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Statistical and Regression Analysis of Existing Social Media database of Political Parties in India and MP State

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ABSTRACT :

Younger generations are influenced by social media (SM) in terms of behavior and attitudes; they use it more than traditional media for political information and discussions, and they also vote differently as a result of it. The purpose of this study is to statistically examine how well the political party performs and how it uses social media to draw in voters. Study helps determining the target audience and the elements that will persuade them to back a specific party. In this study some existing survey are re analyzed using statistical charts concluding the influence of voting patterns in the country. This research evaluates social media usage statistics by MP states' parties and aims to identify the party influencing voter interest most effectively through social media. The regression model is applied for predicting the social media growth in future

1. Introduction

Considering the region's diverse population and political history, social media (SM) has a huge impact on political discourse in India, notably in Madhya Pradesh. It changes public opinion, increases political involvement, and influences voter decisions. In Madhya Pradesh (MP), state of India, politicians and groups can communicate with voters through social media platforms such as Facebook, Instagram, and Twitter, despite the fact that traditional techniques such as rallies and door-to-door polling remain popular.

Campaigns use mediums such as movies and visuals to tell stories that appeal with the target demographic, emphasizing problems such as medical care, education, and the farming industry while maintaining a sense of urgency as well as significance.

Campaigns might motivate younger voters by highlighting local business success and advocating for legislation addressing youth unemployment, while parties can improve appeal by tailoring messages to diverse populations. Social media platforms encourage voting participation through debates, surveys, and interactive elements, promoting active participation in elections, as seen in Madhya Pradesh's campaigns highlighting voting value among new voters. Viral campaigns, challenges, and hashtags can enhance public understanding of voting processes, promoting civic responsibility and voter registration procedures, and potentially increasing voting turnout and strengthening democracy. Thus SM has advantages but also risks spreading false information, skewing public opinion, and affecting voter turnout. Political parties in any state must ensure trustworthy propaganda.

Constructive SM interactions by voting candidates, such answering questions from voters and providing regular updates, might help them gain the confidence and trust of voters, which will ultimately affect their opinions and decisions.

Role of Social media in politics

It is noted that social media is a technique used to mold the attitudes and behaviors of the younger generation. Youth voting behavior might be influenced by political material and political activities on social media. When it comes to political discussion and information, young people rely more on social media than on traditional media. Students' well-reasoned decisions affect the elections and give rise to specific problems during the voting season. Social media (SM) information quality is significantly and favorably influencing reputation and trust. Through the use of social media reputation, the quality of the information is also indirectly influencing trust. Politicians and political marketing may influence voters by enhancing the legitimacy and use of advertisements via SM platforms.

The rate of social media uses varies from parties to parties and also from election to election campaigns. The public is informed by political campaigns on the work that political parties were performing to improve society. Political campaigns assist the parties in educating the public about the plans and policies they have for the community. The opposition party uses political campaigns to highlight the inefficiencies of the ruling party. The opposition party has been focusing on criticizing along with pointing out the ruling party's poorer performance. Campaigns have made it easier for people to comprehend what they want, allowing them to consider their priorities before acting further. People start to learn about their past performance as well as their future plans. Through political campaigns, political parties might be capable to influence voters' perceptions.

Social media websites are enhancing customer satisfaction and gaining importance as a platform for learning about various products (Chandwani V. S., 2018). It was noted that Instagram and Twitter (X now) are crucial daily tools, with many earning significant income through product and service promotion (Kane A. 2020).

Contribution and Objectives

The contribution of present study is statistical analysis of the political party's performance and its use of social media to attract its voters. To understand who the intended audience of political parties is and how social media affects voting. This research have contributed to first evaluate the statistics of percentage uses of the social media account by parties in MP states as per the previously available accounts and try to find the party influencing the voters interest max impacted by social media. The 16th Lok Sabha data in MP and CG states are used for statistical analysis off social media uses by parties. Then regression model is applied an ML for predicting the future uses.

In rest of this paper the survey of some most promising reports on SM uses in election are reviewed in section 2. The section 3 has presented the proposed analysis methodology followed by the expected results of analysis in section 4. The three pass results are pressed as study on Indian voter, study of SM use of parties in MP state and use of small regression models. Overall research contributed to statistically analyze the SM uses in India.

2. Literature Review

In the recent decade, huge growth has been observed in the uses of SM handles of the political parties for influencing the vote percentages. This section contributed to review the few most relevant instances of SM. **Chandwani V. S. (2018)** mentioned in the study that social media marketing has been among most successful technique and tool in field advertising. There are different ways people are using these tools for increasing their sales of products and services. It is having a great history of helping people in their business and is considered to be a very useful technique for promotion of their business. The behavior of the consumers should be evaluated and accordingly business should be promoted through different social media platforms. The activities on different platforms like Facebook and many others impact the consumers and it is important that these tools and techniques should be used wisely on the internet. Social media websites are being implemented in the current scenario and it has brought about a unique satisfaction level among the customers. Social networking is gaining importance and the customers should believe in this fact that social media has become an important platform to know about different products and also to make a comparison among the products available.

Kane A. (2020) mentioned in the book that instagram has become an important social media platform today and it gives fulfillment both influentially and financially. In the current scenario people are promoting their products through Instagram. Social media acts as a very good platform for promotion and the people should recognize the way marketing could be done through the use of these platforms. Such platforms could make a business or even demolish it by negative publicity. Instagram has made dreams of many entrepreneurs come true and through its promotion the valued customers are repeating their orders. Different other platforms like Facebook, twitter and others are being used by people to express themselves in a visual manner and this has made the app easy to use for recording as well as sharing about their lives in the real world. Instagram has become a very important part of daily lives of people and it is not indicating any sign of slowing down in near future. There are many people who are earning large sums of money through promotion of their product and services through social media.

Naidu G. R. (2021) has mentioned about political marketing as a technique used by the politicians for promoting about their parties. The politicians focus on political goals and to establish connect with the voters, a marketing tool is adopted so as to share information about their parties and their achievements so that they could convince the people to support them. Marketing principles could be applied as a very important part in the political process and it is necessary to be active on social media and this would promote their work before the public. Social media platform such as Instagram, twitter and facebook created newer ways for marketing political campaigns and they help in establishment of new channels for the candidates and also the voters could interact among them with the use of few cost effective ways. The messages circulated by the parties should be such that they do not create a wrong image about them in front of the public, they should build up a real image in the eyes of public.

Rajaa T. R. B. (2021) has mentioned in the study that it is necessary to understand the behaviour of the voters and they decide their leaders based on the knowledge which they have gained and also this would help in making decision about the growth of the country. The parties have their own planning and accordingly they keep a track of their activities so as to fulfill their planning and achieve their goals which have been defined in advance. Political leaders aim to create their presence among public through social media marketing. The politicians make an attempt to influence the behaviour of the voters and for this they consider various factors like culture, gender, caste, religion and race. Casting vote is said to be a term which is most utilized in democratic politics. As such, there are many factors which impact the voting behaviour and only a single factor cannot create an impact. The leaders been elected have certain responsibilities and roles and they highly impact the society towards better life. The leaders should identify the behavior of the voters and also mind-set as per the prevailing conditions. They should try to plan their own strategy for attracting the voters. The prime factors which impact the decision making of the voters are attraction, interaction capability of voters and the ability of the leaders.

The Hindu (2021) have indicated that human history at a glance from the stone age to the age of metals and currently in digital age, there is a promising tool i.e. social media. Data in the current scenario has become even more powerful as compared to gold. Social media has become an important tool, if it is used in a strategic manner, it could become the most powerful marketing tool. Social media is a platform which is an eye opener of the real work. People promote those who have got talent and there are some critics also who do not let people promote their product through their negative publicity. Ranu Mandal got a good space among the people through the magic of social media. The guidelines for the use of social media have become stricter for the intermediaries of social media and it would make it quite compulsory for different platforms like facebook and whatsapp. Different countries have moved ahead to regulate the big techs and social media.

Hamid R. S. et al (2022) aimed to examine relation of quality of information of social media, reputation and political marketing activity, political involvement and trust of millennials. This study is empirical in nature and has considered a sample of 309 millennials. It is based on primary data which has been collected through a survey. The collected data has been analyzed through the use of partial least squares SEM. The result indicated that the information quality in social media is having a significant and positive impact on trust and reputation. Information quality is also having indirect influence on the trust with the help of reputation associated with social media. The result also indicated that there is no such relation between political involvement and information quality. The political marketing activity also has indirect significant impact on the political involvement. This study might contribute towards political marketing and also the politicians by increasing the credibility and quality of advertisements on different platforms of social media.

Somaiya & Khan (2022) have indicated in the study that political campaigns play a very important role in bringing success to the political parties. Political campaigns guide the public about the ways the political parties have been putting in efforts in the betterment of the society. Political campaigns help the parties to make people aware about policies and plans which they have planned for the society. Political campaigns are used by the opposite party for showing inefficiency of ruling party. The opposite party has been focusing on being the critique and indicated lower performance of ruling party. Campaigns have helped in understanding preference of the people so that they could think about their priorities before taking further action. People become aware about the past performance and also about the plans for future. Political parties could help in changing perception with the voters have through political campaigns. The information which is provided through the means of campaigns would help in enhancing a positive image about the party.

The Hindu (2022) indicated about the elections help in U.P., there was support from twitter for Bhartiya Janta Party (BJP) and it was tweeted about the Chief Minister, while the others on social media indicated about Shri Narendra Modi more frequently. Samajwadi party aimed to organize themselves by using hashtag so as to maximize their reach on Twitter and Indian National Congress (INC) aimed to criticize Shri Modi more often. Social media marketing has gained importance and it is being used in politics as influencing through this platform has become quite easy. Social media marketing is being used by various sectors and this has now created a large audience in a small span of time. During the Covid period, people remained at home and this gave a direction to them towards starting of new ventures and promote about their business and with time, people got influenced through social media. Hashtag as a new concept arose while promoting the political parties.

Times of India (2022) indicated that the E-commerce market in India would boom till the year 2025 and expected that it would reach US$ 188 billion. Similar condition is expected from the e-commerce sales globally. The forces of social media and digital marketing play a very important role to witness terrific surge on the basis of scale and size. It could be estimated that pandemic acted as veritable catalyst and contributed towards a significant progress in India. There has been three times growth in the social commerce as compared to the conventional e-commerce industry in India. Spectacular growth can be expected in the social commerce segment and it is being predicted that it would surge by impressive CAGR and help the merchandise value to go high up by the year 2025. The consumers of the new age are quite conscious and the consumers are vocal in their demand for convenient modes and accelerated in the field of commerce which would bring comfort ability in their life.

Times of India (2023) mentioned in the article that government released guidelines for the influencers on social media and celebrities for ensuring transparency. There have been certain guidelines which have been mentioned and they ensure that the individuals should not mislead the audience while they endorse any service or product. The enforcements which are made by the influencers should be compliant with Consumer Protection Act. When material connection exists between influencer/celebrity and advertiser, there may be an effect on credibility or weight of representation which is made by influencer/celebrity. When an influencer is making an attempt to endorse a product, they should try to do it in a clear and simple language and it should have been used by them personally. They should not promote the use of any product, which may not have been used as it might have a negative impact when actually the audience uses them. Disclosures need to be placed in a manner that it is clear and prominent.

3. Proposed Methodology

The purpose of this study is to statistically analyze the political party's performance and voter acquisition strategies on social media. Research aids in identifying the intended audience and the factors that will influence them to support a particular political party. The block diagram of proposed methodology is given in Figure 1.

The data is initially collected from the existing research and surveys as in [23] and [24]. The database of 16th Lok Sabha – election for the MP parties SM Database - Party Wise was proposed in [24]. This data illustrated the number of SM handles for Facebook, Twitter (or X), and Youtube as used by parties in states of India for 2014. The data from [23] is used for statistical analysis of Indian voters and data of [24] is used for analyzing parties SM uses.
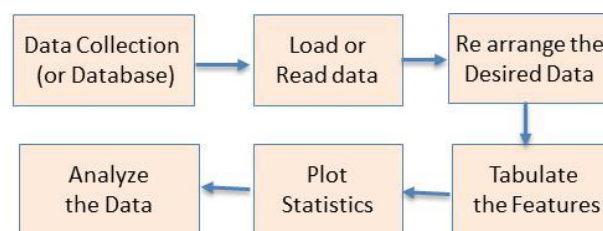
Figure 1 Proposed block diagram of the current research methodology

The given methodology is sequentially followed in the proposed statistical analysis of the party's performance and the voter's area of interests

Expected Results and statistical Analysis

The paper presented the statistical evaluation of voters SM uses and the SM used accounts by the parties. The results are presented in two pass in the first pass the statistical analysis of the National level existing survey for LokSabha elections taken from references are presented as states corresponding to question raised. N second pass the statistical details of the 16th Loksbah data for use of social media accounts constituency vise in MP stage are presented. Figure 2 depicts the statistical result analysis for survey data [23] for the kind of SM utilized most frequently by voters to stay up to date on current events and news connected to elections and parties.
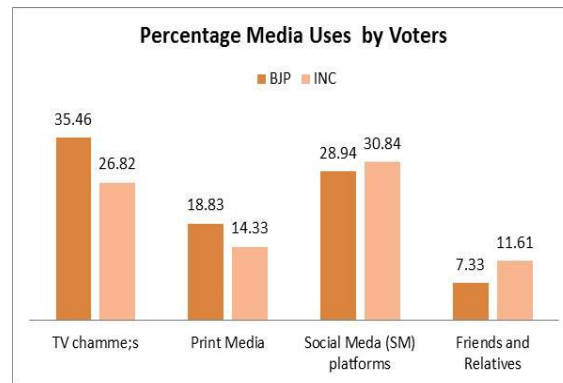
Figure 2 Survey data for question, which of the items listed below do you most frequently utilize to stay up to date on current events and news?
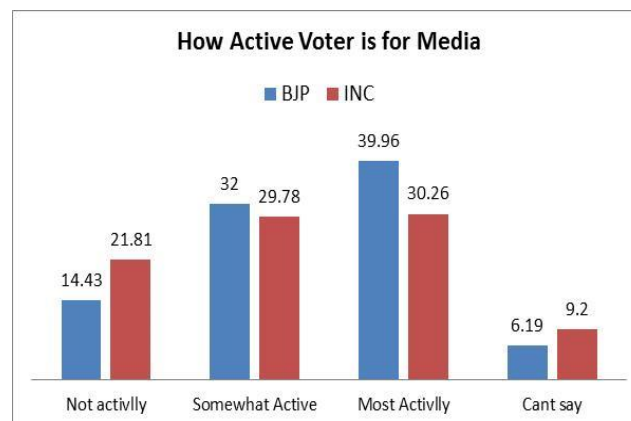

Figure 3 Survey data for question "How frequently does one use SM to find news and information on the national government's actions on the problems outlined in their party manifestos?

It can be concluded from the Figure 2 that the most of the nearly 54.29% BJP voters access the TV channels and Print media more. While the INC supporters, around 42.45% more, access the SM accounts and friends and relatives for current affairs. It may be since INC have supporters in interior.

Statistical analysis of the survey data [23] is given in the Figure 3 for quarries how frequently do people utilize social media to access news about the government's activities on issues raised in the parties' manifestos?

It can be clearly observed from the Figure 3 that since BJP is in Govt. thus they are capable of well speeding more frequently access of national government's actions information through SM uses to their supporters. Nearly 71.96% BJP voter access SM frequently for this purpose. The BJP have an age of around 10% over the frequent uses of SM by the INC amongst their voters.

The data base of the 16th Lok sabha and the SM handles used by the individual parties in the MP and the Chhattisgarh (CG) state of the Central India are illustrated in the Table 1. It can be observed from the Table 1 that the initial-phase of parties SM uses the most of the use is of FaceBook and X or Twitter. The BJP has

Table 1 the MP state constituencies using SM accounts

| State	Party	Facebook	X	YouTube
Madhya Pradesh	BJP	14	7	2
	INC	2	2	1
Chhattisgarh	BJP	2	2	1
	INC	1	0	0

In order to further justify the statistics the graphical representation of the data is shown in the Figure 4 for the statistical analysis of the 16th Lok Sabah SM accounts used by the parties in MP election. It can be clearly observed from the Bar graph that BJP has relatively 7 times more SM account in the MP constituencies for FaceBook then that used by the INC. While the Twitter and YouTube, accounts used by BJP has lead of 2.3 % around over the INC uses. Ultimately it is concluded that significant and aggressive SM campaigning is done by the BJP compared to that of the INC.

This clearly reflected in the Final Result of the election and BJP has won the election with healthy margin.
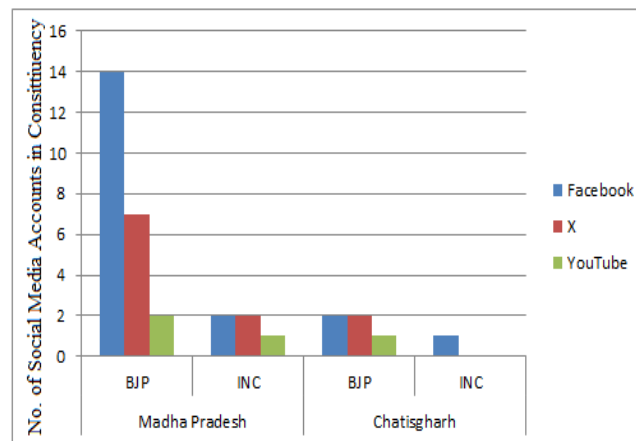
Figure 4 Statistical analysis of the 16h Lok Sabah SM accounts used by the parties in MP election [24]

In order to further clearly the statistics the percentage constituencies using SM accounts by parties relatively till 16th LoK Sabha Election are presented in Figure 5 as shown in Figure 4 and available on [24].
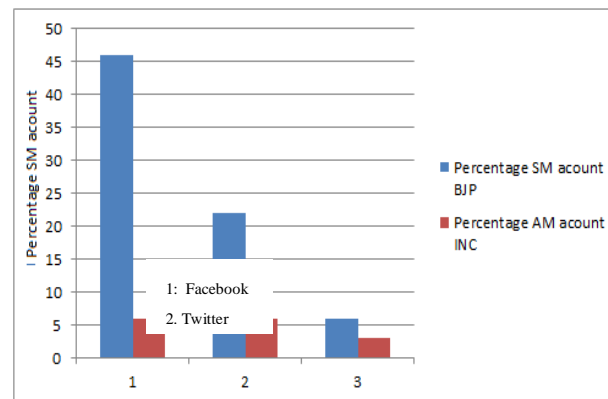

Figure 5 Percentage constituencies using social media relatively till 16th LoK Sabha Election as available on [24]

It is clearly visible from the Figure 5 that BJP has significant lead of using the SM accounts in the MP state constituencies compared to the available INC data.

Here we would like to mention responsively that all the statistics are presented as per the available dataset and the information and in reality may be different. But the ultimate aim is to preset the relative measures not accurate.

Regression Model Prediction

The ML based linear regression model is applied on the small data of the four cumulus as mentioned in the Figure 3 for the active SM uses buy the voters party vise is presented in this section.
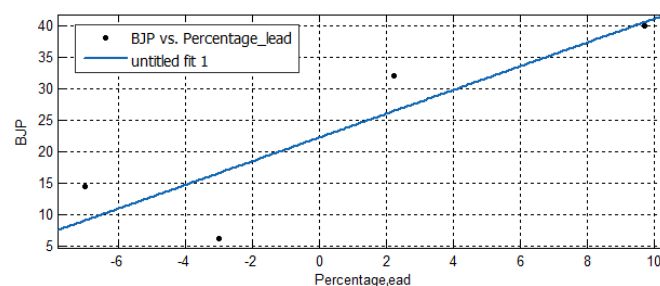
Figure 6 the regression model example set to the BJP data

The proposed linear regression model is aimed to find the mathematical relation between the data gathered for predicting the future progress. The formulation of the linear relation model is illustrated by the eq (1).

$$f(x) = p1 * x + p2 \qquad (1)$$

The Coefficients calculated using the MATLAB regression model code are as follows

$$p1 = 1.888 \ (-1.273, 5.048) \qquad (2)$$
$$p2 = 22.24 \ (2.437, 42.04) \qquad (3)$$

And the respective fit valued=s for the both the parties BJP and the INC are illustrated in the Table 2. The statistical performance is measured in terms of the R square values and the SSE.

Table 2 regression analysis results

| Parameters		R² values	SSE	RMSE
In=dian Voters	BJP	0.7675	168.5	9.178
	INC loss %	0.4061	172.4	9.285

Comparatively the INC and percentage loss (leg in SM) are correlated in the Table 2 using the regression model and the coefficients of eq. (1) are set as

p1 =   0.8691 (-2.328, 4.067)

p2 =   22.35 (2.312, 42.38)

Example Prediction Using Model

The BJP data is used for the futuristic prediction of growth in SM uses. The percentage lead of the SM account used if increases in future as considered to be from 10% to 15 % lead the futuristic SM use of the consumers are predicted . Thus statistically it gives the prediction of target for the future five years to the party as shown in Figure 7.
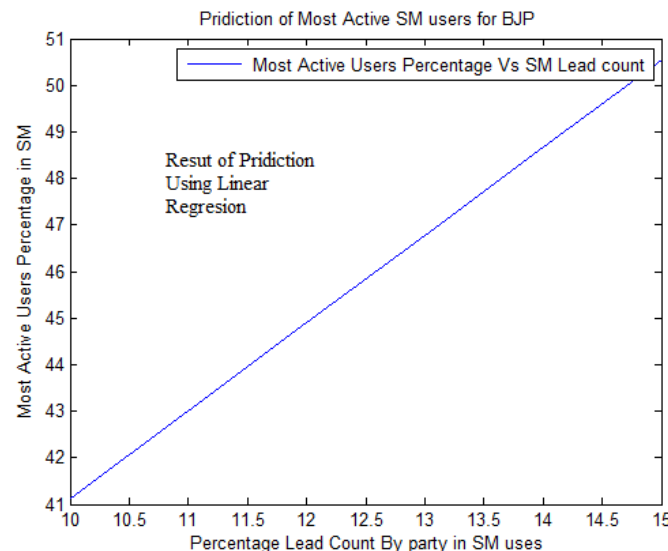
Figure 7 Regression model for the futuristic target prediction to increase SM users for party

Conclusions and Scope

This study examines how political parties use SM to attract voters, focusing on younger generations' behavior and attitudes. It analyzes existing surveys and uses statistical charts to determine the target audience and elements persuading them to support a specific party. The research uses a regression model to predict future social media growth.

The statistical analysis of voters' SM usage and the parties' SM usage accounts was offered in the paper. The findings are shown in two passes. In the first pass, the statistical analysis of the current national survey for Lok Sabha elections, which was derived from references, is shown as states that correspond to the questions posed. The statistical information regarding the use of social media accounts by constituencies during the MP stage is published in the second pass of the 16th Loksbah data.

It is concluded that the BJP has aggressively used SM accounts and to discuss the information of government policies and benefits to spread amongst the voters. He 39.96% voters actively used the SM who are BJP supporters while on the other side only 30.26% voters of opposition (INC) have used actively SM accounts. It is also concluded that BJP has relatively 7 times more SM account in the MP constituencies for FaceBook then that used by the INC.

Thus over all it is concluded that SM uses have significantly affected the mindset of the voters. it is also observed that huge negative campaign is carried by the oppositions against the Govt.

Successful demonstration of using ML based linear regression model to predict SM goals in future. T is observed that BJP has more correlation of 76.8 % compared to INC of nearly 40%

Future scope

In future the own questionaries' and data survey in the more recent scenario may be carried out for the much accurate stats of the MP election. The survey will be carried out the ML methods may be used for the production in future.

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