

Regional Sentiment Analysis of Political Leaders on X (Twitter) with special reference to Assam

¹ Binuri bodo; ² Dr. Bhagwan Sahay Meena; ³ Dr. Moses Kharbithai

^{1,3}Department of Political Science, Assam University, Silchar, Assam, India

²Department of Computer Science, Assam University, Silchar, Assam, India

Corresponding Author: **Bhagwan Sahay Meena**

Abstract: In the present era, digital communication aided by social media platforms plays a significant role in shaping and influencing regional and national politics. Political leaders are utilizing social media to its fullest potential since it's quickly emerging as one of the most crucial communication tools, particularly X (Twitter), starting from promoting election campaigns, to spreading awareness of government policy initiatives, and promoting welfare programs, as well as a medium to express political thoughts and connect with people. As such, it has become increasingly interesting to understand how social media, political leadership, and local attitudes interact in a rapidly changing digital environment. This study attempts to explore the significance of X as a platform for communication used by political leaders to communicate with citizens. Also, it aims to analyse the content of the tweets using sentiment analysis methods and categorise them into positive, negative, and neutral sentiments to best bring out the differences and contrasting sentiments of various political parties within the state of Assam.

Keywords: Northeast India, Political leaders, Social media, X (Twitter), Sentiment Analysis.

Introduction:

In an increasingly digitalized world, social media platforms are gaining extreme political significance all over the world. Especially in democratic countries, where political leaders are elected by the adult franchise at regular intervals and are answerable to their voters, social media plays a very important role. Earlier, politicians made large-scale use of traditional media like newspapers, television, and radio to disseminate information, but these media platforms take a longer time in reaching out to the people, and there is also a third-party interpretation involved in the traditional media platforms, where speeches, interviews, and addresses of the political leaders are interpreted and presented by the

media houses. Social media platforms fill in these gaps as they are very efficient platforms of instant communication between politicians and their electorate. X (Twitter), specifically, is widely used by politicians as it is one of the most widely used social media platforms in the world. X (Twitter) has a character limit of 240 characters, which makes the users to be very specific to share important information. This platform is widely used for promotional activities in very sharp language to convey the end results it intends to draw.

In India, political leaders use X (Twitter) to communicate with the electorate, promote their altruism, welfare activities, achievements, and also to spread political messages and propaganda to counter opponents. In the last few years, government, ministries, departments, and commissions have very actively promoted activities, schemes, programmes, policies, and new dimensions through the use of this medium and events to counter criticism of opposition parties. The use of X (Twitter) was seen widely for the first time during the 2014 Lok Sabha elections. According to an analysis made by Rajput (2014), Narendra Modi from the National Democratic Alliance (NDA) and Shashi Tharoor from the Indian National Congress (INC) emerged as the two most significant politicians using X (Twitter) during the 2014 elections. Eventually, more leaders at the national level and even regional political leaders started making their debut on X (Twitter). The leaders of Assam have also become increasingly aware of the visibility and impact of X (Twitter) and have made efforts to mark their presence on this social media platform.

What is interesting here is that Twitter is used by political leaders to display regional sentiments and attract the attention of the audience to regional issues. It is evident that regional issues stir a sense of consciousness among citizens, and these sentiments further impact the results of the election. Political leaders in Assam have used regional sentiments, which are based on the state's distinctive ethnic, cultural, and historical features, as a potent tool to rally support. Identity, migration, indigenous rights, autonomy, and the preservation of local culture and resources are only a few of the complicated and multidimensional regional attitudes in Assam. These feelings are skillfully used by political leaders to mobilize support, especially through Twitter and other social media platforms and especially during elections and in reaction to national policies that are thought to be harmful to the interests of the state. As such, it becomes very interesting to look into the display of such sentiments on Twitter that has such a significant impact on voters' attitude.

Objective:

The objective of this manuscript is to look into the significance of X as a platform for communication used by political leaders to communicate with the citizens. It also aims to analyse the content of the tweets using sentiment analysis methods and bring out the

differences and contrasting sentiments of various political parties within the state of Assam. An attempt has also been made to look into the content of tweets of political leaders, to analyse and to compare such tweets among various political parties, and to bring out the similar or contrasting opinions of political leaders and their sentiments towards various types of tweets.

Review of Literature:

In this article [1], the author examines how Twitter campaign communications are organised. It distinguishes three types of empowering communication activities that can take place on Twitter: Campaigns have the ability to reply to others, retweet others, and invite people to join them on their own terms. According to this literature, the author finds areas of empowerment on the campaign's periphery where it engages the problems of regular people, encourages them to participate on their terms, and uses their terminology to market the campaign. Replies and retweets were the main tools utilised by minor parties and their leaders to provide voice to those who would not otherwise have it. The campaign's objectives and citizen empowerment don't have to conflict. The author contends that these technologies can enlist common people in a party in many developed industrial democracies, hence reducing the degree of political alienation.

The study[2] is based on the findings of a comprehensive assessment of 127 studies on the use of Twitter in political campaigns. It talks about the many studies' conclusions about how parties, candidates, and the general public use Twitter during election campaigns and during mediated campaign events. This article claims that although there are only a few loosely connected case studies, the early years of research on Twitter in politics have produced a significant corpus of empirical evidence. The years that follow must demonstrate a consolidation of evidence, techniques for gathering and choosing data, and a blend of conventional research methods with recently developed Twitter techniques if this field is to advance. This consolidation will make it feasible to evaluate new case studies according to how they align or deviate from preexisting patterns, which will improve our comprehension of how these patterns depend on different contextual elements. Additionally, a more thorough examination of how findings derived from Twitter data align with the known corpus of social scientific research will be possible because to the combination of classic and novel research methodologies. This integration is required to evaluate Twitter's role in altering political behaviour, performance, and coverage rather than as a stand-alone digital medium

According to article [3], social media is "subversive," threatening Southeast Asia's established information sources and processes. Conspiracies, humour, sarcasm, misogyny, identity politics, and fear mongering all contribute to increased conversation about emotions. Naturally, a lot relies on the national background as well as the current

political and media landscape, of which social media is a component. This could be good news for reformists and pro-democracy activists in nations like Thailand or Singapore where social media can threaten established information systems, but it could be problematic for nations like South Korea, Japan, and India where professional, independent media was a defining feature of the democratic system. Consequently, social media activists will become more and more important in influencing the conversation surrounding elections.

The purpose of this article [4] is to explore the applicability of the concept of DPL in order to understand the significance and implications of political public relation. In an environment characterised by social movements and the counter-power of citizenship, the goal of the article [5] is to learn more about the polarisation and impact of political messages on Twitter as well as user involvement levels. This paper's main contention was that the role of politicians on Twitter during election campaigns depends on a variety of factors related to the political and social context, as well as the degree to which the influence of the subject (leader) over the object (topic) is crucial in drawing voters and establishing agendas.

In order to track changes in Twitter's political news media landscape and quantify the ensuing polarisation caused by social media influencers and their viewers, the article [6] examined Twitter data during two significant US presidential elections in 2016 and 2020. The identification of influencers and their political affiliations are the main subjects of our research. We created a comparison methodology that revealed significant shifts in the organisational affiliation and ideological makeup of influencers as well as the degree of political polarisation between influencers and their followers. Readers and academics who are worried about the ability of even a small number of social media influencers to polarise and affect the news media landscape on Twitter will find our descriptive account helpful.

The article (7) looked into the connections between political activity, Twitter use reasons, and opinion leadership. The findings show that Twitter opinion leadership is a successful predictor of public-affairs-related incentives for using Twitter for public expression, mobilisation, and information seeking. One is more likely to feel inspired to gather knowledge, organise others, and publicly voice their opinions if they have a higher perceived opinion leadership score. Furthermore, it was discovered that opinion leadership on Twitter was a reliable indicator of Twitter usage frequency. In other words, those with strong opinion leadership are more likely to become dependent on Twitter and use it more frequently than people with weak opinion leadership.

The study (8) conducted in Bandong Indonesia emphasises the relationship between the Twitter content of political leaders and their impact on followers' attitudes. The study focussed on three indicators of leaders' Twitter posts, i.e on news content, daily life

updates and the context of these messages. It highlights that a follower is drawn to the Twitter post of leaders on the basis of their content, and as such, leaders should provide engaging content to make the followers attitude as per the expectation by the leaders. The findings of this study reflects that Twitter can be used as a means of political communication between the political leaders and their followers, as the content provided on leaders' Twitter accounts can help influence the attitude of their followers and hence position them as great leaders.

The article [9] looked at how Korean young adults assess Korean politicians' usage of Twitter, how credible they are, and how these three factors relate to one another. This study discovered a clear relationship between respondents' opinions of politicians and their opinions of politicians' use of Twitter. When young voters favorably assess politicians' use of Twitter, they can increase the credibility of their images in areas of attractiveness, classiness, sincerity, trustworthiness, dependability, experience, and expertise. To gain favourable opinions from younger voters, politicians should make every effort to use Twitter. It's simple to create a Twitter account, but politicians must constantly communicate with their followers in order to preserve ties. It's unlikely that having a Twitter account alone will guarantee favourable outcomes. Evaluations will significantly improve only when the medium is used specifically and actively. This study looked at how politicians' micro blogging affected attitudes and perceived credibility. Additionally, this study recommended that politicians embrace and aggressively utilisedtwitter as a new media.

In the article [10], the authoreexplores how citizens and politicians collaborate to establish an ICT-based e-democracy based on political awareness and information sharing, particularly during elections. The character and tactics of the 2014 election campaign were significantly influenced by the development of ICTs in India. Twitter was successfully used as a vehicle to share campaign updates, highlight party accomplishments, and establish connections with the online community of young, first-time voters, as this study demonstrates. The inability to include the analyses of tweets written in languages other than English is our study's largest drawback. Nonetheless, our research aids in our comprehension of the intricacies of a novel media instrument for political communication in emerging democracies with restricted access to technology. We believe that ICTs will contribute more to e-democracies in the future and help with communication processes both inside and outside of the political system.

The authors in article [11]extracted tweets and analysed the political sentiments related to the tweets while making an attempt to understand the impact of tweets on the election results. The study focussed on the 2019 Lok Sabha general elections, and it tried to analyse the relationship between the sentiments displayed on Twitter by political leaders and how it influences the decision-making of citizens during elections. The results of this

study highlighted that there is the presence of a single large party on Twitter who dominate the social media space, which is the ruling party. Other parties are yet to utilise the digital provisions at par with the ruling party in India.

The article [12] examines how Indian political leaders use Twitter as a tool for political communication. The study focuses on the early phase of social media adoption in Indian politics and highlights Twitter's growing importance in shaping political discourse. It analyses how political leaders use the platform to share political views, communicate with citizens, and promote party messages. The article shows that Twitter was mainly used by prominent political leaders to broadcast information rather than engage in two-way interaction with followers. It also points out that social media usage in Indian politics was still limited to a small group of elite leaders during this period. By documenting these early patterns, the study provides a foundational understanding of the role of Twitter in Indian political communication and serves as a reference point for later research on digital election campaigns.

A study [13] was carried out examining how Twitter's interactive features—such as retweets, mentions, and replies—serve as digital indicators of user behavior. The analysis focused on the interaction patterns among politicians, the media, and the public during two political debates in Spain's 2015 and 2016 general elections. The article tried to enhance the understanding of Twitter as a valuable tool for exploring how individuals engage in political conversations on social media and how these interactions evolve over time. The results of this study are in line with most works on the relationship between the presence of political leaders on Twitter and their impact on citizen attitudes. The authors, however, emphasized that the trend of replies, mentions on Twitter is generated by those who share similar beliefs with those of the political leaders; that is, there is a tendency of individuals to connect and interact more with others who are similar to themselves, such as in beliefs, profession, or social group.

Two papers have been published related to social media and politics in Assam [14, 15] which shed light on the significance of social media as a medium used by leaders for interacting with the public. These papers looked at the presence of political leaders across all social media platforms and how these platforms are used as a medium of campaigning and exerting influence on the voting behaviour of citizens during elections.

Another article [16] focuses on information on whether the customer's tweets are neutral, negative, or positive. To do this, the authors first use Twitter APIs to collect the tweets, then use text blobs to classify customer reviews as positive, negative, or neutral using a text classification model. The customer reviews are then assigned various sentiment ratings. The author of this post used a Twitter API key to analyze customer reviews' tweets in order to perform sentiment analysis.

The use of Twitter in political campaigning during the 2021 Assam Assembly elections is examined in article [17]. By emphasising how social media has grown to be a crucial instrument for Indian election campaigns, the study places itself within the larger conversation on digital political communication. The authors examine how political players used Twitter to emphasise political objectives, spread campaign messaging, and interact with voters during the election season. According to the article, Twitter was not just a place for informal conversation but also a purposeful tool for political communication. The study contributes empirical data to conversations about the increasing impact of social media on modern electoral campaigns by recording usage and content patterns throughout the Assam elections.

The author in article [18] studies sentiment analysis of Indian regional languages used on social media platforms. The article focuses on the growing use of local languages by Indian users while expressing opinions online. The authors point out that most sentiment analysis research has been done on English, while regional languages remain underrepresented despite their wide usage.

The study discusses the challenges involved in analysing sentiments in Indian languages, such as lack of standard datasets, mixed language usage, and variations in scripts and grammar. It highlights the need for better tools and models that can accurately understand emotions expressed in regional languages on social media. By addressing these gaps, the article contributes to existing literature on sentiment analysis and emphasises the importance of including linguistic diversity in digital research.

These studies, as discussed above, have tried to bring out the significance of Twitter as a means of political communication between political leaders and citizens. Following the methodology used by existing literature, this article attempts to classify politician's tweets into positive, negative, and neutral categories based on development, political, financial, and religious indicators, using the technique used in previous research. However, by examining the tweets of political leaders of Assam and how they use regional prejudices to sway public opinion, the current study attempts to fill the gap in existing literature.

Methodology: In this section, we will describe the methodology for the over all work. The methodology has been divided into four section: data collection, data per-processing, categorized the tweets and finally the sentiment analysis of the tweets as shown in figure 1.

Data Collection- The proposed study will be conducted using a computational method where the process of analyzing the tweets will be done. For this, the data is collected by first drafting a proposal to the X official for token access permission. After permission is granted, this key will be used for retrieving the data through each leader's X handle key.

Data Pre-processing- The retrieved data will be pre-processed, and the content of tweets shall be analyzed. The data collection commenced using Orange software in combination

with Python programming. The study focused on analyzing the X handles of 126 political leaders (MLAs), although accounts belonging to individuals without active handles were excluded from the dataset. The gathered data was then organized into separate Excel sheets. Tweets were translated using Google Translate to maintain consistency across languages. The data was subsequently cleaned, and tweet content was isolated for further analysis. A dictionary categorizing political, religious, developmental, and financial terminology was integrated using the Natural Language Toolkit (NLTK). Visual Studio Code served as the platform for running the Python scripts, which employed libraries like NLTK and Text Blob to perform tasks such as converting text cases, splitting sentences, and removing stop words.

Categorized the Tweets- Using nltk (natural language toolkit) in a Python program, the categorization of tweets shall be done. The tweets are categories into financial, political, development, religious, and personal.

Sentiment Analysis - For sentiment analysis, dictionaries were created to categorize words into positive, negative, and neutral sentiments—for instance, positive political terms like “good politician” or “wonderful campaign,” and negative ones like “lost election” or “bad leader.” These dictionaries enabled the system to identify and interpret the sentiment of the text data. The tweets were categorized in order to calculate and analyze the sentiment score of positive, negative, and neutral sentiment.

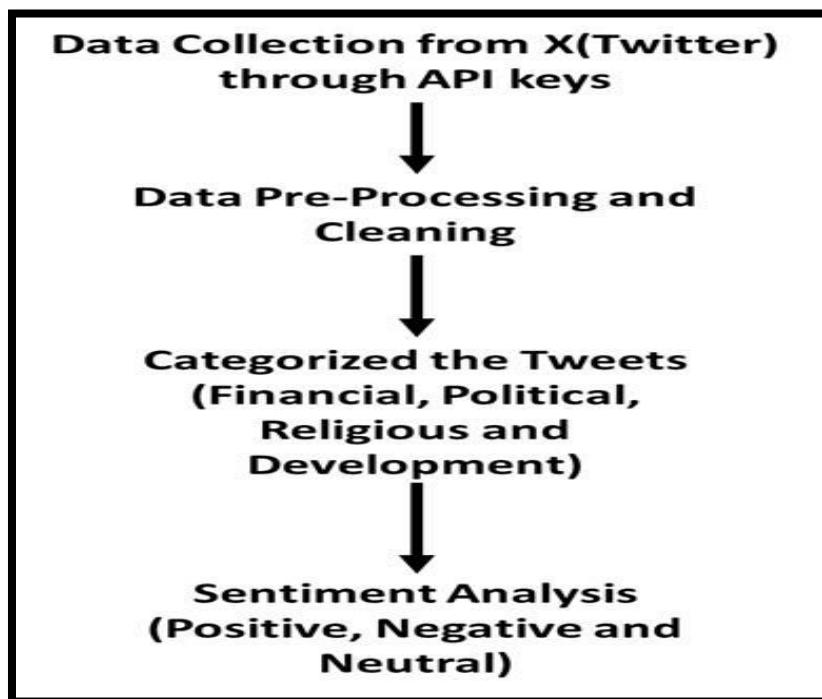


Figure 1 Overall Work Flow of Sentiment Analysis

X as a medium of communication:

In today's world X, (Twitter) is used extensively by political leaders all over the world to communicate with the population of their nations. The use of X (Twitter), among politicians, is growing at a fast pace because no political leader wishes to be lacking behind when it comes to broadcasting their political agendas as well as marking their presence on social media. At the pre-election stage, politicians use X (Twitter) as a sphere to promote their election manifesto and highlight their election campaigns to attract the attention of the electorate. At this stage, political leaders of different political parties are seen attacking or mocking the opinions of their opponents and furthering their election agendas. The leaders of the opposition parties often try to highlight the failures of the ruling party through tweets, and they make efforts to change the political narratives in their favor. In the post-election stage, political leaders use X (Twitter) as a platform to communicate with the masses regarding development policies, programmes, initiatives undertaken, and schemes provided by different ministries. The leaders of the opposition parties try to highlight the shortcomings of the ruling dispensation by giving out important insider information which would otherwise not be known to the public.

The use of X (Twitter) by politicians was seen the most in the US Presidential elections of 2016 and then in 2021. Compared to the US, the use of X (Twitter) by politicians in India has not created any major waves. If we take the case of India and the political leaders of India, then one can find that X (Twitter) usage reached its zenith among political leaders during the 2019 Lok Sabha elections. After the BJP won a victory in the 2014 elections with the help of social media, most political parties from all over the country followed Modi's footsteps and created X (Twitter) profiles for themselves and their party members. A blog post by Twitter India (2019) highlighted that in the 2019 Lok Sabha Elections, there was a high magnitude of conversations that centered on the election agendas. Twitter witnessed an immense increase in the number of tweets; there was a growth of more than 396 million tweets, which amounts to nearly a 600% increase from 2014. During the campaign period, the use of Twitter by politicians as a platform to communicate with the public witnessed new heights, and Prime Minister Narendra Modi emerged as the highest-mentioned leader on the platform (2019). The party handle of the BJP (@BJP4India) and the NDA also received a huge mention amounting to up to 53% of mentions on Twitter. Other political parties handles like those of INC (@ INC India) and other parties of the opposition camp received a total of 37% mentions altogether.

Analysis and Result Discussion:

Table 1. Political Party-wise Distribution of Active and Inactive MLAs in Assam

North East States	Political Parties	No. of MLA in Assam	MLAs active on Twitter	Not Active	Total
Assam	a. INC	29	26	3	126 number of MLA seat in Assam
	b. BJP	60	45	15	
	c. AIUDF	16	9	7	
	d. AGP	9	6	3	
	e. UPPL	6	1	5	
	f. BPF	4	2	2	
	g. IND	1	1	0	
	h. CPI(M)	1	1	0	

While X (Twitter) was witnessing the increasing presence of political leaders at the national level during the 2019 election campaign, this trend was also witnessed at the regional level. Assam has also witnessed an increase in the appearances of political leaders on social media, trying to be at par with the national-level parties. In the Assam State Legislative Assembly, there are a total of 126 leaders elected in the 2021 elections. Out of these 126 leaders, 91 have an account on X (Twitter). Bhartiya Janata Party, the state ruling party, has 60 leaders, of whom 45 have an account. The India National Congress has 29 MLAs, of which 26 have an account. The total number of members of the Legislative Assembly of All India United Democratic Front (a regional party) is 16, of which only 9 have a X (Twitter) account; United People's Party Liberal has 6 leaders, of which only 1 has an account; Bodoland People's Front have 4 MLAs and 2 of them have a X (Twitter) account as shown in table1.

At the outset, it may be mentioned that for the purpose of this study, a total no. of 67,088 tweets were collected and analysed over a time frame of three years, that is, from 2021 to 2023. After collecting data using Twitter API and analysing the tweets, it has been found that BJP has the highest number of tweets on X, ranging to a total of 42785, followed by INC with 10077 tweets, AGP with 7289 tweets, AIUDF with 6277 tweets, BPF with 396 tweets, and Rajoor Dal with 264 tweets. It may be mentioned here that data pertaining to all elected members of Assam has been analysed for this purpose.

The sentiment analysis of tweets was done in order to categorise tweets into, firstly, positive tweets which have contents like good, wonderful, amazing; secondly, negative tweets which don't have contents like bad, worse, terrible; and lastly neutral tweets which contain wishes, greetings, announcements, and visits. All these tweets are further divided into four categories, viz, Financial (grants, loans, money, sanctions, budget); Development (infrastructure, employment, buildings, roads); Religious (Muslim, Hindu, Christian, Sikh, Persia, Jain); and Political (party, leaders, corruption, sixth schedule, leaders, organisation, insurgent). Out of these tweets as mentioned above the total number of positive, negative and neutral tweets have been reflected in the graph below:

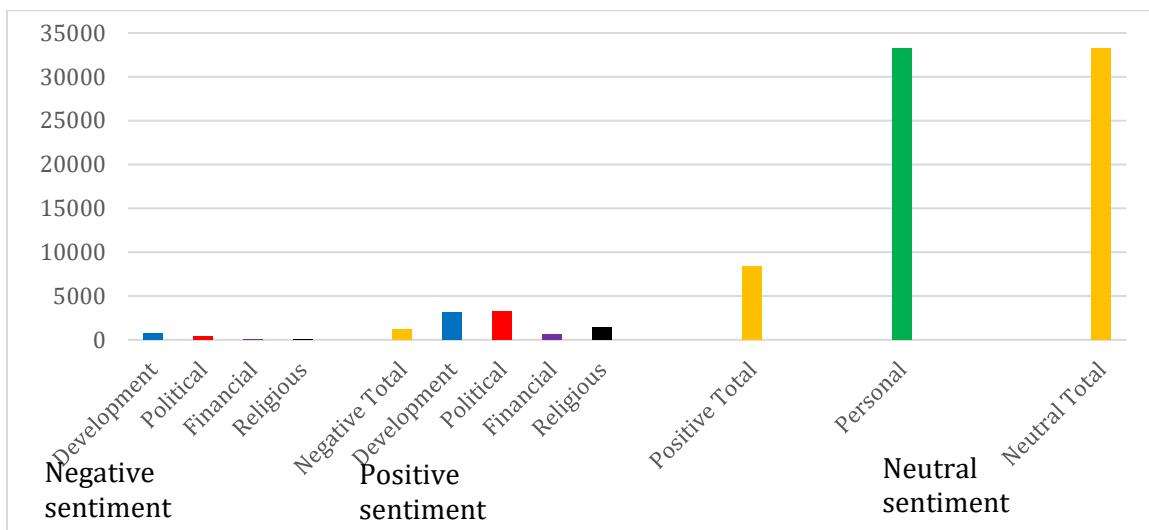


Figure 2. Different Types of tweets along with sentiments of BJP party

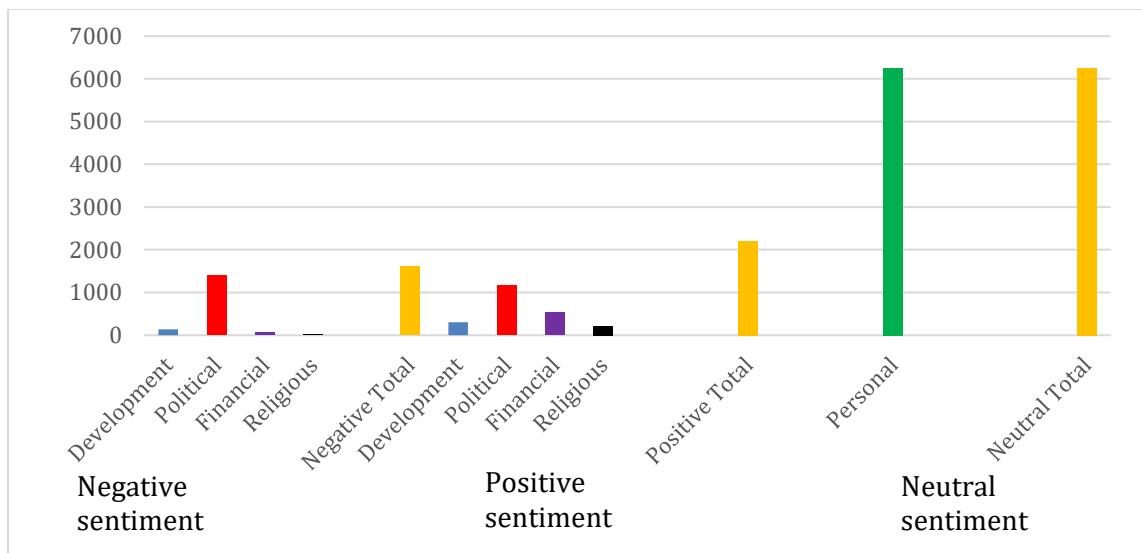


Figure 3. Different Types of tweets along with sentiments of INC party

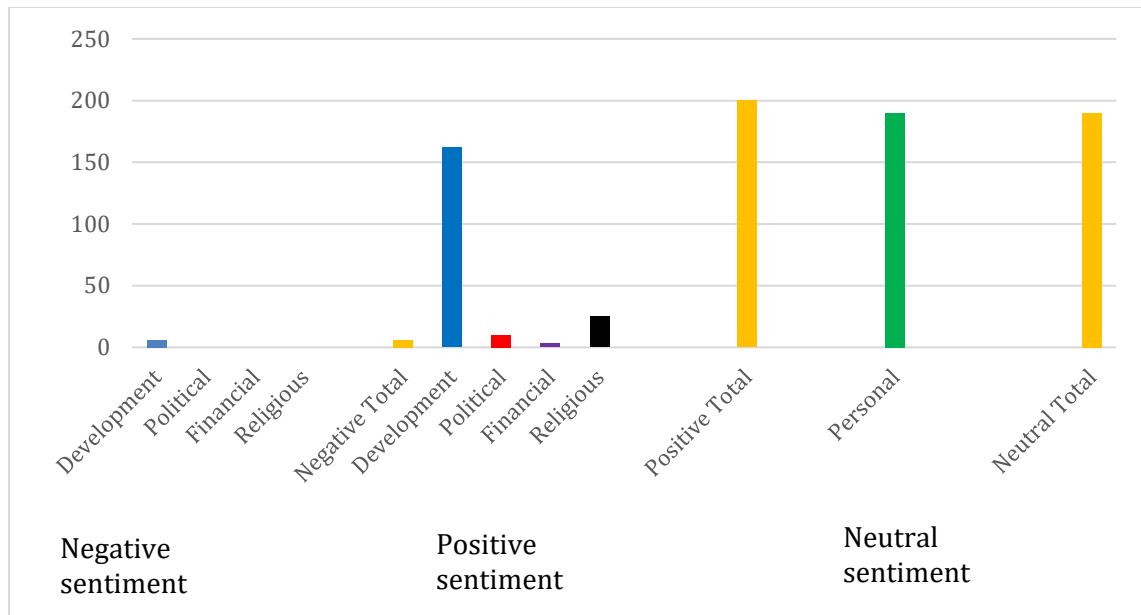


Figure 4. Different Types of tweets along with sentiments of BPF party

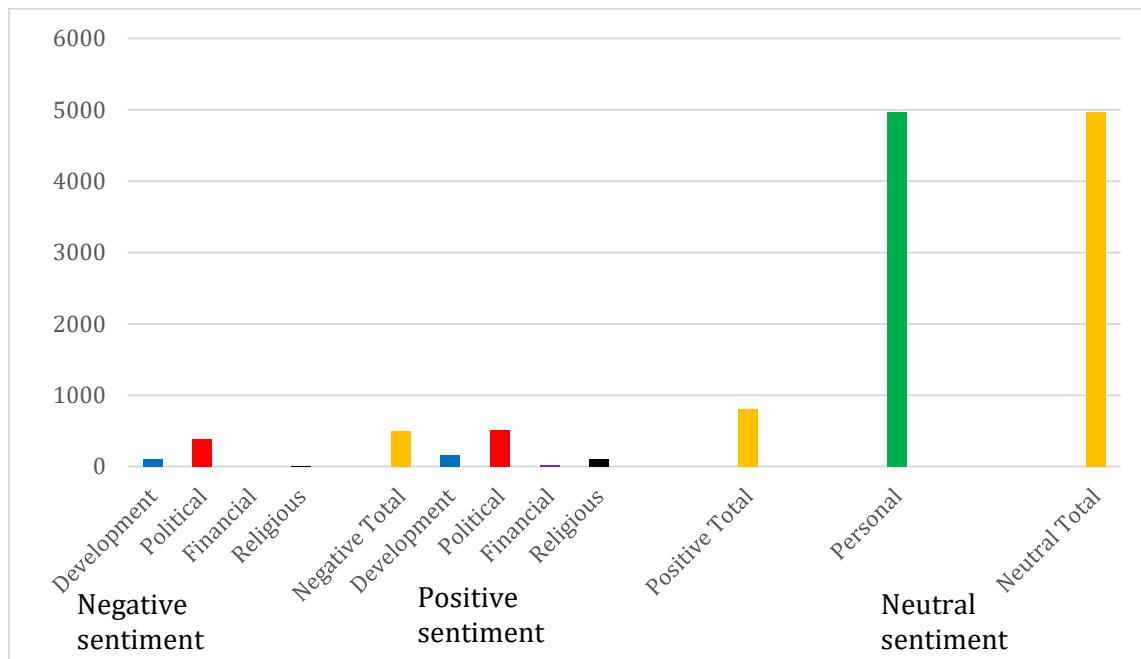


Figure 5. Different Types of tweets along with sentiments of AIUDF party

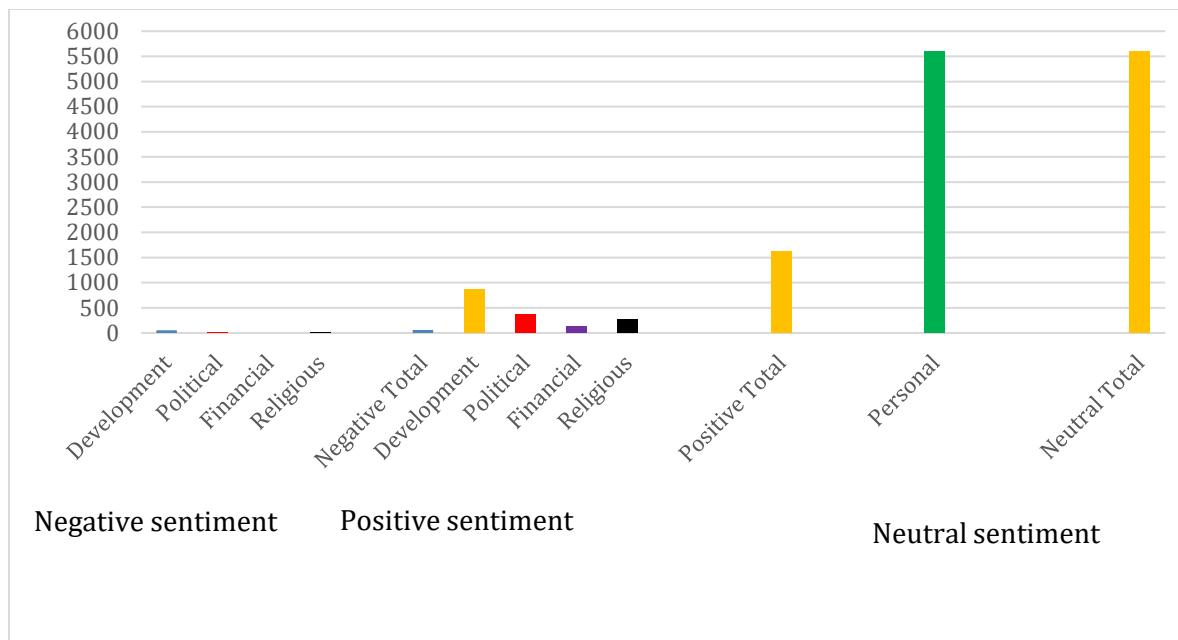


Figure 6. Different Types of Tweets along with sentiments of AGP party

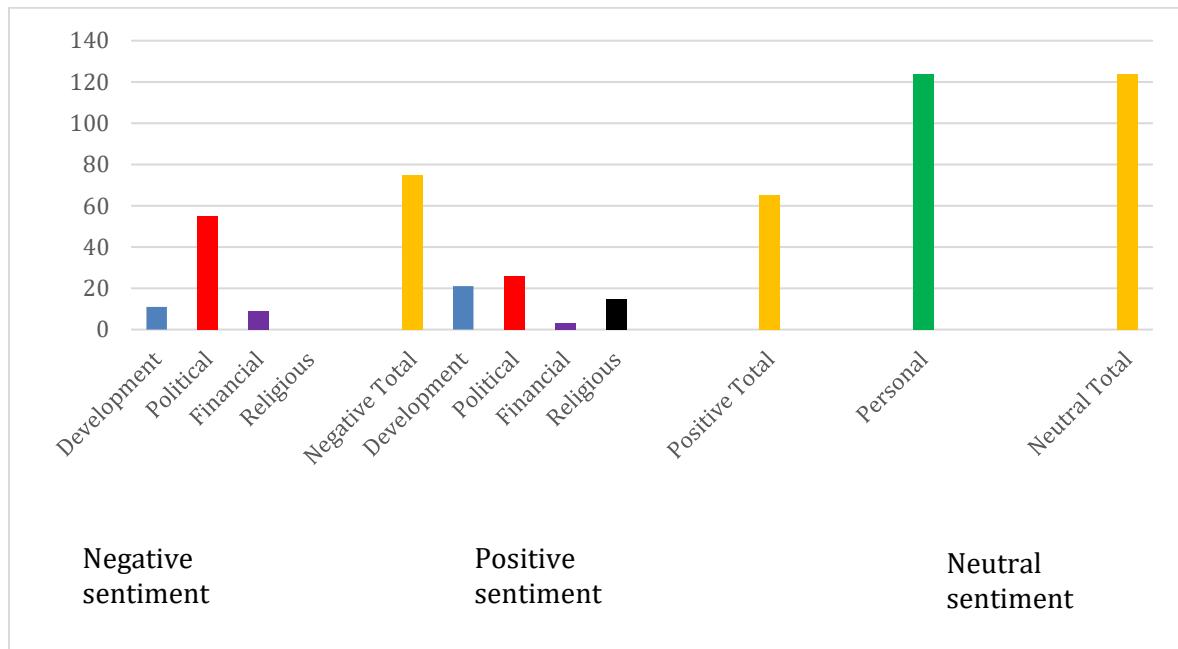


Figure 7. Different Types of tweets along with sentiments of IND party

The figures above have been used to present the analysis of positive, negative and neutral tweets of the elected political leaders of Assam. Fig. 2 represents data related to the BJP leaders, Fig. 3 represents INC leaders, Fig. 4 of BPF leaders, Fig. 5 of AIUDF and Fig. 6 and 7 represent data related to AGP and Rajoor Dal(IND) leaders. In each of these figures, data is represented in the form of bars. The figures Bar 1 to 4 illustrates negative sentiments

across the four key indicators that are financial, development, religious and political. Bar 5 integrates these separate negative sentiments to display the total number of negative sentiments. Similarly, Bars 6 to 9 illustrate positive sentiments for the same set of indicators. Finally, Bar 10 illustrates the personal contents which are neutral in nature and are hence reflected in Bar 11 as the total number of neutral sentiments.

Conclusion:

The findings of this study reflects that the BJP has the highest no. of tweets posted on X. Being the ruling party of the state, the BJP has been maintaining a huge presence on the social media platform, which in turn is reflected on the widespread popularity they have among the masses. While the leaders of the BJP party posts tweets related to personal visits, inaugurations, promotion of religion and culture, their main agenda, as reflected through an analysis of their tweets, is to be popularise development projects, financial initiatives, cultural and religious reforms, etc. These issues connect with the public and reflect positive sentiments between the leaders and the citizens. For example, when advertisements related to employment opportunities or the inauguration of development projects, schools, and colleges are posted on X by leaders, they are received well by the people. Hence, conclusions can be drawn that BJP leaders bank on the positive sentiments of the people.

However, the same cannot be said about the opposition party leaders in Assam. Leaders of the opposition are visible on X. Their reach is limited. The opposition leaders post tweets that attack the policies and initiatives of the government to keep them in check. Such tweets carry negative sentiments. For example, related to financial matters, the phrases that are used by opposition leaders are corruption, inflation, money laundering, etc. All such tweets fall under the category of negative sentiments and relate to the citizens who are critical of government policies. However, apart from this, the opposition leaders also engage in personal tweets related to greetings, culture, religion, visits, or gatherings, which are either positive or negative in nature.

Limitations: The study is not free from limitations since only the four categories viz., financial, development, religious, and political, have been undertaken for the study. However, there is also ample scope for other similar areas to be studied. The time-frame of the study is limited to three years of during where the political parties that have been actively using social media get an upper hand in the conclusion or result. This study opens the avenue for future researchers to conduct a study on regional sentiments with the help of computational method and analyse the positive, negative or neutral sentiment of political leaders towards their region.

Acknowledgement

The author has legally and formally gathered the data from X official after getting access through API key and token access key. For the study all relevant data were accessed with due permission from the X.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Statements and Declaration

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

1. Jensen, M. J. (2017). Social media and political campaigning: Changing terms of engagement?. *The International Journal of Press/Politics*, 22(1), 23-42.
2. Jungherr, A. (2016). Twitter use in election campaigns: A systematic literature review. *Journal of information technology & politics*, 13(1), 72-91.
3. Tapsell, R. (2021). Social media and elections in Southeast Asia: The emergence of subversive, underground campaigning. *Asian Studies Review*, 45(1), 117-134.
4. Falasca, K., Dymek, M., & Grandien, C. (2019). Social media election campaigning: who is working for whom? A conceptual exploration of digital political labour. *Contemporary Social Science*, 14(1), 89-101.
5. Curiel, C. P. (2020). Political influencers/leaders on Twitter. An analysis of the Spanish digital and media agendas in the context of the Catalan elections of 21 December 2017. *Kome-An International Journal of Pure Communication Inquiry*.
6. Flamino, J., Galeazzi, A., Feldman, S., Macy, M. W., Cross, B., Zhou, Z.,...& Szymanski, B. K. (2023). Political polarization of news media and influencers on Twitter in the 2016 and 2020 US presidential elections. *Nature Human Behaviour*, 7(6), 904-916.
7. Park, C. S. (2013). Does Twitter motivate involvement in politics? Tweeting, opinion leadership, and political engagement. *Computers in human behavior*, 29(4), 1641-1648.
8. Soedarsono, D. K., Mohamad, B., Akanmu, M. D., Putri, I. P., & Khoirunnisa, C. (2020). Political leaders and followers' attitudes: Twitter as a tool for political communication. *Journal of critical reviews*, 7(8), 1245-1252.
9. Hwang, S. (2013). The effect of Twitter use on politicians' credibility and attitudes toward politicians. *Journal of public relations research*, 25(3), 246-258.

10. Jaidka, K., & Ahmed, S. (2015, May). The 2014 Indian general election on Twitter: an analysis of changing political traditions. In Proceedings of the Seventh International Conference on Information and Communication Technologies and Development (pp. 1-5).
11. Ansari, M. Z., Aziz, M. B., Siddiqui, M. O., Mehra, H., & Singh, K. P. (2020). Analysis of political sentiment orientations on twitter. *Procedia computer science*, 167, 1821-1828.
12. Rajput, H. (2014). Social media and politics in India: A study on Twitter usage among Indian Political Leaders. *Asian Journal of Multidisciplinary Studies*, 2(1), 63-69.
13. Guerrero-Solé, F. (2018). Interactive behavior in political discussions on Twitter: Politicians, media, and citizens' patterns of interaction in the 2015 and 2016 electoral campaigns in Spain. *Social Media+ Society*, 4(4), 2056305118808776.
14. Borah, U. (2022). Social Media and Political Campaign: Study of the Role of Social Media in the Voting Behaviour in Assam. *Res Militaris*, 12(5), December Issue.
15. Saikia, P., & Bhattacharyya, R. (2022). Campaigning and party strategies in Assam. *South Asian History and Culture*, 13(3), 340-360.
16. Mogaveera, S., Kolekar, P., & Neha. (2022). On social media, a sentimental analysis of Indian regional languages. *Acta Scientific Computer Sciences*, 4(4), 64-68.
17. Sarma, P. P., & Hazarika, T. (2023). Social media and election campaigns: An analysis of the usage of twitter during the 2021 assam assembly elections. *International Journal of Social Science Research and Review*, 6(2), 96-117.
18. Rakshitha, K., Ramalingam, H. M., Pavithra, M., Advi, H. D., & Hegde, M. (2021). Sentimental analysis of Indian regional languages on social media. *Global Transitions Proceedings*, 2(2), 414-420.