Political participation on Facebook during Brexit: Does user engagement on media pages stimulate engagement with campaigns?

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Abstract
This study investigates, over an 18-month period surrounding the Brexit referendum, the commenting activity of nearly 2 million Facebook users engaging with political news from British media or with the posts of referendum campaigns. We ask whether citizens' engagement with political news on Facebook motivates their participation with political campaign posts, and we examine whether users commenting on campaign pages trend towards ideologically reinforcing media. Overall, we find comparatively low levels of commenting activity on the official referendum campaigns vis-à-vis the media, and the majority of users (70%) commented only once. Looking at the subset of users commenting on both page types ('cross-posters'), we identify a general spillover effect from media to campaign pages, suggesting a positive correlation between political interest and online participation on Facebook. Reverse spillover occurs immediately around and after the vote, with Remain cross-posters active on the Guardian while Leave cross-posters' media engagement registers more diffuse.

Introduction
The 2016 referendum on Britain's EU membership – commonly referred to as 'Brexit' – resulted in a slight majority of British citizens opting to leave the EU (52%) compared to those voting to stay in (48%). The near-even split reflects the high degree of polarization among the British public over the EU question. Leading up to the vote, campaigns for and against Britain's withdrawal from the Union took to social media in an attempt to persuade and mobilize voters. At the same time, mainstream media reported news about the referendum through their social media accounts, and citizens active on Facebook were exposed to messages from both political and media accounts over the course of the campaign. To date, little is known about what political content citizens access on social media, and even less about whether this content stems from partisan campaign pages or mainstream media outlets.

The present study provides an exploratory first step in examining Facebook users' cross-posting activity between political news coverage by the media and political messages from partisan campaigns. We trace the commenting activity of 1.9 million Facebook accounts that

commented to a public post about politics issued by one of six British media outlets, or one of three referendum campaigns, over an 18-month period (June 1, 2015 – November 30, 2016). We seek to uncover how citizens' comment patterns unfolded across media and campaign pages as well as assess whether these patterns contribute to the polarization of opinion regarding EU membership. Under campaign conditions on social media, we expect: a) political interest to influence political participation in online debates, b) online political participation with campaign sites to be more prominent than interest with political news; and c) polarization effects to be reinforced, in the sense that citizens who engage with campaign pages also opt for partisan media.

We start by discussing the Brexit campaigns on Facebook from a user perspective and describe the specific contexts that allow citizens to retrieve political content online and engage in commenting activities regarding politically salient issues. Such an emphasis on different forms of user engagement is helpful to describe the contours of the social media public sphere, where citizens are not only passive recipients of campaigning content but also actively involved in online opinion making. In particular, we are interested in the cross-posting activity of users who shift between news and campaigning sites and between ideological camps (pro-and anti-Brexit). We conclude with an outlook on the polarizing effects of Facebook political campaigning, which is found in this case to be less accentuated than predicted by the 'filter bubble' assumption.

Polarization and political engagement on social media

Referendum campaigns and their outcomes are heavily dependent on the economy of the news media (Semetko and de Vreese, 2004). By-and-large, most voters rely on the information that political actors and the media disseminate in order to form preferences before a public consultation. Previous research argues that the choices of voters who are politically interested and knowledgeable (i.e., those who seek out political information) are affected equally by political campaign cues and by substantive information provided by the media (Bullock, 2011). However, in polarized political environments, voters tend to rely on partisan campaign messages rather than substantive information when making decisions (Druckman et al., 2013). Since the trend towards polarization is increasing across liberal democracies (Iyengar and Westwood, 2015), the role of political communication is increasingly influential for public opinion formation. Strategic game frames applied by both campaigners and journalists often result in a strong polarization of opinion during election campaigns (Pedersen, 2014). The media effects of amplifying polarized opinion and its implications for democracy have been theorized mainly in regard to offline campaigning (Semetko and de Vreese, 2004; Hobolt, 2009; de Vreese, 2007). Whether similar dynamics of polarization also apply to online campaigning remains an open question that we seek to answer by investigating citizens' commenting activity on Facebook during a national referendum.

Referendum campaigns are generally more polarized than regular pre-election campaigning on account of the binary choice implied (supporting or opposing a policy issue). During referendum campaigns, political actors strategically attempt to persuade and mobilize voters along a preferred policy position. The news media, meanwhile, aim to inform the public of

the issue at stake while also generating revenue in today's high choice media environment. On social media platforms like Facebook, political and media institutions vie fiercely to drive user engagement with their content. For political actors, the facilities provided by social media enable a direct contact line with voters, decoupling political campaigning from media agenda-setting and framing. The media seem to have have induced a process of tabloidization, reshaping their news content according to popular taste in a bid to increase readership (Esser and Strömbäck, 2014). From this liberal market logic, sensationalism and polarization are useful strategies to alert the user community, solicit their active participation through social media (Boyer, 2013), and facilitate opinion-exchanges across the political spectrum (Dahlgren, 2013).

From this public sphere logic, communication is enhanced across news and campaigning sites with a potential to involve users actively in informed opinion making. Previous research suggests that a spillover effect occurs in the sense that exposure to political information on social media, and active engagement with news on these platforms, increases the likelihood of offline political participation in partisan campaigning (Prior, 2005; Cantijoch et al., 2016). Furthermore, the various efforts to enhance users' engagement by both political and media actors may either reinforce or undermine the polarization of opinion. If power in a hybrid media system is exercised via manipulating "the information flows in ways that suit [one's] goals and in ways that modify, enable, or disable others' agency" (Chadwick, 2013: 208), then social scientists should investigate whether campaigners or news media set the agenda and influence the direction of discussion online. Uncovering 'who's first' – campaigns or media – in engaging new users in political commentary is important, since media reportage can influence citizens' evaluations of a political actor or issue and subsequently, their voting behavior.

Campaigning politicians reach out to voters with opinioned content online in ways that challenge traditional political communication models, where the media reserve a privileged gate-keeping role on the flow of political information. Whereas this classic understanding holds that political actors campaign *through* the media, on Facebook political actors communicate information *alongside* the media in the same digital space. Still, news media maintain a responsibility to inform voters about issues during referendum campaigns, and journalists are motivated to set the public agenda independently using more unbiased content than political campaigners (Haleva-Amir and Nahon, 2016). That is to say, politicians and the media try to differentiate their communication strategies about the campaign to maintain distinct profiles.

On social media, users need not necessarily to seek out political information; rather, they can be exposed to political information online through the algorithmic filtering built into the design of many social media platforms. Accidental exposure challenges the gatekeeping power typically held by politicians and the media and places customized information directly in the hands of citizens. Largely, users are responsible for the news shown on their social media feeds since they self-select the friends, figures, and institutions that they follow. Moreover, citizens play an active part in influencing the distribution of news via their engagement with its content (in the forms of likes, comments, and shares) (Bruns,

2005). If users' reactions to content on social media influence the potential for accidental exposure, it follows that considering how users engage with political content on social media is critical to understanding the mechanisms underpinning contemporary public opinion formation.

Likes, comments and shares constitute different degrees of political engagement on social media. Each of these discursive acts positively affects the ranking and diffusion of a post on Facebook, with comments ranked one of the highest forms of engagement by Facebook's algorithms. We argue that since they are a more resource-intensive form of political engagement in terms of the time, energy and social risk, comments are one of the best approximations for political engagement on social media (Bossetta et al., 2017). Since users can comment on political content issued by both political actors and the media, a distinction must be made between these two types of posts to more thoroughly assess the power dynamics among politicians, media and citizens on social media.

In line with existing literature, we consider attention to political news as an indicator for *political interest*, which is a necessary pre-condition for other kinds of political activity (Strömbäck and Shehata, 2010; Boulianne, 2011). A user who comments on political news is arguably more interested in politics than someone who merely likes or shares content without leaving a reply. While a comment can communicate expressive content ranging from support to disagreement, the act of leaving a comment suggests the user is sufficiently – albeit perhaps minimally – interested enough to get involved in the public conversation.

Comments are often analyzed as a facilitator of political participation and as forms of opinion exchanges that involve particular user groups (Dahlgren and Olsson, 2008). If made to a political campaign post, comments can be considered a form of online political participation (Dutceac Segesten and Bossetta, 2016) since they signal a high degree of investment in a political cause and positively influence the algorithmic ranking of a post. Political posts that generate a large amount of comments increase a campaign's visibility and subsequently, the potential for accidental exposure to other Facebook users through private networks. Whether a user comments in support or in contestation of a campaign's message, the activity of commenting on a campaign's post signals participation in the democratic process and a desire to influence a political outcome.

Certainly, not *all* comments made to media and campaign posts indicate high levels of political interest or significant investment in a political cause; such expectations would not match the reality of citizens' commenting behavior about politics on Facebook. Nevertheless, our exploratory research design classifies commenting on campaign and media pages as general indicators for political interest and participation, respectively, to create a framework able to identify meaningful patterns across a large dataset. Being purely quantitative, our study does not account for the content of the collected comments; therefore, we do not evaluate the information value and deliberative quality of online discussions. Additionally, in collecting anonymous data we do not inspect the personal or national identity of the commenters. Previous research finds that online commenters are largely non-representative of a country's population as a whole and heavily biased in terms

of gender and ethnicity (Quinlan et al., 2015; Guardian, 2016). Moreover, social media is a transnational space, where users from across the world can engage with content published in any given country. We cannot posit that the users tracked in our study are British citizens, but many who felt inclined to comment on British Facebook pages were likely affected, directly or indirectly, by the outcome of the Brexit referendum.

Research Design and Methodology

The 2016 Brexit referendum has been chosen as a case for five reasons. First, Britain has high internet penetration and its politicians and media outlets are relatively proficient in social media compared to other parts of Europe. Second, British citizens have used online communication technologies during elections since at least 2001 and are therefore adept at using them (Bimber et al., 2015). Third, referenda are polarizing environments and the for/against dichotomy presents a different campaign dynamic than a national election in a multi-party system. The collapsed political terrain indicative of a single-issue referendum is chosen as a means to simplify the analysis: users can be classified as for or against the referendum, independent of their national party affiliation. Fourth, referenda are typically outside 'normal' politics, and the novelty of an EU referendum ensures a high saliency in media reporting. The last reason is the structure of the British media system. As a market-driven, liberal media system (Hallin and Mancini, 2004) our assumption is that mainstream British media on Facebook will aim to stimulate engagement for the commercial reasons mentioned above.

Tracing citizens' Facebook commenting patterns across both official campaigns pages and those of mainstream British media outlets, our survey is guided by the following research questions:

RQ1: On Facebook, does citizens' engagement with political content posted by media pages stimulate engagement with the posts of political campaigns?

RQ2: Do citizens' Facebook commenting patterns across media and campaign pages contribute to the polarization of opinion regarding EU membership?

The first question seeks to establish whether there is a relationship between Facebook users who comment on political news stories issued by the media and those who comment on the posts of political campaigns. The second question focuses on users who comment on both media and campaign pages – users we refer to as 'cross-posters' – and is structured to evaluate whether cross-posters' activity indicates polarization. Uniting both questions is a shared focus on citizens' engagement with political content online and a common goal of understanding where citizens' political commentary on Facebook is directed in an electoral context.

To answer our research questions we develop three hypotheses. The first hypothesis tests whether prior activity with media pages (our proxy for political interest) influences more activity with campaign pages (our proxy for political participation) and expects that:

H1: Facebook users commenting on media pages before the referendum's announcement will be more active on campaign pages than those who did not comment on media prior to the campaign (Political interest influences political participation in online campaigns).

Our second hypothesis seeks to test the potential for online campaigns to spur political interest in news. We therefore take those campaign commenters who were not active in media debates before the referendum, but did engage with media posts during the official referendum campaign, and trace their 'cross-posting' activity. Hypothesis 2 states that:

H2: During the official campaign period, commenters who engaged with campaign pages will outnumber those who commented on media pages (Under campaign conditions, online political participation is more prominent than interest with political news from the media).

These two hypotheses address our first research question by examining the relationship between citizens' commenting activity across media and campaign pages. Our second research question investigates whether the comment patterns of 'cross-posters' are characteristic of polarization. Polarization is low if cross-posters engage with news from different media sources and shift between the three campaigning pages. Commenting across pages indicates exposure to a broader spectrum of political topics and plural opinion. Polarization is high if cross-posters restrict their commenting to a single news outlet and campaign site. Such cloistered activity indicates exposure to a narrow selection of topics and increases the likelihood of the emergence of sharp divisions of opinion. We can speak of extreme polarization if bipolar campaigning correlates with bipolar news consumption. In this case, Facebook users' activity would be characteristic of "filter bubbles" (Bakshy et al., 2015), where like-minded users congregate in highly partisan digital spaces with little diversity of opinion (Sunstein, 2009). Since polarization of debates is a general characteristic of referendum campaigns and the way they are made salient in the media's agenda, we develop a third hypothesis aimed to test the degree of polarization among cross-posters. We expect that:

H3: Cross-posters who comment first on campaign pages will trend towards highly partisan media (Polarized environments encourage ideological reinforcement).

We chose six different newspapers that have a significant national presence both in print and on Facebook. As British newspapers have partisan political affiliations, we have included six major media outlets that are associated with positions spanning the political spectrum: The Daily Express, The Daily Mail, The Telegraph, The Times, The Guardian, and the Independent. As a key feature of the British debate, all these newspapers were partisan, i.e. they took an explicit stance in the referendum campaign. The tabloid press has a high circulation and is found to defend often Eurosceptic positions or national sovereignty against the EU (Krouwel et al., 2017: 115). The Daily Express and The Daily Mail are both tabloids and represent the Eurosceptic position; both supported the Leave campaign. Broadsheet newspapers generally have lower circulations than tabloids and express more plural opinion regarding the EU. We include The Telegraph and The Times in our sample, which are

classified by experts as right-wing and Eurosceptic (ibid. 116). We further collect data from two left-leaning newspapers' Facebook pages: The Guardian, which is pro-European and encouraged its readers to vote Remain, and The Independent, a newspaper that currently exists only in digital form and during the referendum favored the UK's continuation of its EU membership.

We included three political campaigns in our analysis: Stronger In, Vote Leave, and Leave EU. Stronger In and Vote Leave were the official campaigns designated to represent the two options on the referendum ballot. Both campaigns received state funding for their electioneering, and both communicated their message across a variety of media forms, from posters to TV ads. Leave EU, by contrast, was an unofficial, privately sponsored campaign associated with the UK Independence Party and was largely comprised of more radical proponents of Brexit than Vote Leave. Leave EU had the most Facebook followers at the time of writing (797,173). Stronger In (renamed Open Britain after the defeat in the referendum), had 567,668 followers, whereas Vote Leave, whose Facebook page is currently inactive, had 547,108 followers.

Using the Java-based tool VoxPopuli, developed by Duje Bonacci, we surveyed the six newspaper Facebook pages (Daily Mail, Telegraph, Times, Guardian, Independent and Daily Express) and three campaigns (Stronger In, Vote Leave and Leave EU) for the period June 1, 2015 – November 30, 2016. For each of these public pages, we harvested all the posts made by the page and, for each post, all first and second order comments. First order comments refer to comments made in reply to the institutions' post; second order comments refer to replies to another user. In total, we gathered 189,940 posts that generated 33,737,588 comments from 6,735,234 unique commenters.

The focus of our analysis is citizens' online engagement with *political* content. We consider all posts by campaign pages, and comments to them, to belong to the sphere of politics. For the media, we separated political stories (for example about the refugee crisis, the rise of ISIS, Brexit or the American presidential election) from non-political content, e.g. the genres of lifestyle, entertainment, sports or culture. To achieve this categorization, we created a dictionary of political keywords that contained over 150 entries (see the Appendix for the complete list). In a similar approach to Freelon's (2017), we built the dictionary inductively by first manually classifying political news stories and then identifying prominent keywords within them. The dictionary contains the names of prominent political actors (including foreign heads of state), topical words (such as 'oil' or 'refugee'), and countries or cities featuring prominently in contemporary political debates. While only one word needed to appear in a post to count as political (e.g., USA), by examining keyword co-occurrence we find that the large majority of posts containing any of these words were political in their content (e.g. 920 of 928 articles mentioning USA, or 99%, were political). Our criteria, it is important to emphasize, captures political content outside the scope of the immediate Brexit debate, since our time frame includes several months both before and after the referendum campaign.

Results

Our political sample (combining all campaign posts and all political media posts) contains 47,843 posts, associated with 8,563,819 comments issued by 1,863,487 unique users. Political content therefore represents roughly one quarter of the number of total posts, comments and commenters. For the remainder of the study, we will refer only to this political subsample when we report and analyze data. For each comment, we collected the user ID of the commenter, the ID of the post they commented on, as well as the time when the comment was made. Figure 1 below presents the public posts issued by each page, as well as the number of posts that generated comments.
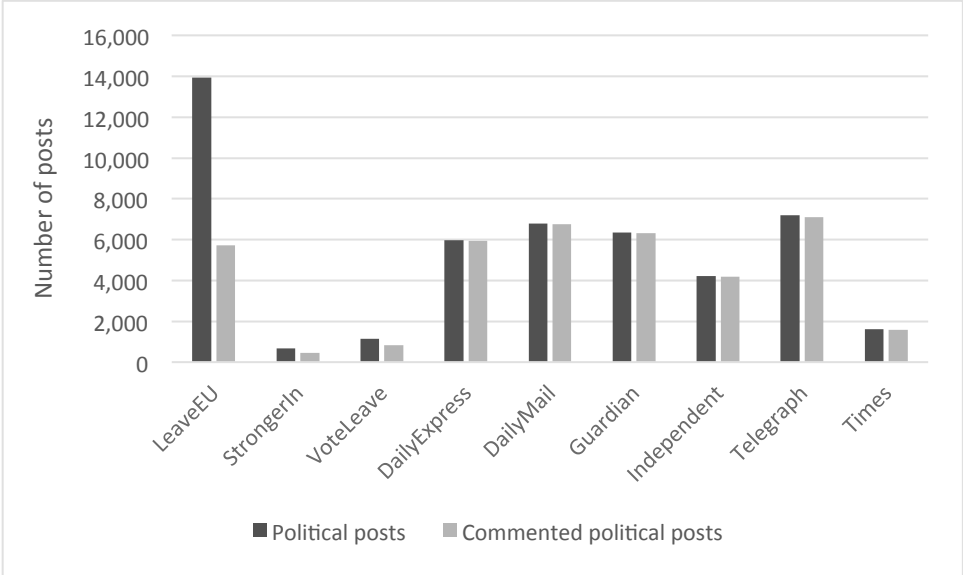

Figure 1. Political posts (aggregate data)

Overall, Figure 1 highlights that *political commentary on Facebook overwhelmingly occurs on media pages* compared to the official referendum campaigns, Stronger In and Vote Leave. On the one hand, this is relatively unsurprising. Previous research highlights that Facebook users are reluctant to follow (Nielsen and Vaccari, 2013) or leave comments (Vesnic-Alujevic, 2012) on political actors' Facebook pages. However, the Leave EU campaign is a clear exception and generates commenting activity on par with major British media outlets on Facebook. Leave EU, while by far the most active political page in the dataset, only received comments on approximately one-third of its posts. This outlier is due to Leave EU allowing users to post 'visitor posts' to the page, a feature that was counted as original posts by our harvester. This choice by Leave EU to allow users to post on their page fits with Leave EU's grassroots profile, but clearly, visitor posts did not garner significant commenting activity. The least active media outlet in terms of both page activity and comments was The Times, whose content is mostly behind a paywall and therefore does not post on Facebook as regularly as the other, free-access media.

When given similar opportunities, Facebook users seemingly prefer to engage with media posts rather than those of the political campaigns. This could be explained by risk avoidance behavior (users do not wish to make their political positions open to their Facebook 'friends' because they may be penalized for their stance). Another explanation could be inertia (the campaigns existed only for a short time, whereas the newspapers have been established

longer, so users have developed the habit of reading and commenting media stories while lacking the habit of commenting on campaign pages).
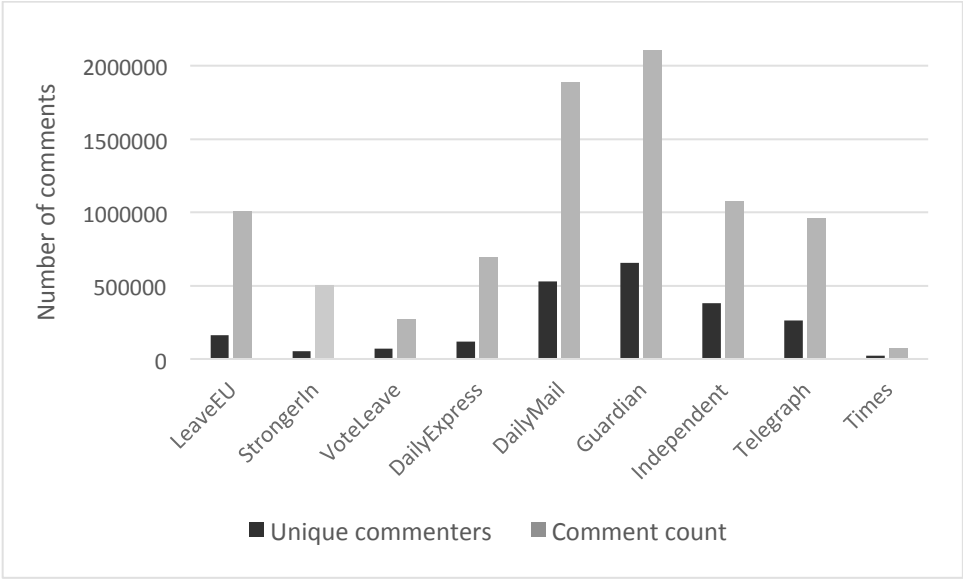

Figure 2. Commenting activity (aggregate data)

Figure 2 reports the number of unique commenters as well as the overall comments they generated. The Guardian is the most engaging Facebook page, receiving a total of 2,105,658 comments, followed by the Daily Mail, with 1,884,898 comments. The Independent is ranked third with 1,071,897 comments. Among the campaigns, Leave EU accumulated one million total comments, Stronger In half a million comments, and Vote Leave a little over a quarter million. The low engagement numbers of Vote Leave are partly due to the fact that the campaign site remained dormant since June 26, 2016 (three days following the end of the referendum). Cumulatively, 237,628 unique users commented on campaign pages compared to the far higher 1,719,251 commenters on media pages. Like Figure 1, Figure 2 shows that the media pages were more propitious to political discussions on Facebook than the campaign pages. Figure 2 also suggests that most of the comments are generated by a relatively small number of users. This is confirmed by our data; a majority (70%) of commenters only left a single post during the time period. An additional 12% commented on two posts, 9% commented on five posts and only 1% commented on 40 posts or more. With the majority of users commenting only once, the potential population of users cross-posting between media and campaign pages is relatively small.

Figures 1 and 2, respectively, show the overall picture of public pages' activity and users' comments to their posts. To address our research questions and accurately test our hypotheses, we need to disaggregate our population into subgroups. Classifying the user IDs of commenters, we divide them into three categories: those who commented only on newspapers (Newspaper Only), only on campaign pages (Campaign Only) and those who posted on both media and campaign pages (Cross-posters). By tracking the time stamp of the post to which they made their first comment, we also split the cross-posters in two categories. If they first commented on a media Facebook page, we named them "Newspaper First"; if their first comment went to a campaign site, we labeled them "Campaign First".

We then compare two 3-month periods: one before the Brexit proposal was put on the political agenda (September – November 2015) and the other during the Brexit referendum campaign (April – June 2016), in order to separate the activities that measure interest and participation respectively. We traced the user IDs of those commenting on newspapers in the first period and assessed if the same user IDs appeared on the comment fields of the campaign sites more often than those belonging to previously unengaged users. The results show that only 1,955 users (or 1.5%) who commented on the media posts before the official campaign (i.e., April 14 - June 23, 2016) also commented on a political campaign post during it. Zooming in on the campaign period, we looked at the distribution of commenters across our three general categories: Campaign Only, Newspaper Only and Cross-posters. We see that the number of users engaged with the campaign (113,829) is half of those who commented only on newspapers (226,551).

Across our dataset, the number of cross-posters is 67,930 users out of the original 1.86 million, or 3.6%. These users are almost evenly distributed among those who first left a comment on a media site (36,326) and those who first did so on a campaign site (30,133). While the population of cross-posters assessed here is small, the group is significant as they are the most politically engaged in commenting. Comparing the three periods (before, during, and post-campaign), we see that those users who only commented on the campaigns left an average of 4.5 comments. By contrast, users who commented on the media before the campaign and also cross-posted during the campaign left an average of 13.2 comments. Based on this overview of the commenting activity on Facebook and the general distribution of user comments on campaigning and news sites, we decided to test our hypotheses on the subset of users who cross-posted, since their activity is at the core of what we want to capture: the effect of political interest on participation and vice versa.

Figure 3 below depicts the cross-posting patterns of commenters, capturing the spillover between media and campaign Facebook pages. Figure 3 does not depict an aggregate number of commenters but only the *newly engaged* cross-posters each month. To be counted in this group, a user could not be present in our dateset previously and also have left a comment to both a media and campaign post within the same month. We added this time constraint to better approximate a correlary effect between political interest and participation. That is, if a user commented first on a political story posted by the media, and shortly thereafter left a comment to a campaign, there is a higher likelihood that the media story influenced engagement with the campaign than if the time difference between the comments was larger. The light grey bars show the number of unique IDs who had first commented on political content published by media pages and then commented on the campaign pages. The dark grey bars show the reverse: those who first commented on campaigns and then on the political content of newspapers pages. Very few commenters started to comment on both types of Facebook public pages on the same day (black bars).
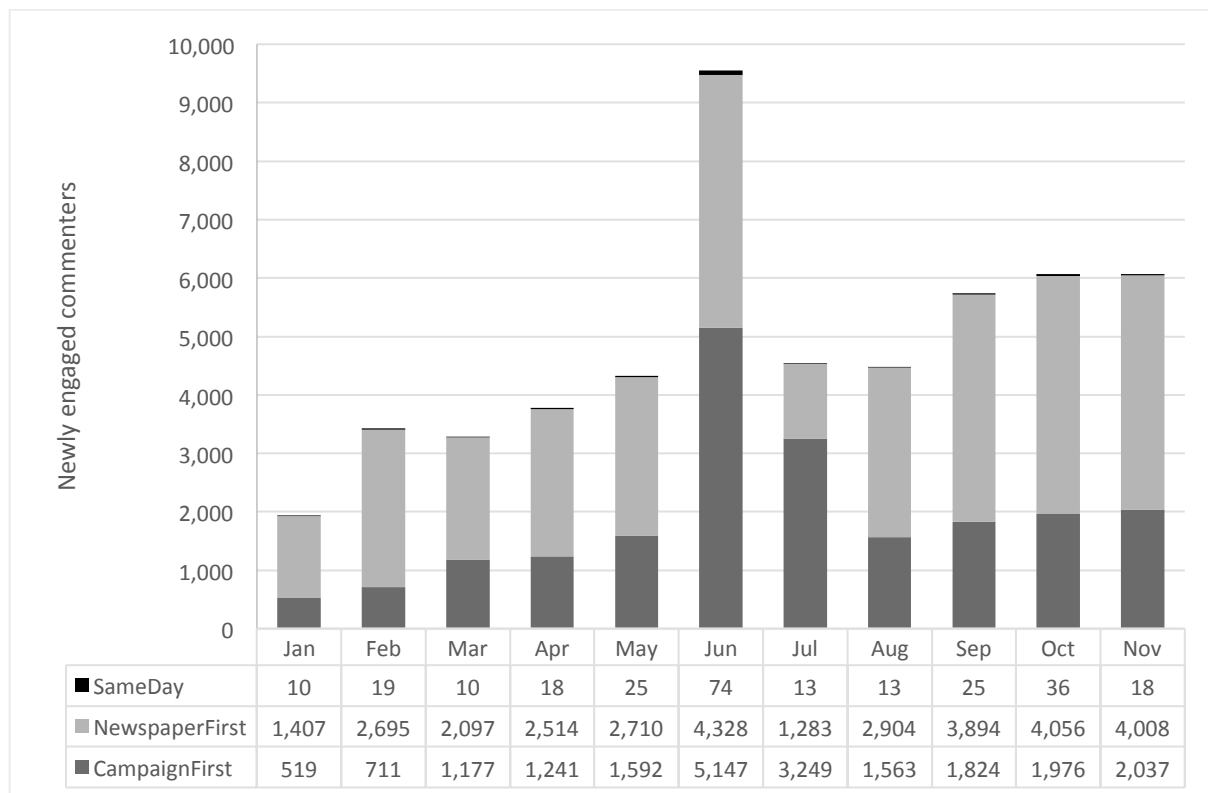
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
■ SameDay	10	19	10	18	25	74	13	13	25	36	18
■ NewspaperFirst	1,407	2,695	2,097	2,514	2,710	4,328	1,283	2,904	3,894	4,056	4,008
■ CampaignFirst	519	711	1,177	1,241	1,592	5,147	3,249	1,563	1,824	1,976	2,037

Figure 3. Cross-posting activity of newly engaged users in 2016

Figure 3 shows that the number of newly engageed cross-posters who joined the political debate on Facebook typically ranged between 3,000 and 6,000 users per month. June (the month of the vote) is a clear exception. Among these cross-posters, spillover typically occurred from media to campaign posts, **supporting hypothesis H1.** The tendency for newly engaged users to comment first to a political news story and then to a campaign tentatively points to a positive correlation between political interest and political participation, with the former catalyzing the latter. Moreover, the spillover pattern identified suggests that on Facebook, the mainstream media retain the role of agenda-setters.

Keeping our focus on cross-posters **we also find partial support for hypothesis H2**: that under campaign conditions, commenting on campaign posts will outnumber commenting on political news stories. Although during April and May the general pattern of spillover is from media to campaigns, we find that in month during and following the vote (June and July), the pattern reverses from campaigns to the media. Interestingly, the month after the vote displays the highest proportion of Campaign First cross-posters shows that campaigns' Facebook pages remained active sites of public opinion formation after the referendum. The reverse spillover also points to the mobilizing potential of campaigns on Facebook.

To examine whether this campaign mobilization supports ideological polarization (**H3**), we disentangle the cross-posting flows Campaign First commenters to see with what media they also engage. We broke down the timeline in three periods: before, during and after the referendum campaign. For each campaign, we searched for signs of ideological similarities between the position of each campaign vis-à-vis the EU and the position of the newspaper in the same matter.
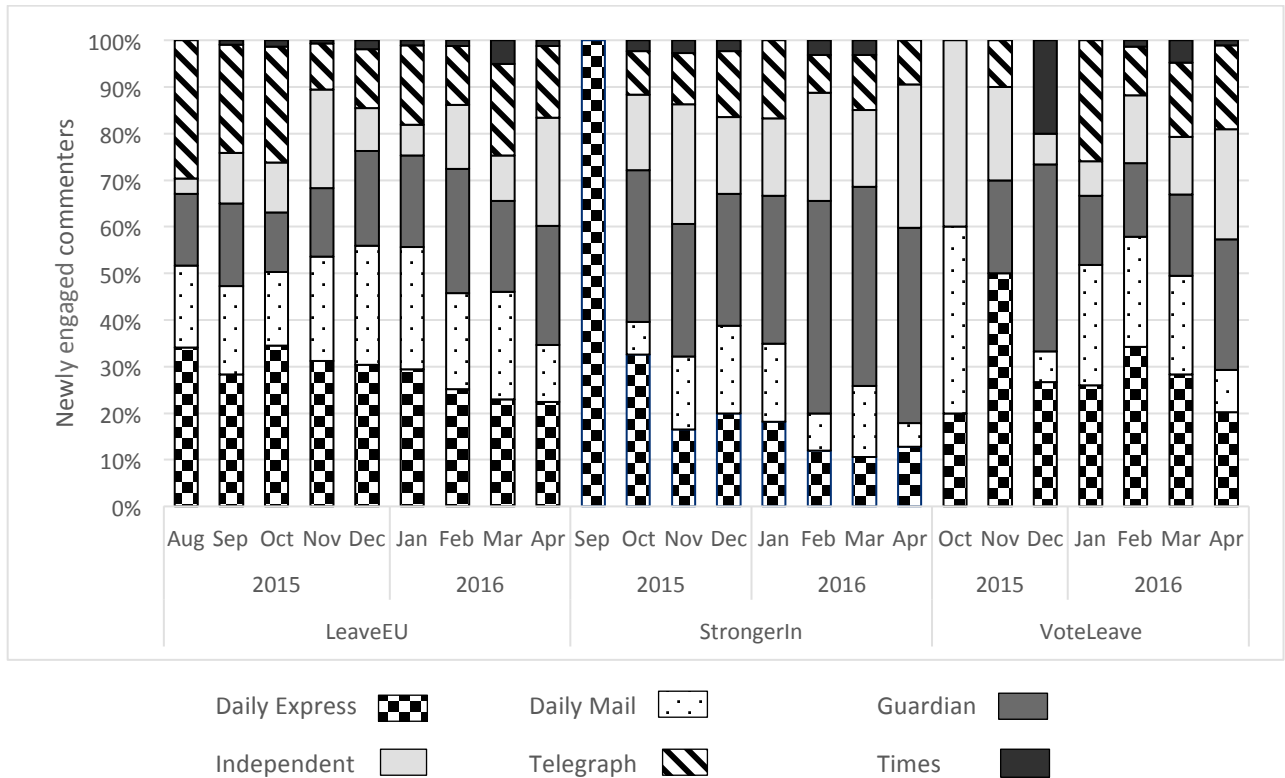
Figure 4. Outgoing monthly flows from campaign to newspapers: before the campaign

As seen in Figure 4, the media outlets where Campaign First commenters decide to post next is relatively stable over time. We should emphasize here that Leave EU was already active in August 2015 and thus had the opportunity to attract more Campaign First commenters than Vote Leave, which was launched two months later. In this pre-campaign period, the total number of comments that cross-posters from the campaigns left on newspaper Facebook pages therefore varies: 3,850 comments to newspapers made by Leave EU first commenters, 802 by Stronger In commenters and only 28 by Vote Leave. In September 2015, we have only two cross-posters for the Stronger In campaign, both of whom went to The Daily Express. We chose to present the commenting patterns as percentages to account for this difference in raw numbers. In total, 4,860 comments were made by Campaign First cross-posters before the official campaign began.

Figure 4 shows the most popular destination for Campaign First cross-posters during this time. The preferred media for Leave EU cross-posters was the Daily Express (29%) and Daily Mail (20%). For Vote Leave, the Daily Express was also the number one destination (also 29%) but, in contrast, The Guardian, a newspaper that supported the Remain cause, came second with 19%. For Stronger In, The Guardian was first (31%), followed by Daily Express (17.5%). Even if not many comments were left in total in the pre-campaign period, it can be argued that there is some crossing of ideological lines by Vote Leave and Stronger In commenters.
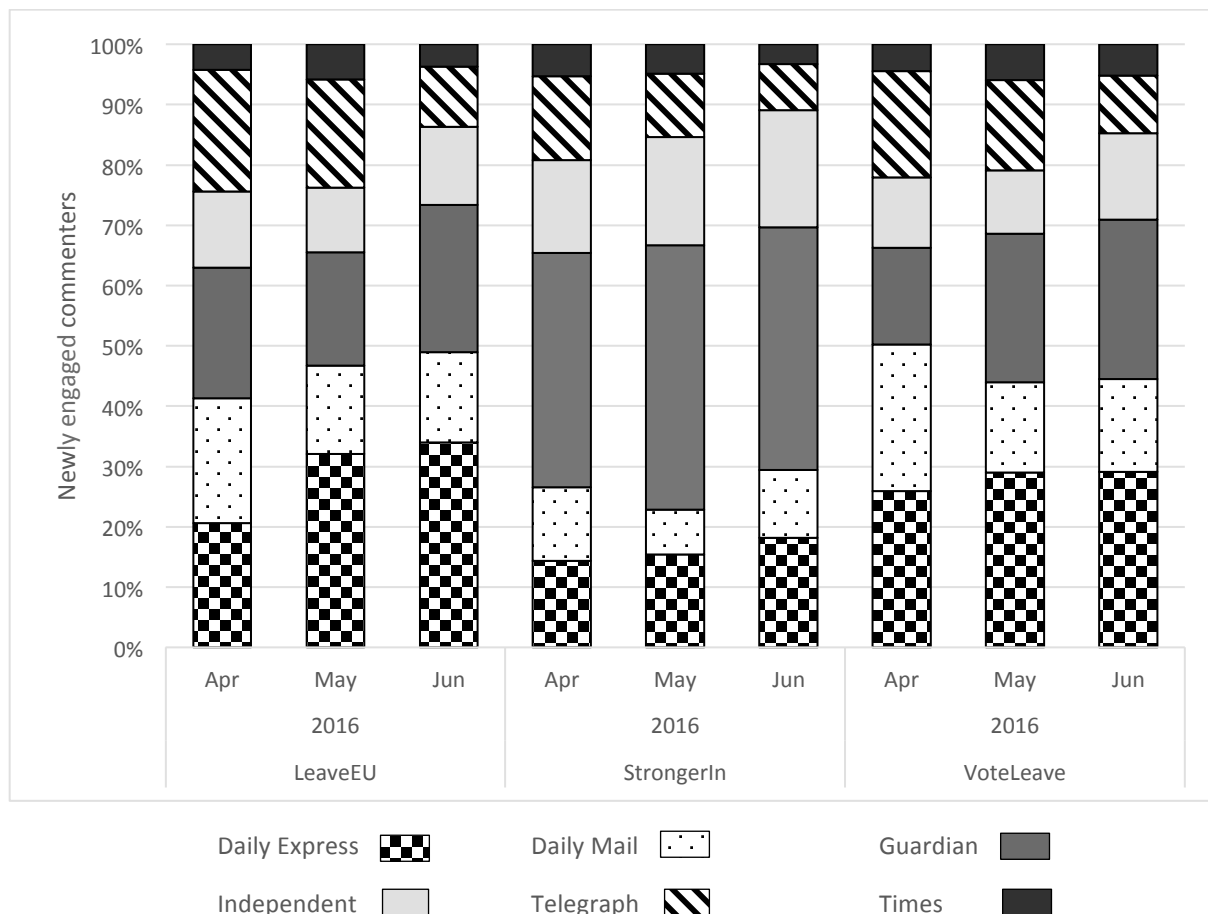
Figure 5. Outgoing monthly flows campaign to newspapers: during the campaign

During the campaign, the trend towards ideological similarity is maintained for Stronger In, whose Campaign First commenters engaged the most with posts from The Guardian (41%) and the Independent (17.6%). Leave EU and Vote Leave are almost identical in the pattern of cross-posting displayed, even though the raw number of comments were higher for the unofficial Leave EU. The most commented newspaper site was Daily Express (29% for Leave EU, 28% for Vote Leave), followed by the pro-Remain newspaper the Guardian (22% for both campaigns). Like before the campaign, the Leave supporters commented substantially on Remain outlets. In comparison with the pre-referendum period, the number of cross-posts from campaign to media content was higher at 5,125 (even despite the pre-referendum period being nearly six months longer).
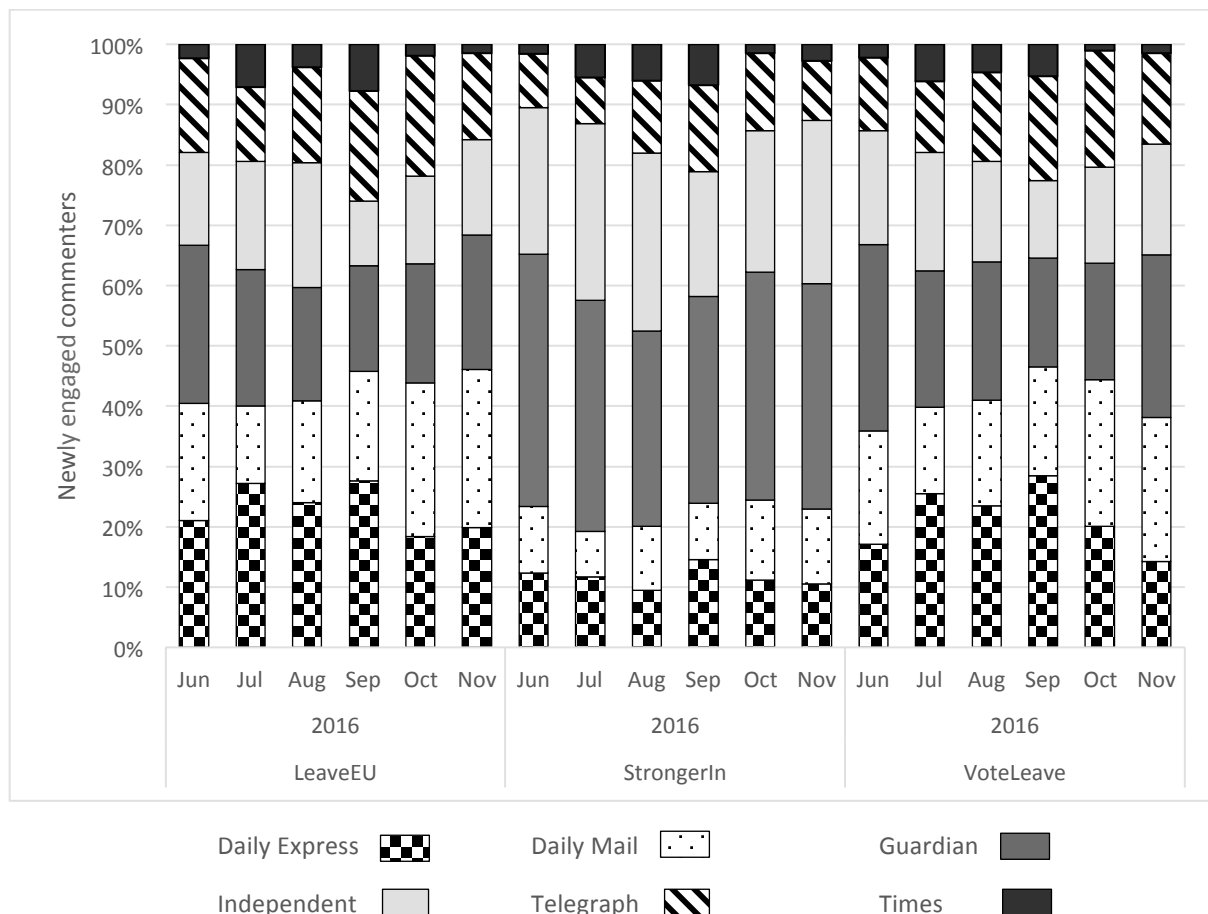
Figure 6. Outgoing monthly flows campaign to newspapers: after the campaign

After the campaign, the patterns observed in Figures 4 and 5 remain largely the same. Leave EU commenters also comment on Daily Express (23%) and the Guardian (21%). Vote Leave commenters are actually now more active on The Guardian (23%) than on the Daily Express (21.5%). Stronger In commenters continue to remain ideologically consistent with the Guardian (37%) and the Independent (26%). Post-referendum and up until November, The Guardian is the number one destination for the cross-posters examined. Even when taking into account only the two and a half months after June 23 to make the time periods comparable, there is a notable rise in the number of comments made by Campaign First users to newspapers (9,827).

Even though the Leave EU commenters left more comments than Vote Leave ones, if we look at the percentage distribution across the six newspapers, the two Leave campaigns are almost identical. We wanted to see this was due to same users active on both pages, so we calculated the cross-posting activity also across campaigns. The data reveals that only about half of the Vote Leave commenters also posted on Leave EU, and about 20% of Stronger In commenters also left a message on the Leave EU campaign. Thus, the similar pattern observed is not because of the presence of the same users; rather, it is because those users share the same political profile.

We can therefore conclude that after the referendum, Campaign First cross-posters engaged more with the newspaper sites, in comparison to the period before the referendum. This

engagement is directed towards ideologically similar pages for Remainers, who exhibit lower tendencies to comment on the posts of their ideological adversaries. On the contrary, Leavers found the Facebook page of The Guardian, a newspaper that embraced the opposite stance in the EU referendum, to be the second most attractive destination for their comments. Without knowing more about the content of their comments, we cannot confidently say whether those who crossed the ideological divide did so in a deliberative or spiteful manner. What is certain, though, is that cross-posting activity between the Remain and Leave commenters is significantly different. Based on these findings our third hypothesis **(H3)**, which expected that after the referendum cross-posting will be more reinforcing than cross-ideological, is **confirmed only for the Remain supporters**.

Discussion and Conclusion

The descriptive statistics of our data point to two interesting findings. Firstly, the political commentary on Facebook surrounding Brexit overwhelmingly took place in the comment fields of mainstream media pages – *not* those of the referendum campaigns. The exception was the grassroots Leave EU campaign, who generated comment levels on par with the media. The high level of activity exhibited on the Leave EU page may be attributable to the more radical, nationalist position of its leaders in comparison with the official Vote Leave campaign. Secondly, the majority (70%) of users in our dataset left only one comment to these pages across the entire 18 months studied. Supporting both these trends, previous research on citizens' social media use in the 2015 British general election finds that a small number of highly active users, who typically express partisan support for nationalist parties, issue the most political calls for action on Twitter (Dutceac Segesten and Bossetta, 2016). Here, we decided to focus our analysis on the most active users and more specifically, on cross-posters (i.e., users commenting to both a media and campaign page within the same month). Albeit a small sample of our data (3.6%), these users exhibited proportionately high levels of engagement with political content and are thus likely to exert greater influence on the discussion's agenda and tone than one-off commenters.

The study sought to answer two research questions. The first asked whether a positive relationship could be identified between users who engaged with political news stories from the media and those active in commenting on posts issued by the referendum campaigns. Our analysis shows that when cross-posters first enter the political conversation on Facebook, a spillover effect occurs from media to campaign content. This suggests, firstly, that the media retains an agenda-setting role on Facebook and secondly, that they can stimulate engagement with campaigns. Interestingly, we observe a reverse spillover from campaigns to the media in the month during and after the referendum, highlighting the mobilizing potential of Facebook campaigning. These two trends support our first two hypotheses in the case of cross-posters, but not for the overall (and less politically engaged) population.

Our second research question asked whether the commenting activity of cross-posters indicates behavior characteristic of political polarization. We find evidence suggesting that mobilization by Facebook campaign pages leads to the reinforcement of political positions. In the post-referendum period, 'Campaign First' cross-posters – particularly Remain supporters

– had a tendency to follow up with comments to partisan media pages. In line with the 'filter bubble' argument, we find ideological alignment between commenters of the Remain campaign and those of left-wing and pro-EU newspapers. However, Leave campaigners did not stick to their own ideological home turf; they crossed into Remain territory more frequently and commented intensively on posts by The Guardian, the flagship outlet for pro-EU supporters.

Our current methodology limits our capacity to provide a sufficient explanation for the phenomenon of cross-postings of Eurosceptic Leavers on pro-European media sites. However, the activities that we do find point to the classic patterns of opposition mobilization against the status-quo. Brexiteers, as the challengers, were more motivated to engage in campaigning than Remainers, who defended the status-quo. As such, Brexiteers may not only have exhibited a more provocative style of campaigning; they may also have tried to occupy the terrain of the political opponent and reach out to persuade users from the other side of the political spectrum. This fits with observations based on the Twitter campaigning styles of incumbents versus challengers during US elections (Evans, Cordova and Sipole, 2014). Along the same lines, the Leave cause was perceived by others and described itself as the 'underdog', which provided extra motivation for Leavers to get their messages out through all the available channels in order to reach the many undecided voters. Remainers, on the other hand, may have thought that their victory was certain and thus gave low priority to campaigning. Additional information in the form of content analysis, surveys and/or interviews is necessary to glean more accurate insights into the different motivations of Leave and Remain cross-posters.

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Appendix

List of political keywords

"Abu Bakr al-Bagdadi"
"Afghanistan"
"Africa"
"Aleppo"
"Angela Merkel"
"Ankara"
"Archbishop"
"Athens"
"Attack"
"Austria"
"Baghdad"
"Balkans"
"Ballot"
"Bank"
"Barrack Obama"
"Bashar al-Assad"
"Berlin"
"Bomb"
"Boris Johnson"
"Brexit"
"Brussels"
"Cabinet"
"Callais"
"Chancellor"
"China"
"Church"
"Church of England"
"Citizen"
"Congress"
"Conservative party"
"Crisis"
"David Cameron"
"Debt"
"Democracy"
"Democratic party"
"Dollar"
"Donald Trump"
"Donald Tusk"
"Downing street"
"Ed Miliband"
"Egypt"
"Election"
"England"
"Euro"

"Eurocrisis"
"Europe"
"European Central Bank"
"European Commission"
"European Council"
"European Parliament"
"European Union"
"Eurozone"
"Fallujah"
"Foreign Office"
"France"
"Francois Hollande"
"Geert Wilders"
"Gibraltar"
"Government"
"Greece"
"Grexit"
"Hasan Rohani"
"Hillary Clinton"
"House of Commons"
"House of Lords"
"Human rights"
"Hungary"
"Immigration"
"Iran"
"Iraq"
"ISIS"
"Islam"
"Israel"
"Istanbul"
"Italy"
"Jean-Claude Junker"
"Jeremy Corbyn"
"Jerusalem"
"Jose Manuel Barroso"
"Kabul"
"Labour party"
"Lampedusa"
"Lebanon"
"Libya"
"London"
"Marine Le Pen"
"Martin Schulz"
"Matteo Renzi"
"Mediterranean"
"MEP"
"Mexico"
"Migrants"
"Minister"
"MP"
"NHS"
"Nice"
"Nick Clegg"
"Nicola Sturgeon"
"Nicolas Sarkozy"
"Nigel Farage"
"Northern Ireland"

"Nuclear"
"Oil"
"Opposition"
"Pakistan"
"Palestine"
"Paris"
"Parliament"
"Petro Poroshenko"
"Politics"
"Pope"
"Pound"
"President"
"Prime minister"
"Radical"
"Recep Tayyip Erdogan"
"Referendum"
"Refugees"
"Republican party"
"Russia"
"Saudi Arabia"
"Scotland"
"Sebastian Kurz"
"Senate"
"Spain"
"Stronger In"
"Syria"
"Teheran"
"Tel Aviv"
"Terror"
"Theresa May"
"Turkey"
"UAE"
"UK of GB"
"UKIP"
"Ukraine"
"UN Security Council"
"United Nations"
"USA"
"Viktor Orban"
"Vladimir Putin"
"Vote"
"Vote Leave"
"Voter"
"Wales"
"War"
"Weapon"
"Westminster"