

Brexit is still a hot topic on Twitter, but public sentiments remain largely unchanged



*The Brexit debate is intense and continues to dominate the UK policy agenda. It concerns the entire population. **Josh De Lyon**, **Elsa Leromain** and **Maria Molina-Domene** (LSE) use Twitter data to characterise the online discussion. The data shows that politics is the core topic for Twitter users who post about Brexit. Interestingly, the overall sentiment around Brexit appears to be quite stable over time and people continue to be divided.*

Brexit is a hot topic due to its strong and wide-ranging implications. To contribute to the Brexit debate, we investigate whether Twitter can help to get a sense about people's main concerns and how they change over time. Firstly, we focus on the response to specific events. Then, we explore shifts in people's concerns as expressed in tweets. Our evidence appears in line with the [most recent polls](#): politics is at the centre of the scene, and the overall sentiment around Brexit is still quite divided – remaining mostly unchanged during the studied period.

Twitter is a powerful source of data and has already started to be used to study Brexit. [Llewellyn and Cram \(2016\)](#) work with tweets collected from different sources and investigate the evolution in people's view leading up to the referendum. [Lu \(2016\)](#) evaluates tweets containing “#Brexit” and provides evidence that the debate changed dramatically over the months immediately before and after the referendum.

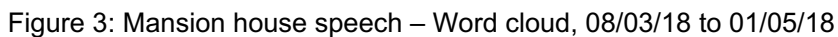
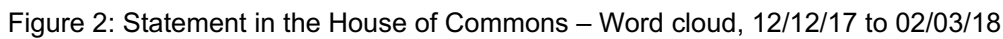
We examine the evolution of the Twitter discussion, using tweets randomly collected in real-time, containing the word ‘Brexit’ through Twitter API. Our data contains around 146,000 public tweets, which span from September 2017 to May 2018 that could have originated from across the globe.

Discussion around Brexit Negotiations

Since the referendum, there has been an immense debate on the form that Brexit should and will take. The government's position became clearer over the period studied. Theresa May's Lancaster House speech on 17th January 2017 stated explicitly that the UK would undertake a ‘hard’ Brexit by leaving the single market and the customs union. Her speech in Florence on 22nd September 2017 reaffirmed that point while falling short on the details of a bespoke arrangement with the EU ([Dhingra and De Lyon, 2017](#)). On 11th December 2017, the Prime Minister made a statement in the House of Commons after the end of the first phase of the negotiations between the EU and the UK. She stressed that she has secured a deal on rights of EU citizens, a financial settlement and committed to avoiding a hard border in Northern Ireland. In her Mansion house speech on 2nd March 2018, she discussed in greater details the future of the economic partnership. We would expect that these developments influenced the discussions on Twitter. Is that what we see?

We first look at the Twitter discussion around these three important events by building three separate word clouds (Figure 1 to 3). After pre-cleaning the data (e.g. we exclude the word “Brexit” and stop words such as “the”, “is”, “at”, and so on), we identify frequent words used in tweets. Words that appear more frequently in the text are larger in the clouds. Perhaps unsurprisingly, the words ‘deal’, ‘vote’ and ‘people’ appear outstandingly in every period. Political words such as ‘government’, party names, and politician names are also significant in each of the clouds, suggesting that the actions taken by the government and political actors are at the centre of discussion. Terms related to the economy and the future deal seem to be a topic widely discussed, especially for the two last periods.

Figure 1: The Florence Speech – Word cloud [\[3\]](#), 22/09/17 to 07/12/17.



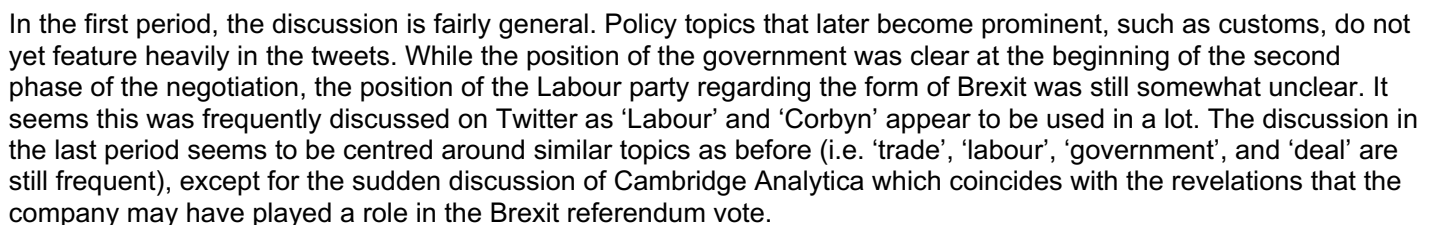
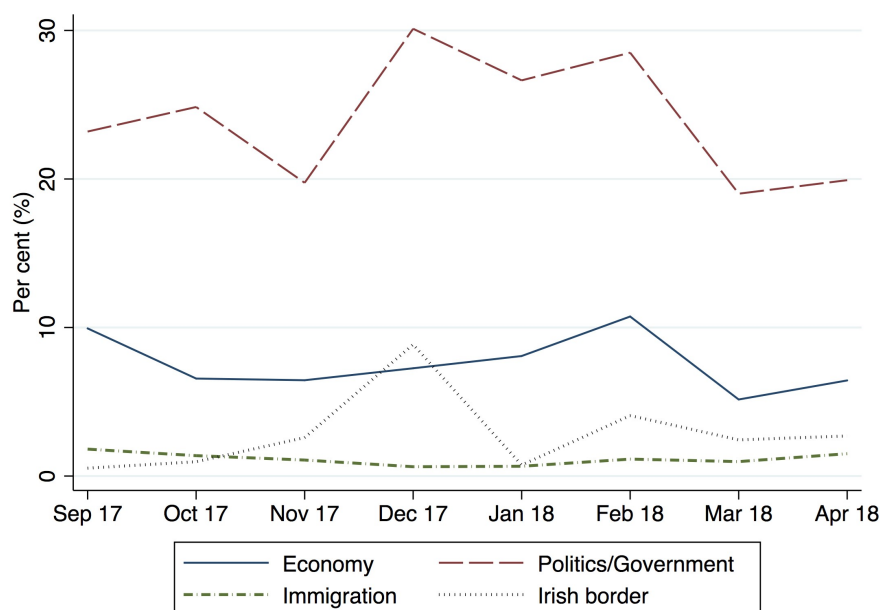


Figure 4 displays the relative frequencies of these topics over time. As expected, tweets relating to politics and government are the most recurrent in every month. The relative frequency of tweets mentioning economic topics appears fairly stable over time. Mentions of the Irish border spiked in December, as it became a hot topic in the discussions between the UK and the EU in early December. Interestingly, our collection of random tweets does not provide evidence that the word ‘immigration’ comes alongside the word Brexit in many tweets.

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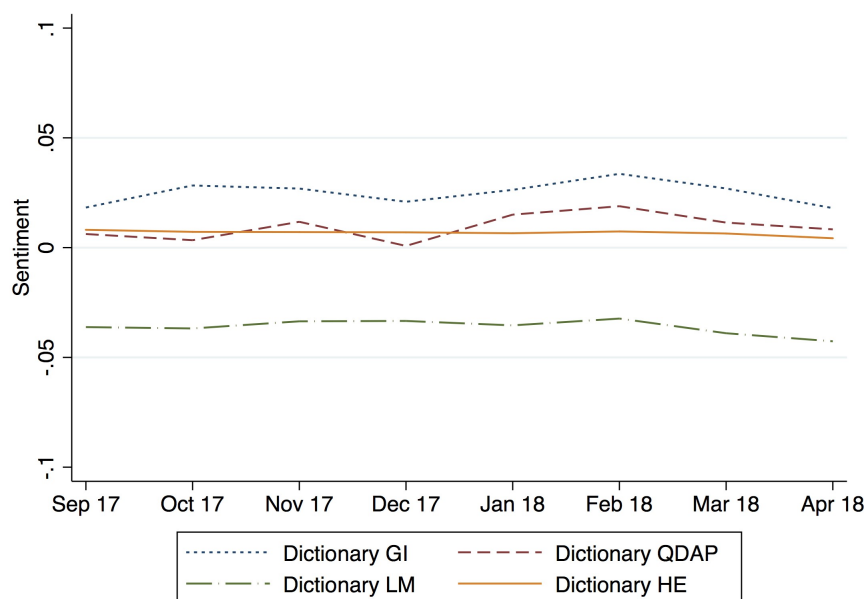
Sentiment around Brexit

The evidence suggests that the Brexit discussion points changed somewhat over time – albeit not dramatically. But did people change their overall sentiment towards Brexit? We empirically test this question by performing sentiment analysis of tweets ([Feuerriegel and Proelochs, 2017](#); [Molina-Domene, 2018](#)). This entails labelling words present in tweets as positive, negative or neutral to distinguishing tweets that reflect endorsement or rejection to Brexit.

We compute the general sentiment around Brexit tweets using four different dictionaries: two general-purpose dictionaries (Harvard (GI) and QDAP (CRAN-R package)) and two finance-specific dictionaries (Loughran-McDonald (LM) and Henry's (HE)). The analysis focuses on Twitter user's opinion and standpoint regarding Brexit. The measure of the overall sentiment is computed as positivity minus negativity, and ranges between -1 and 1. A tweet is positive if the proportion of words labelled as positive is higher than the negative ones and it is negative if the opposite happens. The overall sentiment is the difference between positive minus negative tweets.

Figure 5 plots the average sentiment of Brexit tweets for these four dictionaries over the period studied (i.e. where zero entails neutrality). Acknowledging the limits of this method – that the overall sentiment in a given period seems to depend heavily on the dictionary used – the time trend remains insightful. The overall sentiment towards Brexit seems stable over time. Our results are in line with the findings of recent surveys of UK voters, [which suggest that the country is more or less evenly divided down the middle on Brexit](#), much as it was on the referendum day.

Figure 5: Overall Sentiment in Brexit tweets



Since Theresa May's Lancaster Speech, the government appear to have shifted towards a 'hard' Brexit claiming to aim at following the voters' will. Hence, we focus on a subset of 1,211 tweets mentioning 'hard' Brexit and manually classify them into positive, negative or neutral. The great majority of our tweets appear strongly against 'hard' Brexit (1,008), probably representing a specific group of tweeters. Some tweets in our sample suggest that the term 'hard' Brexit may be prominently used by Remainers, such as *"There is no such thing as a 'Soft Brexit' or a 'Hard Brexit'"*.

We also observe tweets advocating strongly for a hard Brexit: *"They say people didn't vote for a hard Brexit Theresa May is going for. Retweet if YOU voted for a hard Brexit!"*.

Digging into negative tweets, users express concerns about the potential damages to the economy, and the NHS, often referring to official reports, research piece or newspaper articles. They also discuss Theresa May's statements, question the position of the Labour Party, and refer to controversial funding of the hard Brexit campaign.

As expected, our exercise suggests that political events and negotiations drive the discussion around Brexit. With the limits of potential self-selection into using Twitter, it is compelling that Twitter data allows to go deeper: the overall perception about Brexit emerges as similar but the discussion of specific topics can sometimes be quite different.

This article gives the views of the authors, not the position of LSE Brexit or the London School of Economics.

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