2. Project Description

2.1. Motivation

This project will look at the public debate surrounding the process of the coal commission in Germany, and whether the multi-stakeholder process had any impact on the public debate. Several key issues that motivate the project include the following:

2.1.1 The Coal Commission and involvement of external expertise in German policy-making

Expert commissions have been an important instrument for incorporating external expertise into political decision-making in Germany. It can be seen as an element of “negotiation democracy”, whereby the experts in the commission decide on an outcome via deliberations and negotiations. Depending on the policy field, representatives of business, science, the social partners, churches, associations and societies can be appointed and thus accelerate the later public discussion. [1]

The Coal Commission, formally known as the Commission on Growth, Structural Change and Employment, is such an example of expert commissions. It was set up by the German government under the Federal Ministry for Economy and Energy (BMWi), and was tasked with developing an overarching approach to managing the coal phase-out’s technical, legal, economic and social impacts.

2.1.2 Polarisation on social media

At the same time, there is concern over the relationship between social media usage and political polarisation. The complex relationship between social media usage, political polarisation, and the quality of public policy/democracy is currently being studied. Questions such as how common informal political discussions occur on social media, how often such discussions occur across partisan boundaries, and the nature of the relationships of people that engage in such political discussions are key to understanding whether online platforms actually contribute to political polarisation or serve to dampen its most corrosive effects. [2]

2.1.3 Relationship between expert commissions and public opinion

The process of the German coal commission thus presents a unique situation for analysis: is there a relationship between the “negotiation democracy” process of such an expert commission and public opinion, as represented on social media, on the topic? Here, tweets from Twitter are used to represent public opinion on social media, in part due to their high granularity which allows for observations on swiftly changing temporal patterns on topic salience.

2.2. Task

The task in this project is therefore to design a method to test whether events throughout the course of the coal commission led to a change in public consensus on the process. This would involve identifying important events throughout the coal commission process, which would involve identifying patterns in social media data across time. This could be done using statistical methods such as topic modelling. In addition, an appropriate measure for identifying public opinion would need to be identified. Here, sentiment analysis of tweets might prove to be useful.

2.3. Data

The data set that will be used in this project is a collection of tweets on the coal exit and coal commission in Germany, across the entire deliberation period of the coal commission process. Figure 1 shows the number of tweets containing select relevant hashtags to the coal commission process in the dataset over time.

A screenshot of a cell phone

Description automatically generated

Figure 1. Frequency of tweets containing relevant hashtags over time

2.4. Method

In order to first detect significant events and topics of discussion, topic modelling will first be used. Topic modelling involves the use of a type of statistical model for discovering the abstract ”topics” that occur in a collection of documents. Within this, an appropriate variant of topic modelling will be identified for best use, such as non-negative matrix factorisation (NMF) or latent Dirichlet allocation (LDA). It would be appropriate to use dynamic topic modelling here, in order to see the development of topics across time. This can be combined with looking at descriptive statistics like the frequency of tweets across time, in order to discern what social media users talk about and when.

Next, in order to aggregate public opinion on Twitter, sentiment analysis can be used. Sentiment analysis refers to the use of natural language processing and text analysis to systematically identify and extract affective states and subjective information in text. In this project, besides analysing what social media users are talking about regarding the coal commission process, it is important to understand how they phrase their statements as well, in order to get an understanding of their opinion on a topic.

Finally, a measure to detect the polarisation of tweets would be important for analysis. This can be manifested by looking at text scaling methods and comparing tweets to a reference baseline. Another interesting method would be to utilise the unique structure of tweets, by looking at the retweet network of the tweets in order to determine whether there is a change in the network over time, thereby signifying some sort of change in positions. Further research would have to be conducted in this area in order to determine an appropriate measure for measuring polarisation.

2.5. Baseline

In this project, the baseline assumption is that there is no change in public opinion over the process of the coal commission, and that the multi-stakeholder expert commission process does not lead to any consensus building. The reference baseline, therefore, would be the public opinion at the beginning of the coal commission process, which can be measured by taking a time slice of tweets when the commission was first formed and measuring sentiment and polarisation at that time.

2.6. Evaluation

A successful outcome of this project would be an assessment on whether the coal commission process led to the building of a consensus amongst the public, following through the tasks and using the methods detailed in the previous sections. In particular, identifying and using a robust method to measure polarisation of tweets would be ideal.

References

[1]  S. T. Siefken. Expertenkommissionen der Bun- desregierung, pages 1–17. Springer Fachmedien Wies- baden, Wiesbaden, 2016.

[2]  J. A. Tucker, A. Guess, P. Barbera, C. Vaccari, A. Siegel, S. Sanovich, D. Stukal, and B. Nyhan. Social media, political polarization, and political disinforma- tion: A review of the scientific literature, Aug 2019.