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Information Technology Enabled Voting To Overcome Ethnic Differences In Voter Turnout In India

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ABSTRACT

India is the largest democracy in the world. Lower voter turnout is a challenge for inclusive governance. The study explores information technology enabled voting to overcome differences in ethnic voting turnout in India. Study examines the influence of technology diffusion and human capital development on ethnic nature of voter turnout in general elections in India. Voter turnout for 2014 and 2019 general elections, mobile subscribers and female literacy ratio is considered for the study. Secondary data was obtained from website of election commission, telecom regulatory authority of India, Census of India. The study covered twenty-two states of India clustered into five regions. The data was analysed using correlation and ANOVA. The results show a significant difference in the ethnic voter turnout in 2014 and 2019 general elections. Northeast and southern regions had higher voter turnout. Female literacy was found to positively influence voter turnout, mobile subscriber had a negative influence on voter turnout. Technology alone cannot change the ethnic differences in voter turnout in India. Technology has a mediating role in enhancing transparency of e-governance, enhancing access to information, and creating an ecosystem for a level playing field for all regions for inclusive development and participation in elections through cloud-based e-voting for all citizens irrespective of their physical location. Any territory technology enabled voting for electorate (ATEVOTE) is proposed for inclusion of migrant workers in election process.

Keywords: Ethnic Voting, Voter Turnout, Technology, India, General elections, ATEVOTE, Northeast, Southern, Mobile Subscribers, Female Literacy.

1. INTRODUCTION

India is the largest democracy in the world [29]. But low voter turnout is a cause of concern for inclusive governance. The study examines the impact of technology and

human capital development on ethnic trends in voter turnout. Urban areas have access to latest technology, better infrastructure and employment opportunities but low voter turnout in Mumbai and Bangaluru, Hyderabad indicates low participation of citizens in election process [13]. Ethnic and social group influences voter turnout [19]. Influence of ethnicity has been examined in European and American democracy [8,24,27]. Ethnicity was found to influence voter turnout [27]. Compulsory voting is found to positively influence voter turnout [21]. Various studies have been done on the influence of ethnicity of voter turnout in developed economies [25]. The rational voter model of Downs (1957) relies on cost benefit analysis [18]. Differences in voter turnout in Indian states support rational voter model. Turnout is high in closely fought elections and high literacy regions [17]. Polarisation influences voter turnouts of ethnic groups [30]. Use of internet-based voting has been explored in developed countries to enhance voter turnout [1,28]. However, technology should be widely diffused to make a positive impact on voting turnout [42]. The paper attempts to examine electronic voting to overcome differences in voter turnout of different ethnic groups in India. The major contribution of the paper is that it

- Evaluates voter turnout of ethnic groups of different geographic areas.
- Evaluates technology diffusion among ethnic groups of different geographic areas.
- Examines the association of ethnic voter turnout with human development and technology diffusion.
- Recommends technology enabled voting for inclusive governance.

2. REVIEW OF LITERATURE

At the beginning of independent India, Congress benefitted from the image of a party involved in the freedom struggle and converted that appeal into political success. But it was dominated by upper castes. Caste identity began dominating in 1960's when Other Backward Caste (OBC) groups mobilized support to acquire political power. Beginning of coalition politics from 1989 led to emergence of a multi-polar system in India [40]. Caste based resurgence of political power in the form of Mandal commission redefined political identity of a voter to ethnic and caste-based identity. Ethnicity of candidates and political party drives people to vote. Candidates are strategically selected to woo voters of a particular ethnic background in a commanding position due to their population in a particular election constituency [12]. Increase in immigrant population causes significant increase in voter turnout of non-immigrants [24]. Right wing and left-wing voters have different voting behaviour [8]. White adults have higher voter turnout as compared to other ethnic groups in USA [26]. Indian states belonging to different regions have witnessed low, medium, and high voter turnout in 2009 and 2014 general elections [14]. The voter turnout was different among states comprising different geographical region in 2014 general election in India [23]. Higher voter turnout has been associated with change in election results [23].

Party-voter clientelist relationship has been investigated in West Bengal. It was found that recurring economic benefits influenced voting behaviour for Left in West Bengal supporting clientelist approach [6]. Economic factors are gaining prominence in Indian

political ecosystem, as witnessed in 2014 victory of Mr. Narendra Modi with an image of non-dynastic politicians with a desire for economic development. Ethnic identity matrix is getting realigned with economic benefits. Women and minority groups can also benefit by capitalising technology for financial, marketing, distribution, electoral participation, and operational assistance in addition to global reach of the clients. Technology can remove the middleman create employment opportunities and empower people. Realising the possibility of slow transition of voters from ethnic to developmental issues, Mr. Narendra Modi passed farm bills (Farmers Agreement of Price Assurance and Farm Services Bill, Farmers Produce Trade and Commerce Bill) in Parliament in September 2020 to provide economic freedom to farmers to sell their produce to their desired entity at mutually agreed price outside traditional cartelized (APMC) markets referred to as Mandis. [9,22,32]. Income doubled between 2003 and 2013 only for farmers with land holdings of more than 10 hectares [11].

Quality of input decides the quality of output [2]. Focus on development coupled with mandatory voting regime can reduce influence of ethnicity in voting. Mandatory participation reduces the information asymmetry. Participation of less informed citizens does not go well for democracy [10]. Simplifying complex operations enhances usage by a larger population [31]. Simplifying electronic voting has the potential to enhance voter turnout. Enlightened understanding is needed for democracy [16]. Political will is needed for technology adoption in India [46].

3. INFORMATION TECHNOLOGY ENABLED VOTING

Internet based voting has been explored in developed countries [1,28]. Cloud based e-voting in India, based on polling officer authentication of voters needs to be explored [20]. Blockchain can be used for electronic voting [7]. Cryptographic and exclusive hardware approaches can also be used for technology enabled e-voting [44]. Collaboration can create fruitful solutions for electronic elections [33, 36]. Availability of biometric enabled Aadhar cards and mobile penetration provides an opportunity to explore cloud based any territory technology enabled voting for electorate (ATEVOTE). ATEVOTE can be operationalized by setting up voting centres in district headquarters and prominent government offices in areas with migrant population to enable them to cast their vote from any city for their constituency. It is proposed that government should do pilot testing of ATEVOTE in upcoming assembly elections to develop a robust cloud based ATEVOTE system for improving voter turnout ratio in India by providing voting facility to migrant workers and people living in other states for their livelihood. Technology has a positive impact in overcoming disparity by empowerment [3]. Financial discipline and dedication can be useful to overcome operational challenges [15]. Technology enhances financial inclusion [4] agricultural inclusion and empowerment through efficiency and transparency [39]. Technology driven government policies led by Mr. Narendra Modi has enhanced confidence [33] in development and delivery of technology enabled services in private sector and public services. Growth needs to be managed properly [38]. Technology provides an opportunity to overcome regional disparity in economic development. Technology enhances the quality of governance [35]. Technology in

combination with demographic profile has the potential to strengthen innovation, people participation and inclusive growth in India [37]. Blockchain based blockvoting can eliminate the duplication of votes in India [48]. Mobile, Aadhar enabled e-voting offers the potential to overcome vote rigging problem in elections in India [49]. Hyperledger approach with Aadhar authentication offers scalable cost-effective e-voting in India [50].

4. METHODOLOGY

Secondary data of voter turnout of 2014 and 2019 general elections, mobile subscribers per million in 2014 and 2019 from website of election commission and telecom regulatory authority of India (TRAI) was used in the study. Descriptive method has been used for study of ethnic groups on voting turnout [24]. Aggregate election results and voter demographic data has been used in examination of voting behaviour of ethnic minorities [8]. Lack of socioeconomic break up of voter turnout is a challenge for examining impact of ethnicity on voter turnout [14]. Earlier studies have considered socio economic variables with voter turnout in general and assembly elections. The present study adds technology diffusion, measured by mobile phone subscriptions into the voter turnout comparison of different states along with human development measured by female literacy rate. Female literacy of most recent census data of 2011 was obtained from census of India website. Union territories and states for which mobile subscriber data is not provided by TRAI were not included in the study. States were clustered into regions based on ethnic and cultural affinity. Twenty-two states were clustered in five regions. Punjab, Haryana, and Himachal Pradesh were considered in northern region. Hindi speaking states; Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan were considered in central region. Sikkim, Tripura, Meghalaya, Mizoram, Nagaland, Manipur, West Bengal, Odisha, Assam were considered in northeast region. Maharashtra and Gujarat were considered in western region. Tamil Nadu, Kerala, Karnataka, Andhra Pradesh were considered in southern region. Data was analysed using correlation and one way ANOVA. Mobile subscription was considered as an indicator of technology diffusion, female literacy was considered as an indicator of human development.

5. RESULTS AND DISCUSSION

Table 1-Region wise Voter Turnout in General Elections of 2014, 2019

Region	N	Voter Turnout 2014			Voter Turnout 2019		
		Mean	F Value	Sig.	Mean	F Value	Sig.
Southern	4	72.3	18.157	0	74.87	6.899	0.004
Northern	3	68.81			69.56		
Central	4	59.83			63.52		
Northeast	9	78.36			78.5		
Western	2	61.98			62.76		
Total	22	68.96			70.69		

Source-Author Computation

A significant difference was found between voter turnout of different regions of India in 2014 (P=0.000) and 2019 (P=0.004) general elections. Northeast region had the highest voter turnout both in 2014 and 2019. Central region had lowest voter turnout in 2014 and 2019.

Non-significant negative correlation was found between mobile subscribers and voting turnout in general election of 2014 and 2019. A non-significant positive correlation was found between female literacy rate and voter turnout. The results are not consistent with diffusion of innovation support for increase in voter turnout in E-voting in Estonia between 2005 and 2015 [41]. The positive impact of internet voting was observed after three internet-based elections in Estonia [41]. Technology diffusion over a long term can eradicate voter turnout differences among different ethnic groups in a country by use of internet voting [41, 42]. Satisfaction from technology enabled services positively influences long term usage of services [45].

Table 2-Correlation of Voter Turnout with Mobile Subscribers and Female Literacy

Particulars		Mobile Subscribers 2014 (Per Million)	Mobile Subscribers 2019 (Per Million)	Female Literacy Rate
Voter Turnout 2014	Correlation	-0.092	-0.107	0.43
	Sig.	0.725	0.684	0.085
Voter Turnout 2019	Correlation	-0.12	-0.044	0.389
	Sig.	0.646	0.867	0.123

Source-Author Computation

Table 3-Rank of Regions on Voter Turnout, Mobile Subscription, Female Literacy

Rank	Voter Turnout 2014 (%)	Voter Turnout 2019 (%)	Female Literacy (%)	Mobile Subscriber per Million (2014)	Mobile Subscriber per Million (2019)
1	Northeast	Northeast	Southern	Northern	Northern
2	Southern	Southern	Western	Southern	Western
3	Northern	Northern	Northern	Western	Southern
4	Western	Central	Northeast	Central	Central
5	Central	Western	Central	Northeast	Northeast

Source-Author Computation

Top three ranks in voter turnout in 2014 and 2019 were occupied by Northeast, Southern and Northern region, and bottom 2 ranks are occupied by Central and western regions. The findings are consistent with voter turnout of different states from 1952 to 1991[34] and state wise voter turnout between 1951 and 2004 [17]. Higher voter turnout has been attributed to difference in agro climatic conditions [5] and cultural, historical factors [43] and literacy rates of the states. [34]. Differences in voter turnout among states support

rational voter model [17]. Blockchain based e voting offers solution to poor voting in India due to physical mode of voting [47].

6. CONCLUSION

The study found significant differences in voter turnout among different ethnic regions in 2014 and 2019 general elections in India. Southern and Northeast region had high voter turnout as compared to other regions of the country. A non-significant negative correlation was found between voter turnout and mobile subscribers per million people. A non-significant positive correlation was found between female literacy rate and voter turnout in 2014 and 2019 general elections. Technology alone cannot enhance voter turnout in India. Ethnicity is deep rooted in Indian culture. Technology alone cannot overcome influence of ethnicity in elections in India. Technology can have a mediating effect to enhance access of information, credit and ease of doing transactions, transparency in transfer of funds from government directly to beneficiary and efficient e-governance to facilitate growth and development across all regions of India. Human capital development can have positive influence on voter turnout in long term. Faith in elected representatives, decriminalisation of politics and availability of alternative voting options in the form of internet based ATEVOTE e-voting from anywhere in India for a constituency will enhance voter turnout, participation, and influence of citizens in policy making by elected representatives.

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