Empirical section:

# Revised:

## Supranational tweets and relevant benchmarks

We focus on Twitter to study the supranational public communication on social media. Our platform choice is motivated by three factors. First and foremost, Twitter has acquired a more significant place in the political communication environments compared to some of the other popular social media platforms such as Instagram and LinkedIn in the recent decade (Jungherr, 2016; Segesten & Bossetta, 2017; Stier et al., 2018). Moreover, Twitter is a unique social media platforms vis-a-vis public communication because it can serve as a “double-barrelled gun”. Recent research shows that journalists tend to pick up tweets from political actors (especially highly engaging tweets) and incorporate them in news articles (Cage et al., 2020; Oschatz et al., 2021), boosting their communication potential further. Lastly, Twitter as a platform offers a more transparent access to the historical data. Unlike other politically popular platforms such as Facebook, we can access to the full population of historical tweet without any curration on the dataset by the platform as we use academic track API 2.0 to collect our data. This allows us to provide a less biased, if not completely unbiased, picture of the EU executives’ public communication.

Identifying the population of relevant supranational Twitter accounts followed recent evidence in the literature. Institutions such as the European Commission or the European Central Bank (ECB) are often core addressees of public politicization and are equated with EU legitimacy more broadly in the minds of citizens (Silva et al., 2021). Accordingly, we identified the main Twitter accounts of the institutions falling under these definitions (e.g., @EU\_Commission), their individual sub-branches (e.g., @EUHomeAffairs) and dedicated EU agencies (e.g., @Frontex), as well as the personal accounts of the individuals heading these institutions such as Presidents (e.g., @vonderleyen), Commissioners (e.g., @TimmermansEU), or Director-Generals (e.g., @lemaitre\_eu) using the official webpages of the EU.

We combine personal accounts with institutional accounts for two reasons. Firstly, events and policies related to particular authorities such as scandals and unfavourable policies sponsored by office holders may come back as criticisms of the EU as a polity since there are limited direct accountability mechanisms, such as popular elections, for executives in the EU (Chatzopoulou, 2015; Hobolt, 2014; Trenz, 2008; Wilde & Trenz, 2012). Secondly, there seems to be a growing tendency of presidentialization and agenda setting of individual political authorities in the EU executive institutions(Hamřík, 2021; Haverland et al., 2018; Kassim et al., 2017) which consequently pushes these authorities to seek more public consensus for their decisions. Considering these two factors, there is grounds to assume that verified accounts of individual executives have as much interest to engage in public communication on social media as any other institutional account.

This resulted in *113* supranational Twitter accounts that are verified and active by May 2021 (full list in Appendix A1). For the institutional accounts, we collected the full corpus of tweets issued between the account creation date and May 3, 2021, through the Twitter API 2.0 academic track. In the case of personal accounts, however, we limit our dataset to the tweets issued between the day they assumed the office and collection date. This approach gave us a population of 960,831 supranational social media messages.

While this offers a thus far unprecedented empirical perspective on the social media messages of supranational actors, the information it contains cannot be easily assessed in some absolute sense. Thus, to put supranational communication behavior on Twitter into perspective, we collected *three additional benchmark datasets*.

The first benchmark simply aims to establish what constitutes ‘normal’ behavior on the platform through a by-and-large *random sample of tweets*. To construct this sample, we streamed in tweets from 26 of the EU countries for a week with five-minute windows through Twitter Decahose API using country bbox as selection criteria. This generates 83,823 tweets that we can use as a baseline for ‘typical’ tweet features.

More importantly, however, we have to note that the particular legitimacy challenges that EU actors face emerge from the fact that – in Delors’ words – the EU is an unidentified political object. On the one hand, its competencies approximate that of a nation state. On the other hand, it carries significant markers of an international organization where member states guide and decide on how the political authority will be exercised. Our other benchmark datasets focus on comparing supranational media communication to exactly these different levels of governance.

To approximate communication of national governments, we target the current UK government ministers, ministries, executive offices, agencies and individuals who are in charge of these institutions (see appendix XXX for the full list of accounts). Collecting the data analogously to the supranational EU actors above, this results in a benchmark of 2,218,278 tweets. The choice of using the UK executive branch as an approximation of national governments is mainly motivated by practical reasons. The measurement methods for our indicators are mainly geared towards English language. We are not aware of any method that can measure linguistic complexity in a multi-lingual corpus as languages tend to have strong differences. Considering that we are limited by the available methods and vast majority of messages from the EU are in English, the UK government constitutes an imperfect yet sufficient benchmark.

Our third set of benchmark dataset comprises of Twitter accounts of regional organizations with comparable policy scope. This choice is motivated by two reasons. First of all, the EU is still a regional organization constituted by states from a particular continent even though it has unprecedented levels of competence for a political authority beyond nation state. Therefore, the natural peers for the EU becomes regional organizations instead of international organizations. The second reason grounds the comparable policy scope part of our decision. The EU is by and large an outlier in terms of level of authority in different policy areas. To our knowledge, there is no other polity with such extensive political power beyond nation states. However, the EU is less of an outlier when it comes to the number of competence areas. Many of the regional organizations around the world has a comparable number of policy areas. Thus we identify a set of regional organizations that have a roughly similar policy scope as the EU, picking those organizations that are in the range of one standard deviation around the EU with regard to the number of policy areas using the MIA dataset (Hooghe et al., 2017). We identified their Twitter accounts utilizing the list collected and kindly shared by Matthias Ecker-Erhardt (2020; full list in Appendix XXX). This results in 55 accounts for which we could analogously collect 294,219 individual tweets for our final benchmark. The descriptive summary of the final dataset is presented in table 1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Account type** | | **Tweet count** | |
| **Sample** | **Institutional Account**  N = 190 | **Personal account**  N = 149 | **Institutional Account**  N = 2,504,782 | **Personal account**  N = 1,052,369 |
| EU | 70 (37%) | 43 (29%) | 789,006 (31%) | 171,825 (16%) |
| IO | 48 (25%) | 7 (4.7%) | 269,219 (11%) | 25,000 (2.4%) |
| Random tweets | - | - | - | 83,823 (3.3%) |
| UK | 72 (38%) | 99 (66%) | 1,362,734 (54%) | 855,544 (81%) |

Table 1: Summary of final dataset

## Indicators

Besides describing and comparing the volume of supranational communication via Twitter, our primary interest lies in charting the characteristics of the collected tweets with a focus on what they can tell us about engaging with and engagement of citizens on this interactive platform. Along our discussion above, three blocks of indicators are of key interest here.

*Textual message content:* As noted above a necessary condition for engaging messages is that the message is easily understandable and graspable in the first place. Exploiting the validations and tools provided by Benoit, Spirling, and Munger (2019) we thus extract three features from the English-language elements of each Tweet. First, we measure syntactic and grammatical complexity by the Flesh/Kincaid reading ease score. This compound indicator of sentence and word length captures the required cognitive mobilization (often described by anchoring it in education levels) to grasp the textual content of a message. Second, we measure familiarity of the vocabulary supranational actors use. This is proxied by the average frequency by which the words in a given tweet occur in the overall Google Books corpus as the broadest available representation of the English language. The intuition is that words that are more common in the English language, as opposed to rarer jargon, are better known and thus more readily understandable by a broad audience. Lastly, we measure the average verb-to-noun ratio in tweets. Linguists stress that texts express political agency better when they resort to a verbal as opposed to a nominal style (Biber *et al.* 1998: 65 pp. Thibault 1991). A nominal style, such as academic writing, uses many nouns and nominalizations, thus prioritizing abstract objects and process over action. A verbal style, such as conversations, uses many verbs, thereby clarifying who did what, and providing information on the temporal order of events and processes.

*Multimedia message content*: Beyond text, the Twitter platform allows various means of multimedia messaging. Symbols, pictures, or videos can transmit a large amount of information (Tang & Hew, 2018), rendering their usage also relevant for engaging political communication at least in principle. Thus, we initially extract and count the number of emoticons and other special symbols from the content of each tweet. We also store whether a Tweet contains embedded pictures and/or videos as well as links to external URLs from the entities URL field offered by the Twiter API.

*Engagement of other users*: Ultimately, we want to study in how far supranational messages result in user engagement. We focus on the main engagement tools that the platform offers. Favoriting allows the user to express a favorable attitude towards a given message. Retweets allow users to amplify the message by directly sharing it, again with a simply click of a button. More proactive forms of engagement that also allow critical stances in principles are quotes and replies. Here users can either contextualize or directly respond to the message with own bits of texts and/or symbols. For each tweet, thus, we utilize the counts of favorites, retweets, quotes and replies as supplied by the Twitter API. Details of these pre-processing and replication scripts are presented in online appendix.