affect posting activity. This model explains 43.4% of the variance in posting activity across the entire time series. However, model 3B finds that changes in the poll of polls do not affect posting activity. Instead, according to this model, the day of the campaign (indicated by the trend or t) affects posting activity: an increase in public support for "Remain" instead of "Leave" on one day affects posting activity for up to three days after. This delayed effects model, model 3B, explains 78.6% of the variance in posting activity across the entire time series, whereas model 3A explains just 43.4%.

5.6.2 The effects of external shocks on the use of argument, anger, and anxiety

Next, I compute OLS regressions to examine the influence of the events on the content of the posts. Do the events lead to changes in the content of these posts, in terms of the use of argument, anger and anxiety? The ARIMA model specifications and forecasts relating to these variables can be found in Appendix E4. For the use of argument, an AR(1) model fits best, indicating the influence of auto-regression between successive days. I, therefore, include the first lag of the outcome variable in the OLS regression. I also detrend the predictor variable to identify how the passing of time (trend, t) affects the presence of argument in the posts. Table 5.4 shows the results of this analysis. These models collectively indicate that both events and changes in the poll of polls did not affect the use of argument: even when lags of the predictor variable, auto-regression, and trend (t) are considered, the event (dtx) is not significant. The delayed-effects-models do perform comparatively better in explaining the variance in the use of argument across the entire time series: model 4A explains 29.6% and model 4B 53.9%, model 5A explains 29.3% whereas model 5B explains 55.2% and, finally, model 6A explains 29.6% and model 6B 55.4% of the variance in the use of argument.

Table 5.4: The regression results for the use of argument

	Event 1: Queen backs Brexit		**Event 2: Murder of Jo Cox MP**		**Poll changes**	
	Model 4A	Model 4B with lags	Model 5A	Model 5B with lags	Model 6A	Model 6B: With lags
intercept	-.951***	-.383***	-.951***	-.372***	-.951***	-.363***
	(.041)	(.077)	(.042)	(.076)	(.042)	(.080)
trend (t)	-.004***	-.001*	-.004***	-.001*	-.004***	-.002**
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
dtx	-.203	-.077	.140	.190	-.006	-.002
	(.234)	(.186)	(.235)	(.186)	(.007)	(.006)
y-lag1		.619***		.623***		.616***
		(.072)		(.071)		(.072)
x-lag1						
x-lag2						
x-lag3						
….						
R^2	.296	.539	.293	.552	.296	.554
Adjusted R^2	.284	.527	.282	.541	.285	.543
DF	123	117	123	119	123	114

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note:* For argument, the logarithmically transformed proportion variable - as mentioned in Chapter 5 - is used.

For anxiety and anger, an ARIMA(0,0,0) model fits best, indicating that these time series only contain a constant and white noise. I, therefore, do not include any lags of the outcome variable in these regressions. Tables 5.5 and 5.6 show the results of the analyses.

Models 7A-8B in Table 5.5 indicate that neither of the two events affects the use of anxiety in the posts. According to model 9A, which does not consider a delayed effect, changes in vote intention similarly do not influence the use of anxiety. However, model 9B which includes lags of the predictor variable suggests that changes in vote intention lead to a decrease in anxiety used. Yet, this model only explains 0.8% of the variance in the use of anxiety in the posts across the entire time series. Models 10A-12B in Table 5.6 predict the use of anger in the posts. None of these models includes significant predictors for the use of anger. These models also explain little in the use of anger, indicated by the R^2 values, which lie between 0.2% and 0.8%.[137] Thus, in sum, the day of the campaign, the events and changes in public support for "Remain" or "Leave" do not influence the use of anger in the posts.

Table 5.5: The regression results for the use of anxiety

	Event 1: Queen backs Brexit		**Event 2: Murder of Jo Cox MP**		**Poll changes**	
	Model 7A	Model 7B With lags	Model 8A	Model 8B With lags	Model 9A	Model 9B: With lags
intercept	-.523***	-.527***	-.523***	-.548***	-.523***	-.845***
	(.063)	(.066)	(.063)	(.068)	(.063)	(.136)
trend (t)	-.002*	-.002	-.002	-001	-.002	.000
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
dtx	.423	.426	-.131	-.164	.001	-.053*
	(.354)	(.360)	(.360)	(.352)	(.011)	(.023)
x-lag1						.062**
						(.023)
x-lag2				-1.006**		
				(.352)		
x-lag3						
R^2	.042	.039	.032	.090	.031	.083
Adjusted R^2	.026	.023	.016	.066	.015	.060
DF	123	120	123	117	123	119

*Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. Note:* The anxiety variable has been logarithmically transformed for this analysis, as described in Chapter 5.

[137] The adjusted R^2 -values for these models in Table 5.6 are negative, indicating that the predictors included in the models do not help predict the use of anger in the posts. The models barely explain this outcome variable, if at all.

Table 5.6: The regression results for the use of anger

	Event 1: Queen backs Brexit		**Event 2: Murder of Jo Cox MP**		**Poll changes**	
	Model 10A	Model 10B With lags	Model 11A	Model 11B With lags	Model 12A	Model 12B: With lags
intercept	-.610***	-.617***	-.610***	-.615***	-.610***	-.614***
	(.069)	(.074)	(.069)	(.074)	(.069)	(.074)
trend (t)	.000	.000	.000	.000	.000	.000
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
dtx	.359	.364	.375	.373	.003	.005
	(.388)	(.391)	(.390)	(.392)	(.011)	(.012)
x-lag1						
x-lag2						
x-lag3						
R^2	.008	.008	.008	.009	.002	.003
Adj R^2	-.008	-.008	-.008	-.008	-.015	-.014
DF	123	119	123	119	123	119

*Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. Note:* The anger variable has been logarithmically transformed for this analysis, as described in Chapter 5.

5.7 Discussion

In earlier chapters, I have studied the prominence of MPs' EU referendum campaign communication on their public Facebook pages. In this chapter, I investigate the dynamics of this campaign communication, to better understand how the campaign develops on Facebook and to what extent it is influenced by offline developments. I, therefore, consider the impact of external events and changes in the general public's voting intention that occurred during the campaign. These findings give us insight into how the campaign activity is spread over the campaign. In this chapter, I focus on the number of posts and posts containing an argument published by the MPs throughout the campaign, as well as the extent to which the posts feature anxiety and anger. Across the board, the findings suggest that except for the murder of Jo Cox, neither external events nor changes in voting intention in favour of "Remain" versus "Leave" have short-term effects on the campaign dynamics. This suggests that the events are not related and do not similarly affect the dynamics of MPs' campaign behaviour on their Facebook pages. More generally, the lack of a relationship between the campaign events and changes in vote intention and the campaign communication of the MPs also implies that the Facebook pages are not prominently used by MPs to reactively campaign about the EU referendum.

For the posting activity and the use of argument, an AR(1) model fits best. This suggests that these time series do have a common structure. These time series do not constitute white noise. For posting activity, it indicates that the number of posts published by MPs on one campaign day is related to the number of posts they published the day before. Likewise, the extent to which MPs use argument in their posts is linked to their use of argument in their posts published the previous day. The use of anger and anxiety cannot be modelled accurately using ARIMA, indicating random fluctuation over time, as well as the presence of white noise. The white noise represents those external shocks that influence the campaign, but which take place at random. When we take MPs as a group of actors, we expect to find common patterns, based on a shared, group dynamic. However, the analyses demonstrate that there is no pattern in the use of argument, anxiety, and anger by MPs. The presence of a delayed effect of posting activity in model 2B proves to be an exception, which reflects that politicians explicitly agreed to suspend the campaign.

Further analyses are required to add nuance to the question of whether there are patterns in the gradual prominence of MPs' campaign communication on their Facebook pages. For example, it is possible that by grouping MPs by characteristics, such as party, patterns in campaign communication could be found. More analysis could also explain whether the lack of evidence of a group dynamic when it comes to the EU referendum campaign communication is due to MPs communicating as individuals. Platforms like Facebook and Twitter do encourage MPs to communicate independently, as they aim to raise support and market themselves, their party, or their 'cause' (Enli & Skogerbø, 2013). Thus, whilst the central party organisation communicates strategically in the interest of the party, individual MPs communicate in a way that benefits themselves. It is also possible that because the political parties in Britain were sharply divided on the issue of Brexit, MPs were able to communicate more independently than they otherwise would have. They would not have to consider the party line or the party's official communications when announcing their support for "Leave" or "Remain". Future studies should therefore continue to acknowledge the influence of individual-level characteristics, even when analysing the campaign communication of MPs as a group.

6 Conclusion

This thesis investigates MPs' Facebook posting activity and posting content. In Chapter 1, I review literature about the professionalisation of politics and the communicative behaviour of MPs concerning their role as representatives. I describe the EU referendum as a key event, I present a summary of the results, and I provide a general description of the structure and content of this thesis. In Chapter 2, I outline the approach employed to create the data sets, helping the reader obtain background knowledge about the key variables and the measures used, and highlighting how the three empirical chapters, Chapters 3, 4 and 5, are related. In Chapter 3, I investigate which MPs use their Facebook pages to communicate and campaign. In Chapter 4, I study the extent to which communication in MPs' Facebook page posts is deliberative. Finally, in Chapter 5, I explore whether the EU referendum campaigning of MPs on the Facebook pages relates to external events and developments which occurred during the campaign. Below, I discuss the empirical findings from Chapters 3, 4 and 5, after outlining the insights obtained from earlier studies.

6.1 The need for MPs to have a digital presence

Today, politicians are required to have a presence, all the time. They have to campaign, permanently. These demands on politicians do not cease when there is no upcoming election. The rise of digital technology has increased the range of platforms politicians can use for campaigning and for communicating to voters. Whether this technology has fundamentally transformed politics is up for discussion, but it has boosted the professionalisation of political communication in general, and political campaigning more specifically. Traditionally, MPs meet with constituents at surgeries and use mass media to communicate with their constituents and voters, such as newspapers, radio, and TV. In recent years, MPs have gradually turned toward using the web. The web has given MPs the added option of communicating to constituents and voters in the form of websites, emails, weblogs, and web 2.0 applications. Today, they can and need to use these applications to communicate with their constituents efficiently and reflectively: to at least disseminate messages, such as those about their contributions to the constituency, and to share their positions on policy issues.

This online presence is required by the remit of the MP, outlined in at least five perspectives, which I presented in the introduction of this thesis. These perspectives – those of the delegate, trustee, party, constituency service and e-representation (or self-presentation) – are not mutually exclusive and explain the different activities of MPs, by describing the expectations of the political parties and voters. Except for the trustee perspective, each of these perspectives sheds light on why MPs use a social media site like Facebook in their role as representatives. MPs use the platform to

communicate to their constituents, and the platform can be used for contacting MPs directly. As such, it facilitates MPs' work as delegates of constituent interests and concerns. MPs also use their Facebook pages to present themselves, as individuals but also with the political party as a backdrop to frame their activities, interests, and decisions, and to provide updates about their work in, and contributions to, the constituency. These perspectives introduce expectations for MP behaviour. Constituent expectations of their MPs vary. Whereas some appreciate MPs' loyalty to the political party, others prefer MPs to focus their efforts on the constituency. When constituents' expectations are not met, MPs lose public support. This would be detrimental, considering that political trust is low, and constituents are sceptical of the behaviour and performance of MPs. Low political trust negatively affects voter turnout (e.g., Schaffer, 1981; Bélanger & Nadeau, 2005; Alvarez, Hall & Llwellyn, 2008), as well as public attitudes towards government and its policies (Taylor, 2018). Negative perceptions of representatives also challenge the ability of the government to perform (e.g., Dalton, Burklin & Drummond, 2001).

At the same time, for constituents and voters to obtain political information from their representatives, MPs need to be present online. By using Facebook, the most popular social media site at the time (Ofcom, 2017), and the most popular SNS for accessing news (Newman et al., 2016), the messages posted by MPs on their pages can be read by a large portion of their electorate. It is desirable for constituents and voters to receive information about their MPs' views and standpoints. After all, constituents need to be aware of what their MPs stand for and intend to do when in office. Once voters have obtained this information, they can make an informed choice who to support at an election, and whether to support or reject a proposal at a referendum.

Finally, when MPs decide to express views that are at odds with those officially held by the political party, they themselves will also experience the need to be digitally present. They will want to present these views as their own. After all, the decision to divert from the official position or views of the political party can negatively affect the reputation of MPs, as well as the support they receive from fellow party members. However, by taking a position that differs from their party, MPs can obtain support from their constituents and voters. To reap this potential benefit and mitigate the costs of their decision, MPs will want to be heard.

6.2 Previous insights about digital MP communication and the EU referendum campaign

Political communication in general, and campaigning in particular, has professionalised (Tenscher, 2013). A new infrastructure for communication, with digital tools, techniques, and expertise, is available for politicians to use, even when no election is near. Web applications, such as websites,

(we)blogs, and e-newsletters, and social networking sites, belong to this toolbox and present relatively low-cost tools for communication and mobilisation (Foot & Schneider, 2002). Out of these applications, MPs use (we)blogs and social media, also referred to as social networking sites, to showcase their contributions to the constituency, as well as their policy interests (e.g., Auty, 2005; Hemphill, Otterbacher & Shapiro, 2013). E-newsletters and personal websites are instead primarily used for the dissemination of news, news about the MP, the constituency and Parliament (Ward & Lusoli, 2005; Stanyer, 2008).

Today, MPs increasingly communicate to their constituents and voters through social media sites like Twitter and Facebook. MPs use Twitter to promote themselves and their political party and to criticise others (e.g., Golbeck, Grimes & Rogers, 2010; Graham et al., 2013), to provide information and to advertise their views (e.g., Hemphill, Otterbacher & Shapiro, 2013), and to mobilise voters (Hemphill et al. 2013; Graham et al., 2013). As representatives, MPs use Facebook for impression management, promotion, to campaign, to share information and to complement their use of traditional media (e.g., Williamson, 2009a; Jackson & Lilleker, 2009; Lassen & Brown, 2011; Skovsgaard & Van Dalen, 2013; Ross & Bürger, 2014).

Most studies which consider the communicative and campaign behaviour of MPs on social media, and on Facebook, in particular, study this behaviour within the context of an election campaign. Compared to elections, referenda occur infrequently and revolve around an issue for discussion which is important, but not necessarily substantively discussed. Overall, referenda are structured differently compared to elections. A vote is cast in favour or against a proposal instead of a political party or politician. In this sense, political parties are taken out of the equation, and partisanship plays less of a role, at least when the referendum has not, or not completely, been politicised along party lines. Especially when a referendum proposal raises so-called moral questions (such as abortion, LGBTQIA+ issues, etcetera), support and opposition are often not based on partisan politics or party loyalty, and party leaders do not feel entitled to impose a position on their MPs. Thus, MPs' positions can cut through party lines. Whilst the EU referendum campaign did not revolve around a moral issue, the issue of EU membership was divisive. MPs were free to declare their support for "Leave" or "Remain" after the negotiations finished in February 2016, and MPs' positions did end up crossing traditional party lines (e.g., Conservative versus Labour).

Therefore, while there is some commonality between referendum campaigns and election campaigns, insights relating to the elections cannot be directly translated to referenda. The EU referendum campaign did not revolve around (re-)election. A common wisdom is therefore that these circumstances provided an unusual context for MPs to campaign. Another common wisdom is that due to the rise of the permanent campaign and the professionalisation of politics, MPs use web 2.0

applications such as social media, even outside of election time. I tested in Chapter 3 whether the EU referendum did indeed present an unusual event and whether MPs were communicating on social media during the EU referendum. In this Chapter, I specifically examine whether and to what extent the personal and career characteristics of MPs affect their use of, and activity on their Facebook pages during the campaign. Previous studies suggest that MP characteristics that influence the likelihood of MPs adopting and using digital means of communication are their political party, their status (fewer versus more years of service), their electoral vulnerability and their position (frontbencher/backbencher). Larger parties are more present on the Internet than smaller parties (Lilleker et al., 2011). Furthermore, Coleman and Spiller (2003) find that MPs with fewer years of service are more likely to have a personal website compared to MPs with more years of service. MPs who are in marginal seats communicate more with e-newsletters with constituents than those who are in safer seats, to present their contributions to the constituency (Umit, 2017). Likewise, compared to frontbenchers, backbenchers are more likely to use personal websites to emphasise their constituency service (Jackson, 2011). These studies of the adoption of web applications by MPs are, due to the rapid development of technology, largely outdated. Moreover, they tend to focus on just a limited number of personal or political career characteristics of MPs. We also know that the results of analyses relating to one social media platform can often not be generalised to another (e.g., Bossetta, 2018), and that younger and older MPs communicate differently.

For example, female MPs are more selective with giving statements than male MPs (Ross & Sreberny-Mohammadi, 1997), but they are also more active on social media (e.g., Jackson & Lilleker, 2011), and reluctant to use Facebook (Ross & Bürger, 2014). In addition, younger MPs are more likely to use web applications than older MPs (Lilleker & Koc-Michalska, 2013; Umit, 2017). However, studies have disproportionally focused on Twitter (e.g., Tufekci, 2014). In this thesis, in Chapter 3, I, therefore, take the opportunity to test whether those characteristics that have previously predicted MPs' social media use on Facebook and Twitter are also predictors of MPs' Facebook use during the EU referendum campaign.

After in this way responding to the question of which MPs have adopted and use Facebook, I study *how* MPs communicate on social media. I focus on the Facebook page posts of MPs. We know that MP communication on this platform is generally used to manage impressions: to discuss contributions to the constituency and to highlight MP performance (e.g., Ross & Bürger, 2014). As a result, the posts of MPs on Facebook may focus on the MPs' personality and activities instead of policy. I am specifically interested in the extent to which posts relevant to the EU referendum campaign - posts that focus on a policy issue rather than the MPs themselves – feature deliberative communication. I use the theoretical framework of pragma-dialectics to explore whether and to what

extent the Facebook page posts of MPs feature deliberative communication. I focus on the use of argument and emotion, devices which are typically used in deliberation for persuasion. These devices allegedly played a central role in the EU referendum campaign: it is commonly assumed that the EU referendum campaign communication revolved around the use of factual claims, as well as appeals to fear.[138] It has been said that, in this campaign, politicians regularly presented arguments to persuade voters to vote "Remain" or for "Leave".

In fact, according to Martin (2016), the arguments of the camps were repeated 'ad nauseam' and often criticised by the other (p. 21). "Leave" had to provide good reasons for voters to want to make such a drastic change of leaving the EU, for voters to want to, in their words, 'take back control' (Martin, 2016). Their arguments are said to have referred to a negative influence of the EU on the UK, in terms of costs of membership, subservience, and immigration (Crines, 2016).

In contrast, it has been said that "Remain" had to present a convincing argument against changing the status quo, referring to the benefits of membership, such as increased security (Banducci & Stevens, 2016). "Remain" may have relied on arguments about the economic advantages of continued EU membership, such as access to the single market, of immigration and of the 'opt outs' granted to the UK. It has been said that compared to "Leave", the arguments advanced by "Remain" were more rational: "Remain" used logic and referred to economic forecasts (Crines, 2016; Polonski, 2016), as well as "dull 'factual' evidence of expert opinion" (Martin, 2016, p 21). An example of the emphasis of this type of communication by "Remain" was the Government leaflet sent out in April 2016, shown in Figure 2.[139] This leaflet included information about the economy and measures that control immigration and travel, emphasising that, overall, EU membership is a benefit to the United Kingdom. For example, this leaflet states that export to the EU accounts for 44.4% of UK total exports of goods and services and that due to EU reforms, airfare has dropped.[140]

[138] The EU Referendum Analysis report from 2016 includes contributions by British political campaign, political communication, media, and journalism scholars, in which they share their observations about the EU referendum campaign, within 10 days after referendum day (23 June 2016). In the following paragraphs, I outline a number of common wisdoms by referring to the observations included in this report.

[139] A digital version of this leaflet can be retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/515068/why-the-government-believes-that-voting-to-remain-in-the-european-union-is-the-best-decision-for-the-uk.pdf

[140] The actual statements in this leaflet are: "EU reforms in the 1990s have resulted in a drop in fares of over 40% for lower cost flights", on page 4, and "In 2014 total exports of goods and services to the EU were £228,893 million and total exports of goods and services worldwide were £515,191 million. This made exports to the EU 44.4% of the total. The US is our next biggest export market, accounting for 17% of the total", on page 8.

Figure 6.1: Government leaflet about reasons to “Remain”

Another common wisdom is that politicians used populist rhetoric and engaged in emotional politics and scaremongering, playing on voters’ fears. The campaign has specifically been described as “less respectful and more populist” (Blumler, 2016), ‘fiercely contested’, ‘divisive’, ‘rather uncivil’ and ‘ugly’ (Jackson, Thorsen, & Wring, 2016; Martin, 2016; Parry, 2016), due to tabloid press (e.g., Gifford, 2016; Wring, 2016), but also due to the populist rhetoric of politicians (Blumler, 2016; Renwick, Flinders & Jennings, 2016). Allegedly, appeals to negative emotions were allegedly used by both “Leave” and “Remain”. It has been observed that both camps painted a frightening, dystopian image of the UK after remaining in or leaving the EU (Banducci & Stevens, 2016). Out of the two official campaign organisations, Stronger In and Vote Leave, Vote Leave is said to have been engaged in more negative campaigning and Stronger In stuck to using a more ‘measured tone’ (Keaveney, 2016). “Leave” is said to have used appeals to negative emotion when referring to the control of the EU over the UK, the threats posed by immigration, and the risks involved in Turkey joining the EU (Martin, 2016), at times using exaggeration and ‘self-serving’ statistics (Beckett, 2016). Figure 1 shows Nigel Farage in front of the infamous ‘Breaking Point’-poster, which reads: “Breaking point: the EU has failed us all”.

Figure 6.2: The ‘Breaking Point’-poster

This poster shows a queue of immigrants and refugees to argue that it is necessary to control the borders, which can be done by leaving the EU. This poster was painted on a fleet of vans used by "Leave" near the end of the campaign. The poster has been described as 'highly inflammatory', controversial and subject to widespread criticism (Moore, 2016).[141] Meanwhile, "Remain" purportedly appealed to voters' concerns when describing the economic risks to leaving the EU and the economic benefits for staying, which became referred to as 'project fear' (Martin, 2016).

Rhetorical devices like these can be used to persuade voters of a point of view and to influence voters' choices (e.g., Popkin, 1991; Redlawsk et al., 2010; Petersen, 2010; Valentino et al., 2011). An argument is advanced in deliberation, in support of a standpoint. An argument put forward by an elite actor, such as an MP, can evoke existing predispositions (Zaller, 1992). This is also the case for anger and anxiety. Whereas anger urges risk-taking and political action, anxiety urges risk-aversion (e.g., Valentino et al., 2009; 2011). Thus, anxiety could be used to influence indecisive voters to vote "Remain", as staying in the EU presented a safer choice than leaving.[142] Moreover, anxiety motivates, and anger demotivates a search for more political information and learning (Redlawsk et al., 2010). Therefore, anxiety could also urge voters to consider the consequences of a vote in favour or against EU membership. Immigration and the economy were the two central policy issues addressed in the EU referendum campaign (e.g., Usherwood & Wright, 2017). In general, discourse about immigration features anxiety about its negative implications (e.g., Boomgaarden, 2007), since anxiety encourages intolerance (Redlawsk et al., 2010).

Studies also confirm that politicians also use anger and anxiety on Facebook and in their communications about the EU. For example, Borah (2016) finds that during the 2008 US presidential campaign, in their Facebook posts, McCain and Romney campaigned negatively and, out of all emotions, most frequently appealed to fear, whereas Obama focused on the promotion of events, campaign activity and the importance of turning out to vote. In addition, there is evidence that anger played a role in the EU referendum campaign. Anger reinforced existing Euroscepticism and urged voters to vote "Leave" (Garry, 2014; Vasilopoulou & Wagner, 2017).

Thus, inspired by these insights and to test the assumption that argument and anxiety were prominently used in campaign communication about the EU referendum, in Chapter 4, I study the presence of these devices in MPs' EU referendum Facebook page posts. If MPs use an argument about the EU referendum, the EU or EU membership in their posts, it indicates that they are taking a stance on a substantive issue. As discussed above, MPs' use of argument, anger and anxiety are likely to

[141] More contextual information about how the poster was received can be found in this article by the Guardian: https://www.theguardian.com/politics/2016/jun/16/nigel-farage-defends-ukip-breaking-point-poster-queue-of-migrants

[142] Since fear translates into a preference for the status quo, fear can also contribute to a vote against further EU integration. De Vreese and Boomgaarden (2005) find a positive relationship between fear of immigration and a vote for "No" at referenda about further EU integration.

reflect attempts to persuade the voter. A study of the use of these rhetorical devices by MPs contributes to our understanding of whether and to what extent MPs communicate deliberatively in their Facebook page posts and of how they communicated during the EU referendum campaign.

Finally, to gain a better understanding of how a campaign develops on Facebook and the extent to which MPs' use argument and emotion in posts on the EU referendum (a substantive issue), I investigate whether MPs adapt their Facebook communication to offline developments. Does their use of argument, anxiety and anger fluctuate over time? In many campaigns it has been observed that nearer to the end date of a campaign, campaign activity and engagement increase (e.g., Nuernbergk & Conrad, 2016). On social media, the intensity of the campaign also increases when the end draws near and when there are debates between leading candidates (Aragón et al., 2013). Social media posts will feature election-related activity, such as invitations to meetings and rallies throughout the campaign (Nuerngbergk & Conrad, 2016), as well as current affairs reported in the mainstream media (Larsson, 2016). However, to the best of my knowledge, little is known about if and to what extent MPs' Facebook campaign activity responds in similar ways to external events and developments. In this thesis, I therefore also study the extent to which the Facebook EU referendum campaign communication of MPs is affected by events and developments that occurred during the campaign.

6.3 What have we found about MP Communication on Facebook during the campaign?

Overall, the chapters in this thesis contribute to the emerging field of research on the e-communication practices and strategies of MPs, methodologically and empirically. The creative combination of qualitative and quantitative methods to create the data sets and analyse the data provide an opportunity for reflecting on what are the best practices for the analysis of Facebook data. Furthermore, the findings of the three separate studies presented in this thesis shed light on how MPs use their Facebook pages to communicate and campaign. More specifically, these studies provide insight into the adoption of Facebook and the Facebook activity of UK MPs, their deliberative communication in the EU referendum, exemplified by the use of argument, anxiety and anger, and the extent to which the activity of the actors responds to external events and developments. Although my research focuses on one key event, namely the EU referendum, the insights obtained can be used to guide future work into MPs' use of social media and Facebook in particular, to communicate deliberatively and to campaign.

Chapter 1 presents an overview of the relevant literature and Chapter 2 consists of a discussion of the methodological approach taken for the collection and analysis of the data. It includes an in-depth discussion of the conditions for and merits of using Facebook data in academic research.

Chapter 3 gives insight into the extent to which MP Facebook pages are active. In this chapter, I aim to predict MPs' EU referendum posting activity on their Facebook pages. As part of this study, I also investigate whether traditional predictors of social media use and activity apply to MPs' use of Facebook during the campaign and the extent to which they posted about topics other than the EU referendum (referred to as 'other posting activity'). Previous studies have found that age and length of service influence MPs' use of the web for political communication (e.g., Coleman & Spiller, 2003; Lilleker & Koc-Michalska, 2013). As expected, I find that older MPs and MPs who have more years of service are less likely to use Facebook. However, while earlier studies have found backbenchers to be more active on social media (e.g., Jackson, 2011), I find that backbenchers are not significantly more likely to use Facebook than frontbenchers.

In terms of MPs' other posting activity on Facebook, as expected, I find that newly minted MPs and MPs from minor parties published more posts than MPs with more years of service and MPs from one of the major parties: Labour or the Conservative Party. However, none of the personal profile or political profile characteristics of MPs predicts MPs' EU referendum activity. Based on the literature, we would expect younger MPs to be more active than older MPs (e.g., Lilleker & Koc-Michalska, 2013), MPs with fewer years of service to be more active than senior MPs (Coleman & Spiller, 2003), and backbenchers to be more active than frontbenchers (Jackson, 2011). When grouped on these different characteristics, I find no differences in this type of posting activity between the groups of MPs. I also find no differences in EU referendum posting activity between male and female MPs and "Leave" and "Remain"-supporting MPs. Finally, as expected, I find that the party of the MP does not predict EU referendum posting activity. There are several explanations for the low level of the explanatory power of the personal and political profile characteristics of MPs. For example, MPs may not coordinate their posting activity on Facebook. Instead, they have their own, individual strategies. It is also possible that there are MP characteristics that do predict the EU referendum activity on Facebook, but which have not yet been studied. Therefore, work remains to be done to predict this activity.

These results support the assumption that the EU referendum provided an unusual context for MP communication and campaigning and underline the need for further study. For example, whatever we knew about politics on Facebook holds to Facebook use within the context of normal politics and does not apply to the abnormal politics about the EU referendum. The fact that the EU referendum provided unusual circumstances for communication and campaigning means that, unavoidably, there are aspects to the research presented in this thesis that are exploratory, which could not have been studied before. The findings from this chapter only give insight into the quantity of (EU referendum) posts published by MPs on Facebook. It does not give any indication of what these posts contain. Longer posts in which the MPs take a stance and include further information indicate

more campaigning effort by the MP. In Chapter 4, I focus on the use of deliberative communication in these posts, to better understand how the posts about the EU referendum are written. I focus on the use of a single argument as well as the use of the negative emotions anxiety and anger, which can be used as argument strategies.

This chapter should be seen within the context of Euroscepticism in the UK. EU membership has long been a contentious topic and because of this legacy, coming up with positive instead of negative messages and arguments for staying in the European Union, rather than leaving, during a four-month campaign could be a challenging task. If the MPs were to communicate deliberatively in these posts, we would expect the posts to regularly contain both argument and emotion, indicating that MPs use rhetoric to persuade voters. We would also expect "Remain" MPs to rely on anxiety and "Leave" MPs to rely on anger.

However, the findings of Chapter 4 indicate that MPs only deliberated in the text of these posts to a certain extent. Just 1 out of 20 posts contain an argument. In these posts, both "Leave" and "Remain" MPs tend to refer to the same policy areas and current affairs, with a focus on trade, immigration, the economy, businesses, Brussels and, more generally, the negative consequences of staying in or leaving the EU. When the posts of MPs contain an argument, they are also more likely to feature anger and anxiety, indicating that the use of these rhetorical strategies is related. Overall, MPs' posts feature little anger and anxiety. "Leave" and "Remain" MPs did not use argument significantly differently. However, "Leave" MPs did use more anxiety in their EU referendum posts and as suggested by supplementary measures, less positivity. These findings go against the hypothesis that "Remain" MPs are instead more likely to use anxiety, to urge voters to choose for the less-risky status quo: to stay in the EU. The fact that I find no support that "Leave" MPs use more anger than "Remain" MPs also does not follow expectations: I find no evidence of MPs using anger to motivate voters to vote "Leave", a riskier decision than staying in the EU.

Thus, based on this Facebook activity, the limited use of deliberative communication, of argument, anxiety and anger, MP engagement in the EU referendum campaign appears to be limited. This is perhaps unsurprising, considering that it is a desire for re-election that shapes the online activity of MPs (e.g., Stanyer, 2008), and since this is not a campaign aimed at the election or re-election of representatives, there is less incentive for MPs to invest in this communication. The limited extent to which the posts feature the use of argument also underlines that Facebook does not function as an ideal public sphere, discussed in Chapter 4. Regardless, Facebook does provide a platform for MPs to unilaterally put forward their arguments and does not constrain MPs' use of negative emotion.

Another way in which we can uncover the engagement of MPs is by studying whether and how they respond to events and developments that take place during the campaign. I do this in

Chapter 5. In this chapter, I focus on changes in posting activity and the use of the three devices in these posts, studied previously: argument, anxiety, and anger. The data set used consists of univariate time series. I focus on two events and changes in vote intention, to study whether and to what extent these developments influence the posting activity and the use of argument, anxiety, and anger in the posts: the news that the Queen allegedly backs Brexit (event 1) and the murder of Jo Cox (event 2). I find that, overall, there is a sharp increase in posting activity at the end of the campaign period. The two events and changes in aggregate vote intention do not affect the use of argument, anxiety, and anger. Except for the murder of MP Jo Cox, I find no evidence that the events and changes in vote intention affect the dynamics of the EU referendum campaigning of MPs on their Facebook pages. The absence of a relationship between these developments suggests that the Facebook page is not a prominent campaigning platform for MPs, at least not to campaign reactively during the EU referendum campaign. The ARIMA model specifications for anger and anxiety suggest random fluctuation: the use of these rhetorical devices over time does not follow an identifiable pattern. Since I do not observe systematic changes in the use of these devices, these time series provide no evidence of MPs communicating as members of groups defined by party, or by camp, or by other characteristics.

Together, the findings from these exploratory, empirical studies contribute to our understanding of the contemporary communication practices of MPs. More specifically, they provide insight into how MPs have used their Facebook pages to communicate and campaign about the EU referendum. My research has shown that in some cases, the common wisdoms about MPs' communication about the EU referendum do not hold. Many findings of this research project unexpected. First, major figures were not the most active on the topic of the EU referendum on Facebook. Second, MP communication does not include much argument, anger, or anxiety. Third, MPs' campaign communication on this platform is generally not influenced by extraneous campaign-related events. What we have learned about this communication and campaigning in this referendum can be used to polish and update perceptions about the EU referendum campaign and inform studies that focus on other referenda, past and future.

6.4 Implications for our understanding of MPs' referendum campaign communication

These findings tell us how MPs use digital technology to communicate and to campaign as representatives, at referendum time. To meet the demands set by the permanent campaign and constituents, most MPs have created and maintain a digital presence. My findings in Chapter 3 indicate that most MPs used a Facebook page during the campaign. Out of these MPs, most did refer

to the EU referendum at least once. This is unsurprising: MPs do use their social media pages to campaign for what they consider important (Jackson & Lilleker, 2009).

However, in Chapter 4, I find that MPs seldom present a logically constructed argument. By not laying the ground for deliberation, by not using such an argument, MPs do not encourage constituents to consider their positions and to join the debate. My finding that MPs only use this type of argument to a limited extent is unexpected since arguments in support for either side were 'centre-stage' in the referendum (Martin, 2016), and "Remain" especially relied on the use and repetition of rational argument (e.g., Polonski, 2016). Likewise, the finding that few of the EU referendum posts contain anxiety or anger is unexpected. Wahl-Jorgensen (2016) argues that alarmism was pervasive during the campaign and that negative emotions such as fear were used to persuade voters to choose a side. Whereas "Remain" has been claimed to rely on 'Project Fear', warning about the negative impact of a Brexit on the economy (Green, 2016), prominent supporters of "Leave" are said to have used emotional appeals to vilify the EU, using arguments about conspiracy (Martin, 2016). The limited use of negative emotion in MPs' Facebook posts does not reflect the alleged widespread use of negative emotion by both camps. Generally speaking, in the posts on their Facebook pages, MPs do not appeal to the negative emotions of anger and anxiety when they refer to the EU referendum. These observations and the fact that most of the EU referendum campaign posts do not include an argument or appeals to emotion suggest that assuming that politicians did use argument and emotion, then this was not in the text of their Facebook page posts. Politicians may have instead presented their arguments and emotional appeals elsewhere, such as in TV debates (Shaw, 2016), and on the radio (Starkey, 2016).

Still, my findings of the limited use of argument and emotion imply that, overall, MPs' Facebook page posts were not prominently used for campaigning about the EU referendum. More specifically, the results of Chapter 4 provide no evidence of a systematic attempt to adapt the content of the posts to include argument and emotion, to mobilise or to persuade. This observation is supported by my findings in Chapter 5, where except for the murder of the MP, I find no impact of external events and changes in vote intention (for "Leave" versus "Remain") on the dynamics of MPs' campaign activity on their Facebook pages. This absence of a relationship between campaign developments and MPs' campaigning on Facebook suggests that the Facebook page is of rather marginal importance for MPs' external communication.

The other finding in Chapter 5 is that there are no patterns in the prominence of campaign activity over time: we cannot observe systematic changes in the time series for argument, anger, and anxiety. Had we found patterns in this campaign activity, then this could imply that MPs communicate as members of a group. However, the absence of patterns suggests that we should test whether MPs

communicate as separate individuals on their Facebook pages, instead. MPs possibly do not coordinate the communications they post on Facebook. Platforms like Facebook and Twitter do encourage MPs to communicate independently, to raise support and market themselves, their party, or their 'cause' in idiosyncratic ways (Enli & Skogerbø, 2013). Furthermore, even though each political party has its internal organisation, the fact that the political parties did not uniformly support either "Leave" or "Remain" potentially provided an opportunity for MPs to communicate more independently than they would have under normal circumstances. They would not have had to consider the party line or the party's official communications when announcing their support for "Leave" or "Remain". Further analyses would be required to determine whether there is a group dynamic when MPs are otherwise divided, for example by camp.

Based on these findings, which indicate that MPs do not use their Facebook pages as a prominent or reactive campaign tool, we have learned that MPs also do not exploit the opportunities that Facebook provides for informing voters. Considering that the average voter is little informed (e.g., Caplan, 2011), and that in a referendum citizens are less likely to vote based on party affiliation and loyalty than in an election and do not necessarily have clear and crystalised opinions about the issue (Franklin, 2002), it is important that information is available (e.g., De Vreese & Semetko, 2004; Hobolt, 2005). In fact, since a referendum constitutes an instrument for engaging citizens (Fishkin, 1995), and because campaigns can increase political knowledge and interest in politics (Mendelsohn & Cutler, 2000), voters may be more inclined to read these posts than they would be in an election campaign. After all, referenda do constitute an instrument for engaging citizens (Fishkin, 1995). Facebook was the top social media site in the UK in 2016 (Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2018), used by the general public (e.g., Parmelee, 2013), many of whom constitute voters who could use MPs' posts as a source of political information (Casteltrione, 2015).[143] After all, voters are less likely to

[143] However, if the posts were to serve this function, then we would not necessarily wish for them to include negative emotions such as anger and anxiety. Emotion affects how information is received and how the person who shared the information is perceived. For example, anxious individuals more carefully process information, even if this information is attitude inconsistent. The worried citizen is, therefore, "a good citizen" (Valentino, Hutchings, Banks, & Davis, 2008). In contrast, angry individuals are more likely to evaluate the information based on their partisan beliefs (Weeks, 2015). Thus, when political information is received by angry, partisan individuals, then they are more vulnerable to being misinformed. Van't Riet, Schaap, Kleemans, Veling and Lecheler (2019) have also found that politicians who express anger risk alienating the general public, for these messages are considered less appropriate. This study uses fabricated news articles and 2 experiments to investigate the influence of the expression of anger by MPs on the support they receive from their own base and the general public. In this study, the authors refer to expressions of anger in messages more generally. As such, the use of anger by MPs negatively affects how they are perceived. From this perspective, it is fortunate that MPs use little to no emotion in the text of their EU referendum posts on Facebook. Ultimately the political elite does influence public opinion about the EU (Steenbergen et al., 2007), and anger can create and exacerbate misperceptions. Misperceptions introduce misleading information in public debate. This should be avoided because misleading information can be picked up and reported on in the mass media. This negatively reflects on MPs. No matter which model of representation we adhere to, MPs are still expected to adhere to a set of standards. As mentioned in the introduction, MPs are expected to be selfless, to have integrity, to be objective, accountable, open, honest and to show leadership (Bew, 2015). If MPs do not meet these expectations, then they do not fulfil their role as public officeholders.

gather information themselves: it is costly to take the time to collect data and to consider alternatives. This is especially the case when arguments in favour or against a referendum proposal have not been discussed or rehearsed extensively (Denver, 2002).[144]

Thus, to reduce the information costs involved, voters delegate tasks such as gathering, analysing, and evaluating information to others (Downs, 1957), such as the media and politicians they support. This is why compared to election campaigns, in a referendum campaign voters are volatile and late to make up their mind (De Vreese & Semetko, 2004), and why developments and events during the campaign affect public opinion and the final vote (LeDuc, 2002b; Fournier, Nadeau, Blais, Gidengil, & Nevitte, 2004). When MPs make little reference to policy in these posts, constituents cannot use and learn from this information. Voters who primarily rely on Facebook for receiving news and information may then struggle to take a position in a referendum.

Taken together, these findings raise the question of what MPs do use their Facebook page posts for. If we were to find that MPs primarily use their social media accounts for marketing themselves (Lassen & Brown, 2011; Lilleker & Koc-Michalska, 2013), even when their re-election is not at stake, could this be taken to mean that, on their Facebook pages, MPs deliberately avoid the discussion of policy? It is plausible that there are MPs who are hesitant to share policy information with constituents, for example in the form of opinion, statistical information, and survey results. While MPs need to communicate with their constituents, by sharing political information that is open to interpretation to support a policy standpoint or point of view, they are taking a risk. For MPs, the question is whether this is a risk worth taking.[145]

This leads us back to the question asked at the start of the empirical research presented in this thesis, in Chapter 3: which characteristics or circumstances do predict whether and when MPs communicate and campaign, about policy, on a social media site like Facebook? The results of Chapter 3 did not give us an answer. Instead, the results indicate that none of the characteristics considered predicts when MPs talk about the EU referendum, a policy issue, in their posts, and underline that the EU referendum provided unusual circumstances for MPs to campaign. Considering the unusual nature of this campaign and the findings from Chapters 4 and 5, which imply that the Facebook page was not

[144] In the case of the 1997 Scottish and Welsh devolution referenda, voters had long-standing opinions (Denver, 2002), but this is unlikely to have been the case for the 2016 EU referendum. For example, Peter and De Vreese (2004) have found that in the UK, Denmark, the Netherlands, France, and Germany television news only rarely covers news about the EU if there are no major developments or key events to report. Machill, Beiler and Fisher (2006) likewise find that only a small portion of the national news in 15 EU nations including the UK focuses on EU-related topics, such as the euro, EU policy and political integration. It is therefore likely that the opinions of UK citizens about EU membership were less developed compared to their opinions about devolution.

[145] Fortunately, on Facebook, the risk of accidentally or purposely posting and sharing misleading or contentious information is marginal. Constituents will have to take the first step to find the MPs' Facebook page and to follow the posts. Unless picked up by the media, MPs' Facebook page communication is, therefore, less likely to reach the disinterested who do not wilfully tune in to receive their content.

the main platform for EU referendum campaigning, we have learned more about when, where, and how MPs do and do not campaign.

6.5 Suggestions for future research

In this thesis, I have taken an innovative approach for the collection and analysis of a large volume of text and meta-data. This data includes the text of a large corpus of Facebook posts and data relating to the authors of these posts (MPs) and the temporal context in which these posts have been published. The research strategy employed has given worthwhile insights into the contemporary communication strategies of the MPs. However, it is important to acknowledge that the findings of this thesis may not be generalisable to other platforms or other campaigns. I only consider one social media site, focusing on a single event: the EU referendum. I also focus on just the text of MPs' posts. However, this did allow the in-depth analysis of a phenomenon that lies within the scope of a PhD thesis. Based on my findings, I present several questions as suggestions for future research.

First, is Facebook still just a platform that complements other campaign activity? Will SNSs gradually become the main platform for political campaigning? Politicians continue to 'shovel' their campaign communication from traditional media to Facebook (e.g., Schweitzer, 2008; Jungherr, 2014a), and the Facebook activity of politicians still mirrors their activity in broadcast media (e.g., Larsson, 2016). Furthermore, evidence suggests that social media are mostly used by MPs at election time (e.g., Nuernbergk & Conrad, 2016). This suggests that Facebook is primarily used to complement other media and not to launch new discussions or activity.

To create a better understanding of the extent to which Facebook constitutes a campaign communication platform and how MP communication on Facebook changes during a campaign, future studies could compare MPs' Facebook activity at election time to the activity that otherwise takes place. MPs are especially active during a campaign or in the lead-up to an election (e.g., Aragón et al., 2013), but between elections, representatives are still subject to party and constituent evaluations and expectations, which require them to communicate (e.g., Esaiasson, Giljam & Persson, 2013). Future research could also involve a comparison of the campaign activity in traditional media to the campaign activity on Facebook: Where do MPs spend most of their energy and time? One could then also ask what MPs themselves see as the purpose of their Facebook pages, for example through interviews or an expert survey.

Furthermore, if sentiment analyses are used in future studies of Facebook posts, to similarly ask which emotions are appealed to and to what extent, then in these studies, it will have to be acknowledged that different emotion measures give different results. In this research, I relied on LIWC for identifying the use of anger and anxiety. It is possible that, had another measure been used, I

would have obtained different or even contradictory results. For example, Jiménez-Zafra, Saéz-Castillo, Conde-Sánchez, and Martín-Valdivia (2021) use three different sentiment lexicons to measure the influence of positive and negative emotion on the diffusion of tweets, and the results of their analyses with these three lexicons are at odds. Whereas one lexicon, iSOL finds that negative tweets are shared more, and positive tweets are shared less, the other two lexicons, NRC and ML-Senticon find that both negative and shared tweets are shared less. I did not find a strong correlation between the estimates of fear from LIWC and NRC (See Appendix D9). Moreover, when I include the LIWC and SentimentR positive and negative sentiment measures as the outcome variable in separate multivariate regression analyses, only in the sentimentR models is party identified as a significant predictor for both positive and negative sentiment (see Appendix D8, Tables 1 and 2). Thus, it is important for these instruments to be compared and analysed and for future studies with sentiment analyses to, ideally, include more than one measure for the discrete emotion (e.g., anger, anxiety, and enthusiasm) or sentiment (positive or negative) studied.

Future studies could also address the content of MPs' posts, which I do not examine. Instead, I study how MPs communicate, by focusing on their use of argument and emotion. To uncover any further topics and themes, the text of the posts can be analysed using a range of methods, including (critical) discourse analysis, argumentation theoretical analysis and topic modelling. The former two methods, (critical) discourse analysis and argumentation analysis, can be used to critically evaluate the wording and structure of the text on a sentence level, considering how this wording indicates existing power relations and political communication conventions. Topic modelling can be used to identify the topics that occur in the posts.

Ideally, this analysis of the content of posts should not be limited to text. Future studies can consider the cues present in the visuals that accompany the analysed text, such as in an embedded photograph or video. This cannot be achieved with LIWC or any other text-based approach. Facebook facilitates the use of visual political communication (e.g., Ionescu, 2013), and visuals are used for creating an image of the candidate and they are therefore used for impression management (e.g., Hurcombe, 2016). In this study of the content of posts, we can further ask to what extent the content of posts by "Leave" and "Remain" MPs differs. One could use machine learning to train an algorithm to classify MP posts as either "Leave" or "Remain". A similar approach has been taken by Amador Diaz Lopez et al. (2017). Taking a machine learning approach, they succeed in successfully classifying tweets as "Leave" or "Remain" based on EU referendum hashtags. This approach is based on pattern

recognition and therefore avoids several validity and reliability concerns related to the dictionary-based text analysis approach used in this thesis (See Chapter 2).[146]

At the same time, the data used in this thesis can be considered from multiple different perspectives or, rather, we can study its different dimensions. Whether we take MPs or posts as our cases influences our perspectives of the same data. As seen in the empirical chapters of this thesis - Chapters 3, 4 and 5 - when we approach the data differently and focus on analysing MPs, posts, or chronological changes, we obtain uniquely different data sets with their own characteristics and variables. These data sets give rise to different substantive research questions. For example, if one focuses on the party rather than the individual MP, one can use this data to study the relationship between the content of the posts and party ideology.

However, the extent to which suggested research avenues and different research designs are feasible will depend on the accessibility of Facebook data and social media data more generally. For researchers, access to the Graph API is not guaranteed. Many of the researchers who previously obtained access by learning to use the API were faced with the retraction of this access following the Cambridge Analytica scandal in 2018. Due to this loss of access, ethical alternative approaches must be developed to obtain social media data.[147] For example, Ben-David (2020) puts forward a 'counter-archiving' approach for the study of Facebook, explaining that Facebook can be considered an 'archon' of data, which limits data access. We need to archive this data ourselves to preserve this web data for posterity. This would benefit the replicability of Facebook research, for instance by facilitating the testing of a previously used research design using a new sample of Facebook data.

In addition, regular updates to this service determine which data we can gather. By using an API, the researcher relinquishes control of the data gathering process to Facebook. As such, the process of gathering data from the Graph API can be compared to working with a black box, and the researcher does not know how the data received compares, or in other words, represents all existing data. Moreover, new laws and regulations can further limit the extent to which this data can be gathered, analysed, and reported. Due to these ongoing developments, questions about the quality of the data remain unanswered and the opportunities for studying social media data remain in flux.

[146] Since LIWC was trained on long texts and focused on language found in psychological assessments (Panger, 2016), default LIWC measures are potentially unsuitable for the analysis of the content of the posts.

[147] While partnerships with Facebook are now available to researchers through initiatives like Social Science One and, more specifically, CrowdTangle, these require academic researchers to formally apply for access to data. It is not guaranteed that an application will be successful, and this procedure therefore does not solve the issue of limited access to Facebook data.

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Appendices

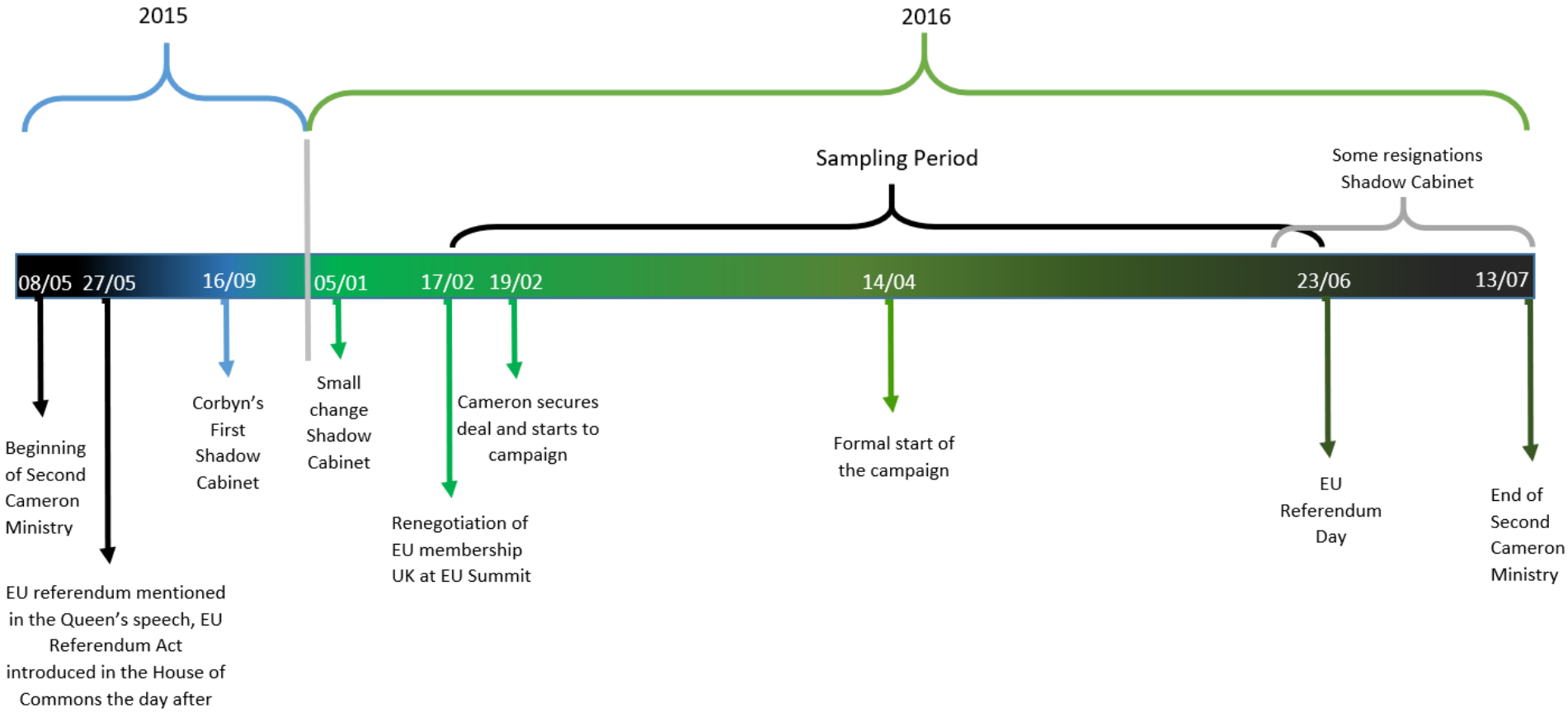
Appendices for Chapter 1

Appendix A1: Timeline of Twitter Adoption MPs in the UK

Source	Date	MP accounts set up on Twitter	Milestone
McLoughlin, Ward, Southern & Gibson (2020)	15 April - 23 June 2016	576/650	
BBC News (2012b)	6 October 2012	-	David Cameron sets up a Twitter account
BBC News (2012a)	January 2012 January 2011	331/650 234/650	
Jackson & Lilleker (2011)	2010	51/650	
BBC News (2012a)	December 2008 March 2008	4/650 1/650	Grant Shapps the first MP to set up a Twitter account

Appendices for Chapter 2

Appendix B0: Timeline of events relating to the campaign, government, and opposition



Appendix B1: Variables in the original data set

Variable name	Label
Constituency	*The constituency of the MP*
Party	*The party of the MP*
First name	*The first name of the MP*
Last name	*The last name of the MP*
Twitter present	*The MP has a public Twitter account*
Twitter absent	*The does not have a public Twitter account*
Twitter ID	*The Twitter ID (Twitter handle) of the MP*
Twitter active	*The MP has tweeted at least once during the period of interest*
Oldest tweet	*Year of the oldest tweet available on the MP's public Twitter account (e.g., 1991)*
Facebook present	*The MP has a public Facebook page*
Facebook absent	*The MP does not have a public Facebook page*
Facebook ID	*The Facebook ID (Facebook handle) of the MP*
Facebook active	*There is at least one post on the public Facebook page of the MP, publishing during the time of interest*
Post number	*The number of posts on the MP Facebook page*
Like number	*The number of likes that the posts on the MP Facebook pages have received (collectively)*
Comment number	*The number of comments that the posts on the MP Facebook pages have received (collectively)*
Share number	*The number of shares that the posts on the MP Facebook pages have received (collectively)*

Appendix B2: Variables data set 1 with MP as the unit of analysis

	Variable name	Label
Controls	CTRL_FBaccount	*CONTROL: Does the MP have a Facebook account? 1 = yes, 0 = no*
	CTRL_FBactive	*CONTROL: Was the MP active on Facebook during the campaign? 1 = yes, 0 = no*
	CTRL_Fullterm	*CONTROL: Was the MP in place throughout the campaign period? 1 = yes, 0 = no*
Identifiers	IDNumber	*An identifier for the MP (MP ID)*
	IDFacebookID	*Facebook ID of the MP*
	FullName	*The full name of the MP*
	Constituency	*The constituency of the MP*
Explanatory (independent) variables	EstimatedLeaveVote	*Estimated Leave proportion (revised); Hanretty*
	ConstLeaveProp	*0.185-0.449 = -1; -.450-0.549 = 0, 0.550-0.750 = 1*
	NumCamp	*Camp of the MP (numeric)*
	MPConstAlignment	
	IV_Party	*Party of the MP*
	IV_PartyAlignment	*Alignment with party. 0 = unclear, 1 = aligned, -1 = unaligned*
	IV_Marginality	*Marginality of the seat (% difference first and second candidate)*
	IV_Frontbencher	*MP as frontbencher?*
	IV_SeniorityInYears	*Seniority of the MP in years*
	IV_RefAge	*Age of the MP on February 19, 2016*
	IV_AgeGroups	*Age of the MP on February 19, 2016, divided into groups*
	IV_Gender	*Gender of the MP, 0 = male, 1 = female*
Outcome (dependent) variables	DV_PostWords#	*Number of words in the posts published on the Facebook page*
	DV_EURefPostWords#	*Number of words in MP EU referendum posts combined*
	DV_Post#	*Number of posts published on the Facebook page*
	DV_ActivePost#	*Number of posts on the EU referendum (EU referendum activity)*
	DV_Numberofpostsnoeuref	*Number of posts that are not on the EU referendum (other activity)*
Robustness check variables	DV_RActivityScore	*EU Referendum posts/number of posts, per MP*
	DV_RActivityPercentage	*EU Referendum posts/number of posts * 100, per MP*
	DV_AdjActivityScore	*EU Referendum posts/number of text posts (no NA), per MP*
	DV_AdjActivityPercentage	*EU Referendum posts/number of text posts (no NA) * 100, per MP*

Appendix B3: Variables data set 2 with post as unit of analysis

	Variable name	Label
Identifiers	PostID	*ID of the post*
	PostDate	*Date of when the post was published*
	CampaignDay	*Number of the campaign day (Feb = 1, June 23 = 126)*
	ActorID	*ID of the actor*
	ActorName	*The name of the actor*
Explanatory (independent) variables	MP_RefAge	*Age of the MP on February 19, 2016*
	MP_RefAgeGroups	*Age of the MP on February 19, 2016, divided into groups*
	MP_Female	*Gender of the MP, 0 = male, 1 = female*
	MP_Frontbencher	*MP as frontbencher? 1 = yes, 0 = no*
	MP_Seniority	*Seniority of the MP in years*
	MP_ConstituencyAlignment	*0.185-0.449 = -1; 0.450-0.549=0; 0.55*
	MP_Marginality	*Marginality of the seat (% difference first and second candidate)*
	MP_Leave	*Leave = 1, Remain = 0, unclear =-999*
	POST_Wordcount	*Word count of the post*
Outcome (dependent) variables	DV_ArgumentBinary	*Argument present in the post. Yes = 1, 0 = no*
	DV_ArgumentNumber	*Number of arguments in the post*
	DV_LIWC_Affect	*LIWC affect estimate*
	DV_SentimentR	*Average sentiment score using the SentimentR package*
	DV_LIWC_Positive	*LIWC positive words %*
	DV_LIWC_Negative	*LIWC negative words %*
	DV_LIWC_Anger	*LIWC anger words %*
	DV_LIWC_Anxiety	*LIWC anxious words %*
	DV_LIWC_Sad	*LIWC sad words %*
	DV_affectbands2cat	*Affect bands*
	DV_sentimentrpos2cat	*Sentiment positive, negative, and neutral sentiment (0) is missing*
	DV_sentimentneg2cat	*Sentiment negative, positive, and neutral sentiment (0) is missing*
	DV_anxietybands2cat	*Anxiety bands in 2 categories*
	DV_angerbands2cat	*Anger bands in 2 categories*

Appendix B4: Variables data set 3 with the day as unit of analysis

Variable name	Label
CampaignDay	*Feb 19, 2016 = 1, June 23, 2016 = 126*
AggPostNumber	*Number of posts per day*
AggRemainNumber	*Number of Remain posts per day*
AggLeaveNumber	*Number of Leave posts per day*
AggArgNumber	*Number of posts with arguments per day*
AggArgumentSum	*Sum of arguments in posts per day*
AvgSentimentR	*Sum SentimentR value for posts that day/number of posts that day*
AvgLIWCaffect	*Sum LIWC affect percentage for posts that day/number of posts that day*
SumLIWCaffect	*Sum LIWC affect percentage in all posts*
AvgLIWCpos	*Sum LIWC positive percentage for posts that day/number of posts that day*
AvgLIWCneg	*Sum LIWC negative percentage for posts that day/number of posts that day*
AvgLIWCanger	*Sum LIWC anger percentage for posts that day/number of posts that day*
AvgLIWCanxiety	*Sum LIWC anxiety percentage of posts that day/number of posts that day*
SumLIWCanxiety	*Sum LIWC anxiety percentage of posts that day*
SumLIWCpos	*Sum LIWC positive percentage of posts that day*
SumLIWCneg	*Sum LIWC negative percentage of posts that day*
SumLIWCanger	*Sum LIWC anger percentage of posts that day*
Pollchange	*Difference in the poll of polls between Leave and Remain*

Appendix B5: The keywords for identifying EU referendum posts

Slogans, Campaign terms/phrases and hashtags

#EU	**#EURef**	**#EUSmallBiz**	**#EUDebate**
#EUreferendum	#EUcrats	#EURefHustings	#EUremain
#EURefready	#EUropa	#StrongerIn	#VoteLeave
#TakeBackControl	#VoteRemain	#Brexit	#LabourIn
#UKinEU	Better off	Strong*	#ProjectFear
Project Fear	#ProjectReasonable	#BattleBus	Battle bus
Project Hope	(#) INtogether	(#) SNPin	#voteremain23june
#EULeadnotLeave	#ToryBrexit	#UKinEU	#votin
#votingwomen	#votingcounts	Brexiteer*	Little England*
Leap	Leap of faith	Leap into the unknown	Leap in(to) the dark
#LabourInforBritain	#leadnotleave	#leadingnotleaving	#INtogether
#LabourRemain	#TakeControl	#TakeControlDay	#SaferIn
#RemainInEU	#voteleavetakecontrol	#Remain-ians	#Europeanreferendum
#SouthsideIN	#InOrOut	#labourinforwomen	#StrongerTogether
#labourinforwirral	#ITVEURef	#yourfutureyourvote	#BBCDebate
#strongerineurope	#SurreyEURef	#blunderbus	EU Fresh Start
Bremain*	#YesWeCan	#Ivoted	United States of Europe
#turnup	Leave.EU	#control	#BrexitTheMovie
#independenceday	#100days	renegotiat*	Insular
Superstate	Worse off	Brexiter*	Stab*
Quit*	Pull* (pull* out)	Reform*	Little European
Neverendum	Integrat*	Drawbridge	Little Britain
#BetterIn	#safeoption	#saferout	Tampon tax
Extricat*	Sovereign*	Member*	Outer*
Inner*	Out of the EU	Stay*	#bestofbritain
Vot*	Euro*	Campaign*	(@)beleave
brexitthemovie			

Note that these keywords are not case-sensitive and that in the case of verbs, a lemma list has been used. The following potentially relevant keywords did not contribute to the identification of relevant posts (the posts were either already identified by a different word, or the word was used in a different context): Britain*, Country, Econom*, NHS, Bank, Industr*, Business*, Immigra*, go*, IMF, nation state, connect*, pull factor, pull* together, fact, IN, #JoCox, Cox, Jo Cox, (fear of the) unknown, the 23rd, separat*, EEF, TUC, OECD, Red tape, red-tape, go* out, tariff*, Maastricht, Treaty, EEC, free movement, freedom of movement, market, fact, expert*, independen*, free, bureaucracy, exit, European market, E.U., free trade, abandon*, refugee*, CAP, agriculture, both sides, turnout, con, pro, decision*, decid*, poll*, ballot*, deal*, supremac*, myth*, negotiat*, NATO, regulation*, World Trade Organisation, #TTTIP, #PIP, Transatlantic Trade and Investment Partnership, Free-trad*, federal*, climate change, Schengen, co-operati*. Furthermore, beware that the following keywords were not used, for they relate to other campaigns: #StrongerforScotland; #TogetherForWales. Finally,

note that for the keywords ‘frexit’ and ‘nexit’, no search results were found and that all instances that feature hashtags, names of campaign groups, pressure groups, and so forth, relating to the EU, are included in the sample without thorough checks for relevance. These are, after all, specific for the EU referendum campaign. See the table below for examples.

Interaction with campaign groups

#ResearchersForBrexit	**(#) ConservativesIN**	**@fishingforleave**	**@UKLabourIN**
@vote_leave	@StrongerIn	@WalesStrongerIn	@consforbritain
@Farmers4Britain	@WomenforBritain	@Env4EU	@uniforbritain
@BeLeaveBritain	@VoteLeaveCymru	@reformineurope	@forbritain
@NFU	@Scientists4EU	#Sikhs4EU	@gingersforeu
@Healthierin	@UniversitiesUK		

Appendix B6: Instructions for identifying EU referendum posts (Codebook)

The following instructions aid the identification of EU referendum posts in the corpus. Potentially relevant posts have been flagged up by the keywords. To ascertain that these posts are relevant, each must be manually analysed using these codebook instructions.

First, precautionary note: If the analysis proves that a post is written in a different language (e.g., Welsh), then the post is removed from the sample. The MP is not removed from the sample, because the analysis has shown that these MPs also publish English-language posts on the EU referendum. This concerns the following MPs: Guto Aberconwy, Hywel Williams, Liz Saville Roberts and Paul Flynn. This does mean that the activity measure for these MPs does not consider the total number of posts, but instead the number of posts in English.

Using and interpreting keywords and context

- Incomplete posts (e.g., Tweets without context, which concern replies to other actors) are not coded.
- If the keywords are part of URLs or names of actors then they also count as references to the keywords, because reading these words will still remind the reader of the like-named/referred to matter/topic.
- In the first instance, the unit of analysis is the individual post. In case there is no reference to the EU referendum but there is an evaluative description of the keyword, adjacent posts and the date of the post can be considered to determine whether this description links to discourse on the EU referendum expressed by the MP more generally, in multiple posts.

Related to the EU-Referendum?

- Not relevant if the EU is referred to but as part of an enumeration, list, or background description – and therefore does not serve as the primary focus of the MP's post, for it does not necessarily concern EU-referendum-campaign related activity of the MP.
    - Example: "There were lots of issues raised. From Europe to traffic, rights of local boaters to regulations surrounding the packaging of bread, nothing was off limits!" (Michelle Donelan)
    - Example: "Excellent questions about wild animals in circuses, the EU, and what things I do in the constituency." (Cat Smith)
    - Example: "We're going PARLIAMENTAL again to talk about the proposed Scottish Six news bulletin, the Europe referendum, and how hard it is to get Vanessa Redgrave's email address." (Anne McLaughlin)

- Example: “on BBC Sunday Politics South discussing Brexit, the Budget and European Working Time Directives (starts 38 minutes and 10 seconds into the show)” (Conor Burns)
- Example: “Following the referendum, we have had a Tory Government with little to no democratic legitimacy in Scotland enforcing further austerity cuts which pursued the poor and vulnerable while the rich and corporations received a tax cut; as well as further bombing in the Middle East; the possibility of Scotland being removed from the EU against its will; and a lack of support from the ‘broad shoulders of the UK’ to support our oil and steel industries. #StillYes” (Marion Fellows)
- “We need stronger action, particularly at the EU level, to deal with this uncompetitive, unfair, dumping of steel on our market, particularly by the Chinese.” (Tom Pursglove)

- However, if there appears to be 1) a valence in the reference to the EU, with the EU as focus or 2) if there is a reference to EU Referendum related activity of the MP, as central to the post (the only activity mentioned), then decide to code as relevant. The following are examples:
  - “Well done to Birchwood Highland, a fantastic and informative Migrants Matter event. Thank you for inviting me to open the event and to speak on sigma [stigma] around mental health & EU migrants” (Drew Hendry)
  - “Pleasure to speak at @Mishcon_de_Reya with @Keir_Starmer & @kevinhollinrake on benefits of EU membership, Equality & being a new MP” (Hannah Bardell)
  - “Just been interviewed by Sixth Form Media students at Hull North's St Mary's College about the EU referendum.” (Diana Johnson)
  - “During a morning lesson on Friday 13 May, Conor took part in a question and answer session with pupils from St Peters School as part of their citizenship programme. The lesson was themed around the upcoming EU referendum, and Conor was impressed by their thoughtful questions.” (Conor Burns)
- Not relevant if it is not clear whether the MP refers to the EU referendum or another referendum
- Not relevant if the MP refers to a fund of the EU or EU ministers, without linking it to membership or an evaluation
- Not relevant if the mention of a policy and a stance regarding policy is not personal but part of a list of actions to be taken (e.g., a proposal or bill), not written by the MP himself. It is about the MP’s stance and his/her specific elaboration of a policy/matter about the EU referendum. If there is an indication that the MP has written or edited this list or enumeration himself (if it is a selection), then there may be grounds to include the reference, provided it

fits the stance of the MP and suggests or includes a positive/negative evaluation. It may then be relevant after all.

- Not relevant if it just concerns a reference to the continent of Europe. There then must be a reference to governance on the European level (EU).
- Not relevant if it concerns the evaluation of another actor. Example: reference to development regarding the 'Tampon Tax'. Whilst the Tampon tax- though related to EU-governance – may therefore itself may be relevant, a reference to the behaviour of another MP in the development of Tampon tax is not.
- Relevant if it concerns a mention of the contents of the renegotiation or of other EU-related deals because this does concern engagement of the MP with the EU referendum (campaigns).
- Relevant if it concerns a reference to MPs own activity regarding matters of the EU and the campaigns – such as debates, canvassing - are included because it is also indicative of MP activity.

Note. If an instance includes multiple sample-relevant keywords, then only one is necessary and the instance does not have to be coded with multiple keywords, which will delay the subsequent elaboration coding. If an instance only includes one keyword, then this must be kept in to signify that this instance does still belong to the sample but does not necessarily include an elaboration or evaluation with regards to the argumentation. At this stage, I am only interested in obtaining a full sample of posts in which the MPs link to the EU referendum and are therefore active in the campaigns (or at least present).

In case of doubt, remember:

- Devolution of Scotland without reference to EU membership status not relevant. These references are only potentially relevant when linked to the EU.
- Reference to a clear anti/pro-Brexit group also counts as referring to the EU referendum.

Please see the following pages for examples of which keyword-based instances should be in the sample.

Keyword: EU

Include references to the EU or the union as an institution, especially if it concerns an evaluation of the EU (its governance, its policies, etcetera)

Examples:

- "How the EU starves Africa into submission. Very powerful article http://capx.co/how-the-eu-starves-africa-into-submission/" (Maria Caulfield, MP)
- "Hundreds of projects in Na h-Eileanan an Iar have benefited from EU funding" (Angus MacNeil, MP)

Exclude:

- "Still no answer from government on whether EU Solidarity Fund cash will go to flood hit communities or Treasury. 1/2" (Cunningham, MP)
- "Thursday, as ever, a series of meetings which included a Select Committee meeting with EU Commissioner Malmstrom. We questioned her about the Steel Industry and TTIP." (Amanda Milling, MP)
- "I also met with the European Observatory in my role as the EU Reporter on the Health Select Committee." (Andrea Jenkyns, MP)
- "@angelaeagle a) we've led the EU on workers' rights, b) what government would scrap them?! https://t.co/QCOSbZZSjq #workersrights" (Andrea Leadsom, MP)
- "I was able to express my pride this afternoon in the fact that the UK is Europe's biggest financial contributor to the refugee crisis, by asking the Secretary of State for International Development what her Department is doing to influence other EU member states to match our financial aid."(Andrew Murrison, MP)
- "Could you ask No10 what their view is on this statement from the EU @wallaceme ? Seems clear Govt breaking rules. https://t.co/0M2PgQmDvY" (Annemarie Trevelyan, MP)
- "The steel crisis has gone to a whole new level, with the announcement by Tata Steel of plans to sell the huge Port Talbot plant in South Wales. The question is what should be done as Chinese steel is dumped at arguably below cost price and British steel makers simply cannot compete without government help. And that's the point. The government could and should help. It should have helped when the SSI steel making facility in Redcar was allowed to close last year and it didn't. And it should have helped by agreeing to higher tariffs across the European Union to create a level playing field for our steel makers. The rest of the EU has tried to charge the Chinese more to stop dumping below cost price but the UK government has blocked all efforts to do so. Meanwhile, the Chinese government is increasing tariffs on UK made steel." (Bill Esterson, MP) It is not clear whether Bill is in favour or against the EU more generally, based on this text and his (adjacent) posts more generally.
- "I am concerned by the EU deal in which Syrian and other refugees will be sent back from Greece to Turkey. The agreement could put refugees, especially Kurds, at significant risk as many in Turkey are hostile to the Kurdish population. http://bit.ly/1pvkLVw" (Brake, MP)
- "If you are an EU national living here, like my wife, you will probably feel slightly less welcome than you did." (Burnham, MP)
- "The UK gender pay gap stands at 19.2% - well above the EU average of 16.4%." (Catherine West, MP)
- "Arguing for Scotland to chair the EU Fisheries Council in the second half of 2017 when the UK holds the EU Presidency." (Corri Wilson, MP)
- "Burrowes seeks guarantees for Cyprus in EU-TURKEY deal. http://www.davidburrowes.com/content/eu-turkey-deal" (David Burrowes, MP)
- "I'm on Labour's front bench for an Urgent Question on EU nationals and national insurance numbers." (Debbie Abrahams, MP)

- “EU dilutes proposal to halve air pollution deaths after Tory lobbying https://t.co/JQPIdizlem”(Gareth Thomas, MP)
- “The Prime Minister’s “will he, won’t he” relationship with the EU has clouded his message and compromised his leadership.” (Ian Murray, MP)
- “Asked PM why he asked EU to water down rules on tax transparency for trusts. Govt continue to drag feet on tax avoidance. #panamapapers” (Rachel Reeves, MP)
- “David Cameron intervened personally to prevent offshore trusts from being dragged into an EU-wide crackdown on tax avoidance. Same old Tories." (Ruth Cadbury, MP)

Keyword: Euro*

Include references to Europe with a clear evaluation, indicating relevance to the EU referendum or ongoing debates about the Union. References to the Euro or eurozone are also relevant here. Just a reference to Euro is not enough.*

Examples:

- "Was live on BBC Radio Derby this morning talking to Ian Skye about the PM's negotiations in Europe, and how I'm waiting to see what he come back with before I make up my mind!” (Amanda Solloway)
- Don't forget to come along and listen to both sides of the argument on the Referendum on the European Union tomorrow morning at Sussex Coast College Hastings. (Amber Rudd)
- Self-serving Euro elites live in luxury on money extorted from European taxpayers, while paying only a pittance themselves. Isn't this what the peoples of Europe revolted against 200 years ago? (Carswell Douglas)
- "On route to Europol in The Hague with the Home Affairs Committee where we will hear about European work and co-operation to tackle people smuggling, terrorism and cyber-crime. (Stuart McDonald)
- Delivered by the previous Labour Council, with funding from the European Union’s rural development programme (LEADER), it is a perfect example of the positive social and economic impact that Europe is having on our rural communities here in the UK. (Tom Watson)

Exclude:

- I asked the Minister for Europe David Lidington on Monday if the Government had spent £9 million on leaflets in the run-up to the AV Referendum in 2011. You can read my full thoughts on this in the column below. I also met with the European Observatory in my role as the EU Reporter on the Health Select Committee. I also popped into the Welcome to Yorkshire reception for the Tour de Yorkshire where I caught up with my old friend Sir Gary Verity. (Andrea Jenkyns)
- In fact we have the largest Coca-Cola site in Europe. (Andrea Jenkyns)
- "A Budget that's ripped the Tory Cabinet apart. Following 7 other budgets that have hit the poorest the hardest, the Tories are divided over Europe, nothing else, as IDS voted for all of those Budgets - like he did again yesterday. (Angela4Labour)
- Sold the gold. Gordon swapped Britain's gold reserves for euros when gold fetched less than $300 an ounce. Now it's worth nearly $1300 an ounce. That's a loss of some $13 billion to the taxpayer. (Carswell Douglas)
- I spoke to a group of Afghan teenagers who told me that a young child had tragically passed away in the camp over the weekend preceding my visit, and there will be more deaths to follow if Europe does not act urgently to address the situation. (David Lammy)
- European MPs urge governments to make airdrops to Syrian civilians (Peter Dowd)

- "In February, the European parliament voted by a large majority for an EU-wide ban on arms sales to Saudi Arabia and the UK government must keep its commitment to the EU in the face of these tragic circumstances. (Stephen Gethins)
- These are the reasons I voted with government, to resist these well intentioned calls to take a further 3,000 refugee children from Europe. However, we have pledged to take a further 3,000 refugee children, but the most vulnerable, from the most unsafe areas and I think that is the right thing to do. (Tim Loughton)

Keyword: Vot*

Include references relating to the EU referendum and not to other policies or bills. Exclude references to election results here, as well as references to other referenda, such as the Scottish Independence Referendum. Also, exclude references to changes in the voting age. References to vote share are not relevant. References to voters are also included if they relate to the EU referendum.

Examples:

- "He would undoubtedly have been worried that a vote to leave would separate us more from Ireland. And I'm certain he would have hated that." (Burnham, GM)
- "This is unlikely to come as a surprise to any constituent who has contacted me about the EU whilst I have been an MP. I am fortunate enough to have voted in the only other referendum on the subject in 1975, in which I voted for the UK to stay in the EEC. Subsequently, in Parliament and Government, my position has been entirely consistent in support of the UK's engagement with a developing Europe." (Alistair Burt)
- "Surely, this should be taken as a sign that the EU is not working for others and that a rethink is needed, rather than a reason to dumb down a deal which is already struggling to convince British voters?" (Andrea Jenkyns)
- "Vote Leave!"

Exclude:

- "We won the highest share of the constituency vote and the largest number of constituency seats ever achieved in a Scottish Parliament election." (Alan Brown)
- "To those who did not vote for me, I promise I will never stop striving to earn your trust and support." (Alan Brown)
- "If you are over 16, you have until Monday the 18th of April to register to vote." (Angela Crawley)
- "If there is a feeling that England has dragged Scotland out of the EU against its will, then it would surely follow that the likelihood of a vote for independence would be greatly increased." (Burnham, GM)
- "Many people say it doesn't matter who they vote for, because nothing will change. "(Carswell Douglas)
- "We must fight for every vote, have a positive vision for Britain, & get power to Labour leaders to build our country https://t.co/jwFVOiQ56V" (Alison McGovern)
- "Residents across every part of Pendle were also able to vote for a Police and Crime Commissioner (PCC) for Lancashire." (Andrew4Pendle)

Keyword: Referendum

Include 'EU Referendum', 'UK referendum', 'British referendum', 'European Referendum', 'In/Out Referendum', 'European Union Referendum', excluding the Scottish Independence Referendum, the AV referendum, the neighbourhood plan referendum, Bath & North East Somerset mayor referendum, etcetera). If it is not clear which referendum the actor refers to, then do not code. References to the EEC referendum are counted here when it is plausible that the MP links this to the EU referendum (e.g. support for the accession of the EEC and support to remain of the EU).

Examples:

- "This is unlikely to come as a surprise to any constituent who has contacted me about the EU whilst I have been an MP. I am fortunate enough to have voted in the only other referendum on the subject in 1975, in which I voted for the UK to stay in the EEC. Subsequently, in Parliament and Government, my position has been entirely consistent in support of the UK's engagement with a developing Europe." (Alistair Burt)
- "Following yesterday's tragic events in Birstall I have cancelled tomorrow's planned constituency referendum tour." (Andrea Jenkyns)
- "The last time the UK had a referendum on EU membership was 1975." (Jonathan Reynolds)

Exclude:

- "Brexit is to start down a road that doesn't end with leaving Europe. It would create a domino effect that would threaten the future of our own 300-year Union and trigger a second independence referendum." (Burnham GM)

Keyword: Remain

Include only if 'remain' is used concerning EU membership. EHRC is not the same.

Examples:

- "If the UK votes to remain tomorrow the EU integration project will speed up on Friday. Vote Leave - Take Control" (Henry Smith, MP)
- "So on a Remain visit to Sussex today the PM's Southern train was cancelled (seriously) - feeling very conflicted..." (Henry Smith, MP)
- "Year 10 student summarising why Britain should Remain in the EU. @Heathfield_CC #EUref #bexhill #battle https://t.co/s5ODtMlOsb" (Huw Merriman, MP)
- "Countries that remain part of the EU's single market, such as Norway – a model often used by the "out" campaign – have a higher rate of immigration from EU countries than the UK because free movement is a mandatory part of having unfettered access to the single market" (Jo4BatleySpen, MP)
- "Whatever the risks of Brexit, they are eclipsed by the problems of remaining in a political construct that has changed out of all recognition since we joined in 1972." (Boris Johnson)
- "For the purposes of this article I am going to focus on the three I believe are the most important, sovereignty, our country's finances and the uncertainty of remaining." (Steve Double, MP)
- "Britain remains outside the Euro and has no intention of joining." (Richard Harrington, MP)

Exclude:

- "We remain absolutely committed to growing our economy, reducing inequality and building a fairer Scotland – Labour now need to come clean on whether they will support small businesses." Corri Wilson

- “I am pleased that you have granted an extension to the family’s grace period to remain in the UK until the 1st of August.” (Ian Blackford, MP)
- “The EU is far from perfect, and there is still much that can be done in reforming our relationship and ensuring that the EU remains competitive in an ever changing world. But on balance I believe that if we want to protect jobs and growth here in Halesowen & Rowley Regis, and the wider Black Country, our interests are best served as a member of the EU.” (James Morrison, MP)
- “However, if we don’t like any of these treaties, including the EU, we can always leave. We remain a sovereign nation.”(Jonathan Djanogly, MP)
- “I very much want Scotland to remain part of the UK, but if we allow the political pressure from the SNP (whose own plans for fiscal autonomy look incredible in light of their support for this) to continue an unfair funding settlement it will only lead to resentment.” (Jonathan Reynolds, MP)

Keyword: Saf*

Do not code references to patient safety, fire safety and not even references to the safety of MPs following the murder of Jo Cox. Only code if directly linked to EU membership and/or the slogans used during the campaign. Do not just code those instances in which ‘safe’ is part of a slogan. Consequences for domestic or international safety. Not the safety of refugees.

Examples:

- “EU free movement rules prioritise the rights of criminals over public safety and mean we cannot deport dangerous EU criminals.” (Boris Johnson)
- "This morning I will give a speech on the EU Referendum in Manchester and say that turning your back on any group never makes you safer.” (Burnham)
- “Britain will be safer, stronger and better off if we vote to Remain in the European Union on 23rd June.” (Damian Collins, MP)
- “NATO plays a huge role in our safety, so does peace, democracy and prosperity in Europe which the EU has been key to delivering. #BBCDEBATE #STRONGERIN” (Gyimah, MP)
- “Thirdly, ’We can no longer keep our coastline safe from illegal migrants’. This is true, but not because the EU is stopping us, it’s because Teresa May slashed funding for our boarder force and said at the time it would have no impact on frontline services.” (Hove and Portslade)
- “And when the Leave side say they want to 'rip up EU red tape', they are talking about workers' rights, consumer rights, or environmental regulations like those which make our beaches safe for people to swim in.” (Melanie 4 Grimsby)
- “More practically, the EU has made it easier and cheaper to travel. Flights are also safer as a result of tightened regulations and improvements in air traffic control.” (Stuart Donald)

Exclude:

- “So European judges are to decide what information we need to keep our citizens safe.” (Julian Brazier)
- “Over the last six years Conservative councils across England have shown that they can be trusted to spend taxpayers’ money wisely, deliver efficient, effective local public services and keep our streets safer.” (David Cameron, MP)
- “Jobs will not be safe, prices will rise, mortgages will be at risk, and funding for local schools and hospitals will fall.” (Michael Ellis)

Keyword: Union

Do include: 'European Union, 'energy Union', 'political union', 'fiscal union', 'budgetary Union', 'social union', 'customs union', 'currency union', an 'ever-closer union', etcetera, about the EU and parallels drawn with the union between England and Scotland, the Commonwealth and the European Union). A historical description to the creation/development of the union into the European Union or a reference to the union between England and Scotland are also relevant if they relate this to the union with(in) Europe (either explicitly or as made evident by the context).

Exclude:

- A reference to the 'European Union Referendum' that refers to the referendum and not the union. This reference will be included in the sample but instead coded for the presence of a reference to the referendum and the EU.
- Specific references to trade unions
- References to matters taking place in the European Union (geographically), without a reference to any EU policies, governance, membership or the Referendum, or any evaluation: "In the debate, Nicola Sturgeon demonstrated why the SNP Government is the most trusted in the entire European Union, offering a clear view of the policy choices she would make to ensure Scotland meets the challenges we face..." (Patricia Gibson, MP)

Keyword: Control*

If 'control' refers to border controls but does not feature an evaluation and only refers to the terrorism threat and not concerning the EU, the referendum, governance or policies, do not code. If there is a reference made to the EU (in the paragraph, the rest of the post or adjacent posts), a reference to border controls can be included under 'border'.

Exclude:

- "http://www.liverpoolecho.co.uk/news/liverpool-news/jeremy-corbyn-takes-control-mersey-11196994" (Margaret Greenwood, MP)
- "It's vital support is readily available and the introduction of a local area risk assessment for each of their premises to ensure that suitable controls and procedures are in place to protect vulnerable people is to be welcomed." (Ronnie Cowan, MP)
- "The House of Commons is rarely, if ever, as united as it was today and it was moving to hear friends and colleagues of Jo speak of her with such eloquence while keeping their emotions under control." (Royston Smith). This instance will be coded as it refers to Jo Cox, but not for referring to control(s) in relation to the EU.
- "We must remember that these children are often making treacherous journeys, traveling thousands of miles to escape from conflicts beyond their comprehension, let alone their control. We have a duty to protect them and not turn away. The Government must recognize and respond to public and Parliamentary pressure, and support unaccompanied children in Europe." (Sarah for Rotheram, MP). Does relate to the EU but control does not refer to the (people of) the UK or the EU (not) having control.
- "The Scottish National Party has condemned the UK government for running Scotland's energy sector "by remote control" from Westminster as UK Energy Secretary Amber Rudd has yet to visit Scotland despite being in post for a year." (Stephen Gethins, MP)
- "Putting an end to the 'something for nothing' welfare culture for EU migrants. By ensuring EU migrants can no longer claim full in-work benefits for the first four years, and that Child

Benefit can no longer be sent overseas to Europe at UK rates, we can control immigration from Europe." (as quoted from the Queen's Speech by Tobias Ellwood, MP)

Keyword: Border*

Note that references to the borders can relate to (im)migration and the freedom of movement. Do not code if it concerns a reference to the Scottish border, the borders between England, Scotland or Wales, or the geographical region referred to as 'the borders' and does not relate to the matter of the EU Referendum, membership, governance or policies. Moreover, when references to borders relate to other policy issues rather than im(migration) or freedom of movement, then only code for that policy area.

Include:

- "They don't know whether the French will move our border controls back from Calais to Dover with all the problems that would cause. We needed answers to those questions and we haven't had them" (Richard Benyon, MP)

Exclude:

- "Last Friday al-Kammouneh, a Syrian refugee camp a stone's throw from the Turkish border, was attacked from the air killing dozens in a suspected war crime." (Diane Abbott, MP)
- "If we vote Leave, we'll be able to strike new trade deals with countries beyond Europe's borders not in spite of our independence, but because of it." (Carswell Douglas, MP)
- "If we leave the EU, we'll still be part of the tariff-free trade zone that extends from non-EU Iceland to the Russian border. But, no longer subject to the EU's external trade barriers, we'll also get better access to global markets." (Carswell Douglas, MP)

Keyword: Reform*

Include references that address either a reformed EU or reforms (to be) brought about by the EU. Tory or government reforms not included (domestic reforms), neither the reforms specific to another foreign nation. Exclude universal credit, (work) bill, welfare reform, disability, tax relief, PIP, WASPI, education children, women agenda…

Include:

- ".@StrongerIn it would be great if there had been any reform to the EU but there hasnt been so we are NOT safer or stronger by remaining." (Annemarie Trevelyan)
- "We will be stronger, safer and better off in a reformed Europe than we would be out on our own." (Ben4Bath)
- "I don't believe the EU is perfect. I have concerns about the Trans-Atlantic Trade and Investment Partnership (TTIP) negotiations and believe we should be doing much more collectively to tackle the biggest humanitarian refugee crisis since the Second World War. But staying to have a voice means we can make our case and argue for progressive reforms that work for Britain." (Catherine West)
- "Despite voicing my opinions about our membership of the EU at the last three general elections, in these pages, on broadcast media, and recently as a signed up member of Conservatives for a Reformed Europe in the national press, a few people are still unsure where I stand on our membership." (Mark Garnier). Borderline case but here it seems that the MP wants the reader to notice 'reform', regardless of the fact that it is part of a name.

- “Remainers' claim #Brexit would be a 'leap in the dark' - a phrase first used in politics by Lord Derby in 1867 when describing his Reform Act, which gave the vote to millions more people and was a huge leap forward for democracy in the UK.” (Tim Loughton)

Exclude:

- “On democracy and social rights, it has been SNP MPs that have kept up the pressure on the UK government to protect our Human Rights Act and to remain in the ECHR, and it has been the SNP that have consistently pushed the UK government to abolish the unelected and undemocratic House of Lords, and to reform the electoral system.” (Angus McNeil) This should be coded under ‘remain’ and EHCR, not under reforms, because this does not mention reforms relating to the EU.”
- “20 years ago the UK was leading the way in tackling disability discrimination. As we have seen over the last 6 years with the punitive 2012 and 2016 Welfare Reform Acts, this is no longer the case.” (Debbie Abrahams)
- “No easy short-cuts to security or sovereignty in 21stC. Why I've decided that we are better off IN: @reformineurope https://t.co/8yFWY3eqI4” (Gordon Marsden)
- “As early as 1693, William Penn – the English Quaker social reformer who would later found the state of Pennsylvania – wrote “Essay Towards the Present and Future Peace of Europe by the Establishment of a European Parliament”.” (Ian Murray)
- “And as a short aside, I wish our PM would put as much effort into working with European partners to help the UK steel industry as he has put into his renegotiations. And he should halt Tory attempts to block vital reform of EU trade defence instruments.” (Ian Murray)
- “EU reforms of the telecommunications markets, together with new technology, has led to lower prices:” (Stuart Donald)

Keyword: Member*

Only include references to membership of the Union, the EU. Do not include party membership or trade union membership or being a family member, cabinet member, founding member, etcetera, under this code either. Also include references to member states. Britain’s/UK’s membership of the EU, the European Union. Membership of the NATO references also count because this is referred to in contrast with or in comparison to EU membership. UN or other unions also count. Member of the single market and/or eurozone also counts. WTO. If there is some evaluation or link to a stance.

Include:

- “Whilst the Tory Party fight amongst themselves, Labour will be making the positive case for membership of EU at every opportunity.” (Catherine West)
- “Yesterday, there was an Urgent Question granted to question the Government on its commitment to remaining a member of the European Court of Human Rights (ECHR).” (David Hanson)
- “The region is a really attractive destination for foreign direct investment. Three-quarters of investors cite being members of the single market as one of the attractions of basing themselves here and creating jobs.” (Harriett Baldwin)
- “ICYMI - My EU membership interview/debate with Brian Monteith (former Tory MSP) on Scotland 2016 yesterday evening.” (Ian Murray)
- “Whether you've made your mind up or are still completely undecided, come and join the debate on our membership of the European Union at Highbridge Community Hall at 7.30pm on Thursday 9th June,” (James Heappey)
- “If this rate continues for a decade, there will be more than two million extra people. EU law means all members must accept 'free movement of people'. Many immigrants contribute to

our society. They also affect public services. Experts disagree on the overall effect." (Lucy Allen)

- "Following the announcement that June 23rd will be referendum day, I dug out a lengthy paper I wrote on 27th March 1992 that I sent to Lord Tebbit (then an MP). In that paper I wrote about the democratic deficit of the EU, the loss of sovereignty, the failures of our membership of the ERM and what a Single Currency (at that time merely proposed and not in existence) would mean" (Mackinlay)
- "Shocking that an internal Tory party feud over membership of the EU is taking the country over a cliff with no knowlege of how steep the cliff is, what is at the bottom of the cliff, how many can swim" (Madeleine Moon)
- "These are the first steps in the admission of Turkey to the EU as a full member, which is both EU and current UK government policy, upon which, if we remain in the EU, our border will open permanently to complete free movement from Turkey." (Marcus Fysh)
- "The Prime Minister deserves a great deal of credit for his hard work on getting an improved deal for Britain. It was always going to be extremely difficult to secure agreement between the twenty seven other members of the European Union." (Mark4Rugby)
- "But we also know that tariff free access to the single market (45% of our total trade) will come with the unacceptable cost of free movement of people (as the non-member Norwegians have now)." (Mark Garnier)
- "Earlier today I hosted a 'Labour IN for Britain' phone bank with some of the region's brilliant Labour Party members to make the case for Britain's membership of the European Union in Barnsley East." (Michael Dugher)
- "But leaving does not mean turning our back on Europe, we will re-join the world. We will remain members of the European Space Agency…" (Michael Fabricant)

Exclude:

- "Former member of BNP made major donation to the leave campaign #strongerin #BBCDebate" (Alex Cunningham)
- "The motion asked the government to refer the matter to the UN Security Council, of which the UK is a permanent member" (Brendan O'Hara)
- "Don't miss your chance to have a say in electing a new London Mayor & Assembly Members." (Catherine West)
- "This represents around 2.5 per cent of our Gross Domestic Product, significantly above spending in countries such as France and Germany and the average for the 34 members of the Organisation for Economic Co-operation & Development (OECD) of 2.2 per cent." (Chloe Smith). Does not relate to membership.
- "On the #LabourDoorstep in #Clapham to elect Sadiq Khan as our next Mayor, Florence Eshalomi for Lambeth & Southwark as our new assembly member, and to keep the UK in the EU! - C" (Chuka Umunna)
- "These camps should not exist, refugees should be identified as the enter the European Union and have their claims processed then, rather than being allowed to move between member states before requesting asylum." (Damian Collins) Membership is not the focus of this post. Coded under immigration.
- "I will therefore be campaigning for an In vote in the referendum taking place on 23 June, and thereafter for a reformed Europe that prioritises extending the free market, securing ambitious global trade deals and rejects the principle of ever-closer union for all member states." (Sam Gyimah)
- "Well I don't know about you but I've found the theatre (pantomime?) of the last few days in Brussels rather frustrating even though I agree with the new rights granted to Britain and other member states." (hove) no evaluation

- That coal and steel community expanded both its activities and number of member states to became the EU we see today." (James Cleverly)
- "However, members of the Leave campaign argue the country needs to cut ties from Brussels to save £350m every week" (JZ Woodcock)
- "However, and this is important, the whole point of a referendum is to allow members of the public – YOU - to have the final say." (Michael 4 MD)
- "So now it seems the Germans also had secret control over our 'renegotiation' with Brussels over our EU membership. No wonder we got diddly squat!" (Michael Fabricant). Should be included in the sample, however, it does not involve any elaboration so do not code it as such at a later stage.
- "Here I joined most of the British Delegation in Strasbourg for the Parliamentary Assembly of the Council of Europe. PACE has 47 member states and focuses on democracy, rule of law, human rights and economic development." (Paul Scully)
- "I urge all members of the scheme to take a look at the consultation and send a response - deadline 23rd June." (Stephen Kinnock)

Keyword: Trade*

Only include references to trade when it is discussed as part of an evaluation of an aspect of the EU, its governance, policies, or the EU referendum. This means that the MP has to either explicitly refer to the EU referendum, EU governance or its policies, concerning trade, or declare his/her (lack of) support for EU membership/Brexit in his posts (and adjacent posts in particular). References to tariffs, the single market, free trade, trade agreement, the WTO, trade deals and trade by the UK suggest that the reference to trade should be coded/included.

Include:

- If there is any more of a description (e.g., 'fairer trade'), the use of supporting statistics or a list of clearly related words providing context (e.g., 'trade', 'jobs', 'investment', 'exports', 'imports') and a clear explicit stance regarding the EU referendum, then do include.
- If the MP refers to a debate that has taken place, in which case it is clear that trade is mentioned concerning the EU referendum and that trade was discussed (but simply elsewhere!)
- "The EEC that we thought we joined, as a flexible association for free trade and friendship has long gone, replaced by increasing supra-national power exercised in Brussels, diktat replacing reason, loss of national vetoes and the ratchet effect of a succession of European Court judgements." (Mackinlay, MP). The stance is made clear in an earlier paragraph of the same Facebook post and the lack of free trade is linked to the EEC transforming into the EU and thereby gaining powers and introducing regulations. Trade is therefore clearly part of an evaluation of EU policies to support the MP's stance.
- "The debate was conducted… the questions stretched across a wide range of subjects including British sovereignty, security issues, trade and the movement of people across the EU." (Mark Francois, MP)
- "Economists on all sides of the debate agree the UK will grow by about 40% by 2030 whatever our trade arrangements, give or take a couple of per cent." (Marcus Fysh, MP)

Exclude:

- References to the arms trade, Sunday trading, fair trade, trade-off, trade unions or trade unionists, even if the paragraph itself is relevant. These instances should not be coded under 'trade'.

- General references to import and export by the UK
- Succinct historical references to the Common Market in the 70s
- References to trade in general, not explicitly linked to the UK
- The mere mention of 'trade' (as a noun).
- "Personally, I'd like to have a whole continent behind us when we talk to China about trade and human rights" (Hove and Portslade, MP)
- "Whisky is our gift from Scotland to the world, a gift that brings enormous benefit to the exchequer, has a substantial impact on our trade statistics, and generates substantial employment in Scotland." (Ian Blackford, MP)
- "Countries that want to trade with Europe still have to accept inward migration too." (Kate Green, MP)
- "Britain is a great country. We existed before the EU, and we will thrive out of it. We will remain in Europe to trade, we will remain a member of NATO…" (Scott Mann, MP)
- "Trade, access, exchange of skills and information, and the contribution of people coming from abroad, would continue." (Scott Mann, MP)
- "A smooth transition based on smart negotiation and mutual self-interest is what will happen if we instruct our government to leave the EU. We will still be totally engaged with Europe, in trade, security, alliances and friendship." (Marcus Fysh, MP)

Keyword: Stab*

Include just those instances relating to EU membership (e.g., references to stability in the campaign slogans).
Exclude:

- "From that stability at home, Britain sought to build its influence aboard." (Burnham MP)
- "I recognise its great contribution to post-war stability in Europe and in expanding western democracy to the former Eastern bloc…"(James Davies, MP). No reference to current stability or the consequences on stability of leaving the EU.

Keyword: Campaign*

Include just those references to EU referendum campaigns and EU referendum campaigning.

Include:

- It is these spending limits that will restrict both official campaigns in the referendum for a Remain and Leave vote to spending £7 million during the official referendum period. (Andrea Jenkyns)

Exclude:

- s We are pictured together with Marie Curie Nurses, Leonie Christian and Elisabeth Goze, at a parliamentary event in Westminster to celebrate the launch of the Great Daffodil Appeal, Marie Curie's biggest annual fundraising campaign." (Andrew4Pendle)
- "One hundred and fifty years after the 'Votes for Women' campaign began, there are still 140% more men than women in the House of Commons. This is a historic injustice and a democratic deficit. (Angela Crawley)

- "Visited The Lion and Lobster pub with Peter Kyle, MP for Hove and Portslade this afternoon and met manager Yannis and his team - all supporters of the EU Small Business campaign! – Chuka" (Chuka Umunna)
- Tamworth Herald story on Warton Bus - we are still campaigning. (Craig4nwarks)
- Lib Dem's Tessa Munt Admits She Didn't Declare Campaign Transport Costs #ExpensesFraud (John Penrose)

Keyword: Sovereign*

Include references to the sovereign nation-states and sovereignty concerning the EU and the other supranational organisations, when referred to in contrast or relation to the EU, such as NATO and the UN.

Include:

- "Nato, the United Nations, the Commonwealth; these are all examples of nations working together in the common good and their own national interest, while retaining their own sovereignty." (Andrea Jenkyns)
- "Former barrister @SuellaFernandes explains why the EU threatens our sovereignty:" (Andrea Leadsom)
- "How the #EU interferes with African Nations sovereignty https://t.co/XWLAJEKtQX #Brexit #VoteLeave @africansforbritain @JamesCleverly" (Annemarie Trevelyan)
- "Interviewed on @sikhchannel on #Brexit #cryfreedom #democracy #sovereignty #VoteLeave https://t.co/shMiS62elc" (Bob Blackman)

Exclude:

- "I have long believed in the right to self-determination, and hence have been a firm supporter of the right Gibraltar and the Falkland Islands to remain self-governing British sovereign territories as long as its inhabitants wish to do so. However, those who have asked that H.M. Government imposes direct rule, against the wishes of the inhabitants of the Overseas Territories and Crown Dependencies, fail to realise that it would not only be an unfair and unwarranted move, it would also raise the spectre of British imperialism and risk alienating one of Britain's most cherished relationships." (Andrew Rosindell)
- "People often forget that while the Queen's political powers nowadays are largely ceremonial, our sovereign lady is a bastion for protecting democracy." (David Davies)

Keyword: Integrat*

Include references to integration when linked to the EU, EU membership and the EU referendum. Do not code when a reference is simply part of a manifesto or list/proposal shared by the MP, without the clear intention to draw attention to it. Do not code any references to Integrated Schools.

Include:

- "Protecting Britain as the Eurozone continues to integrate – ensuring British taxpayers will never be required to bail out the Eurozone, and that British businesses can never be discriminated against because we are not part of the Euro." Borderline case, but not clear whether copied from somewhere else or own list and therefore kept in. Tobias Ellwood.

Exclude:

- “I am in full support of the drive for greater collaboration between blue light services, and specifically to integrate police and fire services - in terms of their back office functions and management.” (Amanda Milling)
- “Whether it is the EA, the Council or the Drainage Boards, everybody has an interest in working together in an integrated way as each body is responsible for different parts of the system.” (Andrew Percy)
- "Today Chuka launched a new All Party Parliamentary Group on Social Integration, which will explore how we can build a more integrated Britain.” (Chuka Umunna)
- “My constituency has had some very real issues relating to Eastern European immigration over the part five or so years. Parts of Chatham have struggled with community integration and pressure on some of our schools and doctor surgeries has been immense.” (Tracey Crouch) Do not include integration on the level of population and people. Only include European integration. Not domestic issues.

Remaining instructions for other keywords

- **Brussels**: only code when there is a reference to Brussels as an entity, not a location
- **Stay***: only code when it refers to staying in the EU (as an alternative to ‘remain’). References to a staycation should be excluded
- **Pull* out of**: only code as a synonym for leave/remain with regards to membership of the EU. Therefore, do not include the following: “This would see confidence hit, currency fall and jobs being lost – 24,000 in Wales alone – and companies such as Hitachi said they would pull out of the UK.” (David Hanson, MP)
- **Independence referendum**: (related keywords and key phrases are ‘Scotland’ and ‘union’, ‘second referendum’ and ‘another referendum’). Confirm which referendum is being mentioned by checking adjacent posts and by noting the time at which the post has been published. Only then is it possible to determine which referendum is being referred to.
    - Include when there is a reference to the EU referendum campaign in comparison to the Scottish referendum campaign.
    - Exclude:
        - “We proposed progressive measures on work and pensions, sought long overdue radical democratic reforms of parliament and the electoral system, and called for a Home Rule Bill to finally deliver the meaningful federal devolution to Scotland that was promised during the Independence Referendum” (Richard Arkless, MP)
        - “Nicola Sturgeon also highlighted the sense of democratic engagement in Scotland unleashed during the referendum – and made it clear that the SNP will seek to continue to meet the high standards demanded by the electorate” (Richard Arkless, MP, in reference to the Independence Referendum in 2014 and referring to the Holyrood elections).

Appendix B7: Distribution of values on the EU referendum and 'other' posting variables

EU referendum activity is measured based on the number of posts that relate to the EU Referendum. It is therefore a count variable. 'Other' posting activity is measured by subtracting the number of EU referendum posts from the total number of posts published by the MP. In both cases, we can observe that the variance of the data is considerably larger than the mean, indicating overdispersion.

Table 1: Descriptive statistics for EU referendum activity (N = 416)

	M	*SD*	*Skewness*	*Kurtosis*
Number of EU referendum posts (range 0-247)	13.39	25.45	5.50	39.07

Figure 1: The number of EU referendum posts published by MPs during the campaign

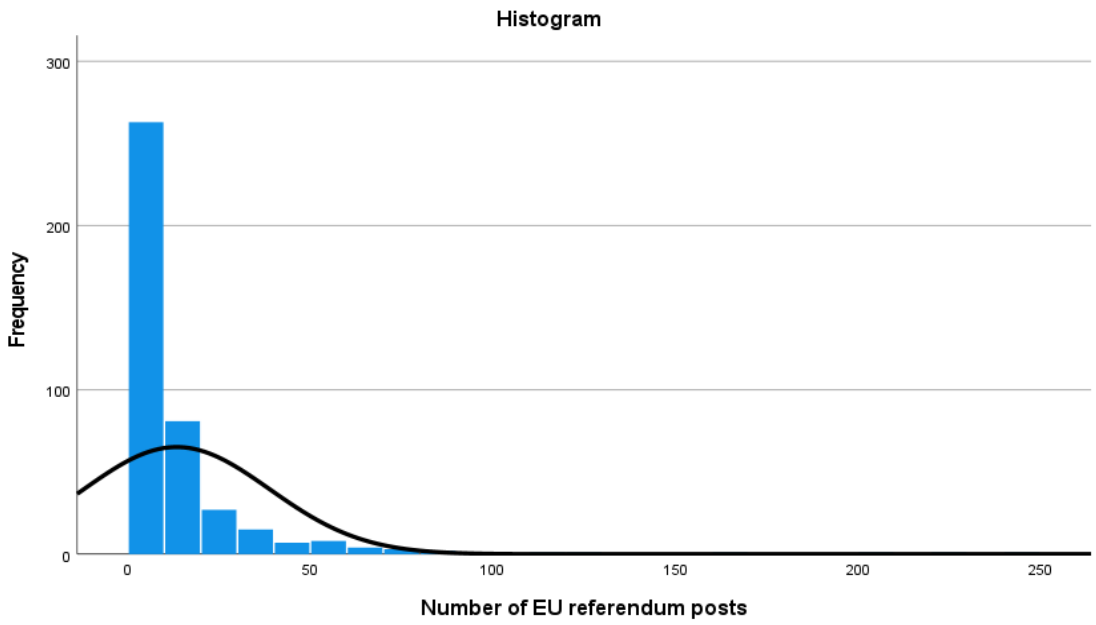


Figure 2: Distribution of the number of EU referendum posts published by MPs during the campaign

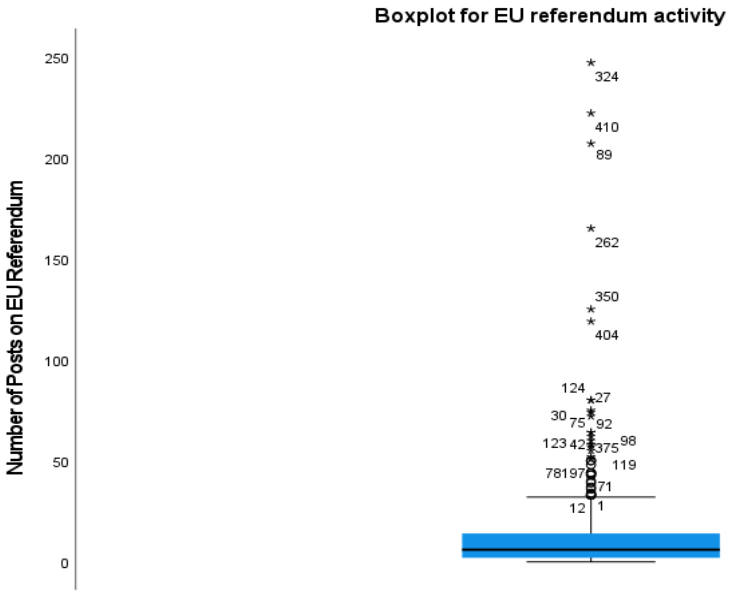


Table 2: Descriptive statistics for ‘other’ posting activity (N = 416)

	M	*SD*	*Skewness*	*Kurtosis*
Number of ‘other’ posts (range 0-432)	68.97	69.91	1.76	3.86

Figure 3: The number of ‘other’ posts published by MPs during the campaign

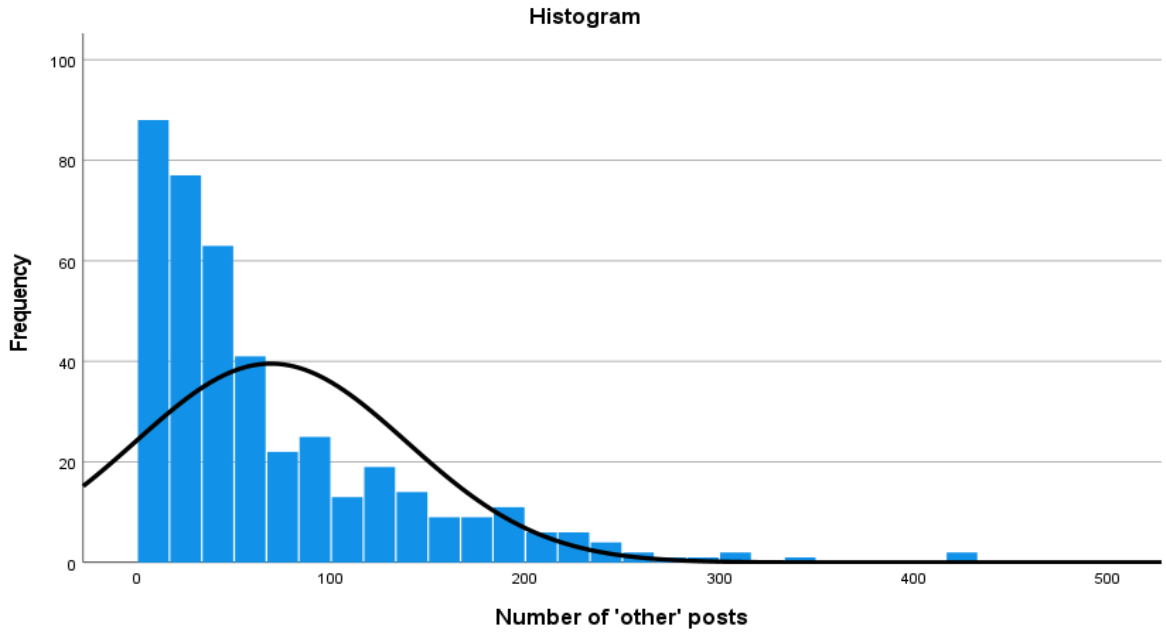
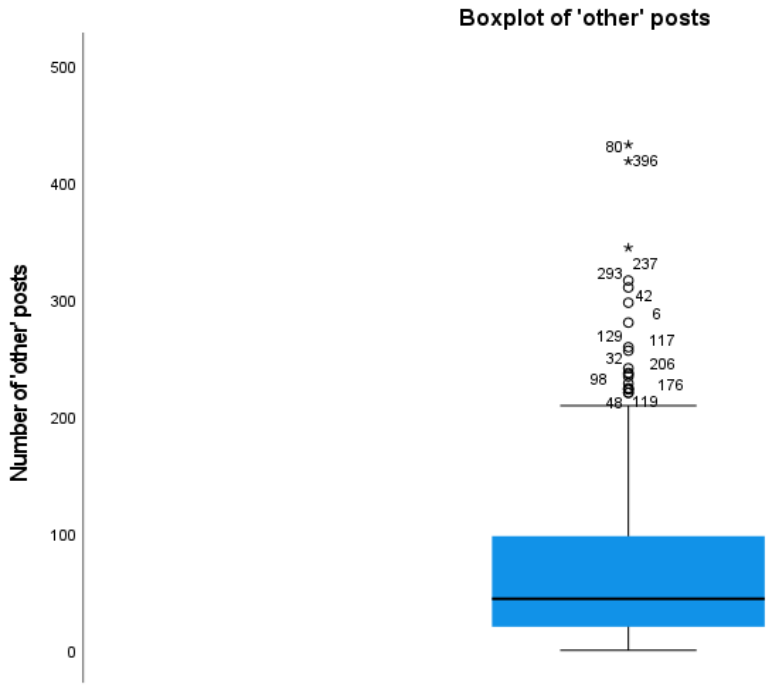


Figure 4: Distribution of the number of ‘other’ posts published by MPs during the campaign



Appendix B8: Distribution of values on the age-variable

The age of MPs has been calculated based on their birth date. I recorded their age in years on February 19, 2016. The age of MPs was derived from the bibliographic information included in their biographies on their Facebook pages and their websites.

Table 1: Descriptive statistics for age (for all MPs, N = 646)

	M	*SD*	*Skewness*	*Kurtosis*
Age (range 21-85)	50.84	10.75	.15	-.11

Figure 1: The ages of all MPs in office at the time of the campaign (N = 646)

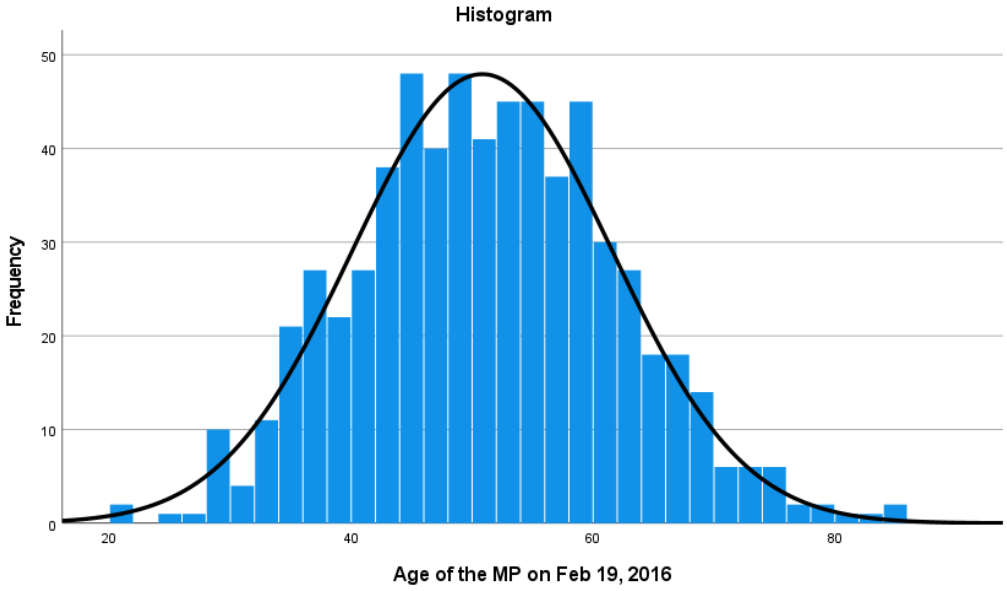


Figure 2: Distribution of the ages of all MPs in office at the time of the campaign (N = 646)

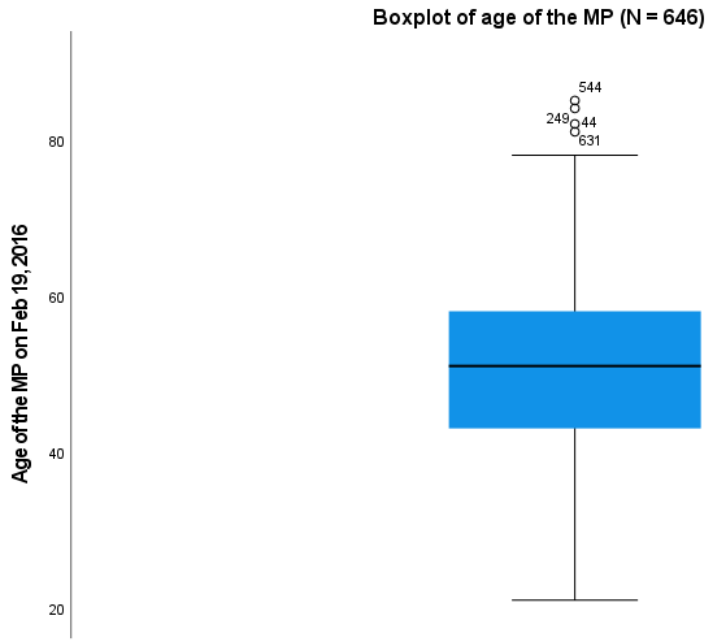


Table 2: Descriptive statistics for age, for all Facebook active MPs (N = 416)

	M	*SD*	*Skewness*	*Kurtosis*
Age (range 21-84)	48.30	10.08	.32	.21

Figure 3: The ages of all Facebook active MPs (N = 416)

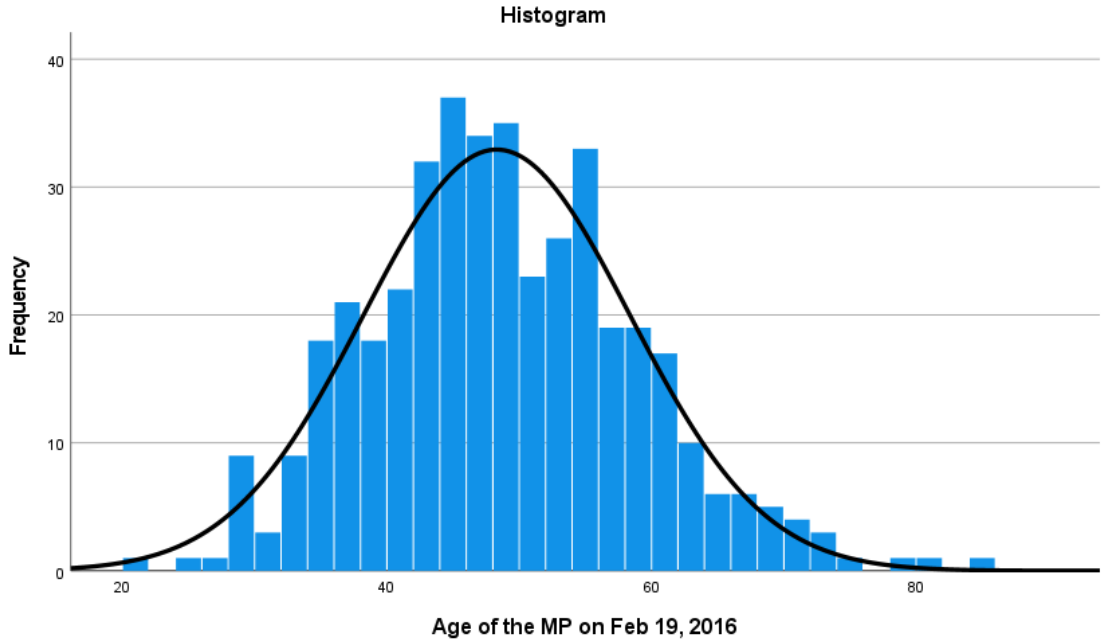


Figure 4: Distribution of the ages of all Facebook active MPs (N = 416)

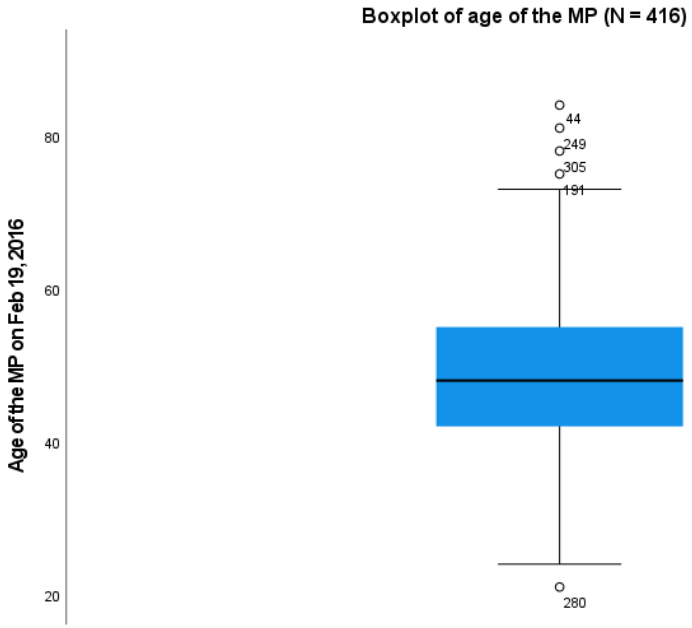


Table 3: Descriptive statistics for age, for all EU referendum active MPs (N = 369)

	M	*SD*	*Skewness*	*Kurtosis*
Age (range 24-84)	48.29	10.15	.36	.14

Figure 5: The ages of all EU referendum active MPs (N = 369)

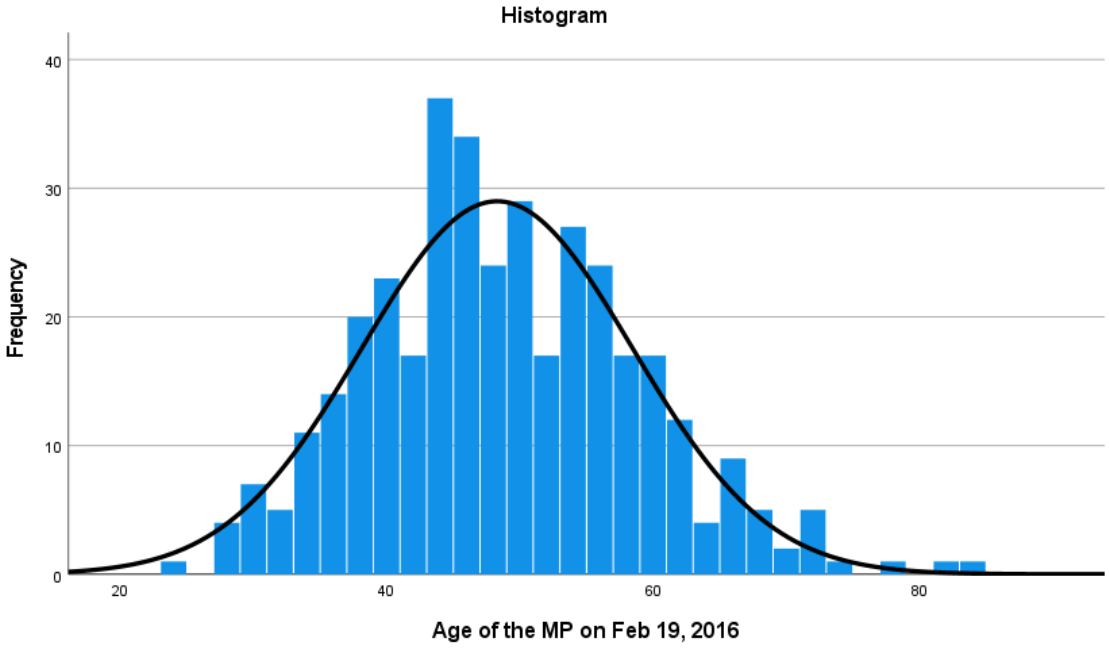


Figure 6: Distribution of the ages of all EU referendum active MPs (N = 369)

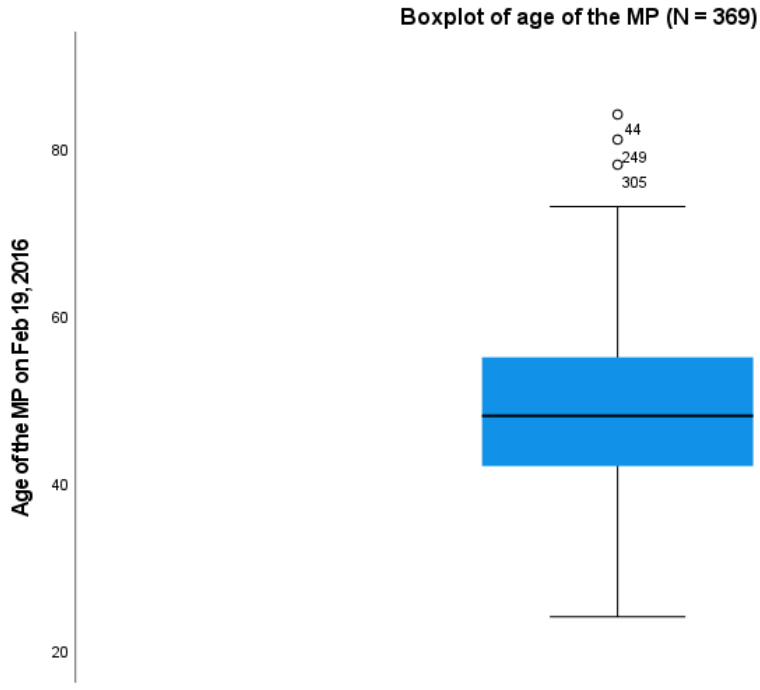


Table 4: Descriptive statistics for the age group variable, for all Facebook active MPs (N = 646)

	n	%
Age group		
20 to 39 years old	99	15.3
40 to 54 years old	307	47.5
55 to 69 years old	214	33.1
70 to 85 years old	26	4.0

Table 5: Descriptive statistics for the age group variable, for all Facebook active MPs (N = 416)

	n	%
Age group		
20 to 39 years old	81	19.5
40 to 54 years old	223	53.6
55 to 69 years old	101	24.3
70 to 85 years old	11	2.6

Table 6: Descriptive statistics for the age group variable, for all EU referendum active MPs (N = 369)

	n	%
Age group		
20 to 39 years old	74	20.1
40 to 54 years old	196	53.1
55 to 69 years old	89	24.1
70 to 85 years old	10	2.7

Appendix B9: Distribution of values for gender

I determined the gender of MPs by considering how they refer to themselves in their biographies on their Facebook pages, their websites and, secondarily, based on how they are referred to in reputable media sources (e.g., BBC and the Guardian). Gender, therefore, refers to what MPs outwardly identify themselves as. There were no MPs for which gender could not be determined, using this method.

Table 1: Descriptive statistics for gender, for all Facebook active MPs (N = 646)

	n	%
Gender		
Female	190	29.4
Male	456	70.6

Table 2: Descriptive statistics for gender, for all Facebook active MPs (N = 416)

	n	%
Gender		
Female	138	33.2
Male	278	66.8

Table 3: Descriptive statistics for gender, for all EU referendum active MPs (N = 369)

	n	%
Gender		
Female	122	33.1
Male	247	66.9

Appendix B10: Distribution of values for camp

I consider the following three possible positions: support for “Leave”, support for “Remain”, and ‘undeclared’ support. To determine the position of the MPs, I first considered their positions as reported in the Guardian, as known by February 23 (https://www.theguardian.com/politics/ng-interactive/2016/feb/23/how-will-your-mp-vote-in-the-eu-referendum). Thereafter, I considered the positions reported by the BBC, which looked at the position of MPs on June 22nd, a day before the Referendum (https://www.bbc.co.uk/news/uk-politics-eu-referendum-35616946). When these sources reported a different position, I assigned the position declared by the MP on the 22nd of June. Based on these reports, I tentatively put down the MP as ”Leave”, ”Remain” or ”Undeclared”. I did not have to adjust any of the assigned positions based on the content of MPs’ EU referendum posts. No apparent contradictions were found between the positions assigned to the MPs and their positions in their EU referendum posts. In the analyses in this thesis, when I study the differences between “Leave” and “Remain” MPs, MPs with ‘undeclared’ positions are treated as ‘missing’ a value on this variable. They are therefore not included in those analyses.

Table 1: Descriptive statistics for camp, for all Facebook active MPs (N = 646)

	n	%
Camp		
Leave	158	24.5
Remain	475	73.5
Undeclared	13	2.0

Table 2: Descriptive statistics for camp, for all Facebook active MPs (N = 416)

	n	%
Camp		
Leave	93	22.4
Remain	316	76.0
Undeclared	7	1.7

Table 3: Descriptive statistics for camp, for all EU referendum active MPs (N = 369)

	n	%
Camp		
Leave	85	23.0
Remain	277	75.1
Undeclared	7	1.9

Appendix B11: Distribution of values for seniority (length of service)

To determine the seniority of MPs, I consider their length of service as MPs. I noted the year they first entered Parliament and subtracted this year from the year of the Referendum (2016), to roughly determine how many years MPs had been in Parliament at the time of data collection. The data shows that there are several years in which a large portion of MPs first entered Parliament. This corresponds to years in which general elections were held. For example, most of the MPs who were in office for a year first gained office following the 2015 General Election.

Table 1: Descriptive statistics for seniority (service length), for all MPs (N = 646)

	M	*SD*	*Skewness*	*Kurtosis*
Length of service (range 1-50)	9.92	9.46	1.41	1.92

Figure 1: The seniority (length of service) of all MPs in office at the time of the campaign (N = 646)

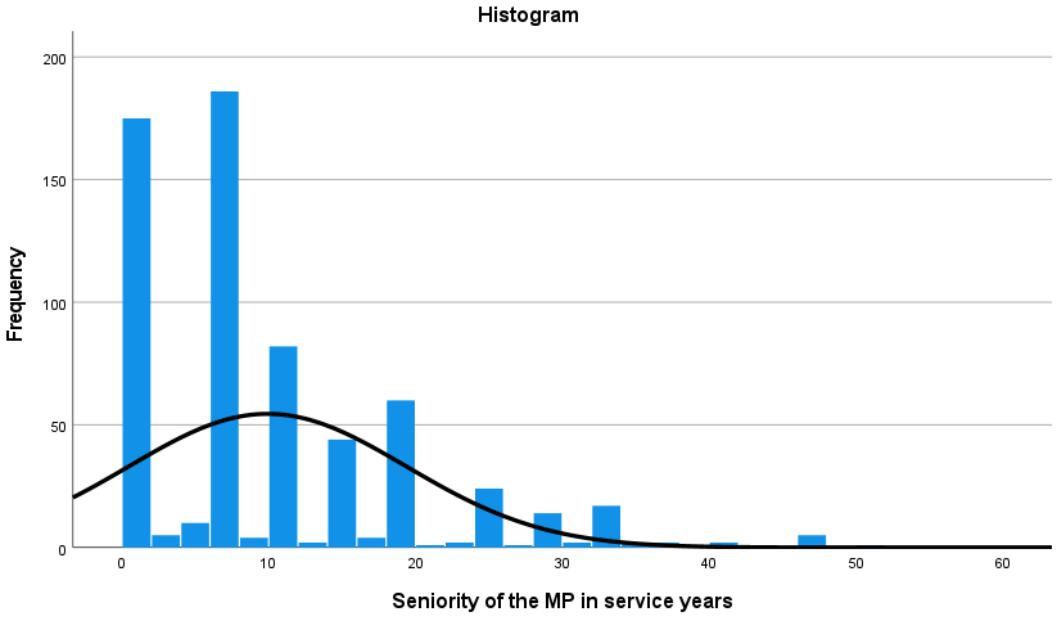


Figure 2: Distribution of the seniority (length of service) of all MPs in office at the time of the campaign (N = 646)

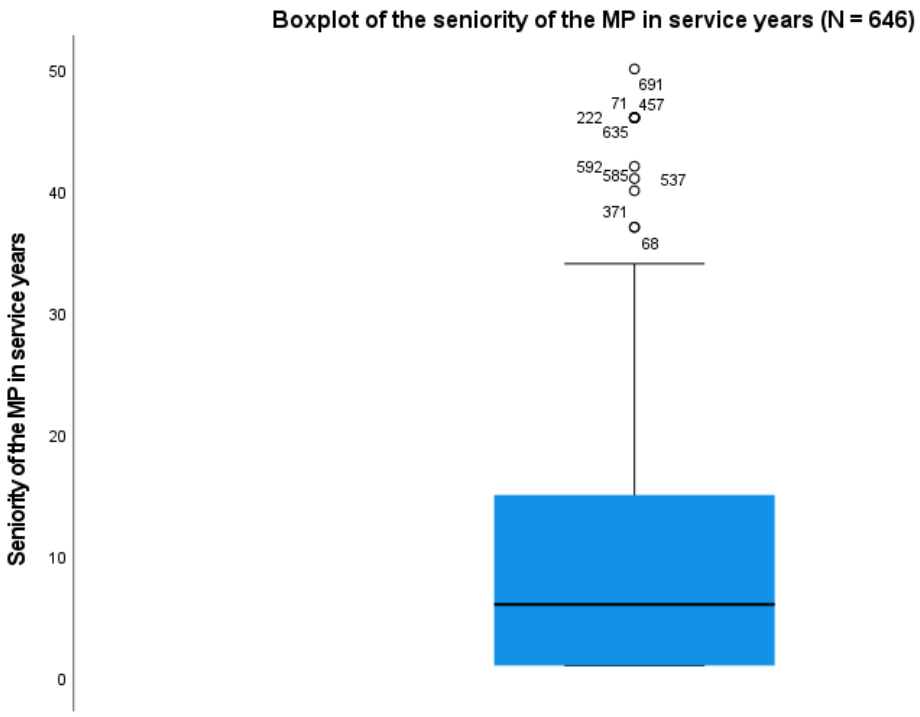


Table 2: Descriptive statistics for seniority (service length), for all Facebook active MPs (N = 416)

	M	*SD*	*Skewness*	*Kurtosis*
Length of service (range 1-45)	7.78	8.12	1.77	3.68

Figure 3: The seniority (length of service) of all Facebook active MPs (N = 416)

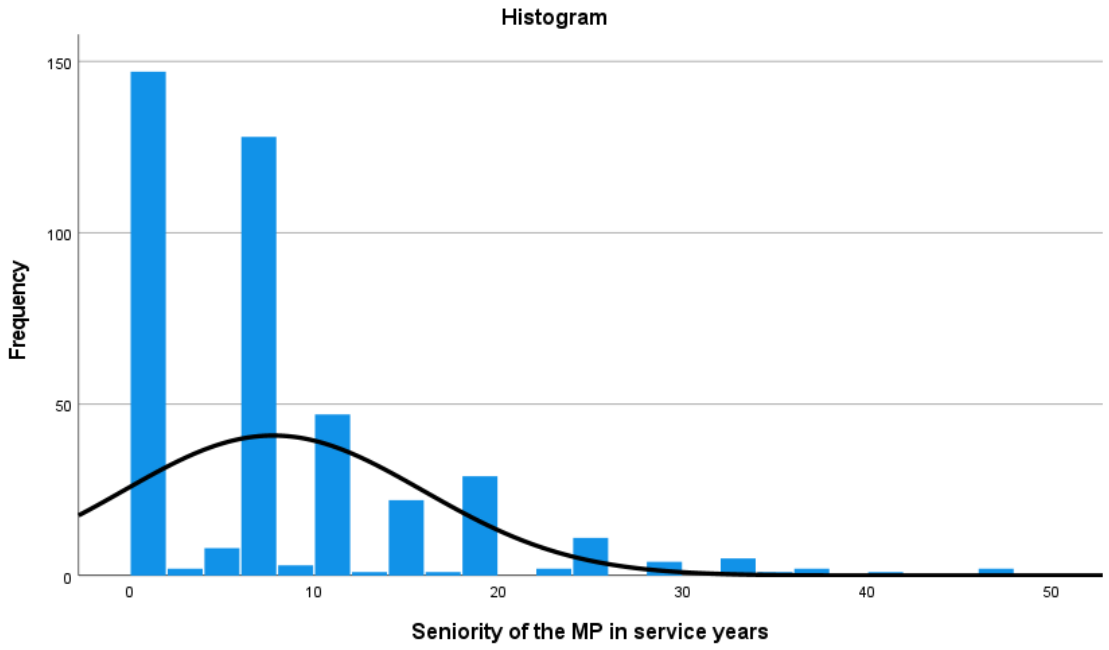


Figure 4: Distribution of the seniority (length of service) of all Facebook active MPs (N = 416)

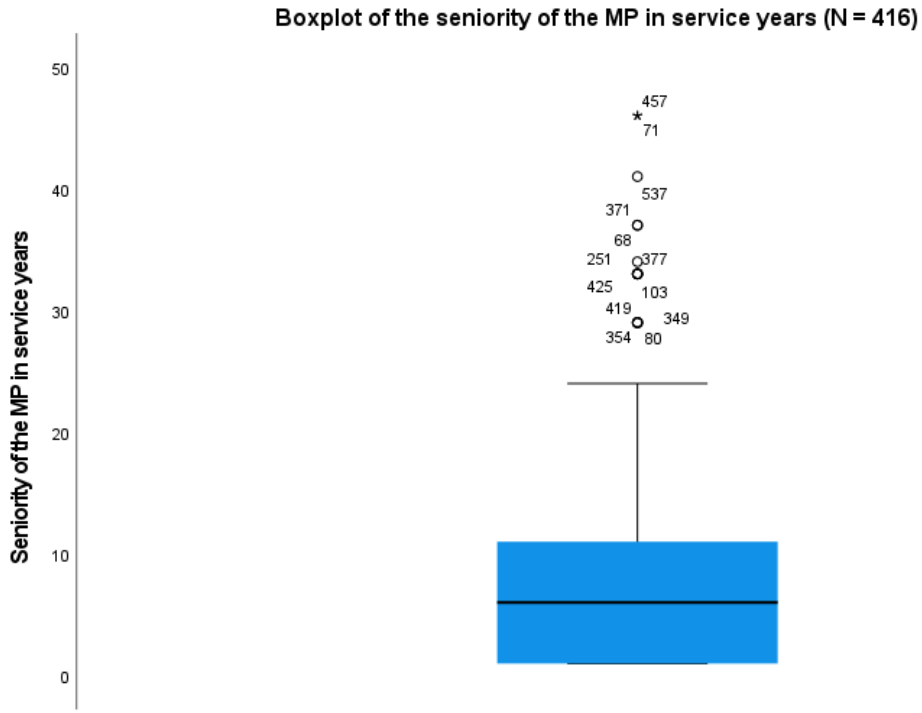


Table 3: Descriptive statistics for seniority (service length), for all EU referendum active MPs (N = 369)

	M	*SD*	*Skewness*	*Kurtosis*
Length of service (range 1-46)	7.60	8.20	1.84	3.89

Figure 5: The seniority (length of service) of all EU referendum active MPs (N = 369)

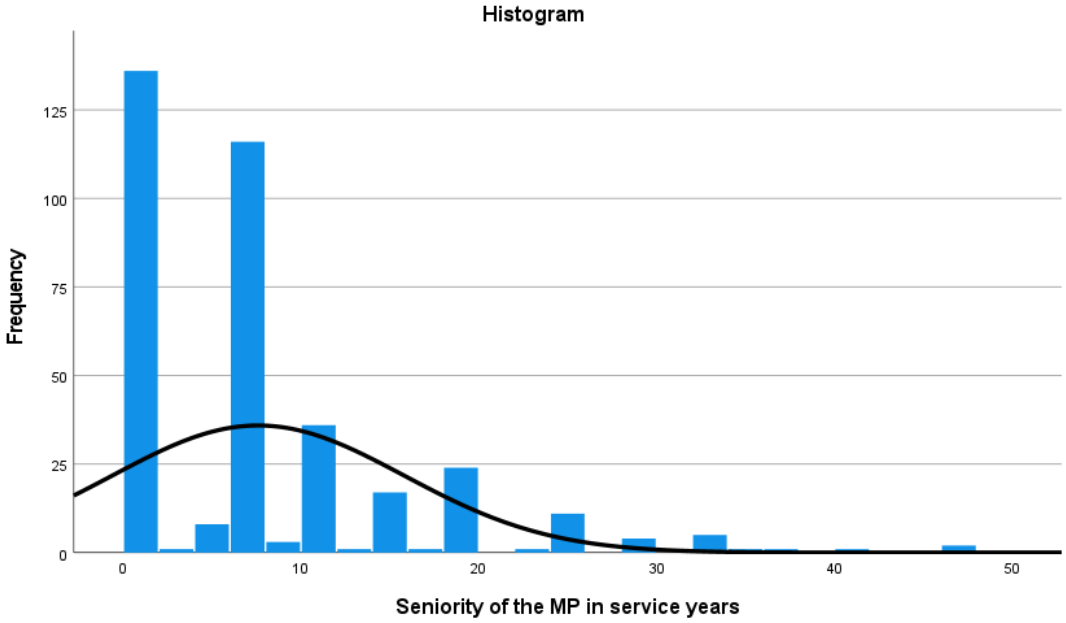


Figure 6: Distribution of the seniority (length of service) of all EU referendum active MPs (N = 369)

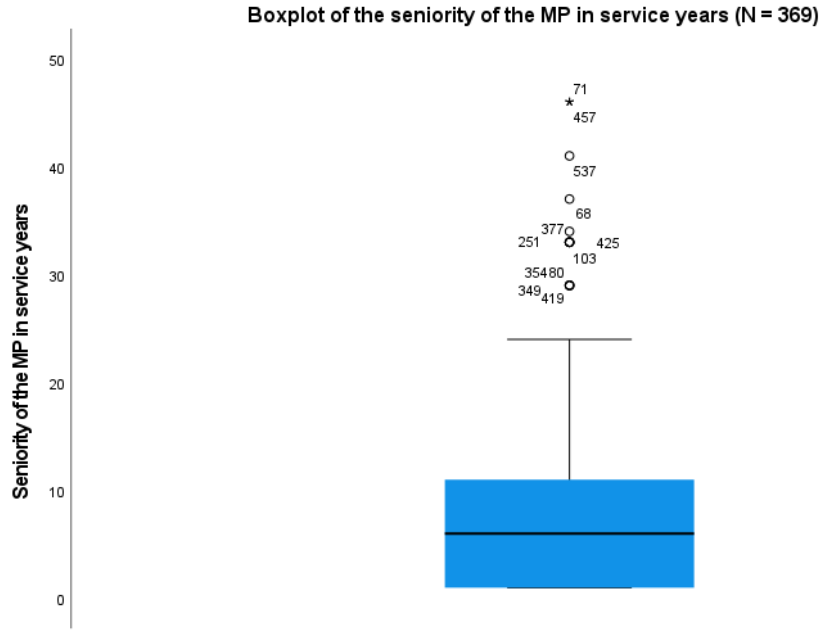


Table 4: Descriptive statistics for the seniority group variable, for all Facebook active MPs (N = 646)

	n	%
Seniority group		
0-1 years of service	175	27.1
2-6 years of service	200	31.0
7-15 years of service	133	20.6
16-50 years of service	138	21.4

Table 5: Descriptive statistics for the seniority group variable, for all Facebook active MPs (N = 416)

	n	%
Seniority group		
0-1 years of service	147	35.3
2-6 years of service	137	32.9
7-15 years of service	74	17.8
16-50 years of service	58	13.9

Table 6: Descriptive statistics for the seniority group variable, for all EU referendum active MPs (N = 369)

	n	%
Seniority group		
0-1 years of service	136	36.9
2-6 years of service	124	33.6
7-15 years of service	58	15.7
16-50 years of service	54	13.8

Appendix B12: Distribution of values for the Estimated "Leave" Vote and MP-constituency alignment variables

I have computed a MP-constituency alignment variable based on the proportion of the estimated "Leave" vote in each constituency and the camp ("Leave", "Remain" or 'undeclared' position) of the MP. Data about the estimated constituency "Leave" vote has been made available by Chris Hanretty, at https://medium.com/@chrishanretty/revised-estimates-of-leave-vote-share-in-westminster-constituencies-c4612f06319d. This website was accessed September 21, 2019. I recoded this proportion of the estimated "Leave" vote into a categorical variable with three categories: "Remain" oriented constituency (= -1, less than 45% or .0449), Unclear camp of constituency (between 45% and 55%, .045 and .0549, = 0), and "Leave" oriented constituency (more than 55% or .055, = 1).

I thereafter used the resulting nominal variable with values ranging between -1 and 1 in multiplication with a dichotomous variable of the camp of the MP, specifically created for this computation, with "Leave" as 1 and "Remain" as -1. In Appendix B10, I have explained how I have derived the camp of the MPs. The result of the multiplication is a trichotomous variable which measures the extent to which the position of the MP with regards to EU membership ("Leave" or "Remain") aligns with that of most of the constituency (1 = MP and constituency camp align; 0 = no clear constituency camp; -1 = MP and constituency camp do not align). There are two cases in which no value could be computed for the MP-constituency alignment variable: i) when the data set by Hanretty does not include data about the position of the majority of the constituency and ii) when MPs have an undeclared position. In these instances, there is no value for the MP-constituency alignment variable – the values are marked as 'missing'.

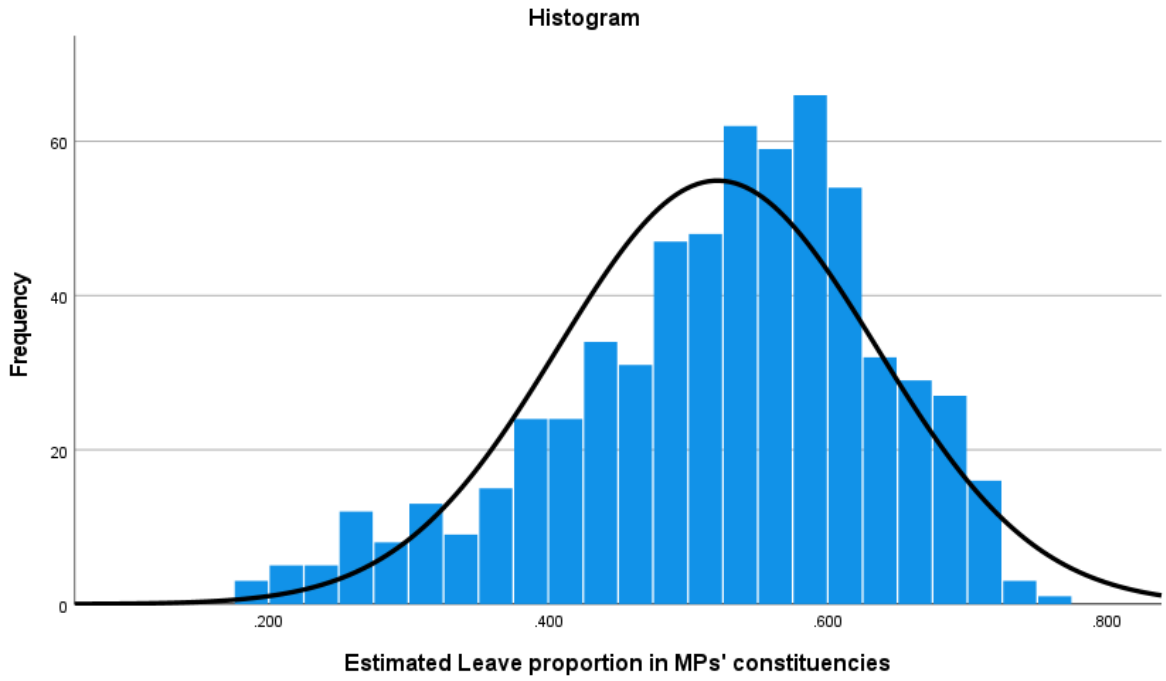
Tables 1 to 3 and Figures 1 to 6 show how the values have been distributed on this estimated-"Leave"-vote variable. Tables 4 to 6 show how the values have been distributed on the categorical estimated-"Leave"-vote variable. Tables 7 to 9 show how the values have been distributed on the MP-constituency alignment variable. Multiple versions of this MP-constituency alignment variable have been created for Chapter 3, in which this variable is subjected to robustness checks. Descriptive information relating to these alternative versions of the MP-constituency alignment variable can be found in Appendix C7.

Table 1: Descriptive statistics for the estimated proportion of a vote for "Leave" per constituency (for the population of MPs)

	M	*SD*	*Skewness*	*Kurtosis*
The estimated proportion of constituency "Leave" vote (0.185 – 0.750)	.52	.11	-.63	.03

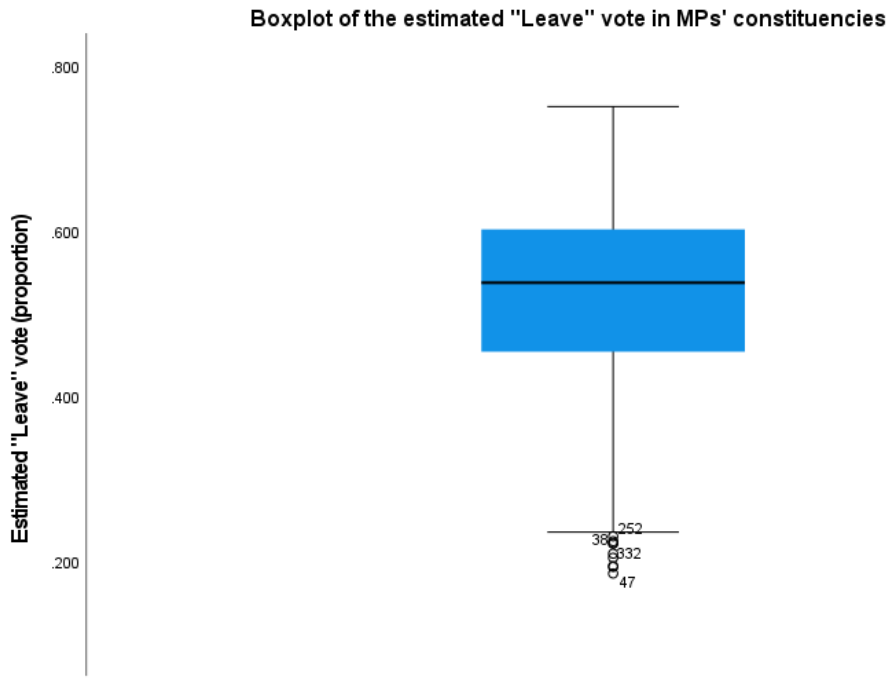
Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 646 to 627.

Figure 1: The estimated leave vote (proportion) for the constituencies of all MPs in office at the time of the campaign



Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 646 to 627.

Figure 2: Distribution of the estimated “Leave” vote (proportion) in MPs’ constituencies (all MPs)



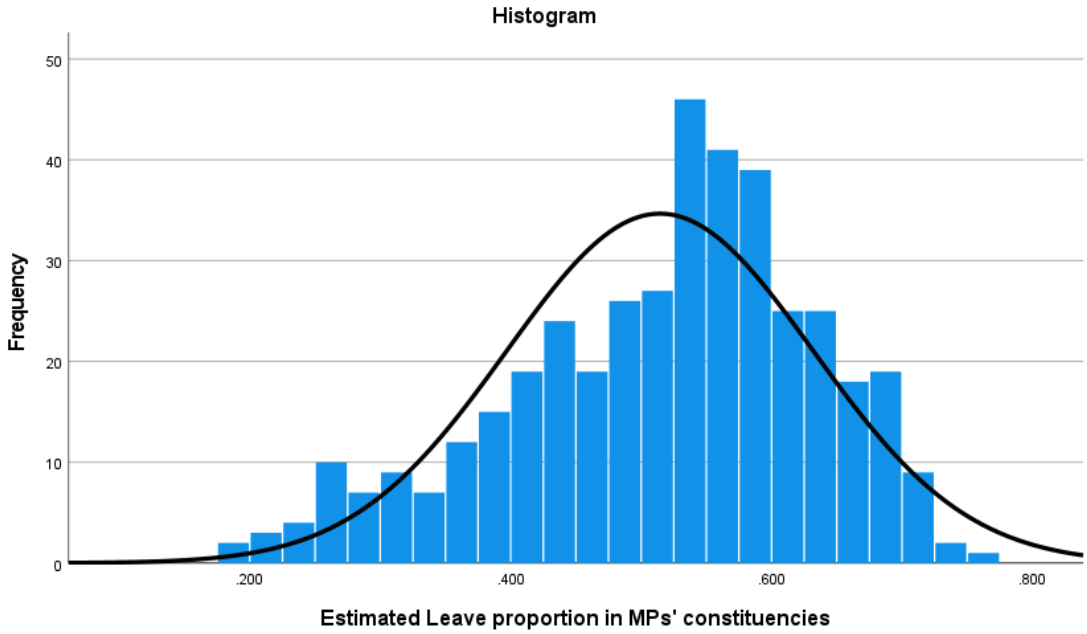
Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of ”Leave” voters in their constituency was available. N is therefore reduced from 646 to 627.

Table 2: Descriptive statistics for the estimated proportion of a vote for “Leave” per constituency, for all Facebook active MPs

	M	*SD*	*Skewness*	*Kurtosis*
The estimated proportion of constituency “Leave” vote (0.185 – 0.750)	.52	.12	-.56	-.20

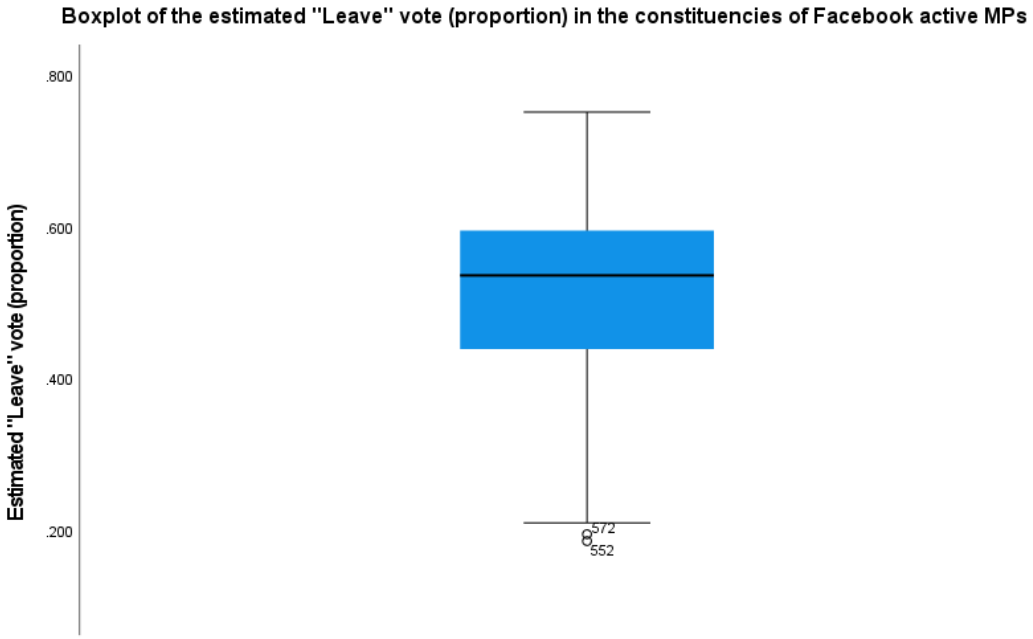
Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of ”Leave” voters in their constituency was available. N is therefore reduced from 416 to 409.

Figure 3: The estimated leave vote (proportion) for the constituencies of all Facebook active MPs



Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of ”Leave” voters in their constituency was available. N is therefore reduced from 416 to 409.

Figure 4: Distribution of the estimated “Leave” vote (proportion) in the constituencies of all Facebook active MPs



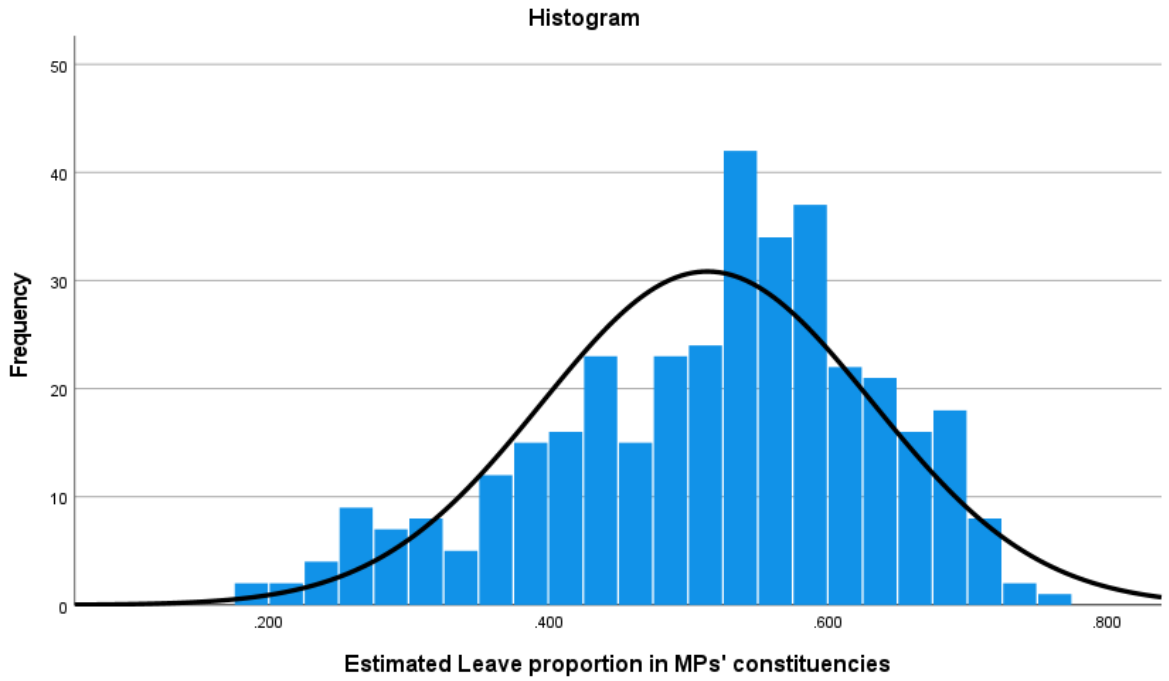
Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of ”Leave” voters in their constituency was available. N is therefore reduced from 416 to 409.

Table 3: Descriptive statistics for the estimated proportion of a vote for "Leave" per constituency, for all EU referendum active MPs

	M	*SD*	*Skewness*	*Kurtosis*
The estimated proportion of constituency "Leave" vote (0.185 – 0.750)	.51	.12	-.55	-.22

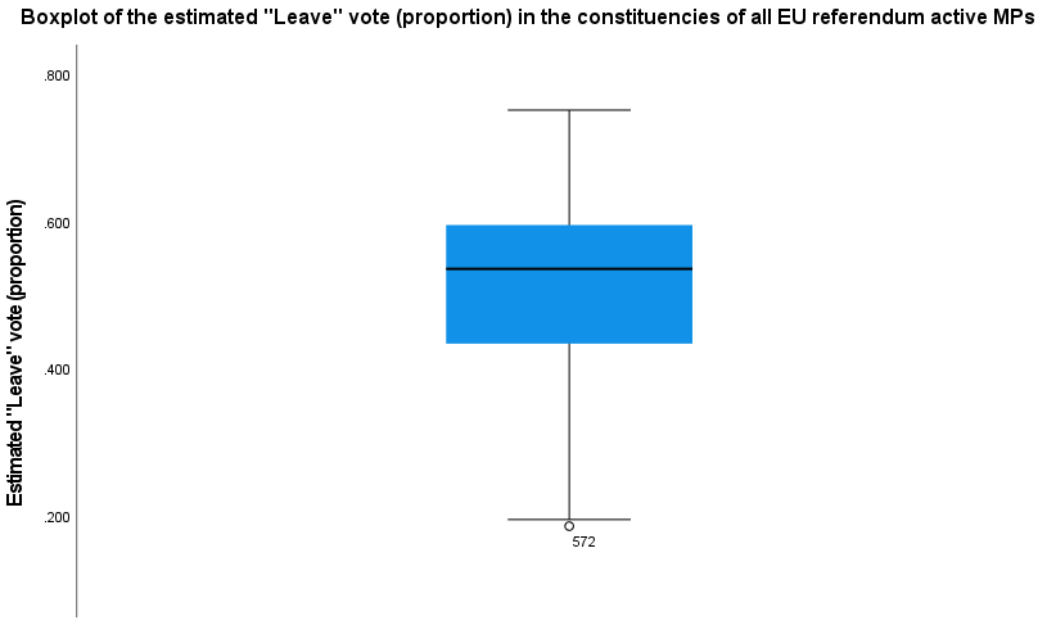
Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 369 to 366.

Figure 5: The estimated leave vote (proportion) for the constituencies of all EU referendum active MPs



Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 369 to 366.

Figure 6: Distribution of the estimated "Leave" vote (proportion) in the constituencies of all EU referendum active MPs



Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 369 to 366.

Table 4: Descriptive statistics for the categorical constituency vote variable, for the population of MPs

	n	%
Constituency orientation		
"Remain" oriented constituency	152	24.2
Unclear camp of constituency	188	30.0
"Leave" oriented constituency	287	45.8

Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 646 to 627.

Table 5: Descriptive statistics for the categorical majority constituency vote variable, for all Facebook active MPs

	n	%
Constituency orientation		
"Remain" oriented constituency	112	27.4
Unclear camp of constituency	118	28.9
"Leave" oriented constituency	179	43.8

Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 416 to 409.

Table 6: Descriptive statistics for the categorical majority constituency vote variable, for all EU referendum active MPs

	n	%
Constituency orientation		
"Remain" oriented constituency	103	28.1
Unclear camp of constituency	104	28.4
"Leave" oriented constituency	159	43.4

Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 369 to 366.

Table 7: Descriptive statistics for the MP-constituency alignment variable, for the population of MPs

	n	%
MP-constituency alignment		
MP and constituency do not align	209	33.9
Alignment unclear	188	30.5
MP and constituency align	219	35.6

Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the camp of the MP and the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 646 to 616.

Table 8: Descriptive statistics for the MP-constituency alignment variable, for the population of MPs

	n	%
MP-constituency alignment		
MP and constituency do not align	129	32.5
Alignment unclear	116	29.2
MP and constituency align	152	38.3

Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the camp of the MP and the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 416 to 410.

Table 9: Descriptive statistics for the MP-constituency alignment variable, for all EU referendum active MPs

	n	%
MP-constituency alignment		
MP and constituency do not align	115	31.9
Alignment unclear	104	28.9
MP and constituency align	141	39.2

Note. For all MPs who were in office for the entire EU referendum campaign period, for which data relating to the camp of the MP and the proportion of "Leave" voters in their constituency was available. N is therefore reduced from 369 to 360.

Appendix B13: Distribution of values on the electoral vulnerability variable

I computed the electoral vulnerability variable by considering the marginality of the seat of MP at the 2015 General Election, in terms of the difference of vote share between the first and second candidate. The values on this ratio variable are therefore percentages. This data relating to the vote share of the candidates is based on the British Election Study (BES) data set '2015 Constituency Results with Census and Candidate data', which is available at https://www.britishelectionstudy.com/data-object/2015-bes-constituency-results-with-census-and-candidate-data/. I have also computed a categorical version of the electoral vulnerability-variable, with four equal groups based on quartiles (e.g., 25% of MPs belongs to the group of MPs with between 0.1 and 11.99% electoral vulnerability).

Table 1: Descriptive statistics for electoral vulnerability (for all MPs, N = 646)

	M	*SD*	*Skewness*	*Kurtosis*
Electoral vulnerability (range .1-72.3)	24.09	14.00	.32	-.35

Figure 1: The electoral vulnerability of all MPs in office at the time of the campaign (N = 646)

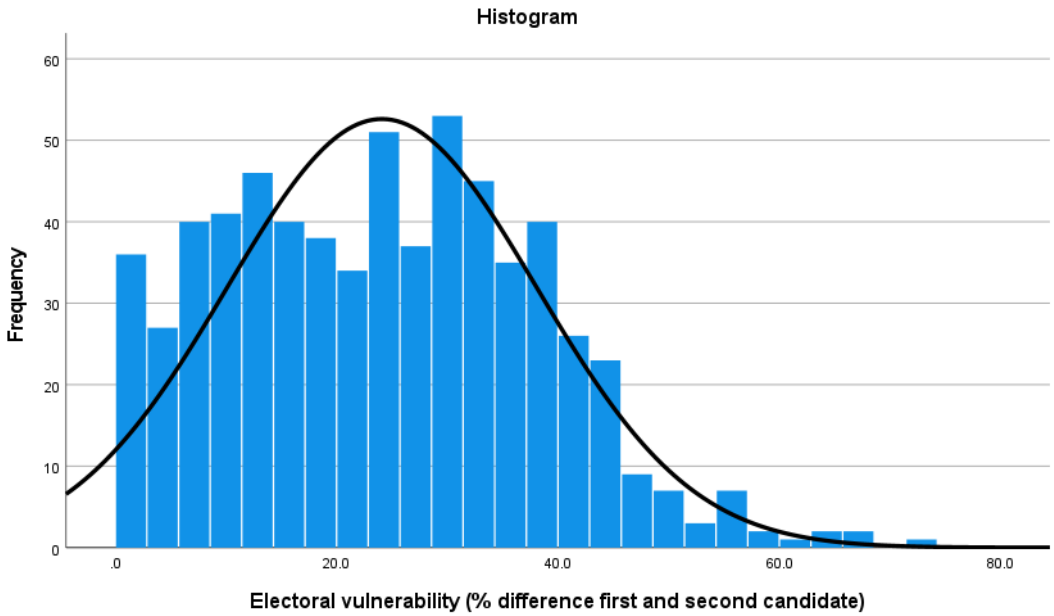


Figure 2: Distribution of the electoral vulnerability of all MPs in office during the campaign (N = 646)

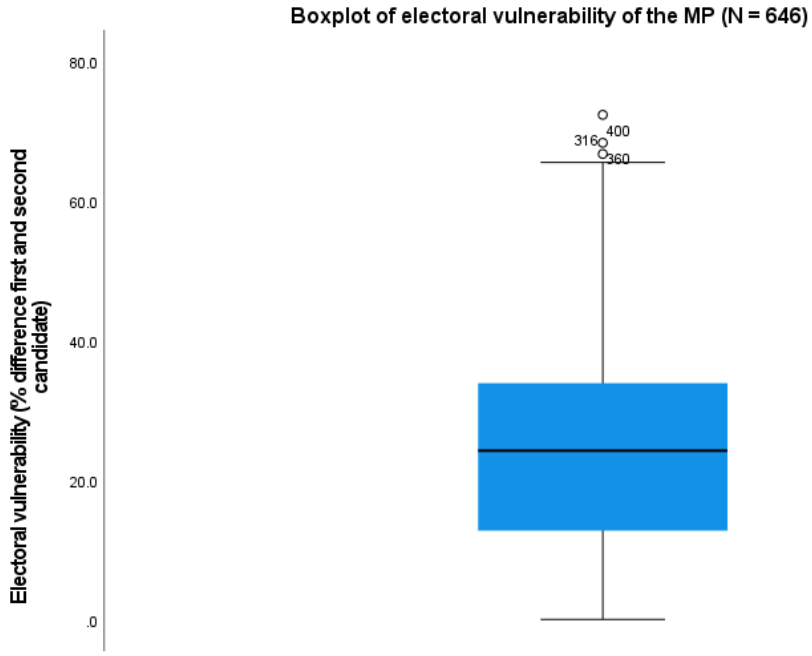


Table 2: Descriptive statistics for electoral vulnerability, for all Facebook active MPs (N = 416)

	M	*SD*	*Skewness*	*Kurtosis*
Electoral vulnerability (range .1 – 72.3)	23.00	14.13	.49	-.12

Figure 3: The electoral vulnerability of all Facebook active MPs (N = 416)

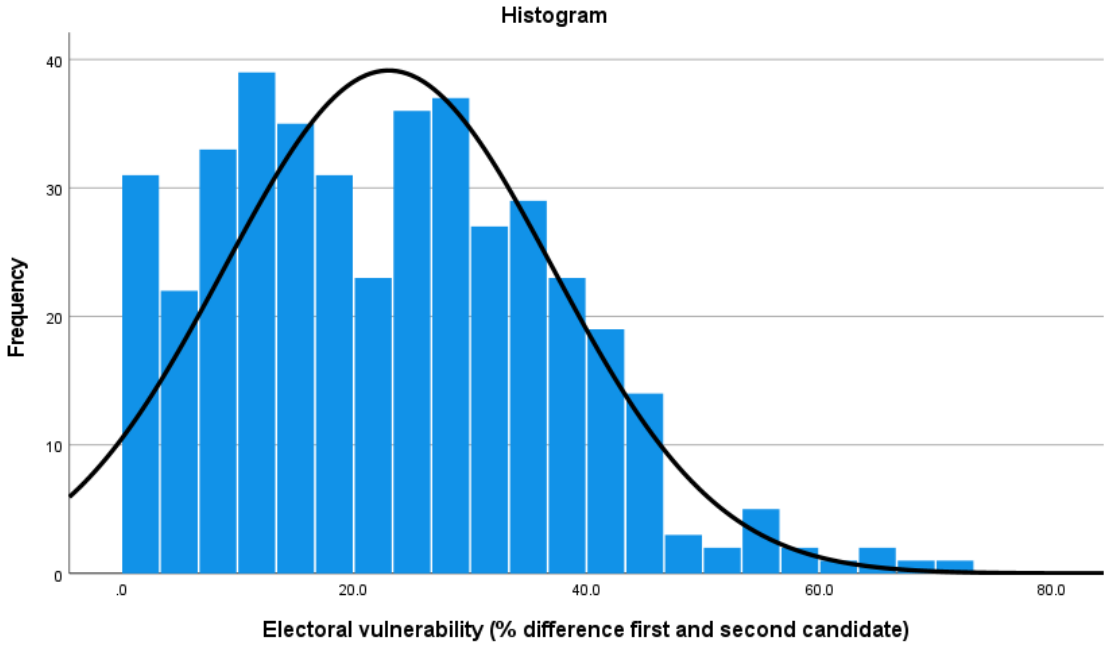


Figure 4: Distribution of the electoral vulnerability of all Facebook active MPs (N = 416)

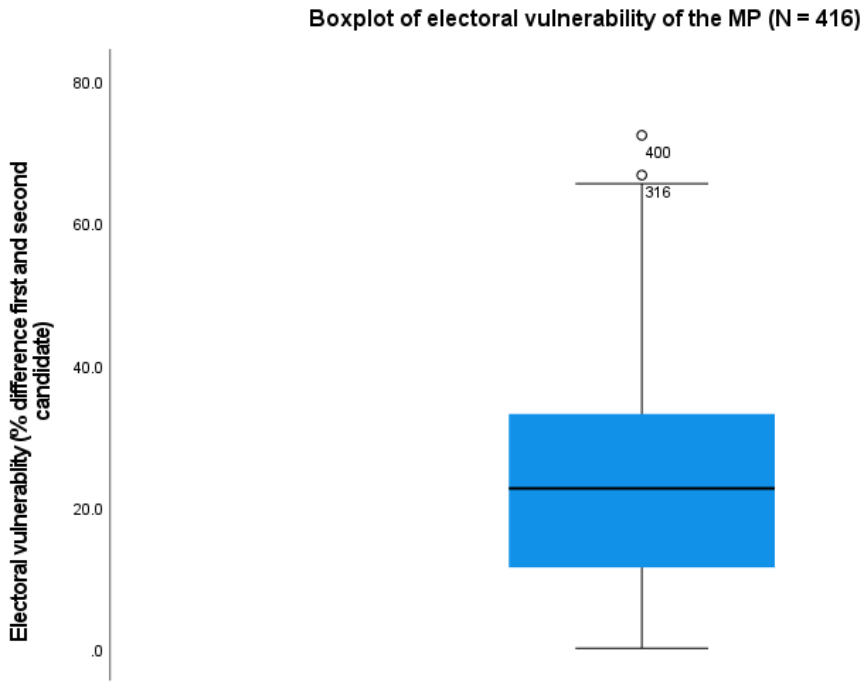


Table 3: Descriptive statistics for electoral vulnerability, for all EU referendum active MPs (N = 369)

	M	*SD*	*Skewness*	*Kurtosis*
Electoral vulnerability (range .1 – 72.3)	22.70	14.01	.45	-.20

Figure 5: The electoral vulnerability of all EU referendum active MPs (N = 369)

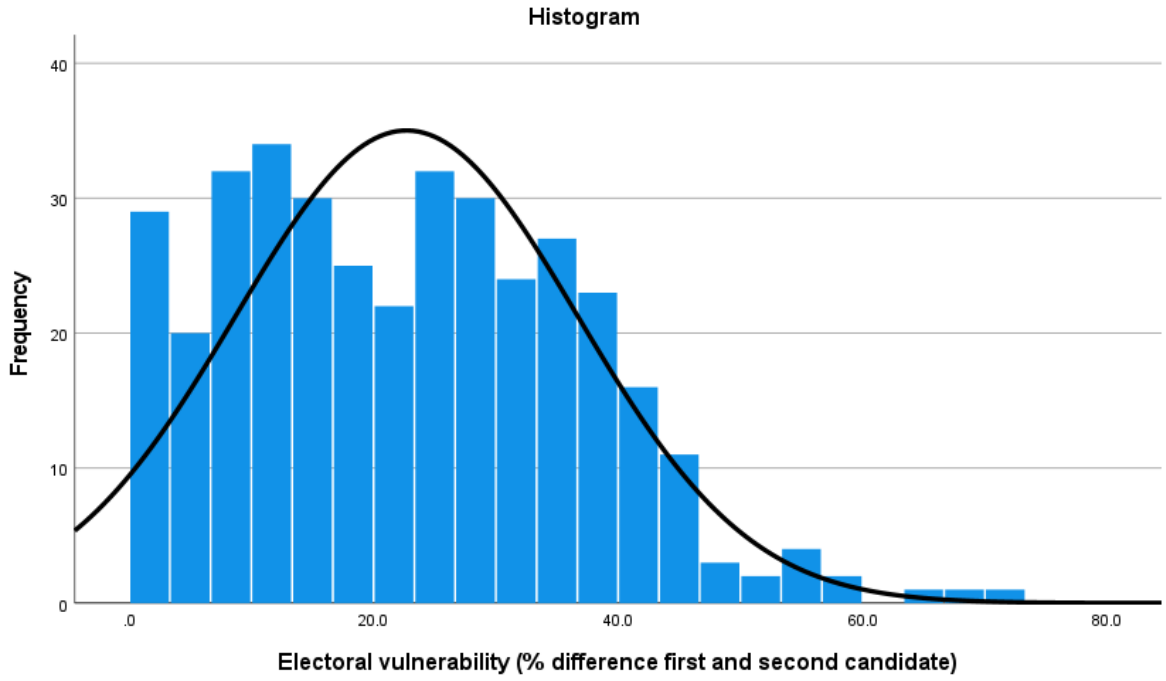


Figure 6: Distribution of the electoral vulnerability of all EU referendum active MPs (N = 369)

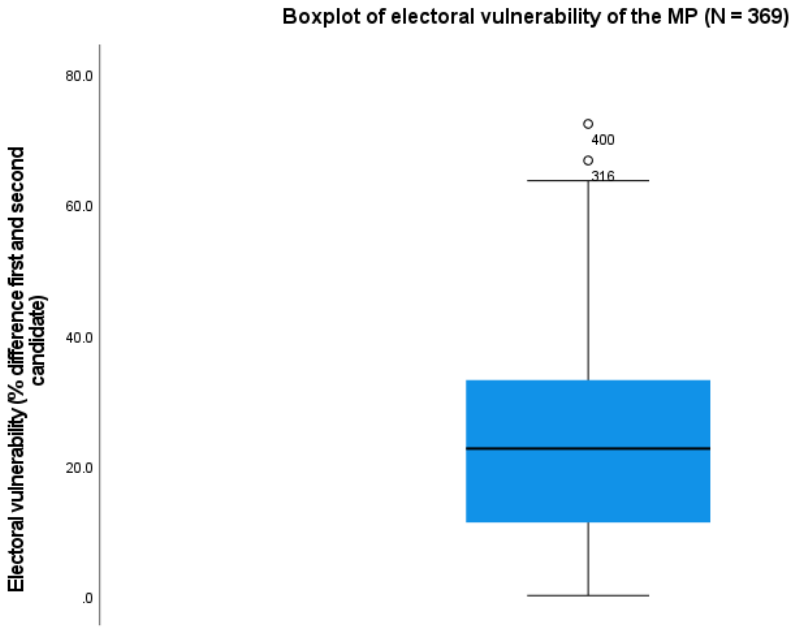


Table 4: Descriptive statistics for the electoral vulnerability group variable, for all Facebook active MPs (N = 646)

	n	%
Electoral vulnerability group		
0.1 to 11.99%	149	23.1
12 to 22.99%	153	23.7
23 to 33.99%	183	28.3
34 to 72.30%	161	24.9

Table 5: Descriptive statistics for the electoral vulnerability group variable, for all Facebook active MPs (N = 416)

	n	%
Electoral vulnerability group		
0.1 to 11.99%	106	25.5
12 to 22.99%	104	25.0
23 to 33.99%	113	27.2
34 to 72.30%	93	22.4

Table 6: Descriptive statistics for the electoral vulnerability group variable, for all EU referendum active MPs (N = 369)

	n	%
Electoral vulnerability group		
0.1 to 11.99%	100	27.1
12 to 22.99%	88	23.8
23 to 33.99%	99	26.8
34 to 72.30%	82	22.2

Appendix B14: Distribution of values on the frontbencher variable

This variable indicates whether the MP is a frontbencher (=1), or a backbencher (=0). Under frontbencher I have included MPs who at the time of the EU referendum, were part of the (shadow) cabinet, had a portfolio, were party leaders or deputy party leaders. All remaining MPs were coded as backbenchers. I used the website https://members.parliament.uk/ to collect this information about the position of MPs (as frontbenchers or backbenchers) at the time of the EU referendum.

Table 1: Descriptive statistics for the frontbencher variable, for all Facebook active MPs (N = 646)

	n	%
Position		
Frontbencher	58	9.0
Backbencher	588	91.0

Table 2: Descriptive statistics for the frontbencher variable, for all Facebook active MPs (N = 416)

	n	%
Position		
Frontbencher	37	8.9
Backbencher	379	91.1

Table 3: Descriptive statistics for the frontbencher variable, for all EU referendum active MPs (N = 369)

	n	%
Position		
Frontbencher	32	91.3
Backbencher	337	8.7

Appendix B15: Comparison of sentiment analysis lexicons

Name	Developer	Unigram or sentence level	Measures
AFINN	Finn Årup Nielsen	Unigram	Words are assigned a score between -5 and 5. Positive scores signal positive sentiment, and negative scores signal negative sentiment. A more extreme average score, in either direction, indicates that the post contains more emotion
Bing	Bing Liu and collaborators	Unigram	Words are categorised whether they do or do not indicate negative emotion or positive emotion ("yes" or "no").
NRC (or EmoLex)	Saif Mohammad and Peter Turney	Unigram	Words are categorised whether they do or do not fit emotion categories ("yes" or "no"). The categories available are positive, negative, anger, anticipation, disgust, fear, joy, sadness, surprise, and trust.
Syuzhet	Matthew Jockers and collaborators	Unigram	Words are assigned a score between -1 and 1. Positive scores signal positive sentiment, and negative scores signal negative sentiment. A more extreme average score, in either direction, indicates that the post contains more emotion
Linguistic Inquiry and Word Count (LIWC)	James Pennebaker and collaborators	Sentence	LIWC returns the percentage of words in a piece of text which are identified as markers for a discrete emotion (e.g., anger, anxiety, or enthusiasm) or word category (e.g., pronouns, numbers).
SentimentR	Tyler Rinker	Sentence	A sentiment score is calculated between -1 and 1 for each sentence and an average is returned. Positive scores signal positive sentiment, and negative scores signal negative sentiment. A more extreme average score, in either direction, indicates that the post contains more emotion
SentiStrength	Subhasree Bose and Saptarsi Goswami	Sentence	A sentiment strength score is calculated. For the negative sentiment, this score lies between -1 (not negative) and -5 (extremely negative). For the positive sentiment, this score lies between 1 (not positive) and 5 (extremely positive)/

More information about the AFINN lexicon can be found at:
http://corpustext.com/reference/sentiment_afinn.html

More information about the Bing lexicon, incorporated in a tidy data frame, can be found at:
https://www.cs.uic.edu/~liub/FBS/sentiment-analysis.html

More information about the NRC lexicon can be found at:
http://saifmohammad.com/WebPages/NRC-Emotion-Lexicon.htm

More information about the syuzhet lexicon can be found at:
https://www.rdocumentation.org/packages/syuzhet/versions/1.0.6

More information about LIWC can be found at:
https://liwc.wpengine.com/

More information about SentimentR can be found at:
https://github.com/trinker/sentimentr

More information about SentiStrength can be found at:
http://sentistrength.wlv.ac.uk/

Appendix B16: The 'AERA' expert survey

Description

Expert surveys are widely used in the study of political parties and public opinion. I intended to use an expert survey to determine which institutional political actors and civil society actors were actively engaged during the period of the EU Referendum Campaign. Filling out the survey was voluntary. Invitations to take the online survey, set up with Qualtrics, were distributed via two mailing lists, one consisting of members of EPOP (Elections, Public Opinion and Parties) and the other of members of EPSA (the European Political Science Association). It was expected that the members of these mailing lists have the necessary expertise to reliably fill out the survey. An incentive was provided: by filling out the survey the respondents could indicate which one out of two charities they would like £1.50 to.

In terms of the content of this survey, the survey questionnaire has two sections. The first section asks the experts to what extent actors were visible/active, including open questions to inquire about actors that may have been missed. It starts with a benchmark description which details how the researcher defines an 'active actor'. The second section asks for some general demographic information. Respondents are invited to answer 'don't know' when they are unfamiliar with a particular actor.

Actor tiers

Based on the insights from the expert survey, the actors would be divided over different tiers of visibility. This could be seen as a measure of importance because it is more likely that the communication of these visible actors has reached the public. This means that their communication would have potentially had the most impact during the campaign period.

Invitation to the expert survey

This is an invitation to take part in an expert survey, which aims to assess perceptions of the involvement of political actors and civil society actors in the EU Referendum Campaign. This survey is a component of ESRC-supported research conducted at the University of Nottingham about causes, consequences, and dynamics of public opinion, executed by Esmeralda Bon MA MSc and supervised by prof. Cees van der Eijk.

We would be extremely grateful if you were to share your expertise with us. The questionnaire can be accessed with the link provided in this email message. The survey takes no longer than 10 minutes to complete and does not ask for any identifying information.

As a 'thank you' for your time and assistance, £1.50 will be donated for every completed survey to either cara (the Council for At-Risk Academics) or English Pen. The preferred charity can be indicated at the end of the survey.

Thank you

Esmeralda Bon (Esmeralda.bon@nottingham.ac.uk)

Cees van der Eijk

Information sheet for the expert survey

About the Study and AERA Survey

You have received an invitation to take part in an expert survey, because we believe your work is relevant for the study of British politics. This study aims to determine the involvement of a variety of political actors and civil society actors in the EU | Referendum Campaign. This is to support ESRC-supported research conducted at the University of Nottingham about causes, consequences and dynamics of public opinion in the UK, and in particular, during the EU referendum campaign. For this study we are specifically looking at the period between February 19 and June 23, 2016.

By filling out this survey you will provide us with invaluable information for our study. After our own analysis, but no later than May 2019, will the researcher share the (anonymous) data and analysis reports upon request. Soon thereafter the research will be made available on a number of open digital repositories, such as Nottingham ePrints.

As a 'thank you', for every completed survey £1.50 will be donated to either cara (the Council for At-Risk Academics) or English Pen. The preferred charity can be indicated at the end of the survey.

If you are willing to fill out this survey, then please click the survey link provided in the email. This will take you to a web survey which will take no longer than 10 minutes to complete and which does not ask for any identifying information (guaranteeing anonymity).

To contact the main researcher, for concerns, questions and to ask to be informed of the results of the survey:

Esmeralda V. Bon
ESRC Doctoral Researcher
Room B111
School of Politics and International Relations
University of Nottingham
Esmeralda.Bon@nottingham.ac.uk

Expert survey: script

Welcome to the Active EU Referendum Actor (AERA) Expert Survey

Thank you for your interest in this expert survey, which aims to assess perceptions of engagement in the UK EU referendum campaign of 2016. We are interested in your views on the degree of active involvement of these actors in the Referendum Campaign.

This survey is conducted as part of an ESRC-funded study conducted at the School of Politics and International Relations, at the University of Nottingham, and has obtained ethical approval from the School's Research Ethics Committee.

This survey should take **no longer than 10 minutes** to complete.

Your answers will be completely anonymous and only used for research purposes. No identifying personal questions are asked and no personal data is collected. For questions or concerns, please email the researcher at Esmeralda.Bon@nottingham.ac.uk

Please first read the text below.

By clicking on the option 'Yes, I agree', you agree to proceed with this survey. You consent for us to use these responses for scientific research alone. The 'Yes, I agree' option opens the survey, without any identifying information about you, so that your responses will be completely anonymous.

- Yes, I agree. Take me to the survey.
- No, I do not agree. I want to end the survey. [skips to the end of the survey]

Thank you

Thank you for agreeing to take this survey! We would like you to answer all questions. However, please feel free to answer **don't know** if that would be appropriate.

For this study we are interested in your perceptions of the activity in the EU referendum campaign of various kinds of actors. Therefore, on the next few pages we ask you to indicate for each of a number of actors how actively they were involved in the EU referendum campaign.

The actors that we ask about are not necessarily individuals: they can also be a party, an organisation, or an institution.

We consider actors as 'active' in the EU referendum if they took part in the public debate about the 2016 EU referendum. This could have been in a variety of ways, using 'classic' or 'traditional' media such as TV, radio, and newspapers, as well as by using 'social' media such as Twitter, Facebook, blogs, etcetera.

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Amber Rudd						
Priti Patel						
Sajid Javid						
Jo Johnson						
Angela Smith						
Seema Malhotra						
Angela Eagle						
Yvette Cooper						
Lilian Greenwood						
Andy Burnham						

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Heidi Alexander						
Diane Abbott						
George Eustice						
Owen Smith						
Maria Eagle						
Tom Watson						
Dominic Raab						
Mark Francois						
David Mundell						
Rory Stewart						

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
John McDonnell						
Richard Fuller						
Marcus Jones						
Iain Duncan Smith						
Matt Hancock						
Michael Fallon						
Theresa Villiers						
Justine Greening						
Nia Griffith						
Michael Dugher						

Are there any other political actors (e.g., MPs, ministers, local government actors) that come to mind?

_____

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
38 Degrees						
Make Votes Matter						
Business for Britain						
Greenpeace						
Momentum						
Democracy Movement						
English Defence League						
Confederation of British Industry						

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Campaign to Remain						
The Electoral Reform Society						
Conservatives for Britain						
European Movement						
Leave.EU						
Labour In For Britain						
British Chambers of Commerce						
UK Youth						

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Labour for a Referendum						
Democracy Movement						
Business for Britain						
Campaign for an Independent Britain						
Students for Britain						
Grassroots Out						
Federation of Small Businesses						
Taxpayers' Alliance						

Are there any other actors (e.g., campaign groups) that come to mind?

_____

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Oxfam						
Nuffield Trust						
British Council						
Open Europe						
Adam Smith Institute						
Unlock Democracy						
Unite the Union						
GMB						
The Church of Scotland						
Bank of England (Financial Organisation						

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Marie Curie						
British Red Cross						
CIVITAS						
The Institute for Government						
British Future						
Hansard Society						
Unison						
National Union of Teachers						
Muslim Council of Britain						
Financial Conduct Authority						

For each of the actors listed, please indicate to what extent you believe they were actively involved in the EU Referendum campaign.

	Not active at all (1)	**2**	**3**	**4**	**Highly active 5**	**Don't know**
Wellcome						
Human Appeal						
Talk Politics						
British Influence						
Chatham House						
The Constitution Society						
Transport & General Workers Union						
Banking, insurance & Finance Union						
Christian Institute						
The Treasury						

Are there any other actors (charities, NGOs, think tanks, trade unions, religious and financial actors, organisations, or institutes) that come to mind?

_____

_____

_____

_____

Finally, we would like to ask you the following brief questions.

First of all, generally speaking, do you think of yourself as Labour, Conservative, Liberal Democrat, Scottish National, Plaid Cymru or other?

- Labour
- Conservative
- Liberal Democrat
- Scottish National
- Plaid Cymru
- Green Party
- United Kingdom Independence Party (UKIP)
- Other
- None
- Don't Know

Then, regarding the EU referendum, if you voted, did you vote to Remain or to Leave, or did you not vote?

- Leave
- Remain
- Did not vote

And finally, which of the following sectors do you work in? Please select your primary profession.

- Higher Education
- Media and Journalism
- Research
- Government
- NGO
- Think tank
- Other

Thank you very much for completing this survey. The data will greatly contribute to the ESRC research project concerned, conducted at the School of Politics and International Relations, at the University of Nottingham.

Please indicate below which charity you would like us to make the **£1.50 donation** to: **cara** or **English PEN.**

If you have any further questions or comments regarding this survey, please contact the researcher at Esmeralda.Bon@nottingham.ac.uk

- **cara – the Council for At-Risk Academics** (http://www.cara.ngo/who-we-are/)
- **English PEN – Freedom to write, Freedom to read** (https://www.englishpen.org/about/)
- No preference

If you have any further questions or comments regarding this survey, please contact the researcher at Esmeralda.Bon@nottingham.ac.uk

Please click on the arrow to save your answers

Results of the 'AERA' expert survey

Experts' views on the visibility of political and civil society actors

The expert survey was completed by 26 experts, falling into 2 main categories of profession: higher education and research. Fieldwork was completed over a month, with one email reminder sent to one of the two mailing lists used for approaching the experts. A monetary incentive of £1.50 was provided for completing the survey, to be awarded to the charities cara or English Pen. The filling out of the survey took part voluntarily. Qualtrics software was used to set up the questionnaire and collect responses online.

The experts that responded to this survey indicated that several political actors, political actors, and civil society organisations were missed. Those actors and organisations who were mentioned, who had a Facebook account and who were not part of the sample yet, were included thereafter. Several actors were potentially missed due to a relative homogeneity of the experts: the majority of these actors are in higher education, voted for Remain or not at all and either did not identify with a political party or identified with Labour. However, the experts did mention political parties and financial actors, underlining that these types of actors were visible during the campaign and should be included in the analysis.

The table below shows us the active actors in the EU referendum debate, according to the experts from the EPOP mailing list, in no particular order. The actors in the shaded cells were mentioned by at least several of the experts. The actors in the cells with the darkest shade were mentioned most frequently.

The Institute for Fiscal Studies	CBI	FSB	Centre for constitutional change at the University of Edinburgh
Many financial actors	Britain First	Leave.eu	Official Leave Campaign
David Cameron	Nigel Farage	Andy Burnham	Boris Johnson
Chukka Umuna	Michael Gove	Tony Blair	Gisela Stuart
Liam Fox	George Osborne	Nick Clegg	Tim Farron
Leadsom	Cummings	Rudd	UKIP
Conservative Party	Kate Hoey		

Appendices for Chapter 3

Appendix C1: Poisson and negative binomial regressions with EU Referendum activity and 'other' posting activity

Table 1: Poisson regression with the EU referendum activity variable

		EU ref FB posting
		b/se
Female		-.048
		(.323)
Age		-.006***
		(.002)
Party (ref: Conservatives)		
	Labour	.266***
		(.038)
	SNP	.403***
		(.065)
	Other	1.224***
		(.069)
"Leave"		.967***
		(.038)
Length of service (ref: 0-1 years)	2-6 years	.441***
		(.038)
	7-15 years	.148**
		(.048)
	16-50 years	.348***
		(.057)
Electoral vulnerability		.010***
		(.001)
Frontbencher		.867***
		(.038)
MP-constituency alignment		-.034*
		(.019)
Constant		1.872***
		(.085)
Observations		402
Log-likelihood		-4565

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

The observations on the EU referendum posting activity variable are overdispersed. This is why I perform a negative binomial regression next.

Table 2: Negative binomial regression with the EU referendum activity variable

EU ref FB posting		
		b/se
Female		-.202
		(.139)
Age		-.002
		(.008)
Party (ref: Conservatives)		
	Labour	.372*
		(.164)
	SNP	.357
		(.256)
	Other	.922*
		(.411)
"Leave"		.820***
		(.189)
Length of service (ref: 0-1 years)	2-6 years	.377*
		(.172)
	7-15 years	.028
		(.213)
	16-50 years	.155
		(.254)
Electoral vulnerability		.009
		(.005)
Frontbencher		.648**
		(.229)
MP-constituency alignment		-.053
		(.092)
Constant		1.864***
		(.383)
Observations		402
Log-likelihood		-1409

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3: Poisson regression with the 'other' posting activity variable

Other FB posting		
		b/se
Female		-.058***
		(0.13)
Age		-.006***
		(.001)
Party (ref: Conservatives)		
	Labour	.386***
		(.016)
	SNP	.884***
		(.023)
	Other	.621***
		(.039)
"Leave"		.070***
		(.020)
Length of service (ref: 0-1 years)	2-6 years	-.157***
		(.016)
	7-15 years	-.514***
		(.022)
	16-50 years	-.050*
		(.024)
Electoral vulnerability		-.002***
		(.001)
Frontbencher		.095***
		(.022)
MP-constituency alignment		-.100***
		(.009)
Constant		4.431***
		(.035)
Observations		402
Log-likelihood		-11579

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

The observations on the other posting activity variable are overdispersed. This is why I perform a negative binomial regression next.

Table 4: Negative binomial regression with the 'other' posting activity variable

Other FB posting		
		b/se
Female		-.047
		(.107)
Age		-.009
		(.006)
Party (ref: Conservatives)		
	Labour	.394**
		(.127)
	SNP	.882***
		(.196)
	Other	.678*
		(.320)
"Leave"		.039
		(.141)
Length of service (ref: 0-1 years)	2-6 years	-.147
		(.130)
	7-15 years	-.515**
		(.161)
	16-50 years	-.057
		(.195)
Electoral vulnerability		.000
		(.004)
Frontbencher		.038
		(.176)
MP-constituency alignment		-.105
		(.068)
Constant		4.503***
		(.276)
Observations		402
Log-likelihood		-2084

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Appendix C2: Multivariate logistic regression with the Facebook use variable

		Facebook use	
		b (se)	O.R.
Female		.259	1.296
		(.225)	
Age		-.051***	.951
		(.012)	
Party (ref: Conservatives)			
	Labour	-.190	.827
		(.228)	
	SNP	.021	1.022
		(.468)	
	Other	1.137	3.116
		(.819)	
"Leave"		-.344	.709
		(.256)	
Length of service (ref: 0-1 years)			
	2-6 years	-.657*	.518
		(.300)	
	7-15 years	-1.013**	.363
		(.325)	
	16-50 years	-.926*	.396
		(.378)	
Electoral vulnerability		-.009	.991
		(.007)	
Frontbencher		.143	1.154
		(.313)	
MP-constituency alignment		.157	1.170
		(.128)	
Constant		**4.172*** **	64.850
		(.639)	
Pseudo R^2: Cox & Snell		.144	
N of observations		615	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. N reduced from 646 to 615 because MP-constituency alignment information was not available for all MPs, due to missing information relating to the estimated support for "Leave" in their constituencies.

Appendix C3: Multivariate linear regressions with the logarithmically transformed EU referendum activity and 'other' posting activity variables

Table 1: Multivariate linear regression with the logarithmically transformed EU referendum activity variable

		EU referendum activity	
		b (se)	Beta
Female		-.036	-.014
		(.143)	
Age		-.010	-.080
		(.008)	
Party (ref: Conservatives)			
	Labour	.194	.077
		(.165)	
	SNP	.286	.079
		(.253)	
	Other	.489	.064
		(.430)	
"Leave"		.295	.105
		(.186)	
Length of service (ref: 0-1 years)			
	2-6 years	.192	.076
		(.169)	
	7-15 years	.048	.014
		(.218)	
	16-50 years	.257	.075
		(.256)	
Electoral vulnerability		.008	.092
		(.005)	
Frontbencher		.342	.082
		(.232)	
MP-constituency alignment		.006	.005
		(.089)	
Constant		1.955***	
		(.374)	
R^2		.034	
N of observations		359	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 2: Multivariate linear regression with the logarithmically transformed 'other' posting activity variable

		Other posting activity	
		b (se)	Beta
Female		-.109	-.042
		(.129)	
Age		-.011	-.089
		(.007)	
Party (ref: Conservatives)			
	Labour	.298*	.115
		(.148)	
	SNP	1.014***	.267
		(.232)	
	Other	.652	.088
		(.373)	
"Leave"		-.055	-.019
		(.172)	
Length of service (ref: 0-1 years)			
	2-6 years	-.462**	-.179
		(.152)	
	7-15 years	-.805***	-.250
		(.190)	
	16-50 years	-.376	-.105
		(.233)	
Electoral vulnerability		.000	-.005
		(.004)	
Frontbencher		.302	.070
		(.209)	
MP-constituency alignment		-.158	-.109
		(.081)	
Constant		4.357***	
		(.341)	
R^2		.162	
Adjusted R^2		.136	
N of observations		397	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Appendix C4: Table of the top 20 most Facebook active actor at the time of interest

Table of Top 20 most Facebook active MPs at the time of interest

	Amount of posts		Amount of EU Referendum posts		Average length of EU post in words	
	MP	#	MP	#	MP	#
1	Karen Buck	448	Andrea Leadsom	247	George Freeman	1026.5
2	Philippa Whitford	431	Steve Baker	222	James Morris	986
3	Andrea Leadsom	429	Douglas Carswell	207	Roger Gale	897.67
4	Gordon Marsden	368	Liam Fox	165	Elizabeth Truss	717
5	Douglas Carswell	354	Chuka Umunna	125	Angus MacNeil	682.33
6	Siobhain McDonagh	354	David Cameron	119	Nus Ghani	628.5
7	Steve Baker	353	David Davies	80	Paul Flynn	610.57
8	Anna Turley	331	Tim Loughton	80	James Cleverly	598
9	Mark Tami	305	Anne-Marie Trevelyan	75	Peter Kyle	591
10	John Nicolson	283	Henry Smith	74	Christopher Davies	526
11	Chris Heaton-Harris	280	Huw Merriman	72	Michael Ellis	504.5
12	Damian Hinds	276	Richard Benyon	64	Craig Mackinlay	484.33
13	Ian Murray	271	Stephen Doughty	64	Guto Bebb	468
14	Christina Rees	269	Alan Haselhurst	62	Mike Penning	466
15	Bob Blackman	262	Chris Heaton-Harris	60	Andrew Murrison	440.17
16	Richard Burgon	260	Bob Blackman	58	Tracey Crouch	440
17	Chuka Umunna	251	Sam Gyimah	58	Diana Johnson	439.67
18	Matt Warman	246	Boris Johnson	57	Victoria Atkins	425
19	Frank Field	245	Damian Collins	55	Ian Murray	407
20	Alison McGovern	243	Gordon Marsden	52	Bob Stewart	406

Appendix C5: Robustness checks for EU referendum activity as a ratio variable

1. Heckman selection model with EU referendum activity as a ratio variable

Table: Heckman selection model predicting EU referendum posting on Facebook, using the ratio variable

		FB use	EU ref FB posting
Female		.140	
		(.133)	
Age		-.028***	.001
		(.007)	(.001)
Party (ref: Conservatives)			
	Labour	-.118	.005
		(.136)	(.022)
	SNP	-.016	-.043
		(.260)	(.035)
	Other	.671	.017
		(.455)	(.057)
"Leave"		-.188	.101***
		(.153)	(.026)
Length of service (ref: 0-1 years)	2-6 years	-.377*	.066**
		(.171)	(.023)
	7-15 years	-.598**	.068*
		(.191)	(.029)
	16-50 years	-.578*	.127***
		(.225)	(.036)
Electoral vulnerability		-.005	.000
		(.004)	(.001)
Frontbencher		.081	.089**
		(.190)	(.031)
MP-constituency alignment		.085	.012
		(.076)	(.012)
Constant		2.391***	.053
		(.356)	(.052)
Observations		614	
Censored observations		212	
Uncensored observations		402	
Log-likelihood		-207	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

An issue with this ratio variable is that the values are not normally distributed. There is clustering around the zero-point.

2. Heckman selection model with EU referendum activity as a ratio variable, logarithmically transformed

Table: Heckman selection model predicting EU referendum posting on Facebook, using the ratio variable, logarithmically transformed

		FB use	EU ref FB posting
Female		.093	
		(.091)	
Age		-.027***	.009**
		(.006)	(.003)
Party (ref: Conservatives)			
	Labour	-.081	-.002
		(.128)	(.062)
	SNP	-.065	-.246*
		(.235)	(.102)
	Other	.675	-.185
		(.424)	(.177)
"Leave"		-.097	.189**
		(.145)	(.071)
Length of service (ref: 0-1 years)	2-6 years	-.280	.256***
		(.156)	(.069)
	7-15 years	-.563**	.421***
		(.181)	(.085)
	16-50 years	-.422*	.479***
		(.208)	(.099)
Electoral vulnerability		-.006	.003
		(.004)	(.002)
Frontbencher		.223	.051
		(.184)	(.089)
MP-constituency alignment		.048	.021
		(.072)	(.035)
Constant		2.154***	-1.378***
		(.343)	(.0148)
Observations		571	
Censored observations		212	
Uncensored observations		359	
Log-likelihood		-488	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Appendix C6: Robustness checks for 'Other Facebook activity' as a ratio variable

Table 1: Heckman selection model with other posting activity as a ratio variable

		FB use	Other posting activity
Female		.140	
		(.133)	
Age		-.028***	-.001
		(.007)	(.001)
Party (ref: Conservatives)			
	Labour	-.118	-.005
		(.136)	(.216)
	SNP	-.016	.043
		(.260)	(.035)
	Other	.671	-.017
		(.455)	(.057)
"Leave"		-.188	-.101***
		(.153)	(.026)
Length of service (ref: 0-1 years)	2-6 years	-.377*	-.066**
		(.171)	(.023)
	7-15 years	-.598**	-.068*
		(.191)	(.029)
	16-50 years	-.578*	-.127***
		(.225)	(.036)
Electoral vulnerability		-.005	-.000
		(.004)	(.001)
Frontbencher		.081	-.089**
		(.190)	(.031)
MP-constituency alignment		.085	-.012
		(.076)	(.012)
Constant		2.390***	.947***
		(.356)	(.052)
Observations		614	
Censored observations		212	
Uncensored observations		402	
Log-likelihood		-207	

The observations are not normally distributed, so I logarithmically transform the ratio variable to perform another Heckman selection regression.

Table 2: Heckman selection model with other posting activity as a ratio variable, logarithmically transformed

		FB use	Other posting activity (log)
Female		.145	
		(.133)	
Age		-.029***	-.000
		(.007)	(.001)
Party (ref: Conservatives)			
	Labour	-.141	-.001
		(.137)	(.015)
	SNP	.032	.027
		(.261)	(.024)
	Other	.667	-.034
		(.445)	(.039)
"Leave"		-.216	-.0.56**
		(.156)	(.018)
Length of service (ref: 0-1 years)	2-6 years	-.375*	-.047**
		(.171)	(.016)
	7-15 years	-.611**	-.035
		(.192)	(.020)
	16-50 years	-.606**	-.069**
		(.227)	(.025)
Electoral vulnerability		-.005	-.001
		(.004)	(.001)
Frontbencher		.042	-.042
		(.192)	(.022)
MP-constituency alignment		.087	-.011
		(.077)	(.008)
Constant		2.401***	-.028
		(.357)	(.036)
Observations		609	
Censored observations		212	
Uncensored observations		397	
Log-likelihood		-53	

Appendix C7: Robustness checks for MP-constituency alignment

1. Descriptive information relating to the alternative versions of the constituency alignment variable

Table 1: Descriptive information relating to the alternative constituency alignment variable, with 42/58 split

		% in the data set	FB use	EU Ref FB posting		Other FB posting	
				Mean	St.Dev.	Mean	St.Dev.
Alignment	Yes	26.4%	68.1%	14.1	25.7	83.3	76.8
	Unclear	49.0%	66.3%	17.4	31.6	64.9	65.6
	No	24.6%	60.5%	12.2	13.0	68.1	70.8

Note: Between 19 Feb – 23 June 2016, 416 out of 646 MPs published at least one post with text on their page. Out of the 646 MPs, 369 posted at least once on the topic of the EU referendum. The group-based percentages show the proportion of the MPs who used these pages (out of 100%). For EU referendum posting and other Facebook posting, the estimates refer to the approximate number of posts.

Table 2: Descriptive information relating to the binary version of the constituency alignment variable

		% in the data set	FB use	EU Ref FB posting		Other FB posting	
				Mean	St.Dev.	Mean	St.Dev.
Alignment	Yes	48.8%	70.3%	13.8	23.6	81.6	77.5
	No	51.2%	62.7%	11.9	12.5	74.4	71.2

Note: Between 19 Feb – 23 June 2016, 416 out of 646 MPs published at least one post with text on their page. Out of the 646 MPs, 369 posted at least once on the topic of the EU referendum. The group-based percentages show the proportion of the MPs who used these pages (out of 100%). For EU referendum posting and other Facebook posting, the estimates refer to the approximate number of posts. For the binary version of the constituency alignment variable, only those MPs who align or misalign with the majority of the constituency (and not those for which this alignment was unclear) were included in the analysis.

Table 3: Descriptive information relating to the alternative, binary version of the 42/58 split constituency alignment variable

		% in the data set	FB use	EU Ref FB posting		Other FB posting	
				Mean	St.Dev.	Mean	St.Dev.
Alignment	Yes	51.7%	54.4%	14.1	25.7	88.1	77.5
	No	48.3%	45.6%	12.2	13.0	74.0	72.7

Note: Between 19 Feb – 23 June 2016, 416 out of 646 MPs published at least one post with text on their page. Out of the 646 MPs, 369 posted at least once on the topic of the EU referendum. The group-based percentages show the proportion of the MPs who used these pages (out of 100%). For EU referendum posting and other Facebook posting, the estimates refer to the approximate number of posts. For the binary version of the constituency alignment variable, only those MPs who align or misalign with the majority of the constituency (and not those for which this alignment was unclear) were included in the analysis.

2. Heckman selection models with the alternative constituency alignment variable: constituency proportion of "Leave" vote split 42/58

Table 4: Heckman selection model predicting EU referendum posting on Facebook, controlling for Facebook use, with the constituency proportion of the "Leave" vote split 42/58

		FB use	EU ref FB posting
Female		.117	
		(.136)	
Age		-.027***	-.009
		(.007)	(.009)
Party (ref: Conservatives)			
	Labour	-.081	.189
		(.140)	(.160)
	SNP	.072	.293
		(.261)	(.243)
	Other	.657	.468
		(.476)	(.439)
"Leave"		-.099	.309
		(.154)	(.179)
Length of service (ref: 0-1 years)	2-6 years	-.404*	.208
		(.174)	(.177)
	7-15 years	-.706***	.085
		(.200)	(.249)
	16-50 years	-.647**	.299
		(.231)	(.285)
Electoral vulnerability		-.006	.008
		(.004)	(.005)
Frontbencher		.152	.334
		(.196)	(.229)
MP-constituency alignment		.063	-.003
		(.089)	(.100)
Constant		2.265***	1.918***
		(.363)	(.386)
Observations		571	
Censored observations		212	
Uncensored observations		359	
Log-likelihood		-897	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: This alternative constituency alignment variable is based on a different categorisation of the proportion of the estimated "Leave" vote for each constituency: 0.185% to 0.419% = -1/no alignment; 0.420% to 0.579% = 0/alignment not clear; 0.580% to 0.750% = 1/alignment. SE in parentheses.

Table 5: Heckman selection model predicting other Facebook posting, controlling for FB use, with the 42/58 split constituency alignment variable

		FB use	Other FB posting
Female		.143	
		(.133)	
Age		-.028***	-.011
		(.007)	(.008)
Party (ref: Conservatives)			
	Labour	-.140	.258
		(.138)	(.144)
	SNP	.008	.916***
		(.257)	.224
	Other	.676	.633
		(.457)	(.380)
"Leave"		-.188	-.126
		(.152)	(.166)
Length of service (ref: 0-1 years)	2-6 years	-.383*	.425**
		(.171)	(.156)
	7-15 years	-.612**	-.778***
		(.192)	(.204)
	16-50 years	-.606**	-.334
		(.227)	(.249)
Electoral vulnerability		-.005	-.001
		(.004)	(.004)
Frontbencher		.049	.309
		(.193)	(.207)
MP-constituency alignment		.068	-.098
		(.087)	(.090)
Constant		2.398***	4.361***
		(.358)	(.351)
Observations		609	
Censored observations		212	
Uncensored observations		397	
Log-likelihood		-953	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: This alternative constituency alignment variable is based on a different categorisation of the proportion of the estimated "Leave" vote for each constituency: 0.185% to 0.419% = -1/no alignment; 0.420% to 0.579% = 0/alignment not clear; 0.580% to 0.750% = 1/alignment. SE in parentheses.

3. Heckman selection models with alternative constituency alignment variable: the original constituency proportion of "Leave" vote made into a binary variable

Table 6: Heckman selection model predicting EU referendum posting on Facebook, controlling for Facebook use, with the binary constituency alignment variable

		FB use	EU ref FB posting
Female		.091	
		(.161)	
Age		-.020*	-.016
		(.008)	(.009)
Party (ref: Conservatives)			
	Labour	-.191	.362
		(.175)	(.190)
	SNP	.160	.251
		(.319)	.277
	Other	.528	1.201
		(.617)	(.562)
"Leave"		-.270	.327
		(.210)	(.240)
Length of service (ref: 0-1 years)	2-6 years	-.261*	.129
		(.210)	(.200)
	7-15 years	-.555*	-.134
		(.239)	(.281)
	16-50 years	-.654*	.387
		(.280)	(.350)
Electoral vulnerability		-.009	.004
		(.006)	(.006)
Frontbencher		.236	.104
		(.242)	(.269)
MP-constituency alignment		.087	.004
		(.083)	(.091)
Constant		1.990***	2.312***
		(.413)	(.429)
Observations		399	
Censored observations		143	
Uncensored observations		256	
Log-likelihood		-618	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: The (original) constituency alignment variable has three categories: 0.185% to 0.049% = -1/no alignment; 0.450 to 0.549% = 0/no clear alignment; 0.550% to 0.750% = 1/alignment. These categories were thereafter collapsed into two, with the neutral category (0) removed. SE in parentheses.

Table 7: Heckman selection model predicting 'other' Facebook posting, controlling for FB use, with the binary constituency alignment variable

		FB use	Other FB posting
Female		.159	
		(.165)	
Age		-.022**	-.015
		(.008)	(.009)
Party (ref: Conservatives)			
	Labour	-.310	.281
		(.172)	(.181)
	SNP	.059	1.052***
		(.313)	(.269)
	Other	.588	.691
		(.580)	(.483)
"Leave"		-.378	-.042
		(.210)	(.237)
Length of service (ref: 0-1 years)	2-6 years	-.235	-.371*
		(.205)	(.185)
	7-15 years	-.480*	-.742**
		(.231)	(.241)
	16-50 years	-.620*	-.192
		(.278)	(.312)
Electoral vulnerability		-.008	-.007
		(.006)	(.006)
Frontbencher		.143	.243
		(.240)	(.254)
MP-constituency alignment		.101	-.149
		(.082)	(.088)
Constant		2.167***	4.500***
		(.409)	(.412)
Observations		423	
Censored observations		143	
Uncensored observations		280	
Log-likelihood		-661	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: The (original) constituency alignment variable has three categories: 0.185% to 0.049% = -1/no alignment; 0.450 to 0.549% = 0/no clear alignment; 0.550% to 0.750% = 1/alignment. These categories were thereafter collapsed into two, with the neutral category (0) removed. SE in parentheses.

4. Heckman selection models with alternative constituency alignment variable: constituency proportion of "Leave" vote split 42/58, made into a binary variable

Table 8: Heckman selection model predicting EU referendum posting on Facebook, controlling for Facebook use, binary split 42/58

		FB use	EU ref FB posting
Female		.175	
		(.200)	
Age		-.023*	-.017
		(.009)	(.011)
Party (ref: Conservatives)			
	Labour	-.406	.552*
		(.210)	(.239)
	SNP	.067	.335
		(.363)	(.321)
	Other	.435	1.089
		(.649)	(.649)
"Leave"		-.354	.342
		(.251)	(.293)
Length of service (ref: 0-1 years)	2-6 years	-.161	.083
		(.246)	(.231)
	7-15 years	-.666*	-.174
		(.281)	(.365)
	16-50 years	-.625	.182
		(.345)	(.436)
Electoral vulnerability		-.008	.002
		(.007)	(.008)
Frontbencher		.454	.102
		(.313)	(.359)
MP-constituency alignment		.079	-.006
		(.099)	(.108)
Constant		2.101***	2.274***
		(.490)	(.531)
Observations		294	
Censored observations		112	
Uncensored observations		182	
Log-likelihood		-442	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: This alternative constituency alignment variable is based on a different categorisation of the proportion of the estimated "Leave" vote for each constituency: 0.185% to 0.419% = -1/no alignment; 0.420% to 0.579% = 0/alignment not clear; 0.580% to 0.750% = 1/alignment. These categories were thereafter collapsed into two, with the neutral category (0) removed. SE in parentheses.

Table 9: Heckman selection model predicting other Facebook posting, controlling for FB use, binary split 42/58

		FB use	Other FB posting
Female		.228	
		(.192)	
Age		-.023*	-.017
		(.009)	(.011)
Party (ref: Conservatives)			
	Labour	-.447*	.192
		(.204)	(.231)
	SNP	.027	.935**
		(.357)	(.328)
	Other	.591	.580
		(.602)	(.581)
"Leave"		-.444	-.078
		(.247)	(.293)
Length of service (ref: 0-1 years)	2-6 years	-.142	-.354
		(.238)	(.229)
	7-15 years	-.607*	-.817*
		(.268)	(.323)
	16-50 years	-.591	-.110
		(.338)	(.410)
Electoral vulnerability		-.008	-.009
		(.007)	(.008)
Frontbencher		.401	.260
		(.304)	(.335)
MP-constituency alignment		.081	-.086
		(.097)	(.107)
Constant		2.198***	4.640***
		(.485)	(.525)
Observations		312	
Censored observations		112	
Uncensored observations		200	
Log-likelihood		-484	

Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001. *Note*: This alternative constituency alignment variable is based on a different categorisation of the proportion of the estimated "Leave" vote for each constituency: 0.185% to 0.419% = -1/no alignment; 0.420% to 0.579% = 0/alignment not clear; 0.580% to 0.750% = 1/alignment. These categories were thereafter collapsed into two, with no alignment including both the no alignment and neutral categories (-1 and 0), and alignment just including the alignment category (1). SE in parentheses.

Appendices for Chapter 4

Appendix D1: Argument Codebook

Step 1:

Identifying the occurrences of the subordinating conjunctions

First, all instances in which the following subordinating conjunctions occur in the texts of all MPs with public Facebook pages are identified.

therefore	because (incl. 'cause')	that is why
as such	since	thus
for that reason	in view of	

These phrases (and variants on the former conjunctions) are expected to perform a similar function and were found to feature in the text of these posts as well. They were therefore included in the analysis.

which means that	reason why	it is why
which was why	given that	now that
the reason for this is	this means that	for these reasons
this is why	seeing as	for this reason
being that	consequently	hence
after all	which is why	

Unusual variants, once uncovered in the text, are included as well, such as:

- "I have made no secret of the fact that I think Britain will be better off if we vote to leave, but I have **come to that conclusion because of** the better future I think it will allow us, rather than to avoid any impending doom"

Step 2:

Subordinate argument?

Thereafter, these instances are analysed from the perspective of pragma-dialectics to establish whether they are used as subordinating conjunctions to advance argumentation. It needs to be possible to schematically reconstruct either a case of single argumentation or subordinative argumentation.

<u>Subordinative argument structure:</u>

- If the actor provides a reason for expressing his/her current or ongoing support for a policy/matter/development/status quo. This support reflects a standpoint: implicit approval. Thus, if an MP, for instance, explains that he will vote for "Remain" or "Leave" because of a certain reason, then this will count as him making an argumentation in favour of supporting a certain position.
    - Example reconstruction:
        - You should (not) vote for the EU

        - Because I am (not) voting for the EU.
- Other examples of implicit expressions of support:
    - Example: “As has been mentioned, for illnesses such as brain cancer, achieving accurate and early diagnosis is often the biggest barrier to effective treatment, which is why I welcome … the Scottish Government’s new cancer strategy”
    - Example: "These play areas are important in promoting fitness which is why we set up a ¬£1.3 million funding pot at the Council to help fund schemes like this across North Lincolnshire. This is all part of our commitment to improve leisure facilities and to support local communities.”
    - Example: “This is just part of a package of grants provided by the EU to our area which means locally, we receive more from the EU than we pay in…Our local hospitals have often struggled to recruit staff which is why today our NHS has the benefit of doctors and nurses from across Europe providing life-saving care.”

<u>Not a subordinative argument structure:</u>

- When the actor simply describes a setting, situation, or development without expressing a point of view.
    - Example: “Just imagine the infrastructure required which is why you see tower block after tower block under construction.”
    - Example: “I understand that Southern Water's crews have removed thousands of tonnes of silt and debris from the closed section before carrying out the repairs, which is why it has taken so long.”
- If the actor uses a conjunction for explaining a reason for an activity that s/he has performed instead of sharing or defending a standpoint (i.e., referring to their support), ***then*** we are not dealing with argumentation.
    - Example: “But as a Conservative, I also believe in choice, which is why I asked the Secretary of State of Education, the Rt Hon Nicky Morgan MP, if she could outline the downsides of imposing a compulsory and arbitrary timeline on schools”
    - Example: “They, and the elderly residents they care for, are in a heartbreaking situation which is why I have done all I can to give them voice in parliament.”
    - Example: “I share much of the frustration felt by others at the growth of an unaccountable European bureaucracy, focused too much on driving a political union OF Europe instead of economic integration and prosperity IN Europe, which is why I have been a leading and active member of the Fresh Start Group of EU reformers”
    - Example: “People rarely see what goes on outside of the chamber which is why I am more than happy to take part in the #MPforaWeek campaign.”
    - Example: “This is also the case when the actor refers to past support leading to a particular action.”
- This is also the case when the actor refers to past support leading to a particular action.
    - Example: “This is also the case when the actor refers to past support leading to a particular action”
- No subordinative argument structure if the actor simply refers to a procedure or future plans.
    - Example: “Screening is the best way to detect bowel cancer early, which is why if you’re registered with a GP and aged 60-74, you will receive a test in the post every two years.”
    - Example: “The service is keen to reach out even further, which is why they will be visiting locations across North Lincolnshire.”
- ‘Because’ versus ‘because of’: the latter usually performs a function similar to that of ‘due to’. In those cases, when the actor simply explains a process, there is no subordinative argument to consider. That being said, there are exceptions when ‘because of’ does perform such a function.

- Example: “It's only two days until the referendum on the UK's membership of the EU. I'm passionate about remaining in the EU for several reasons, not least because of the social protections it provides. Maternity rights, working time regulations and many other areas of employment law originated in the EU and are maintained.
    - in the EU."
- Definitions:
    - Example: “Brain injuries and the conditions associated with them are often called the ‘hidden disability’, because their effects may not always be apparent to people”

Step 3:

Argumentation about the EU Referendum?

Once these instances have been identified, they are again analysed to establish whether this argumentation relates to either the practicalities of, or activities relating to, the EU referendum and its campaigns, or views of the Union more generally.

Thus, first and foremost, an instance needs to be on-topic. The following is, therefore, an example of an instance that should not be included in this analysis, for it does not relate to the EU membership, EU referendum or views of the relationship between the UK and the EU as an institution:

- Just asked Foreign Secretary about the possibility of extending EU sanctions that apply to Russia to cover Russians involved in the murder of the lawyer Magnitsky and expropriating $100 billion from Yukos shareholders. Why does this matter? Because much of that money has been salted away in the UK.”
- “The government must stop playing into a toxic narrative that claims showing compassion for people who are the victims of poverty and war is wrong because they are really here to take our welfare and do us harm. Britain and the other nations in Europe opting for inaction over refugees must put aside the petty and selfish politics of xenophobia and nostalgia and take action proportionate to the scale of the crisis.”
- “On Wednesday I took part in a European Council Parliamentary Assembly debate around a stronger EU response to the Syrian migration crisis. While it is correct to recognise and champion the great humanitarian efforts the UK and other European nations are making in and around Syria, there is much more that needs to be done to discourage refugees migrating across the Mediterranean and Aegean Seas towards EU borders. It is therefore my opinion that it is at the borders of Europe where the EU needs a stronger response alongside the humanitarian element."

Instead, this is one instance which should be included:

- “Recognising this, our Government was elected on a mandate to reduce net immigration to the tens of thousands. But we cannot even hope to achieve this figure whilst we are in the EU because of the worsening crisis in the Eurozone. The single currency is crushing output… while towering debt and the spectre of deflation rattle the banking system… not just in Eurozone countries, but in fragile neighbours too.”

The following keywords are helpful as they were found to relate to the EU Referendum in a prior, more exploratory analysis:

Referendum	Vote	Leave	Remain
Campaign	Union	Europe	European Union /EU

It is not sufficient for argumentation to be within the context of the EU but to address the MP him-or herself. The EU Referendum or a view thereof should be the main topic of the paragraph. A mere

reference to a policy or development or a reflection on a political state of affairs, even if related to Europe or the European Union, should not necessarily be included: it has to be possible to construct a viewpoint concerning EU membership, the EU referendum or referendum activity.

Note: Beware to exclude references to the elections in Scotland. The elections of Scotland were taking place around the same time as the EU Referendum and thus some references to a referendum, campaigns and voting may refer to the Scottish case instead.

Example:
Setting the date for a referendum before a majority of the Scottish people have been persuaded that independence - and therefore another referendum - is the best future for our country is the wrong way round.

Keywords: 'Holyrood' 'SNP' and 'Scottish'. However, in case of ambiguity – so in case the reference could be to the EU referendum or the Scottish elections – it should be kept in because this reference could have been ambiguous to the readership as well, meaning that they may have interpreted it as concerning the EU referendum.

Step 4:

Own argumentation?

Both the argumentation of the MPs themselves as well as actors they cite or paraphrase should be included.

Example of reference to another person's stance in the MP argumentation:

- "Last Friday visiting the state of art Harlow NHS Kidney Renal Unit, I met with a local patient, Duncan McGuirk, who was receiving his kidney treatment. Just as I have done over many weeks in talking to local residents, I asked him his view on the EU. He said he would be voting to stay in, because without his EU Health Insurance Card he would never be able to leave Britain - he needs kidney treatment at least four times a week. It means he can go overseas knowing he can get the treatment he needs from other member countries. What Duncan said made me think really hard about this; it showed me the EU issue is not as black and white, or as clear cut as it is sometimes portrayed."

However, the distinction should be made in the coding.

1. Own person
2. Other actor (e.g., individual/group/party/institution)

A simple retweet does not count, because it is not apparent that the MP did engage with the text.

Further notes:

- Repeated posts (identical posts with the same text or pieces of identical text in several posts) are kept in the sample.

Appendix D2: Overview tables of most frequent words and keywords

Table 1: Table of the 144 MPs included in the sample		
Alex Cunningham	Barry Sheerman	Chuka Umunna
Andrew Griffiths	Barry Gardiner	Claire Perry
Alan Brown	Ben Howlett	Clive Efford
Alan Makhavant	Ben Wallace	Conor Burns
Alan Whitehead	Bernard Jenkin	Conor McGinn
Alberto Costa	Bill Esterson	Corri Wilson
Albert Owen	Bob Blackman	Craig Tracey
Alec Shelbrooke	Bob Stewart	Crispin Blunt
Alex Chalk	Boris Johnson	Damian Collins
Alex Salmond	Brake (Tom)	Damian Hinds
Alison McGovern	Brandon Kenneth Lewis	Daniel 4 Shrews
Alison Thewliss	Brazer (Julian)	Daniel Zeichner
Alistair Burt	Brendan O'Hara	Dan Jarvis
Alistair Carmichael	Bridget Philipson	David Burrowes
Alok Sharma	Burnham (Andy)	David Cameron
Alun Cairns	Calum Kerr	David Davies
Amanda Milling	Caroline Dinenage	David Evennett
Amanda Solloway	Caroline Flint	David Hanson
Amber Rudd	Caroline Nokes	David Lammy
Andrea Jenkyns	Caroline Spelman	David Lidington
Andrea Leadsom	Carol Monaghan	David Mackintosh
Andrew Stephenson	Carswell Douglas	David Morris
Andrew Murrison	Catherine West	David Mundell
Andrew Percy	Cat McKinnell	Dawn Butler
Andrew Rosindell	Cat Smith	Debbie Abrahams
Andy Slaughter	Charlotte Leslie	Deidre Brock
Andy McDonald	Chris Heaton-Harris	Dennis Skinner
Angela Crawley	Chloe Smith	Derek Thomas
Angela Eagle	Chris Davies	Diana Johnson
Angela Rayner	Chris Green	Diane Abbott
Angela Smith	Chris Law	Doug Chapman
Angus Macneil	Chris Leslie	Drew Hendry
Angus SC Robertson	Chris Matheson	Dr. Liam Fox
Anna Turley	Chris Philp	Dunne 4 Ludlow
Annemarie Morris	Chris Rees	Edward Garnier
Annemarie Trevelyan	Chris Skidmore	Elizabeth Truss
Anne McLaughlin	Chris Stephens	Emma Reynolds
Anne Milton	Christopher Pincher	Eric Pickles
Antoinette Sandbach	Chris White	Fiona Mactaggart

Legend: This means that the discourse of the MP did not feature any of the keywords and that the MP was therefore excluded from the sample. This means that the MP did not declare his/her position regarding EU membership before the Referendum. The MP's texts therefore weren't included in the corpora.

Table 2: Excerpt from first 100 most frequently used terms in the sample corpus

# in list	"Remain"	# in list	"Leave"
11	EU	9	EU
26	People	31	European
29	Vote	32	People
31	Britain	39	Leave
34	Remain	42	Vote
36	Referendum	43	UK
39	European	47	Britain
40	UK	50	Country
41	Europe	57	Europe
44	Leave	59	Union
49	Country	66	Referendum
55	Union	67	World
68	Trade	68	Believe
73	World	77	Trade
74	Believe	79	Brussels
76	Membership	86	Remain
77	Economy	88	Countries
79	British	92	Government
80	Leaving	93	Political
81	Security		
87	Voting		
91	Government		
95	Campaign		
96	Future		
97	Local		

Table 3: Excerpt of the most significant keywords compared in the “Leave” and “Remain” sample corpus vs the BNC corpus

# in list	“Remain”	# in list	“Leave”
1	EU	1	EU
2	Our	2	Our
3	Referendum	3	We
4	Vote	4	European
5	Remain	5	Vote
6	We	6	Referendum
7	Brexit	7	Leave
8	Because	8	Brussels
9	Britain	9	UK
10	Europe	10	Britain
11	European	11	Euro
12	UK	12	Immigration
13	Leave	13	Europe
14	s*	14	Union
15	Voting	15	Because
16	Will	16	Country
17	Membership	17	Eurozone
18	Union	18	Voting
19	Country	19	Remain
20	People	20	Is
21	Immigration	21	Brexit
22	Economy	22	I
23	Stronger	23	Will
24	Trade	24	Believe
25	Leaving	25	That
26	Campaigning	26	Membership
27	Safer	27	To
28	Businesses	28	Cameron
29	Https*	29	Trade
30	Believe	30	People

Note. *these corpora include grammatical words (function words and stop words) and as a result, some of these show up in the list of keywords. Whilst these could be removed, this is not believed to benefit a grammatical analysis (an argumentation analysis) like this.

Appendix D3: The chi-square test results (tables) with 4 bands and 2 bands

Table 1: The use of argument and the use of affect (N = 5,573)

	Use of argument and affect				χ^2	*p*
	No argument (*n* = 5315)		Argument (*n* = 258)			
	n	%	*n*	%		
Affect level					118.60***	<.001
1: 0 to 0.001	1427	26.8	12	4.7		
2: 0.002 – 4.35	1217	22.9	101	39.1		
3: 4.351 to 7.139	1284	24.2	108	41.9		
4: 7.14 to 100	1387	26.1	37	14.3		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2: The use of argument and the use of positive sentiment (N = 3,589)

	Use of argument and positive sentiment				χ^2	*p*
	No argument (*n* = 3387)		Argument (*n* = 202)			
	n	%	*n*	%		
Positive sentiment level					35.613***	<.001
1: 0.01 to 0.0873	823	24.3	73	36.1		
2: 0.0874 to 0.1580	830	24.5	66	32.7		
3: 0.1581 to 0.2569	858	25.3	42	20.8		
4: 0.2570 to 1.34	876	25.9	21	10.4		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3: The use of argument and the use of negative sentiment (N = 1,304)

	Use of argument and negative sentiment				χ^2	*p*
	No argument (*n* = 1261)		Argument (*n* = 43)			
	n	%	*n*	%		
Negative sentiment level					28.379***	<.001
1: -0.96 to -0.1728	322	25.5	4	9.3		
2: -0.1727 to -0.0965	323	25.6	6	14.0		
3: -0.0964 to -0.0534	324	25.7	8	18.6		
4: -0.0533 to -0.01	292	23.2	25	58.1		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4: The use of argument and anger (N = 5,573)

	Use of argument and anger				χ^2	*p*
	No argument (*n* = 5,315)		Argument (*n* = 258)			
	n	%	*n*	%		
Anger per cent lvl.					588.25***	<.001
1: 0 to 0.199	4649	87.5	122	47.3		
2: 0.12 to 0.369	66	1.2	44	17.1		
3: 0.37 to 0.569	56	1.1	31	12.0		
4: 0.57 to 100	544	10.2	61	23.6		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5: The use of argument and anxiety (N = 5,573)

	Use of argument and anxiety				χ^2	*p*
	No argument (*n* = 5,315)		argument (*n* =258)			
	n	%	*n*	%		
Anxiety per cent level					428.52***	<.001
1: 0 to 0.179	4698	88.4	135	52.3		
2: 0.18 to 0.369	53	1.0	29	11.2		
3: 0.37 to 0.589	64	1.2	30	11.6		
4: 0.59 to 100	500	9.4	64	24.8		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6: The use of argument and the use of affect (N = 5,573)

	Use of argument and affect				χ^2	*p*
	No argument (*n* = 5315)		argument (*n* = 258)			
	n	%	*n*	%		
Affect level					3.482	0.06
1: 0 to 4.35	2644	49.7	113	43.8		
3: 4.351 to 100	2671	50.3	145	56.2		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7: The use of argument and the use of positive sentiment (N = 3,589)

	Use of argument and positive sentiment				χ^2	*p*
	No argument (*n* = 3387)		argument (*n* = 202)			
	n	%	*n*	%		
Positive sentiment level					30.524***	<.001
1: 0.01 to 0.1580	1653	48.8	139	68.8		
2: 0.1581 to 1.34	1734	51.2	63	31.2		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8: The use of argument and the use of negative sentiment (N = 1,304)

	Use of argument and negative sentiment				χ^2	*p*
	No argument (*n* = 1261)		Argument (*n* = 43)			
	n	%	*n*	%		
Negative sentiment level					12.942***	<.001
1: -0.96 to -0.0965	645	51.1	10	23.3		
2: -0.0964 to -0.01	616	48.9	33	76.7		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9: The use of argument and anger (N = 5,573)

	Use of argument and anger				χ^2	*p*
	No argument (*n* = 5,315)		argument (*n* = 258)			
	n	%	*n*	%		
Anger per cent level					134.373***	<.001
1: 0 to 0.369	4715	88.7	166	64.3		
2: 0.37 to 100	600	11.3	92	35.7		

* *p* < .05. ** *p* < .01. *** *p* < .001.

Table 10: The use of argument and anxiety (N = 5,573)

	Use of argument and anxiety				χ^2	*p*
	No argument (*n* = 5,315)		argument (*n* =258)			
	n	%	*n*	%		
Anxiety per cent level					157.566***	<.001
1: 0 to 0.369	4751	89.4	164	63.6		
2: 0.37 to 100	564	10.6	94	36.4		

* *p* < .05. ** *p* < .01. *** *p* < .001.

Appendix D4: The three excerpts of posts with more than 1 argument in full

Excerpt 1

You've probably made your mind up about today's vote already, but if you haven't, here's a few final thoughts which show why I've voted to Remain.

1. There's no turning back if we get it wrong and it's a massive risk. Despite the months of debate, it's clear no one has a proper plan for what happens next if we leave.

2. Martin Lewis says we'll be poorer if we leave. The Bank of England Governor says jobs, pay and prices will be hit and there could be a recession. It's areas like ours that will be hardest hit.

3. Three quarters of young people want us to stay in Europe - and in the end this is about our kids' future. When their generation has to cope with future international crises, I want them to have as many friends and partners in the world as possible.

4. All the main trade unions want us to remain to protect workers rights - including the NUM, GMB, Unison, Unite and others. If we leave we've still got a Tory Government for the next four years and it's likely to become even more Thatcherite, as many of them are itching to cut workers' rights.

5. The head of the NHS, top doctors, nurses & midwives all say we need to stay because we need to stay part of major life saving medical research programmes in Europe - and also because the Tories will cut the NHS when the economy is hit.

6. Immigration does need reform - including stronger employment rules and border controls. But pulling out of Europe won't change immigration very much, so Michael Gove's promises are a con.

7. The British aren't quitters. Europe does need reform. But we're good at rolling up our sleeves and sorting things out, not running away.

8. In the end Britain's always been a strong, confident, outward looking country. We're stronger if we work together with others than if we leave each other to sink or swim alone.

Excerpt 2

Michael says: VOTE REMAIN on 23rd June...

The referendum on the United Kingdom's continued membership of the European Union will take place on Thursday 23rd June. This will be the first referendum on Europe for 41 years. This Referendum therefore gives millions of people the chance to have their say on the issue, something nobody under the age of 59 has had the chance to do.

The referendum will not be decided by politicians, parties or governments, but by the British people based on their own opinions. This is not about party politics, there are Conservative and Labour politicians on both sides and families divided on their views- but it is right that after so long the British people are being given the opportunity to give their views and it is David Cameron who has delivered on his election promise to hold a referendum, which no other major party-political leader has done in 40 years.

Arguably this Referendum is more important even than a General Election, which elects a government for a maximum of five years.

This Referendum will have a monumental impact on the country for generations, so I urge everyone to exercise their right to vote on the day. I will be heading to the polling station along with millions of others across Britain to cast my own vote.

It is my strong view that the best interests of the people of this country are served by us Remaining in the EU.

There has so far been a lively and informative debate on both sides and every vote really does count.

The referendum in Scotland saw turnout as high as 90% in some areas and it would be fantastic to see turnout just as high if not higher on the question of the EU. My message to everybody in Northampton North is, regardless of your political persuasion, no matter what others around you are saying- it is your vote that matters. So please, go out and vote on Thursday, 23rd June.

Excerpt 3

Today, Britain makes its most important decision in a generation.

The result is going to be very close, each and every vote will count. As the MP for Walton I have been campaigning for Remain.

Labour is clear that Britain is better off in Europe.

This is a choice which puts Britain's jobs, workers' rights, the economy and the NHS on the ballot paper. If Britain leaves then all of these would be at risk and working people would have less protection from a Tory Government which has shown it won't stand up for them.

The European Union has its problems. Not everything about it works, but despite that I firmly believe Britain is better off in. This is a one-off choice between staying in or leaving completely. Given what is at stake, choosing to remain is the best option for Britain.

Labour is in for Britain:
In for Jobs: If we left the EU we would also lose British jobs. Three million jobs depend on trade with Europe. We need to stay to protect working people and vital industries like manufacturing which sell their products abroad.
In for worker's rights: Europe helps safeguard rights to paid leave, equal pay, maternity and paternity leave and protections for agency workers. Leaving would mean they were at risk from the Tory Government.
In for lower prices: Being in Europe gives us lower prices. Holidays, cars and the weekly shop are all cheaper because we're in. Leaving would result in a shock to Britain's economy which would leave working people worse off.
In for the NHS: Leaving the EU would hurt our economy, even the Leave campaign admit that this is the case. This would mean less money for our NHS and other vital public services.

Today I'll be voting Remain for jobs, for rights at work, for lower prices and for our NHS.

I urge you to vote Remain too.

Appendix D5: Overview table of posts with more than 2 arguments

		Post level		MP level	
Post	Author	Argument #	Word count	Party	Camp
1	Andrew Murrison	2	877	Conservative	Leave
2	Andrew Percy	2	497	Conservative	Leave
3	Andy Burnham	4	3347	Labour	Remain
4	Bob Stewart	2	406	Conservative	Leave
5	Boris Johnson	2	1053	Conservative	Leave
6		2	1042	Conservative	Leave
7		2	507	Conservative	Leave
8		2	1054	Conservative	Leave
9		2	1044	Conservative	Leave
10		2	998	Conservative	Leave
11		2	1039	Conservative	Leave
12		4	2135	Conservative	Leave
13	Calum Kerr	2	215	SNP	Remain
14	Chris Leslie	2	587	Labour	Remain
15	Chuka Umunna	2	212	Labour	Remain
16		2	223	Labour	Remain
17	David Burrowes	2	704	Conservative	Leave
18	David Cameron	2	1110	Conservative	Remain
19		2	1110	Conservative	Remain
20	Douglas Carswell	2	275	Other	Leave
21		2	338	Other	Leave
22	Emily Thornberry	2	1094	Labour	Remain
23	Eric Pickles	2	650	Conservative	Remain
24	George Osborne	2	1502	Conservative	Remain
25	Ian Murray	2	2283	Labour	Remain
26		4	3285	Labour	Remain
27	James Cleverly	2	2284	Conservative	Leave
28	Jeremy Lefroy	2	541	Conservative	Remain
29	Jim Shannon	2	526	Other	Leave
30	Jonathan Djanogly	2	1128	Conservative	Remain
31	Jonathan Reynolds	2	29	Labour	Remain
32	Julian Brazier	2	1665	Conservative	Leave
33		3	1794	Conservative	Leave
34	Kit Malthouse	2	1041	Conservative	Leave
35	Marcus Fysh	2	410	Conservative	Leave
36	Mark Francois	3	259	Conservative	Leave
37	Michael Ellis	5	334	Conservative	Remain
38	Michael Fabricant	2	882	Conservative	Leave
39		4	1673	Conservative	Leave
40		5	399	Conservative	Leave
41		8	4531	Conservative	Leave
42	Mike Gapes	2	292	Labour	Remain
43	Mike Wood	2	692	Conservative	Leave
44		3	282	Conservative	Leave
45	Penny Mordaunt	2	698	Conservative	Leave
46	Peter Kyle	4	1043	Labour	Remain
47	Richard Arkless	2	1029	SNP	Remain
48		2	312	SNP	Remain
49	Richard Graham	2	196	Conservative	Remain

50	Robert Halfon	3	1020	Conservative	Remain
51	Roger Gale	2	822	Conservative	Remain
52		2	1271	Conservative	Remain
53	Stephen Crabb	2	380	Conservative	Remain
54	Steve Rotheram	4	320	Labour	Remain
55	Suella Fernandes	5	878	Conservative	Leave
56	Tim Loughton	2	2795	Conservative	Leave
57	Tobias Ellwood	3	743	Conservative	Remain
58	Victoria Atkins	6	2183	Conservative	Remain
59	Yvette Cooper	8	330	Labour	Remain

Appendix D6: Worked-out example reconstruction of EU referendum argumentation

This is an example reconstruction of EU referendum argumentation, where [1] indicates the standpoint, and supporting premises (statements) are indicated by numbers (e.g., 1.1 is a supporting premise of 1 and 1.1.1 a supporting premise of 1.1) and indentation.

Leave

1. We must leave the EU (standpoint)
 1.1 The EU restricts the UK's freedom (first supporting premise of 1)
  1.1.1 The EU reduces national sovereignty (supporting premise of 1.1)
   1.1.1.1 The Britons have less autonomy over policy
   1.1.1.2 They are not free from arbitrary political interference
   1.1.1.3 The EU does not give the UK the capacity to succeed on its own
 1.2 Leaving the EU will provide the Britons with greater control of economic resources
 1.3 The EU is run by unelected bureaucrats
 1.4 The EU disregards national borders to permit vast numbers of immigrants to enter Britain, which is undesirable because
  1.4.1 These immigrants take jobs
  1.4.2 These immigrants enjoy welfare benefits
  1.4.3 These immigrants may be sexual predators

Remain

1. We must remain in the EU
 1.1 Leaving the EU will not be beneficial to the UK
  1.1.1 Leaving the EU will bring instability
  1.1.2 Leaving the EU will disadvantage the international standing of the UK
 1.2 Remaining in the EU will be beneficial for the UK
  1.2.1 Remaining in the EU has economic utility
   1.2.1.1 The single market provides benefits
   1.2.1.2 EU membership gives rights, freedoms, and international status
 1.3 EU membership enhances sovereignty
 1.4 EU membership supported autonomy
 1.5 Any disadvantages are mere inconveniences
 1.6 Departure will provoke a veritable economic apocalypse

Appendix D7: Multivariate linear regression predicting the use of affect by posting and MP characteristics

The LIWC affect-variable has been logarithmically transformed before this multivariate regression analysis due to the non-parametric distribution of values on the variable.

	Use of affect	
	b/se	B
Word count	-.000***	-.113
	(.000)	
Leave	.020	.037
	(.020)	
Party (ref: Conservatives)		
Labour	.018	.032
	(.020)	
SNP	-.003	-.004
	(.026)	
Other	.076*	.064
	(.034)	
Female	-.008	-.014
	(.016)	
Age	.001	.029
	(.001)	
Frontbencher	.029	.043
	(.027)	
Length of service (ref: 0-1 years)		
2-6 years	.029	.114
	(.019)	
7-15 years	.053*	.209
	(.025)	
16-50 years	-.035	-.140
	(.029)	
Electoral vulnerability	.001*	.005
	(.001)	
MP-constituency alignment	.002	.009
	(.011)	
Constant	.663***	
	(.041)	
Pseudo R^2: Cox & Snell		
R^2	.043	
N of observations	4,025	

Significance levels: ∗p < 0.05, ∗∗p<0.01∗∗∗p<0.001. *Note*: N is reduced from 5,573 to 4,025 due to the logarithmic transformation and due to the missing data. The robust standard error is adjusted for the 359 clusters: 359 different MPs as authors of the posts, for which all variable data is available.

Appendix D8: Multivariate linear regression predicting the use of positive and negative sentiment by MP and posting characteristics

For these analyses, for which both sentimentR and LIWC are used, the measures of positive and negative sentiment are logarithmically transformed due to the non-parametric distributions of these variables. The negative sentiment measure, originally with exclusively negative values between -.001 and -1 has been flipped before the logarithmic transformation: the values were recoded as positive (with a new range of values between .001 and 1). For both positive and negative sentiment, a value closer to 1 indicates more positivity or more negativity, respectively.

Table 1: Multivariate linear regression predicting use of positive and negative sentiment (SentimentR)

	Use of positive sentiment (SentimentR)		**Use of negative sentiment (SentimentR)**	
	b/se	B	b/se	B
Word count	-.000***	-.147	-.001***	-.242
	(.000)		(000)	
Leave	-.064**	-.084	-.070*	-.089
	(.023)		(.031)	
Party (ref: Conservatives)				
Labour	-.068**	-.088	-.021	-.024
	(.024)		(.036)	
SNP	.040	.031	-.130*	-.081
	(.030)		(.058)	
Other	-.043	-.025	-.020	-.014
	(.038)		(.038)	
Female	-.005	-.006	.009	.010
	(.018)		(.031)	
Age	-.001	-.029	-.002	-.039
	(.001)		(.001)	
Frontbencher	.035	.036	.015	.015
	(.025)		(.031)	
Length of service (ref: 0-1 years)				
2-6 years	-.007	-.009	.017	.022
	(.025)		(.044)	
7-15 years	-.014	-.015	.026	.027
	(.027)		(.044)	
16-50 years	-.032	-.037	.038	.038
	(.013)		(.053)	
Electoral vulnerability	.000	.006	-.000	.036
	(.001)		(.001)	
MP-constituency alignment	-.004	-.010	.019	-.001
	(.016)		(.019)	
Constant	-.727***		-.898***	
	(.052)		(.075)	
R^2	.037		.067	
N of observations	3,521		1,254	

Significance levels: ∗p < 0.05, ∗∗p<0.01∗∗∗p<0.001. *Note*: N is reduced from 5,573 to 3,521 for positive sentiment and 1,254 for negative sentiment. The robust standard error is adjusted for clusters: 340 clusters for positive sentiment and 236 clusters for negative sentiment.

Table 2: Multivariate linear regression predicting the use of positive and negative sentiment using LIWC

	Use of positive sentiment (LIWC)		**Use of negative sentiment (LIWC)**	
	b/se	B	b/se	B
Word count	-.000***	-.023	-.000***	-.335
	(.000)		(000)	
Leave	.001	.002	.093	.129
	(.022)		(.049)	
Party (ref: Conservatives)				
Labour	-.005	-.009	.062	.085
	(.021)		(.043)	
SNP	-.002	-.002	.011	-.009
	(.028)		(.059)	
Other	.071	.054	.128*	.080
	(.039)		(.051)	
Female	-.008	-.013	-.002	-.003
	(.017)		(.037)	
Age	.000	.007	.003	.082
	(.001)		(.002)	
Frontbencher	.046	.064	.021	.022
	(.030)		(.053)	
Length of service (ref: 0-1 years)				
2-6 years	.036	.064	.043	.060
	(.020)		(.046)	
7-15 years	.046	.066	.072	.082
	(.027)		(.051)	
16-50 years	-.049	-.066	-.006	-.006
	(.033)		(.062)	
Electoral vulnerability	.001*	.063	.004**	.165
	(.001)		(.000)	
MP-constituency alignment	.004	.011	-.005	-.012
	(.018)		(.024)	
Constant	.635***		.183	
	(.044)		(.094)	
R^2	.084		.019	
N of observations	3,494		1,910	

Significance levels: ∗p < 0.05, ∗∗p<0.01∗∗∗p<0.001. *Note*: N is reduced from 5,573 to 3,494 for positive sentiment (LIWC) and 1,910 for negative sentiment (LIWC). The robust standard error is adjusted for clusters: 342 clusters for positive sentiment and 293 clusters for negative sentiment.

Appendix D9: Measuring Anxiety with LIWC versus the NRC Emotion Lexicon

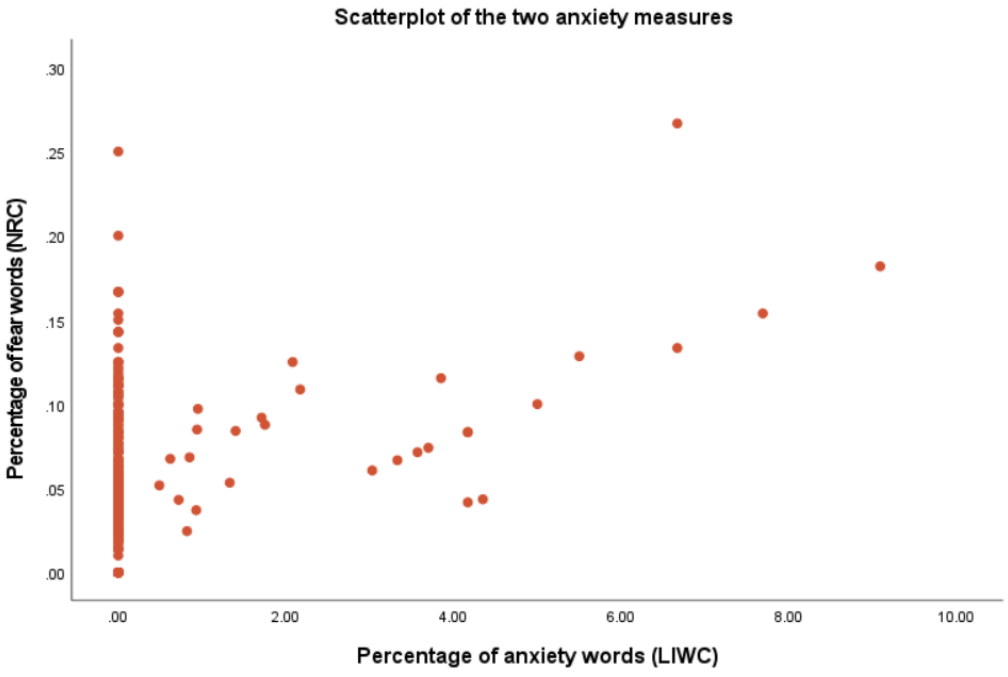
For a randomly selected sub-sample of posts (N = 342), a Spearman correlation test was performed to study whether the anxiety measure provided by LIWC compares to the anxiety measure provided by the NRC Emotion Lexicon. In both cases, I use a measure of the percentage of anxiety words in a piece of text. Considering that there is a clustering of values around zero and that the observations are not normally distributed, I conduct a Spearman correlation test and create a scatterplot. The results of this Spearman correlation test are shown in Table 1 and the scatterplot below.

Table 1: Spearman Correlation matrix of the NRC and the LIWC measures (N = 342)

Variable	1	2
1. NRC fear measure: percentage of fear	-	.287**
2. LIWC anxiety measure: percentage of anxiety		-
M	.047	.37
SD	.046	1.38
Range	.00 – .27	.00 – 42.86

** $p < .01$

Table 1 shows that there is a weak relationship between both measures. The scatter plot provides further insight into how the variables are related: the values on both measures cluster around the zero-point, and we can visually observe that the measures are positively related.



I also logarithmically transform the variables so that the parametric Pearson correlation test can be performed. However, the logarithmic transformation reduces the N massively (due to a clustering of values around zero before the transformation), and this is already a small sub-sample of posts. Still, the results of this test, displayed in Table 2 below, also suggest that the anxiety/fear measures are related. These results suggest that there is a moderate relationship between both measures.

Table 2: Spearman Correlation matrix of the NRC and the LIWC measures (N = 29)

Variable	1	2
1. NRC fear measure: percentage of fear	-	.587**
2. LIWC anxiety measure: percentage of anxiety		-
M	-1.24	.13
SD	.25	.46
Range	-2 – -.57	-1.10 – 1.63

** $p < .01$

Appendix D10: Distribution of values on the anger-variable

'Anger' is a ratio variable computed by LIWC. It measures the percentage of words in a text that indicates anger. Table 1 and Figures 1 and 2 show the distribution of values on the ratio anger variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically transformed anger variable.

Table 1: Descriptive statistics for anger in all EU referendum posts (N = 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Anger (range .00 – 16.67)	.33	1.18	5.14	34.95

Figure 1: The percentage of anger in the EU referendum posts (N = 5,569)

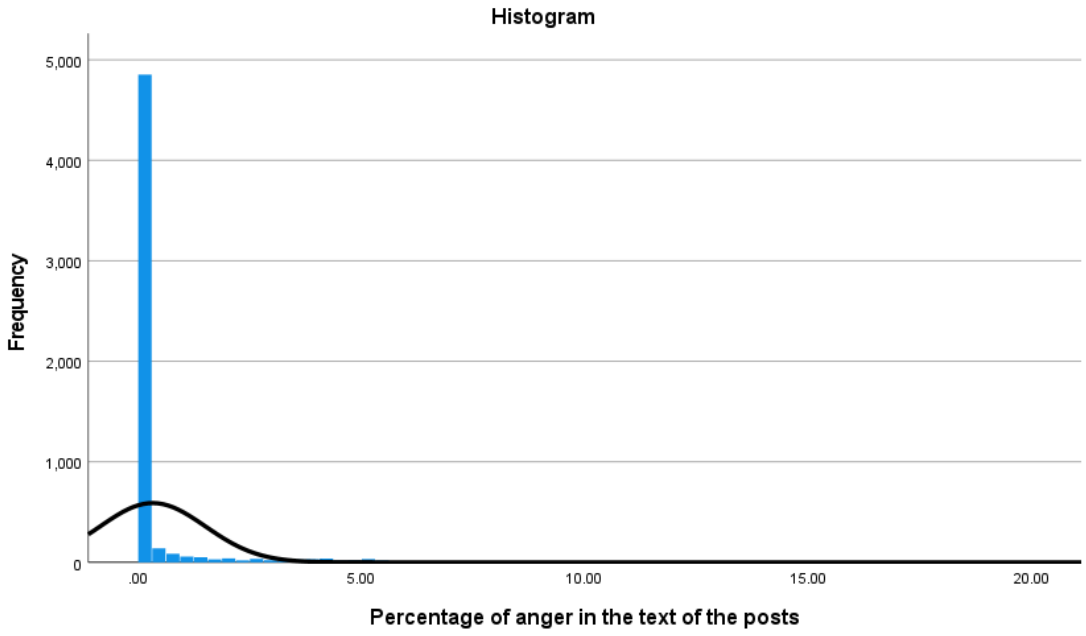


Figure 2: Distribution of anger in the EU referendum posts (N = 5,569)

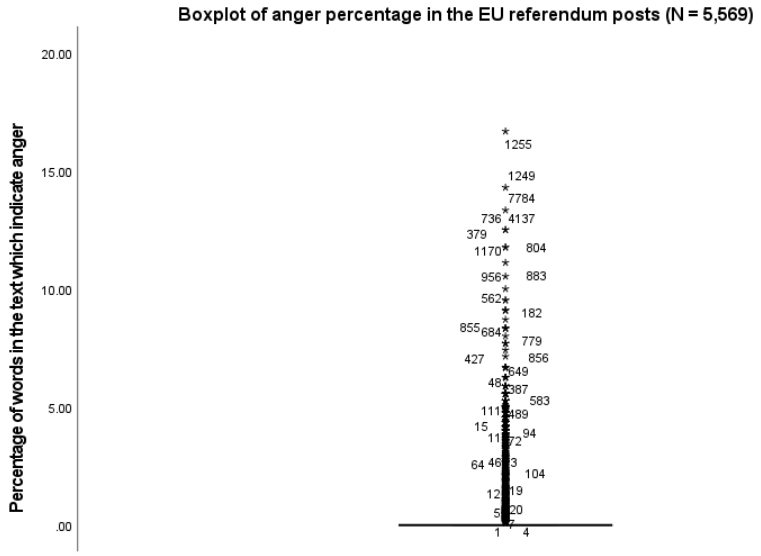


Table 2: Descriptive statistics for logarithmically transformed anger in all EU referendum posts (with a value higher than 0, so N = 506 out of 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Anger (range -1.10 – 1.22)	.14	.48	.086	.172

Figure 3: The percentage of logarithmically transformed anger in the EU referendum posts with a value higher than 0 (N = 506 out of 5,569)

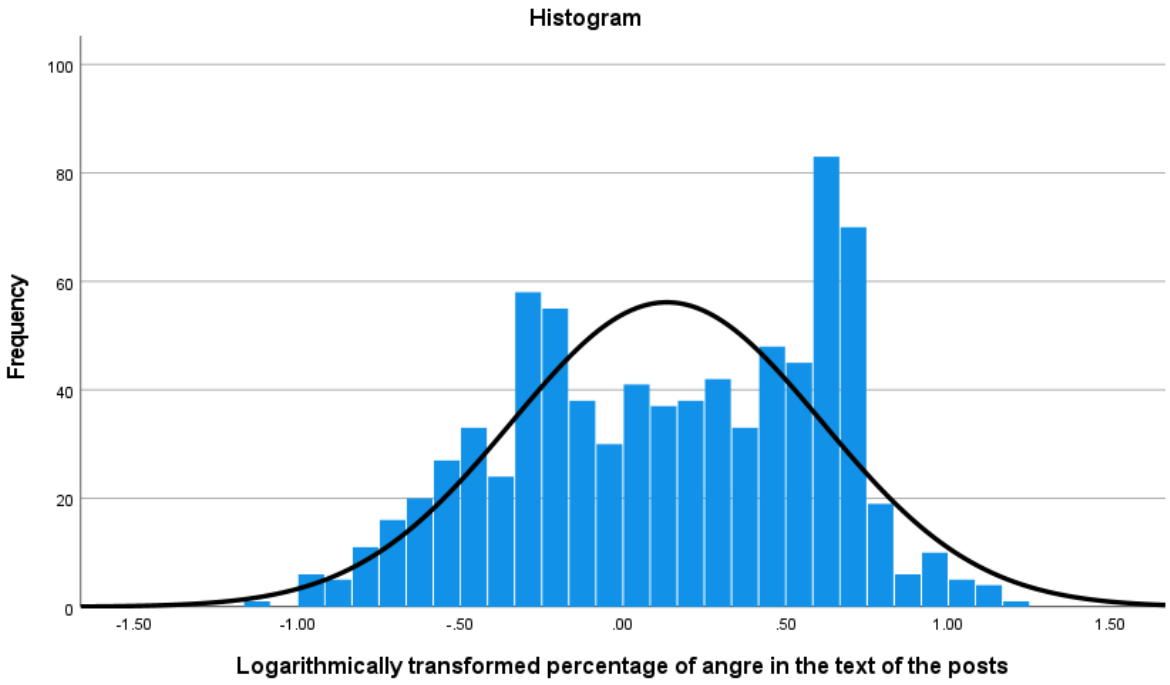
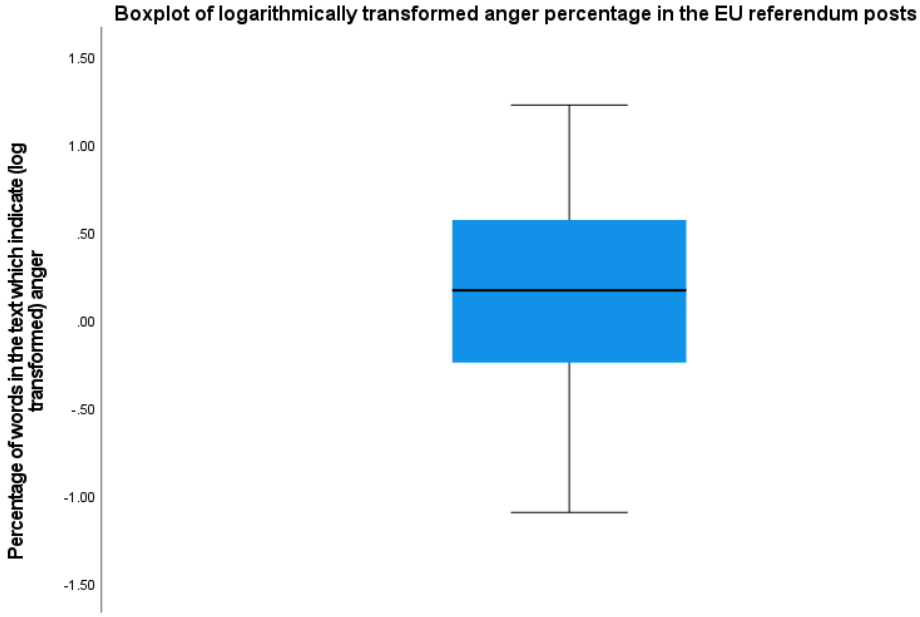


Figure 4: Distribution of logarithmically transformed anger in the EU referendum posts (N = 506 out of 5,569)



Appendix D11: Distribution of values on the anxiety-variable

'Anxiety' is a ratio variable computed by LIWC. It measures the percentage of words in a text that indicates anxiety. Table 1 and Figures 1 and 2 show the distribution of values on the ratio anxiety variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically transformed anxiety variable.

Table 1: Descriptive statistics for anxiety in all EU referendum posts (N = 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Anxiety (range .00 – 12.50)	.28	1.05	5.42	.066

Figure 1: The percentage of anxiety in the EU referendum posts (N = 5,569)

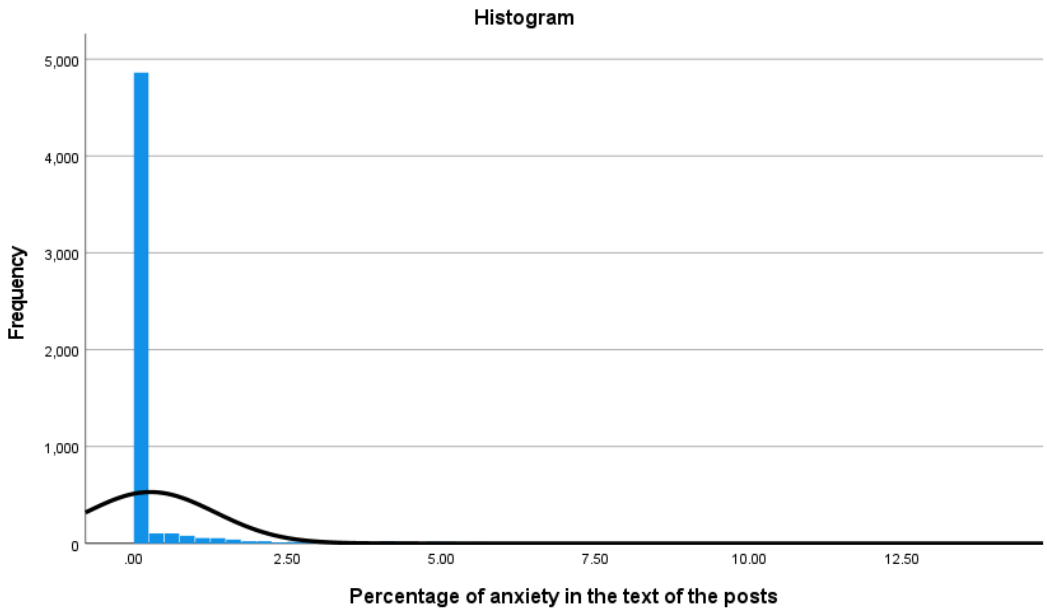


Figure 2: Distribution of anxiety in the EU referendum posts (N = 5,569)

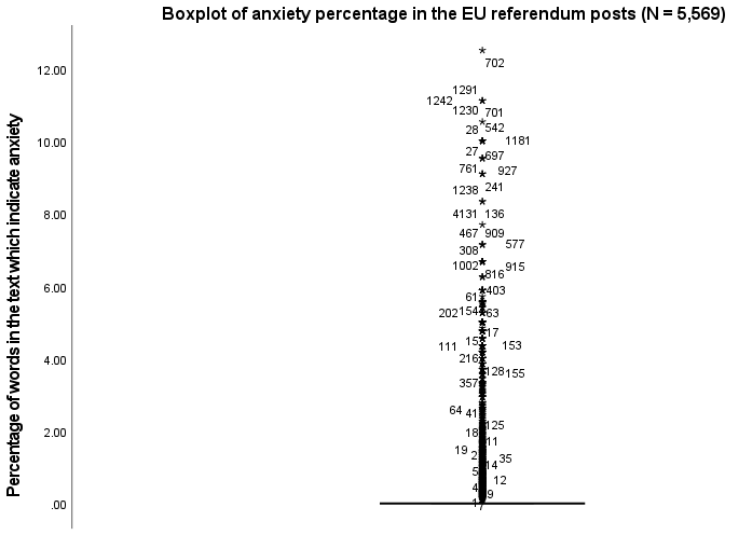


Table 2: Descriptive statistics for logarithmically transformed anxiety in all EU referendum posts (with a value higher than 0, so N = 760 out of 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Anxiety (range 1.10 – 1.10)	.09	.45	-.027	-.783

Figure 3: The percentage of logarithmically transformed anxiety in the EU referendum posts with a value higher than 0 (N = 760 out of 5,569)

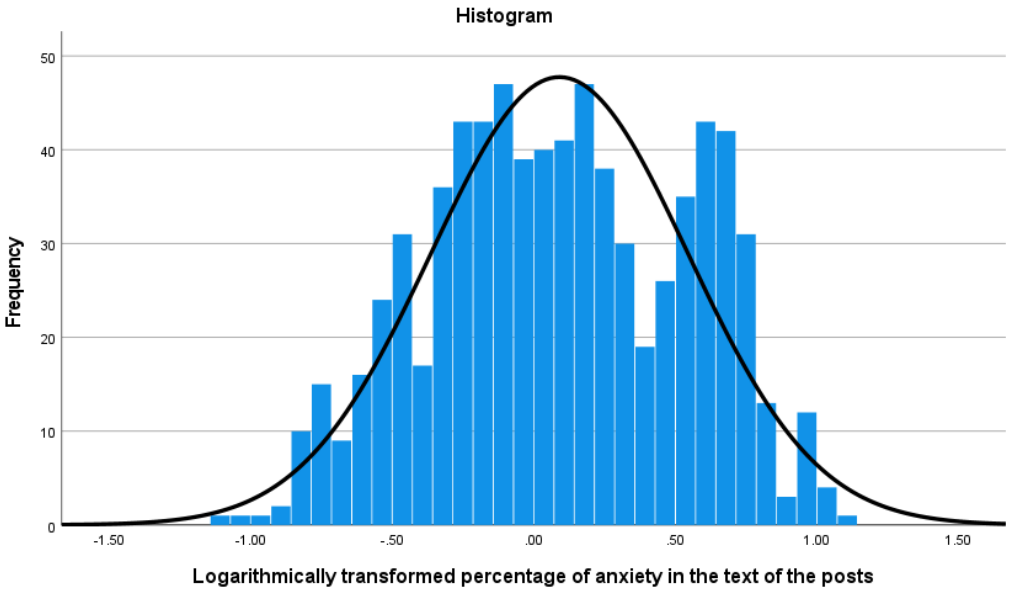
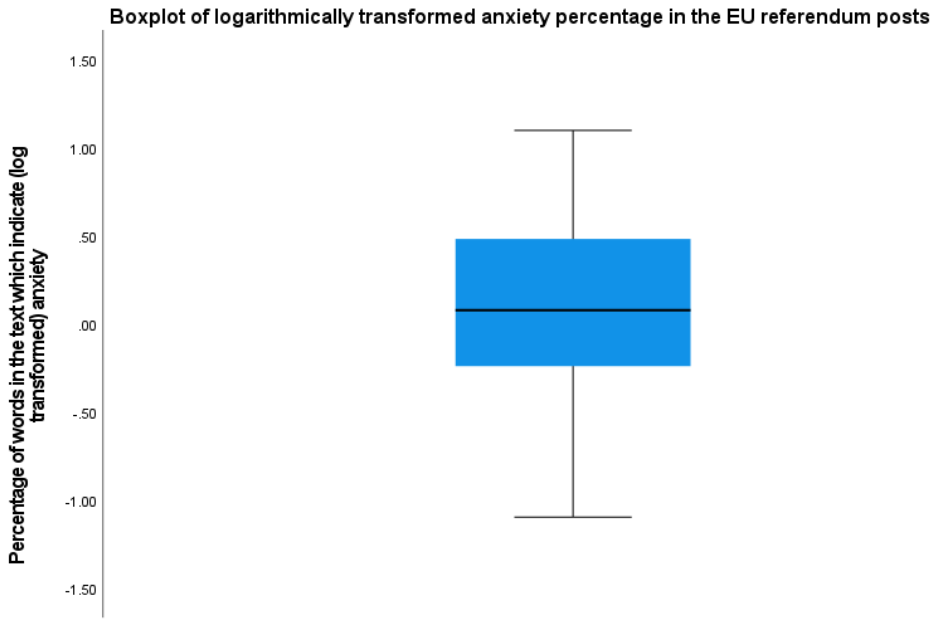


Figure 4: Distribution of logarithmically transformed anxiety in the EU referendum posts (N = 760 out of 5,569)



Appendix D12: Distribution of values on the affect-variable

'Affect' is a ratio variable computed by LIWC. It measures the percentage of words in a text that indicate affect. Table 1 and Figures 1 and 2 show the distribution of values on the ratio affect variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically transformed affect-variable.

Table 1: Descriptive statistics for affect in all EU referendum posts (N = 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Affect (range .00 – 33.33)	4.94	4.55	1.30	.066

Figure 1: The percentage of affect in the EU referendum posts (N = 5,569)

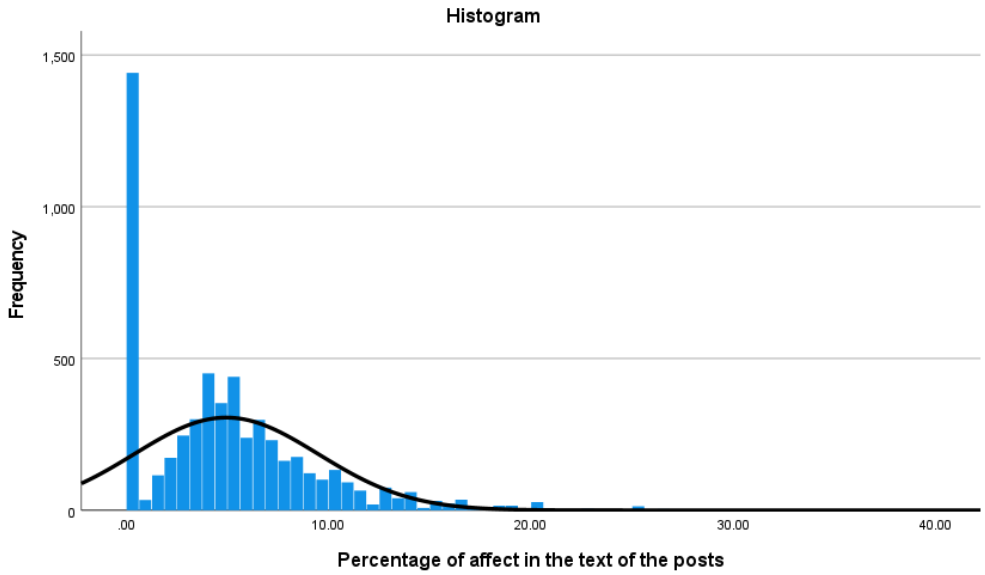


Figure 2: Distribution of affect in the EU referendum posts (N = 5,569)

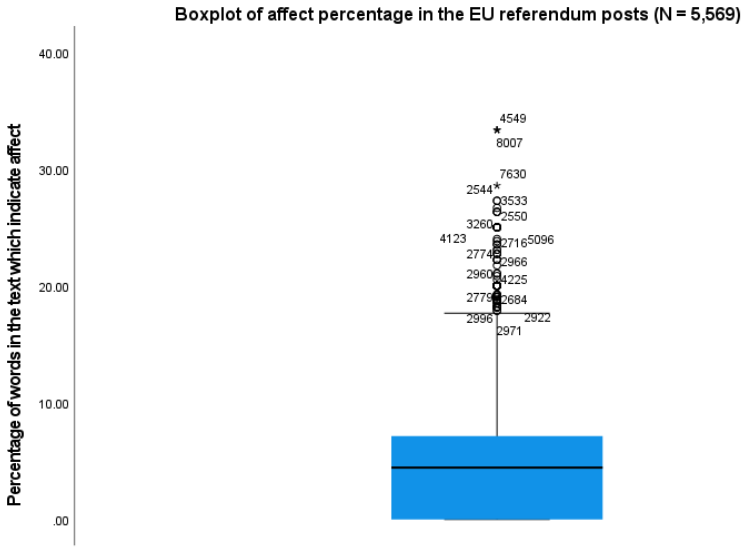


Table 2: Descriptive statistics for logarithmically transformed affect in all EU referendum posts (with a value higher than 0, so N = 4,313 out of 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Affect (range -.28 – 1.52)	.75	.25	.038	.329

Figure 3: The percentage of logarithmically transformed affect in the EU referendum posts with a value higher than 0 (N = 4,134 out of 5,569)

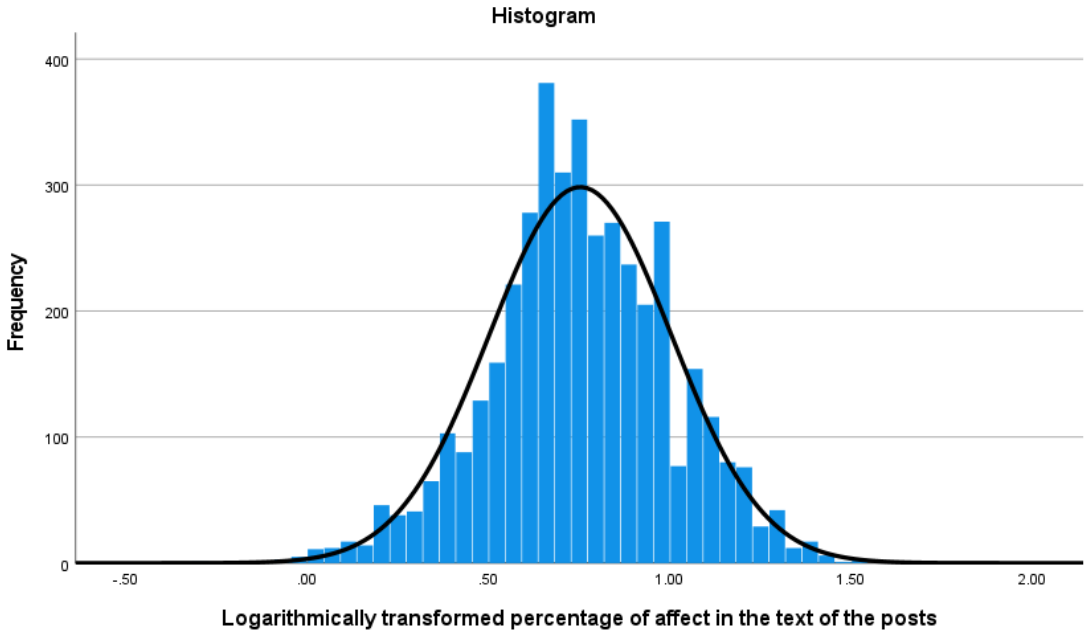
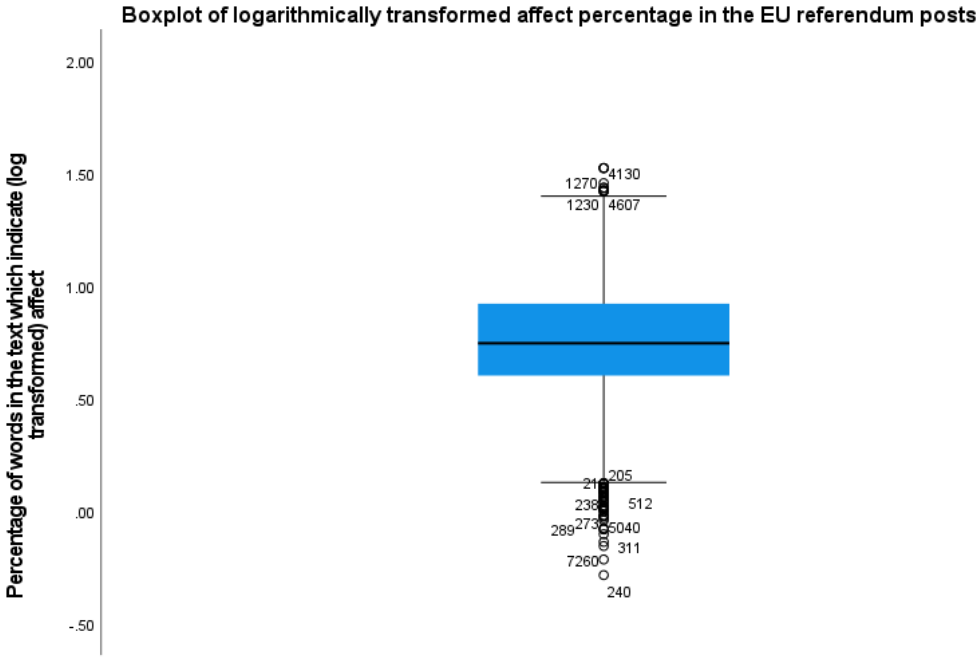


Figure 4: Distribution of logarithmically transformed affect in the EU referendum posts (N = 4,134 out of 5,569)



Appendix D13: Distribution of values on the argument-variable

'Argument' is a binary variable indicating whether the post contains an argument (= 1) or not (= 0).

Table 1: Descriptive statistics for argument, for all EU referendum posts (N = 5,569)

	N	%
Argument		
Yes (contains an argument)	258	4.6
No (does not contain an argument)	5315	95.4

Table 2: Descriptive statistics for argument, for all "Leave" posts (N = 1,989)

	n	%
Argument		
Yes (contains an argument)	92	4.6
No (does not contain an argument)	1,897	95.4

Table 3: Descriptive statistics for argument, for all "Remain" posts (N = 3,464)

	N	%
Argument		
Yes (contains an argument)	163	4.7
No (does not contain an argument)	3301	95.3

Appendix D14: Distribution of values on the positive sentiment-variable (SentimentR)

'Positive sentiment (sentimentR)' is a ratio variable computed by only including the positive values returned by SentimentR. The negative and neutral (= 0) values have been marked as missing. The positive sentiment (sentimentR) variable measures the extent to which text falls on the positive dimension, with more positive values indicating more (extreme) positivity. Table 1 and Figures 1 and 2 show the distribution of values on the positive sentiment (sentimentR) variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically positive sentiment (sentimentR) variable.

Table 1: Descriptive statistics for positive sentiment (sentimentR) in all EU referendum posts (N = 3,589)

	M	*SD*	*Skewness*	*Kurtosis*
Positive sentiment (sentimentR, range .00 – 1.00)	.19	.14	1.519	3.858

Figure 1: The percentage of affect in the EU referendum posts (N = 3,589)

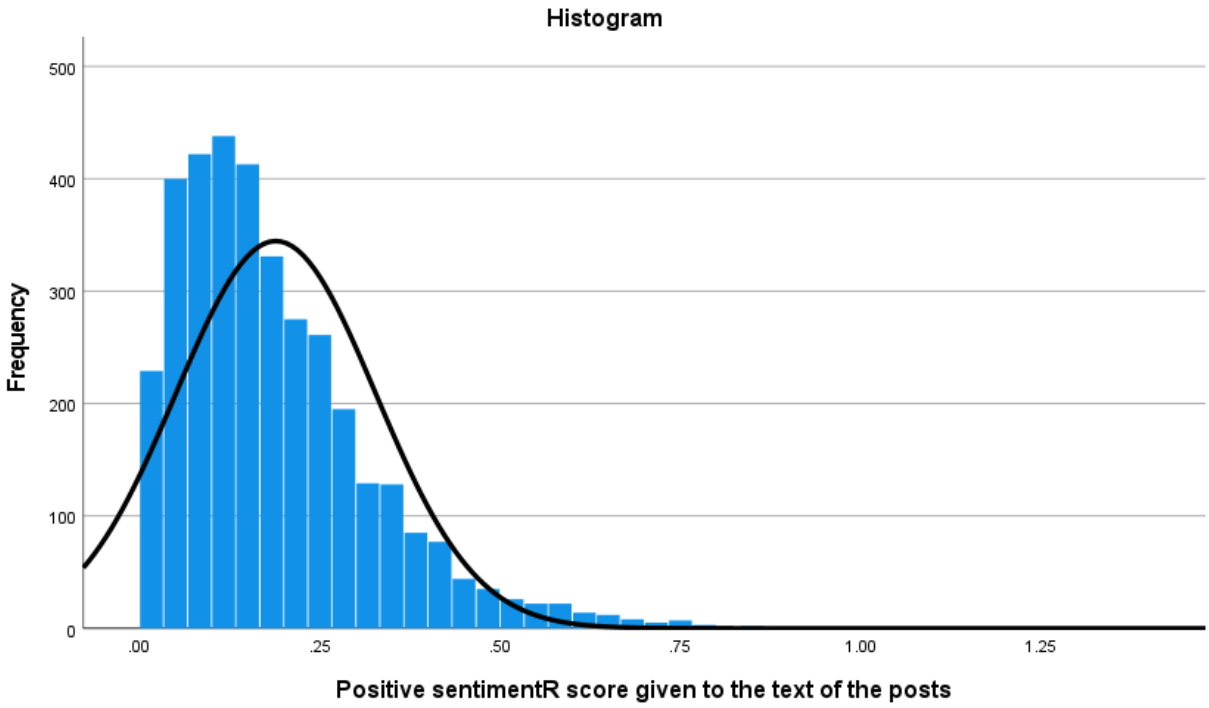


Figure 2: Distribution of positive sentiment (sentimentR) scores in the EU referendum posts (N = 3,589)

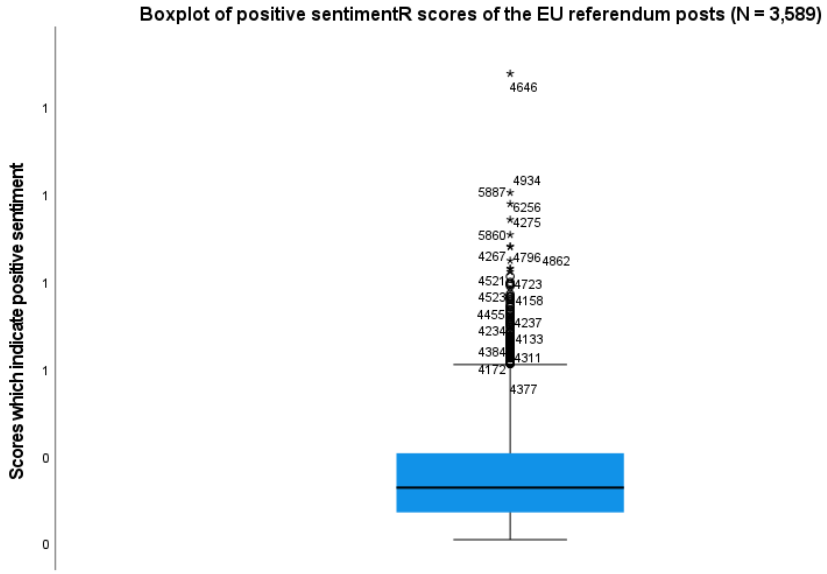


Table 2: Descriptive statistics for the logarithmically transformed positive sentiment (sentimentR) in all EU referendum posts (with a value higher than 0, so N is reduced to 1,948)

	M	*SD*	*Skewness*	*Kurtosis*
Positive sentiment (sentimentR, range -2.02 – .13)	-.85	.36	-.652	.310

Figure 3: The percentage of logarithmically transformed affect in the EU referendum posts with a value higher than 0 (N = 1,948 out of 3,589)

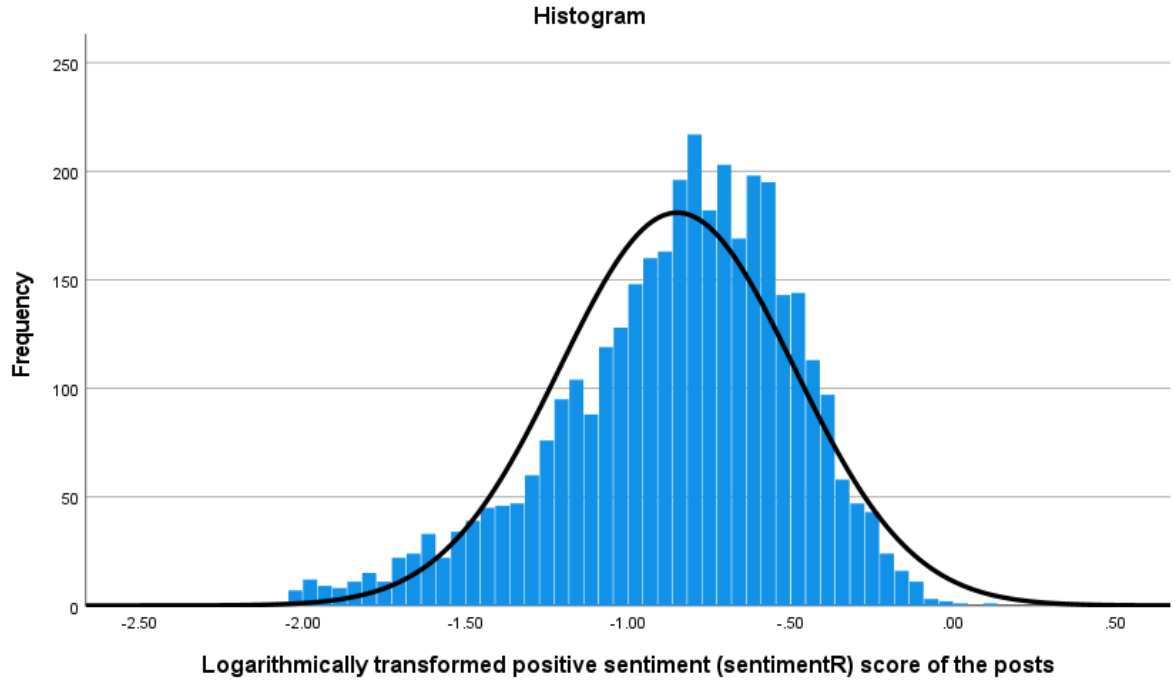
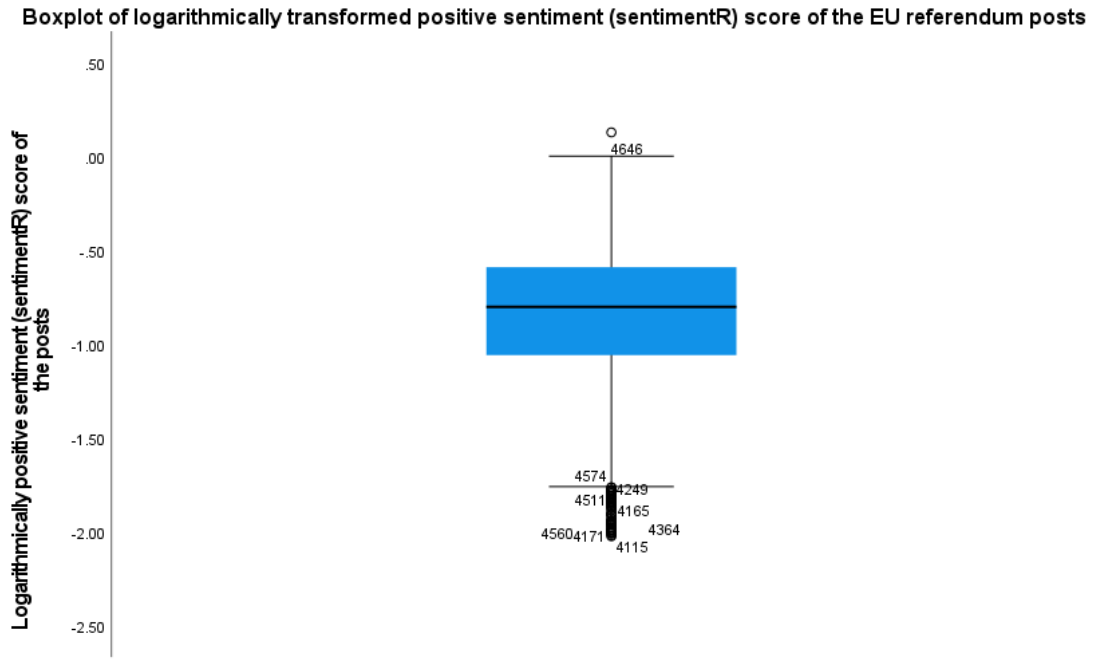


Figure 4: Distribution of logarithmically transformed affect in the EU referendum posts (N = 1,948 out of 3,589)



Appendix D15: Distribution of values on the positive sentiment-variable (LIWC)

'Positive sentiment' is a ratio variable computed by LIWC. It measures the percentage of words in a text that indicates positive sentiment. Table 1 and Figures 1 and 2 show the distribution of values on the ratio positive sentiment variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically transformed positive sentiment variable.

Table 1: Descriptive statistics for positive sentiment (LIWC) in all EU referendum posts (N = 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Positive sentiment (LIWC) (range .00 – 33.33)	3.58	4.06	1.75	4.88

Figure 1: The percentage of positive sentiment (LIWC) in the EU referendum posts (N = 5,569)

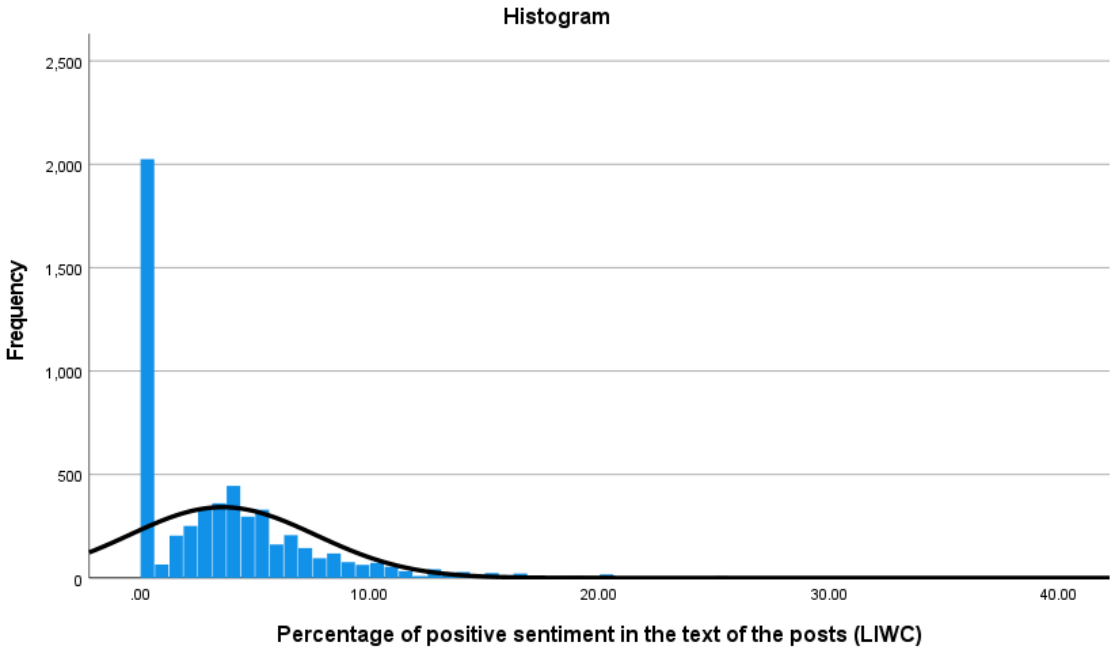


Figure 2: Distribution of positive sentiment (LIWC) in the EU referendum posts (N = 5,569)

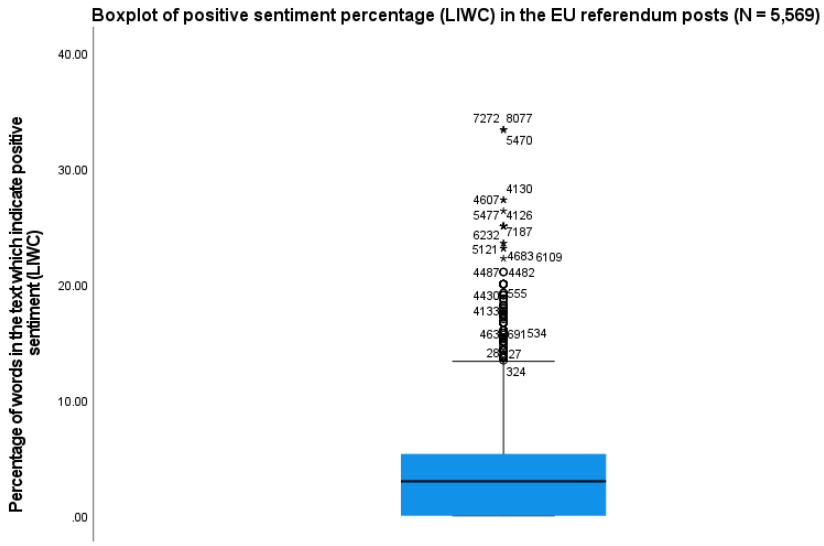


Table 2: Descriptive statistics for the logarithmically transformed positive sentiment (LIWC) in all EU referendum posts (with a value higher than 0, so N = 3,553 out of 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Positive sentiment (LIWC, range -.29 – 1.52)	.67	.27	-.068	.256

Figure 3: The percentage of logarithmically transformed positive sentiment (LIWC) in the EU referendum posts with a value higher than 0 (N = 3,553 out of 5,569)

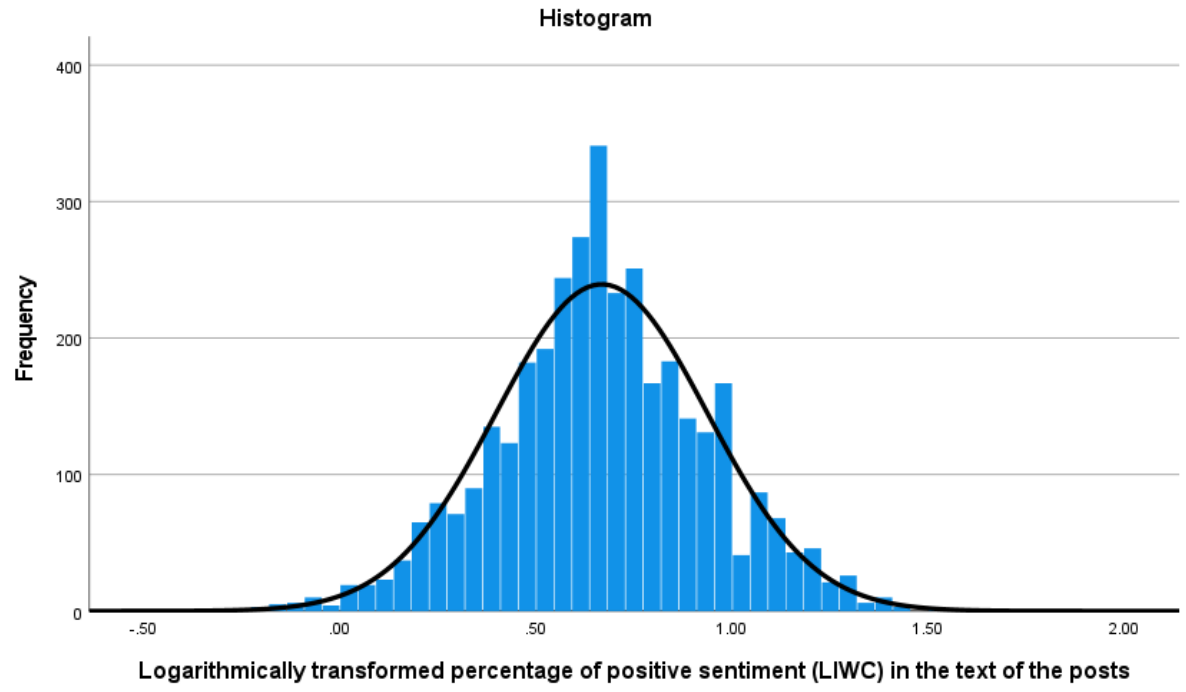
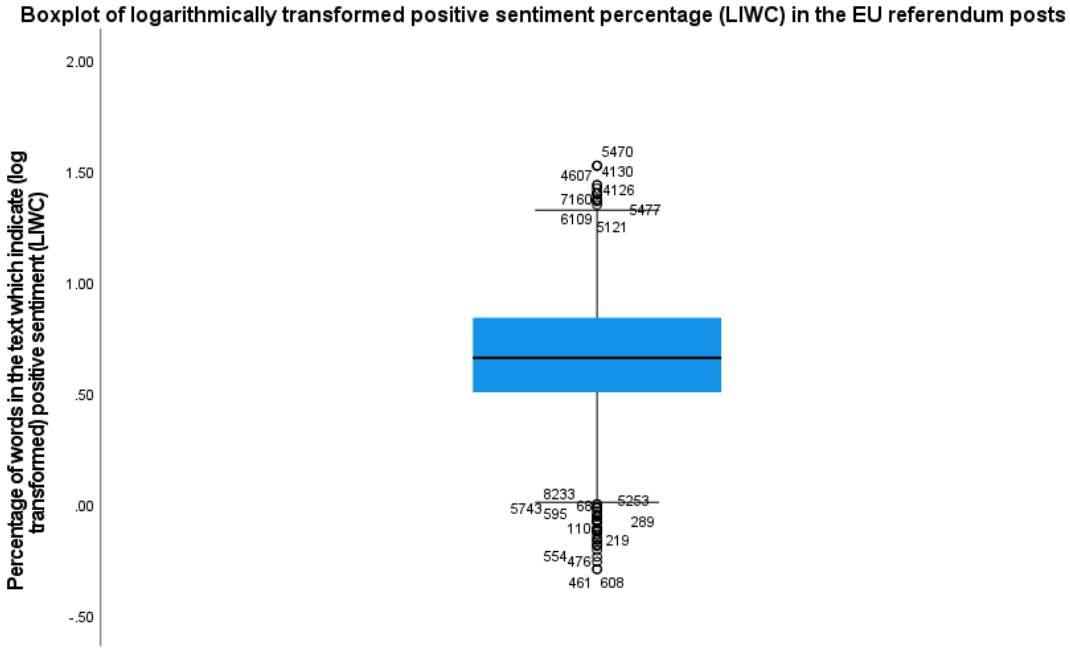


Figure 4: Distribution of logarithmically transformed positive sentiment (LIWC) in the EU referendum posts (with a value higher than 0, N = 3,553 out of 5,569)



Appendix D16: Distribution of values on the negative sentiment-variable (SentimentR)

'Negative sentiment' (sentimentR) is a ratio variable computed by only including the negative values returned by sentimentR. The positive and neutral (= 0) values have been marked as missing. The negative sentiment (sentimentR) variable measure the extent to which text falls on the negative dimension, with more negative values indicating more (extreme negativity). Table 1 and Figures 1 and 2 show the distribution of values on the negative sentiment (sentimentR) variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically transformed negative sentiment (sentimentR) variable.

Table 1: Descriptive statistics for negative sentiment (sentimentR) in all EU referendum posts (N = 1,304)

	M	*SD*	*Skewness*	*Kurtosis*
Negative sentiment (LIWC, range -.96 – -.01)	-.13	.12	-2.14	6.74

Figure 1: The negative sentiment score (sentimentR) in the EU referendum posts (N = 1,304)

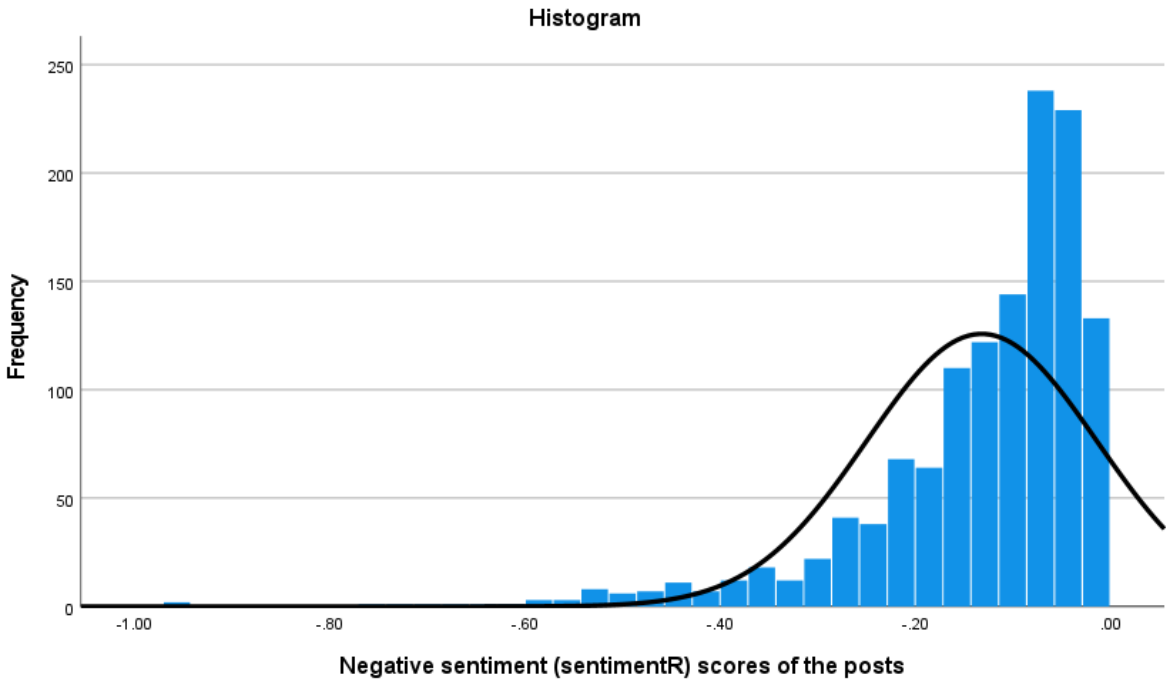


Figure 2: Distribution of negative sentiment (sentimentR) in the EU referendum posts (N = 1,304)

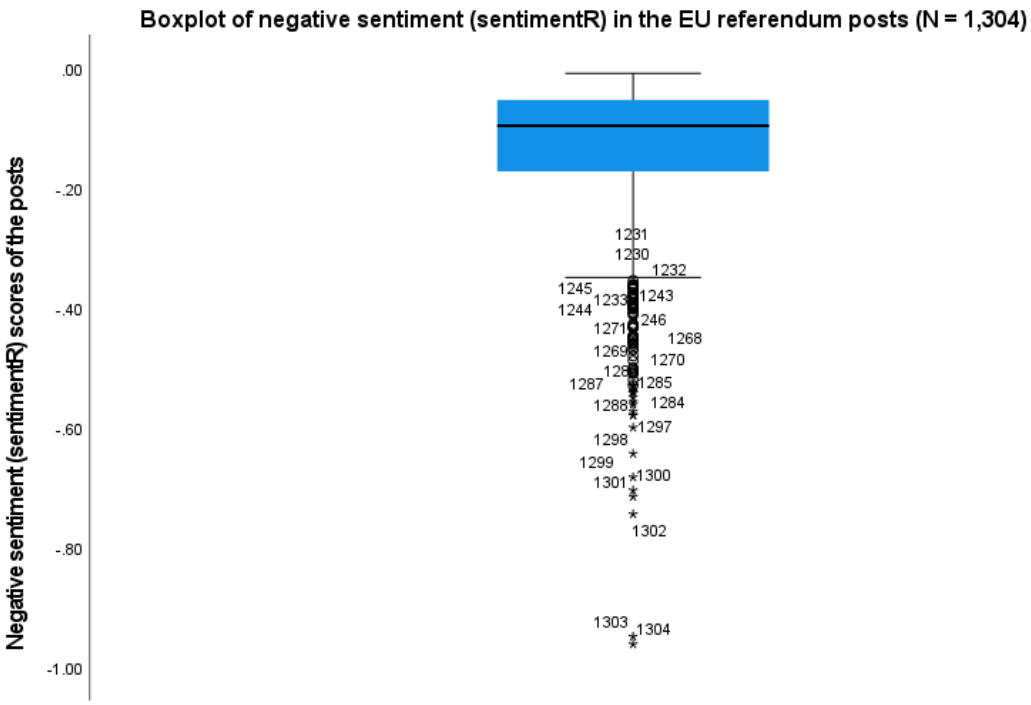


Table 2: Descriptive statistics for logarithmically transformed negative sentiment (sentimentR) in all EU referendum posts (N = 1,304)

	M	*SD*	*Skewness*	*Kurtosis*
Negative sentiment (sentimentR, range -2.04 – -0.02)	-1.04	.39	-.254	-.248

Figure 3: The percentage of logarithmically transformed negative sentiment (sentimentR) in the EU referendum posts with a value higher than 0 (N = 4,134 out of 5,569)

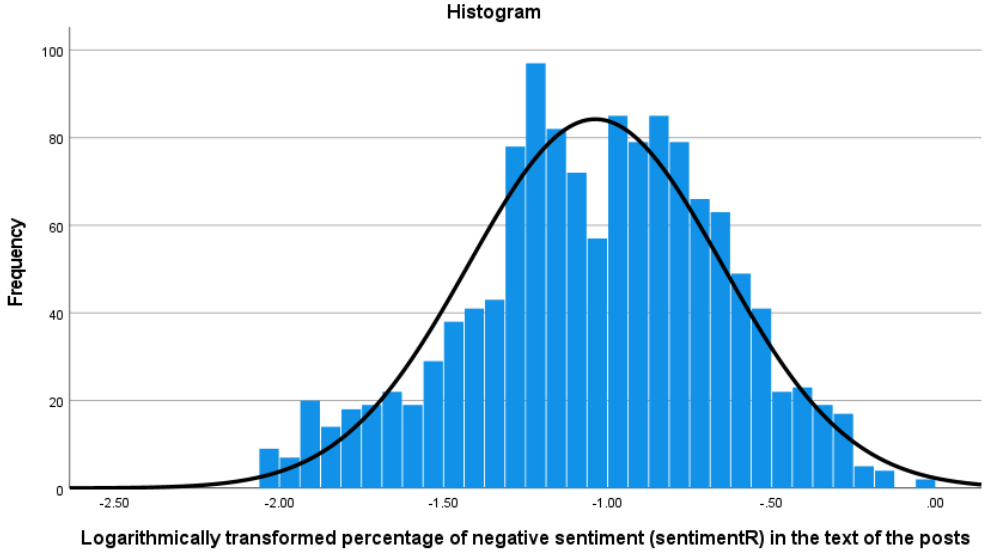
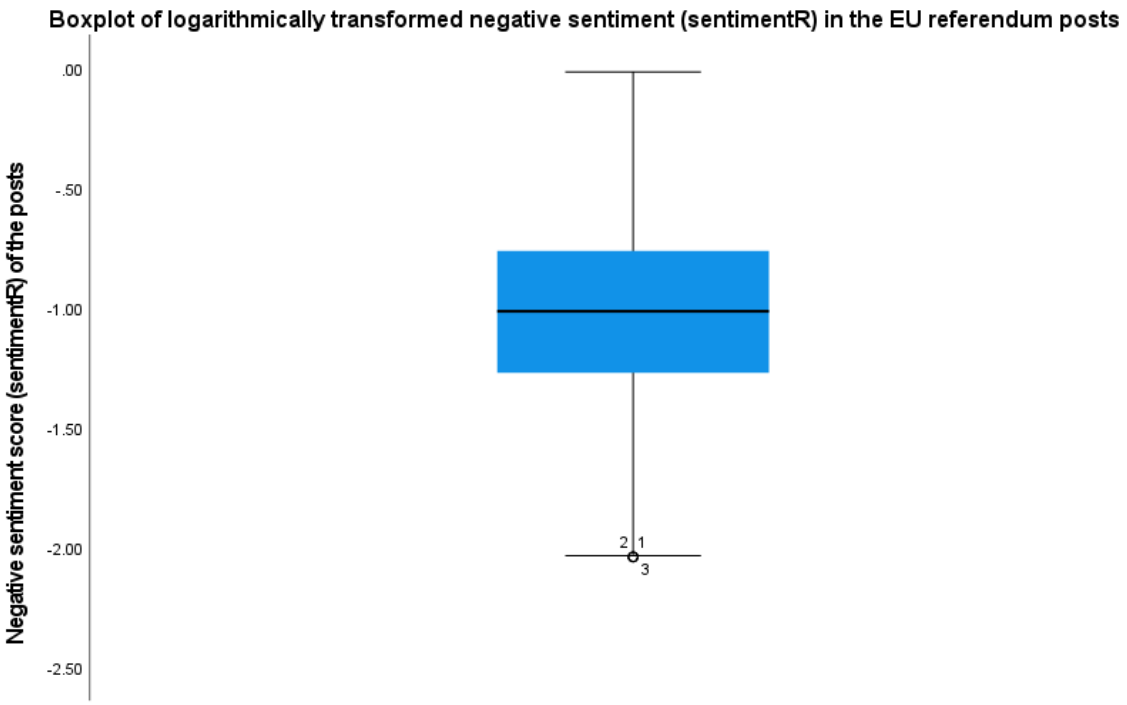


Figure 4: Distribution of logarithmically transformed affect in the EU referendum posts (N = 1,304)



Appendix D17: Distribution of values on the negative sentiment-variable (LIWC)

'Negative sentiment' is a ratio variable computed by LIWC. It measures the percentage of words in a text that indicates negative sentiment. Table 1 and Figures 1 and 2 show the distribution of values on the ratio negative sentiment variable, and Table 2 and Figure 3 and 4 show the distribution of values on the logarithmically transformed negative sentiment variable.

Table 1: Descriptive statistics for negative sentiment (LIWC) in all EU referendum posts (N = 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Negative sentiment (LIWC, range .00 – 26.32)	1.34	2.48	2.730	10.962

Figure 1: The percentage of negative sentiment (LIWC) in the EU referendum posts (N = 5,569)

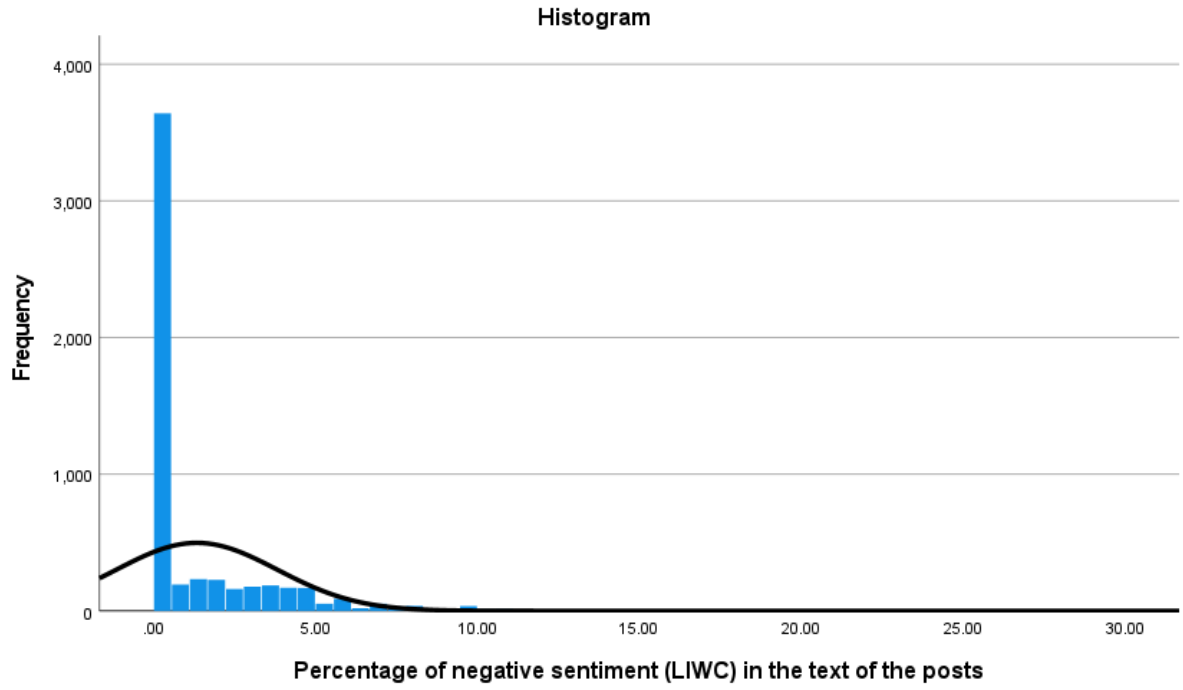


Figure 2: Distribution of negative sentiment (LIWC) in the EU referendum posts (N = 5,569)

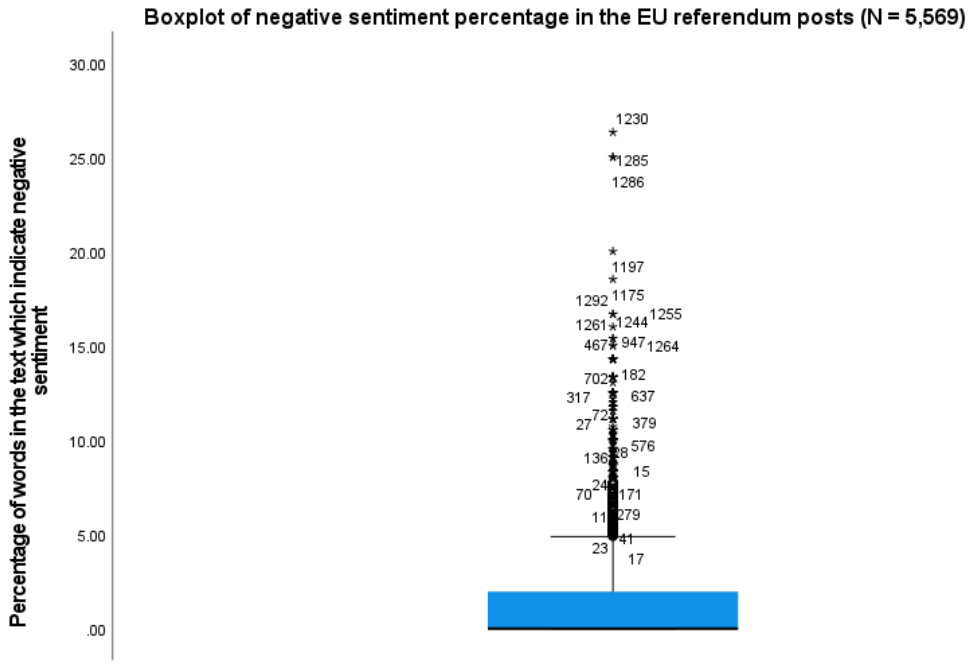


Table 2: Descriptive statistics for the logarithmically transformed negative sentiment (LIWC) in all EU referendum posts (with a value higher than 0, so N = 1,991 out of 5,569)

	M	*SD*	*Skewness*	*Kurtosis*
Negative sentiment (LIWC, range -.64 – 1.42)	.45	.34	-.384	-.029

Figure 3: The percentage of logarithmically transformed negative sentiment (LIWC) in the EU referendum posts with a value higher than 0 (N = 1,991 out of 5,569)

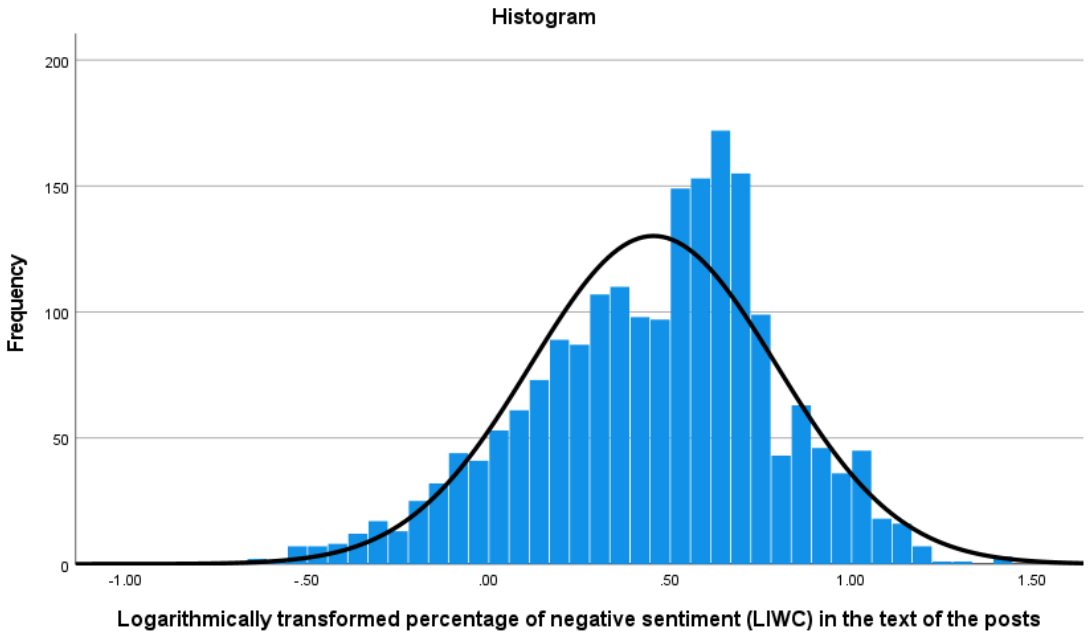
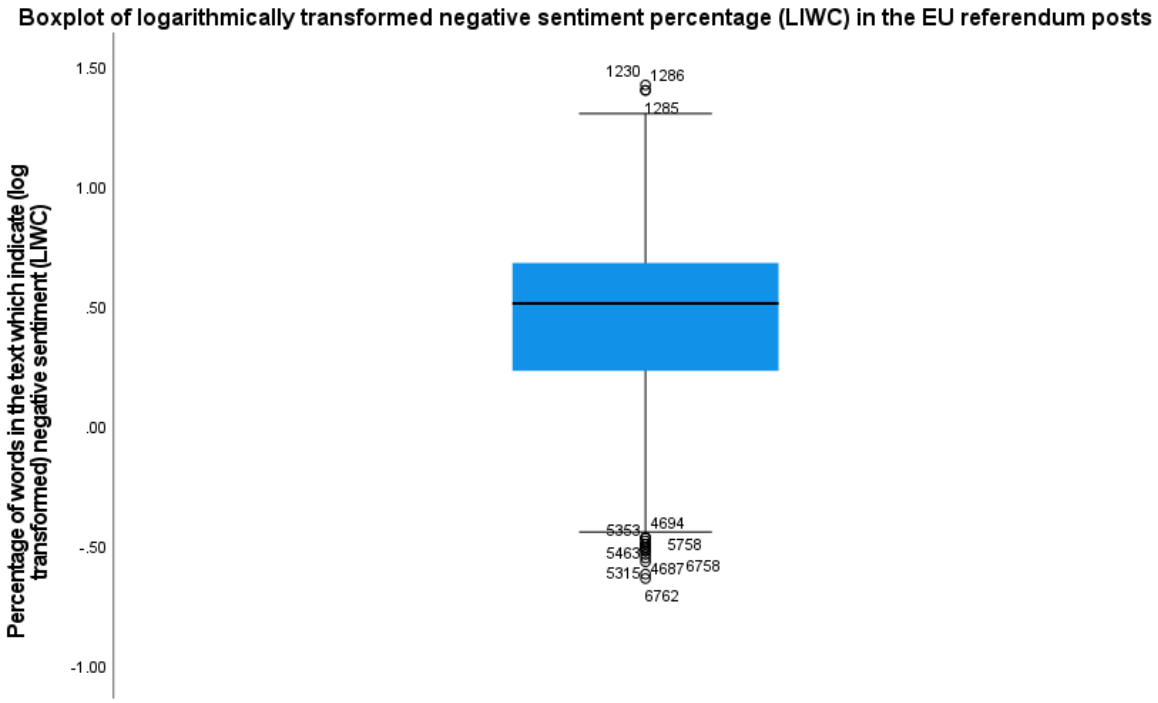


Figure 4: Distribution of logarithmically transformed affect in the EU referendum posts (N = 1,991 out of 5,569)



Appendix D18: Mann Whitney U tests with the affect, positive sentiment, and negative sentiment variables

Table 1: Mean differences in affect by camp ("Leave" or "Remain")

	Leave (*n* = 1989)			**Remain** (*n* = 3464)			***Median diff.***	***p***
	M	*SD*	*Mdn*	*M*	*SD*	*Mdn*		
Affect percentage (LIWC)	4.80	4.74	4.35	5.00	4.45	4.55	.20**	.006

* $p < .05$. ** $p < .01$. *** $p < .001$. N reduced to 5,543 because some MPs did not declare support for either "Leave" or "Remain" and therefore had to be excluded from this analysis.

Table 2: Mean differences in positive sentiment (SentimentR)

	Leave (*n* = 1185)			**Remain** (*n* = 2342)			***Median diff.***	***p***
	M	*SD*	*Mdn*	*M*	*SD*	*Mdn*		
Positive sentiment score (SentimentR)	.18	.14	.15	.19	.14	.16	.01**	.002

* $p < .05$. ** $p < .01$. *** $p < .001$. N reduced to 3,527 because some MPs did not declare support for either "Leave" or "Remain" and therefore had to be excluded from this analysis, and because this variable does not include those observations with negative and neutral values on the sentimentR variable.

Table 3: Mean differences in positive sentiment (LIWC)

	Leave (*n* = 1989)			**Remain** (*n* = 3464)			***Median diff.***	***p***
	M	*SD*	*Mdn*	*M*	*SD*	*Mdn*		
Positive sentiment percentage (LIWC)	3.38	4.08	2.63	3.74	4.05	3.12	.49***	.000

* $p < .05$. ** $p < .01$. *** $p < .001$. N reduced to 5,543 because some MPs did not declare support for either "Leave" or "Remain" and therefore had to be excluded from this analysis.

Table 4: Mean differences in negative sentiment (SentimentR)

	Leave (*n* = 587)			**Remain** (*n* = 667)			***Median diff.***	***p***
	M	*SD*	*Mdn*	*M*	*SD*	*Mdn*		
Negative sentiment (SentimentR)	-.13	.12	-.09	-.14	.12	-.10	.01	.23

* $p < .05$. ** $p < .01$. *** $p < .001$. N reduced to 1,254 because some MPs did not declare support for either "Leave" or "Remain" and therefore had to be excluded from this analysis, and because this variable does not include those observations with positive and neutral values on the sentimentR variable.

Table 5: Mean differences in negative sentiment (LIWC)

	Leave (*n* = 1989)			**Remain** (*n* = 3464)			***Median diff.***	***p***
	M	*SD*	*Mdn*	*M*	*SD*	*Mdn*		
Negative sentiment (LIWC)	1.38	2.69	.00	1.25	2.32	.00	.00	.446

* $p < .05$. ** $p < .01$. *** $p < .001$. N reduced to 5,543 because some MPs did not declare support for either "Leave" or "Remain" and therefore had to be excluded from this analysis.

Appendix D19: Multivariate negative binomial regression for alternative argument variable

The data set used in Chapter 4, the first reconfiguration of the data set used in Chapter 3, includes an alternative variable for measuring argument. This is a count variable that measures the number of single arguments in the post. For the sake of robustness, I have performed a multivariate negative binomial, clustered regression to test which explanatory variables predict the number of arguments included in the posts.

	Number of single arguments in the post
	b/se
Word count	.0004***
	(.001)
Leave	-.251
	(.245)
Party (ref: Conservatives)	
Labour	.055
	(.242)
SNP	-.689
	(.388)
Other	-.117
	(.353)
Female	-.106
	(.197)
Age	-.012
	(.011)
Frontbencher	-.313
	(.278)
Length of service (ref: 0-1 years)	
2-6 years	-.028
	(.213)
7-15 years	.103
	(.286)
16-50 years	.544
	(.029)
Electoral vulnerability	-.004
	(.008)
MP-constituency alignment	.058
	(.112)
Constant	-2.920***
	(.576)
Pseudo R^2: Cox & Snell	
R^2	.185
N of observations	5,444

Significance levels: ∗p < 0.05, ∗∗p<0.01∗∗∗p<0.001. *Note*: N is reduced from 5,573 to 5,444 due to missing data. The robust standard error is adjusted for the 359 clusters: 359 different MPs as authors of the posts, for which all variable data is available. The software used (nbreg in STATA) does not provide standardized coefficients (beta).

Appendix D20: Multivariate clustered regressions for alternative anger and anxiety variables

Alternative versions of the anger and anxiety variables (based on the LIWC measure) were computed, where the observations with the lowest 25% of values on anxiety and anger were removed from the analysis. These are the observations – the posts – which contain less than 0.18% of anxiety words and less than 0.20% of anger. To put this percentage into perspective, the average EU referendum post is only 84 words long and if 1 out of these 84 words would indicate anger or anxiety, then the post would receive a score of 1.19% on anger or anxiety, respectively. I have therefore removed those posts from the analysis which were longer than average and contained a single or a couple of anger/anxiety words. The variables were logarithmically transformed before the regression analysis.

Table 1: Multivariate linear regression for use of anger and anxiety (LIWC, alternative measures)

	Use of anger (LIWC)		**Use of anxiety (LIWC)**	
	b/se	B	b/se	B
Word count	-.000***	-.493	-.001***	-.518
	(.000)		(000)	
Leave	.098	.108	.131*	.143
	(.064)		(.057)	
Party (ref: Conservatives)				
Labour	.109	.116	-.032	-.035
	(.061)		(.054)	
SNP	.036	.026	-.024	-.016
	(.070)		(.071)	
Other	.218	.117	.097	.050
	(.074)**		(.059)	
Female	.010	.011	.048	.047
	(.047)		(.046)	
Age	.003	.063	-.000	-.003
	(.003)		(.002)	
Frontbencher	.043	.034	.124*	.110
	(.071)		(.056)	
Length of service (ref: 0-1 years)				
2-6 years	.036	.039	.017	.018
	(.063)		(.058)	
7-15 years	-.039	-.035	-.025	-.023
	(.062)		(.064)	
16-50 years	-.004	-.003	.014	.012
	(.081)		(.072)	
Electoral vulnerability	.004	.145	.003	.081
	(.002)		(.002)	
MP-constituency alignment	-.032	-.059	-.044	-.084
	(.030)		(.029)	
Constant	-.055		.140	
	(.139)		(.121)	
R^2	.31		.33	
N of observations	705		734	

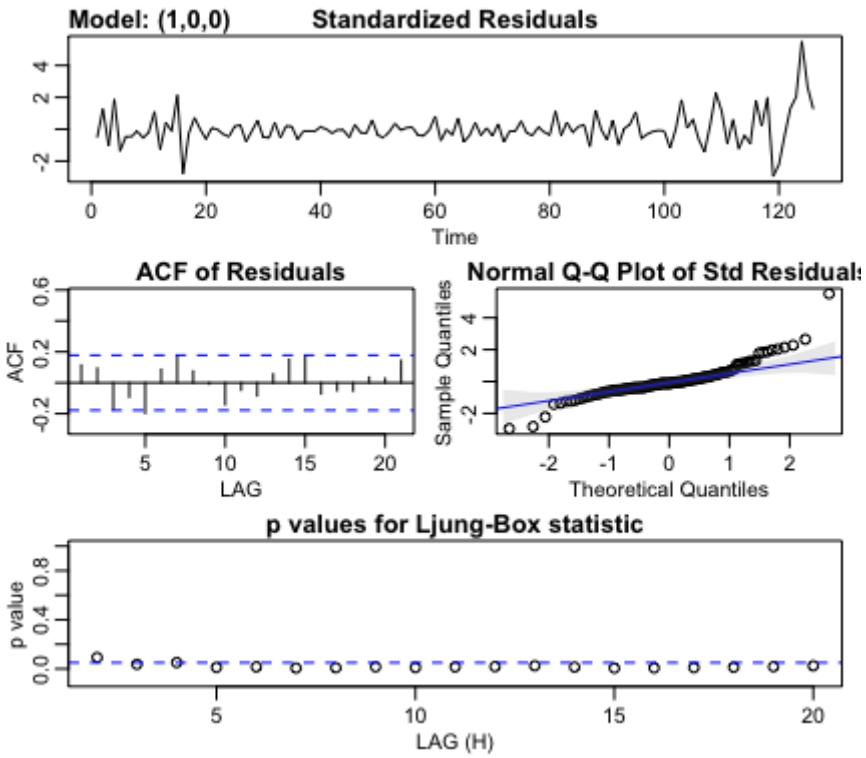
Significance levels: ∗p < 0.05, ∗∗p<0.01∗∗∗p<0.001. *Note*: N is reduced from 5,573 to 705 for anger and 734 for anxiety due to the logarithmic transformation of the measures and the removal of the lowest 25% of values. The robust standard error is adjusted for 221 clusters.

Appendices for Chapter 5

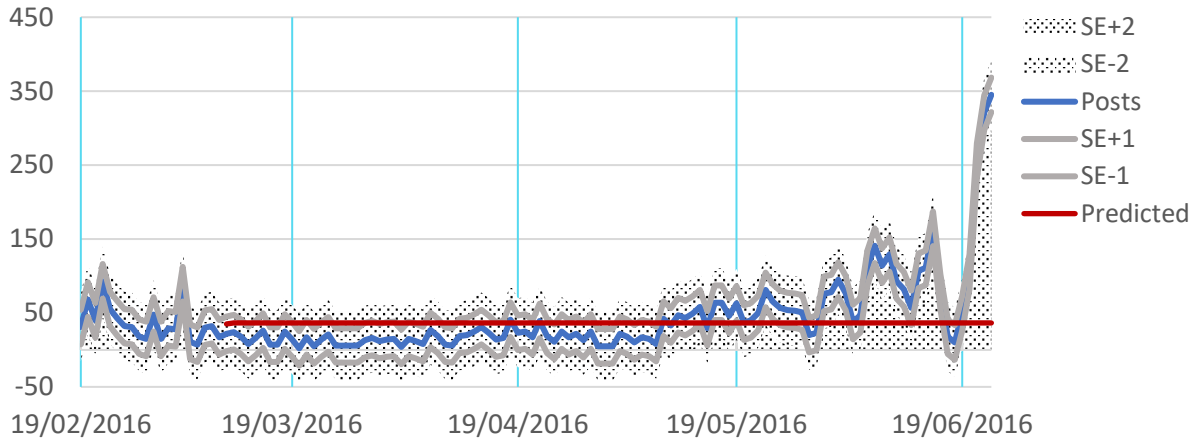
Appendix E1: List of all events originally considered for analysis

Date (2016)	Event
February 19	Renegotiation by Cameron, the start of the campaign period
March 9	Queen supposedly backs Brexit
April 13	Official campaigns are named; Homes are leafleted (in early April)
April 18	Treasury forecast
April 22	Obama intervention
May 20	Celebrities speak out
May 24	Turkey row
June 9	Switching sides and aftermath of the registration malfunction
June 15	Thames battle
June 16	Murder of Jo Cox; Breaking point poster
June 23	Date of the referendum, end of the campaign period

Appendix E2: The AR(1) model residuals for posting activity



Appendix E3: Forecasted effect of the first event, the news that the Queen supports Brexit, on posting activity

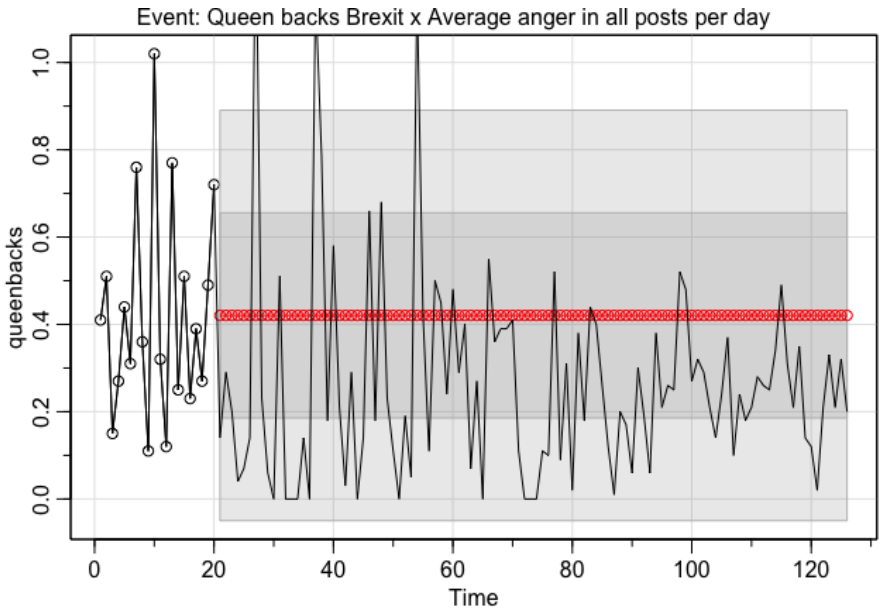


Appendix E4: Table of ARIMA specifications and forecasted effects of the last event

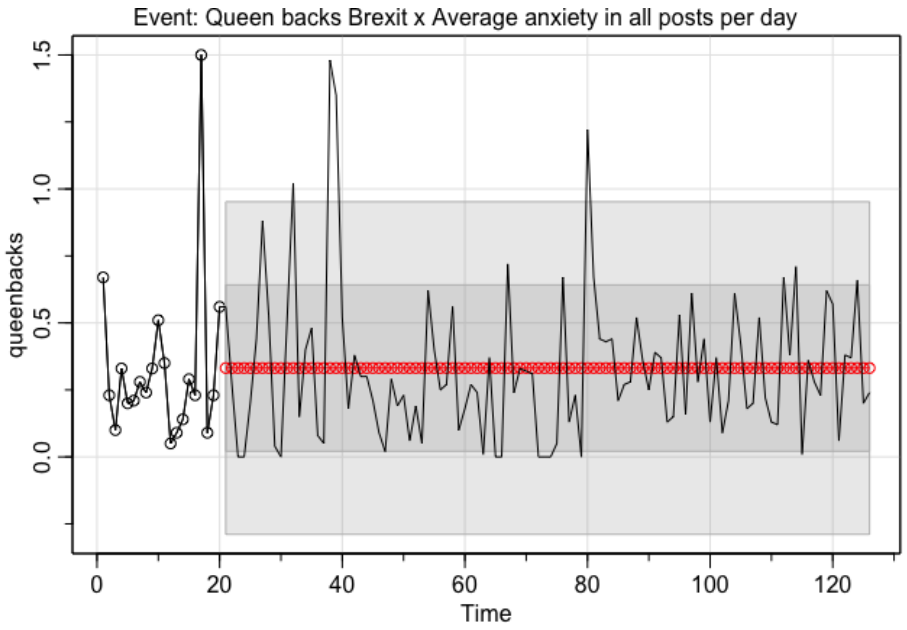
Complete table of ARIMA specifications of the variables

Variable	Model	Specification
# of posts (leave and remain)	AR	(1, 0, 0)
# of posts with argument	AR	(1, 0, 0)
Average anger	ARIMA	(0, 0, 0)
Average anxiety	ARIMA	(0, 0, 0)
Poll changes	AR	(2, 0, 0)

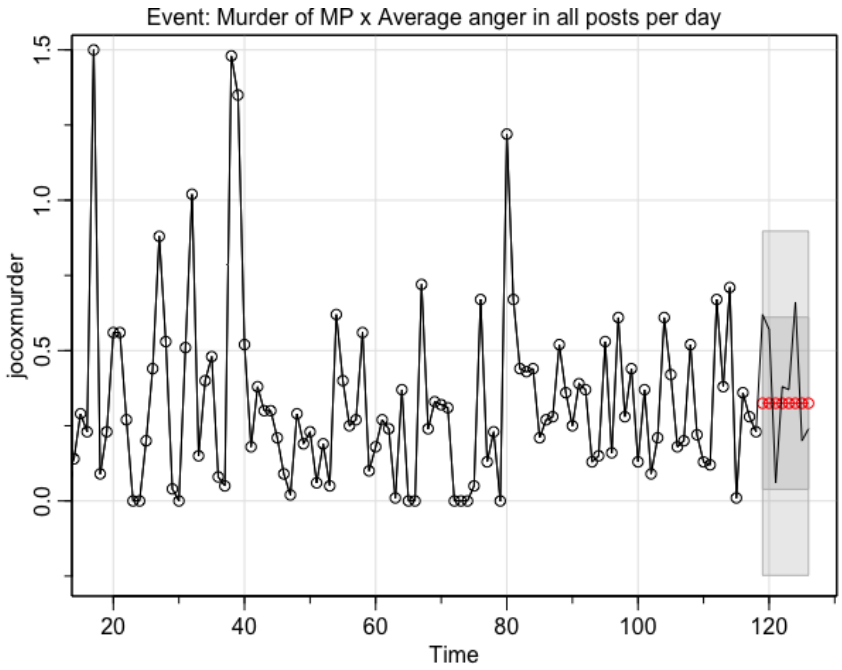
Forecasted effects of the first event (news about the Queen) on anger



Forecasted effects of the first event (news about the Queen) on anxiety



Forecasted effects of the second event (Murder of the MP) on anger



Forecasted effects of the second event (Murder of the MP) on anxiety