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Voter Turnout in the Indian States: An Empirical Analysis

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ABSTRACT *In this article, the trends and determinants of voter turnout in India at the state level are explored. It reveals that there is a large variation in turnout across the Indian states. Although turnout in most Indian states has increased over time, there are also many exceptions to this upward trend. These empirical results are consistent with the "rational-voter model", whereby turnout tends to be higher where elections are closely fought and literacy is higher. Further, a larger electorate and higher proportion of urban population is associated with lower turnout in the Indian states.*

Introduction

Voter turnout is a widely studied phenomenon in the comparative politics literature. In particular, a lot of attention has been paid to the decline in turnout in the western democracies, and scholars have debated the reasons and the effects of this decline. Declining turnout tends to be associated with citizens' lack of interest in the democratic process, and also dilutes the legitimacy of the electoral results. Scholars have also related the decline in turnout to disenfranchisement of socially and economically backward groups, and questioned whether democracy in such a scenario is truly representative. As Lijphart (1997: 1) puts it, "Political equality and political participation are both basic democratic ideals". Some studies have also debated whether changes in turnout can affect electoral outcomes and support for a particular party (for example Radcliff, 1994, 1995; Erikson, 1995a, 1995b). While turnout has generally been declining in most Western democracies, it has actually increased in India since its first elections in 1951. This upward trend has been highlighted by scholars as an important factor in the sustenance of Indian democracy, where citizens participate in increasing numbers to choose their governments election after election (see for example Yadav, 2000).

In this article, I seek to explore the trends and determinants of turnout in India at the state level.[1] The Indian case is interesting because the turnout is high despite the presence of a large illiterate and economically backward population. As Varshney (2000: 20) notes, "The deprived seem to have greater faith in India's elections than

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the advantaged". Since electoral outcomes have important policy implications, it is vital to understand the degree of and reasons for geographical differentials in turnout in India, something which is not adequately addressed in the existing literature. I focus on turnout at the state level since Indian states are significant political actors, and responsible for providing valuable public goods to the citizens (Chhibber & Noorudin, 2004). Furthermore, political parties in India tend to be organized at the state level, and the elections are planned and fought on a state-by-state basis.

Theoretical and Empirical Literature

Early studies (see Gosnell, 1927) assume that turnout depends on the character of the election itself, rather than on the voters. Thus, for example, lower turnout is expected where parties do not clearly communicate their policies to the voters, and a high turnout is expected when policies are well presented, or where electoral competition is expected to be close. Recent scholarship on turnout focuses less on the characteristics of the elections, and more on the motivation of the individual voter and on parties' efforts to mobilize support for its policies.

Downs' (1957) "rational voter model" has been a dominant theory of voter participation in the literature, and has been extended theoretically and tested empirically by many scholars (for example Buchanan & Tullock, 1962; Riker & Ordeshook, 1968; Tullock, 1971; Cox & Munger, 1989; Aldrich, 1993; Feddersen, 2004). The rational choice model focuses on the cost–benefit analysis of the voting decision. According to Riker and Ordeshook (1968), since a single vote has virtually no effect on the election outcome, a voter cannot be expected to vote for gaining just material benefits. Instead, the only rational reason to vote is to gain benefits such as expressing an opinion or fulfilling a duty. Some scholars explain the voting decision as based on a habit which in turn depends on factors such as their social status and education. Verba and Nie (1972) put forward a model of electoral participation based on education and profession, and studies such as Wolfinger and Rosenstone (1980), and Parry *et al*. (1992) use this resource model in their studies of voter turnout. The mobilization model complements the resource model and focuses on how the various parties, interest groups and candidates mobilize people to vote (Rosenstone & Hansen, 1993). Low turnout elections have often been referred to as low mobilization elections, and mobilization is a mechanism that works by way of both rationality and socialization (Franklin, 2004).

The empirical literature on the determinants of turnout tends to focus on cross-national research in Western democracies. The dominant view in the existing studies points toward the primacy of institutional variables in affecting the variation in turnout across nations, although some authors also include sociological variables in their analyses. An important variable in the turnout literature focuses on the competitiveness of the elections. According to Blais (2000: 60), "the verdict is crystal clear with respect to closeness: closeness has been found to increase turnout … There are strong reasons to believe that, as predicted by rational choice theory, more people vote when election is close". Blais and Dobrzynska (1998) report that

an increase in the gap between the leading and the second party by 10 points leads to a reduction of 1–2 points in turnout. Similar results are reported in many other empirical studies which include the closeness variable (for example Nevitte *et al.*, 2000). Most studies measure the closeness of elections by the difference between the votes secured by the winning and the runner-up party, typically at the national level. However, as Blais (2006: 120) points out "It could be that what matters is the closeness of the race at the district level".

Scholars also recognize the importance of institutions and context in understanding the variation in turnout across countries and over time. Powell (1986: 21–22) finds that turnout is higher in countries with "nationally competitive districts" and "strong party–group" linkages. Turnout in nationally competitive districts is helped by parties and voters having equal incentives in all parts of the country, and by a simplified voter choice due to clear party–group affiliation. Powell concludes that party–group linkages represent the most important institutional variable affecting voter turnout in the American context. Jackman (1987) shows that institutional and party-system variables such as nationally competitive districts, disproportionality, multipartyism, compulsory voting and unicameralism affect turnout. Other studies such as Blais and Carty (1990), Jackman and Miller (1995), Franklin (1996), Radcliff and Davis (2000), and Kostadinova (2003) have concluded that turnout tends to be higher in countries with larger districts and/or proportional representation. However Blais (2006: 114) points out that "The perception is that we have come up with a number of well-established propositions about how institutions influence turnout. That perception may not be well founded … All in all, our understanding of the impact of institutions on turnout is shaky".

Powell (1982) finds that turnout is higher in economically developed countries. In many subsequent studies, too, there is strong support for this view (Blais & Dobrzynska, 1998; Norris, 2002; Fornos *et al.*, 2004). However, as Radcliff (1992) points out, economic hardship may induce people to mobilize to redress grievances, but it may also lead them to become alienated and withdraw from the political process. In this context, many studies do not report any effect of downturn in the economy on turnout (Blais & Dobrzynska, 1998; Kostadinova, 2003; Fornos *et al.*, 2004). Blais and Dobrzynska (1998) find that the highest levels of turnout are reported in small countries. Blais (2006) argues that this might result from stronger social network, or voters believing that their vote could be decisive in a small country, and finally because in small countries it is easier for candidates and parties to mobilize the vote.

Scholars have also used socio-economic, party and electoral system variables to understand the turnout phenomenon. Lipset (1960: 182) concludes that "The better educated [vote] more than the less educated … higher-status, more than lower". Similarly, Berelson and Steiner (1964: 423) report that "the higher a person's socioeconomic and educational level – especially the latter – the higher his [or her] political interest, participation, and turnout. Cebula and Toma (2006: 35) point out,

> Greater average levels of educational attainment may lead to the subjective evaluation that voting *per se* yields greater benefits, regardless of the election

> outcome, insofar as voting may serve: (a) To create positive feelings about fulfilling one's civic duty; (b) to create the feeling of helping to maintain the vitality and survival of the democratic process; and (c) to create the feeling of helping to clarify the degree to which election victors can interpret their victories as either only marginal or as a mandate for implementing the espoused policies/party platforms.

Scholars have also studied the role of parties and interest groups in mobilizing voters, and their influence on the voting decision (for example Rosenstone & Hansen, 1993). According to this view, a higher number of parties provides wider choice of policy platforms to the voters, and also helps in mobilizing voters, and this in turn leads to a higher turnout. However, the effect can also work in the opposite direction because more parties increases the probability of a coalition government (Downs, 1957), and therefore Blais (2006: 118) concludes that "Because of these possible contradictory consequences, it is not clear whether we should expect the correlation of turnout with the number of parties to be positive, negative, or nonexistent". Many studies report a negative relationship between turnout and number of parties (Jackman, 1987; Blais & Carty, 1990; Jackman & Miller, 1995; Blais & Dobrzynska, 1998; Kostadinova, 2003). These empirical findings imply that the usual explanations of more parties increasing turnout are not supported by evidence, implying that the opposite explanations regarding the expectation of coalition government might be true. However, Blais and Carty (1990) and Blais and Dobrzynska (1998) show that turnout is not higher in elections which result in single-party governments. Blais (2006: 119) argues,

> what really matters is clarity of choice, that is, voters need to know with relative certainty the coalitions that might be formed … As things stand now, the fact that turnout appears to be lower when there are more parties is intuitively odd, and the supposition that this is so because more parties mean less decisive elections in only a supposition.

In the Indian context, "what constitutes a party" is itself an important question since parties are increasingly forming alliances at the state level which in turn shape party systems in the Indian states.

Finally, authors have also argued for the need for a dynamic analysis of turnout, and as Blais (2006: 121) argues, "many variables differ from one election to another, and for these variables the analysis should be explicitly dynamic". Franklin (2004) takes into account the dynamic nature of the analysis by including turnout in previous elections as a control variable.

Literature focusing on determinants of turnout in India is limited, and consists mainly of the works by Yadav (2000) and McMillan (2005). Yadav (2000) disaggregates turnout statistics in India in terms of regions and prominent social groups to understand the changing nature of political participation in India in the 1990s. Yadav's key thesis is that although overall turnout figures have not

increased dramatically (in the 1990s), the composition of those who vote has undergone a major change. In particular, he notes that there is a democratic upsurge among the socially underprivileged – the Scheduled Castes and Scheduled Tribes, while this increase in participation rates has not been seen in some other disadvantaged groups, for instance Muslims and women. Yadav (2000: 133) concludes that "India is perhaps the only large democracy in the world today where the turnout of the lower orders of the society is well above that of the most privileged groups". McMillan's (2005) focus is on the effect of electoral reservation of constituencies for candidates from Scheduled Castes and Scheduled Tribes on turnout. He uses evidence from survey data to conclude that although voters in Scheduled Tribe constituencies are less likely to vote, there is no evidence that Scheduled Tribes themselves vote significantly differently to other voters (McMillan, 2005: 233). He reports similar results for Scheduled Caste constituencies and finds that electoral reservation has little impact on turnout behaviour of members of the Scheduled Castes. Furthermore, turnout in reserved and general seats have shown a clear pattern of convergence over time. This convergence is more prominent in the case of reserved Scheduled Tribe constituencies, and represents a change in broader social mobilization, whereby those in rural areas have become more likely to vote than those in urban areas. McMillan (2005: 245) concludes that "the removal of reservation would have little effect on either the overall level of voting or the turnout of Scheduled Castes or Scheduled Tribes".

In contrast to existing studies which examine turnout in India with reference to specific social groups and period (Yadav, 2000; McMillan, 2005), my interest is to seek a general explanation of the determinants of turnout through a comparative empirical study. My study focuses on turnout in the Indian states, which have become the dominant players in influencing national politics and government formation. The approach taken in this study is that the decision to vote is determined not only by a simple cost–benefit analysis based on rational-choice model, but also by socio-economic, electoral and party system variables. Thus, I combine the insights from the main theoretical approaches largely based on Western societies with some India-specific factors for my empirical analysis.

Voter Turnout Trends in the Indian States

Figure 1 shows histogram of turnout in the Indian states over the 14 general elections between 1951 and 2004. Turnout is measured as number of actual votes as a percentage of the total eligible voting population in an Indian state measured for a particular election. The curve shown represents kernel density, which resembles normal distribution meaning a well-spread-out distribution around the mean. There is a large concentration of points between 50% and 70%, with the modal value being around 58%. The level of turnout in India is similar or even higher than seen in many Western democracies, and is described by many commentators both as a contributor to and the consequence of the success of Indian democracy.

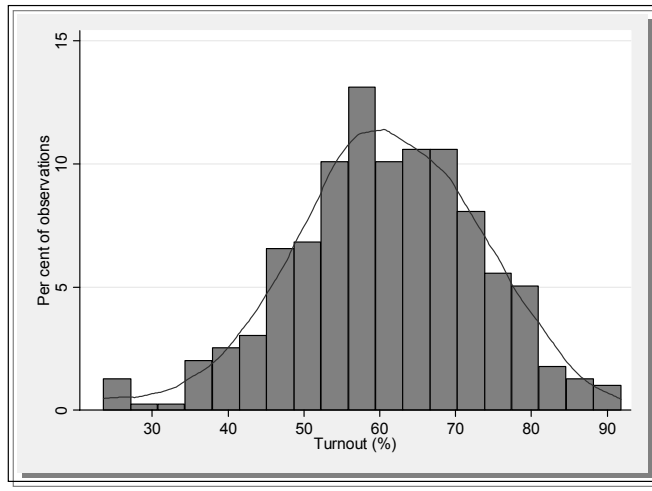

Figure 1. Histogram of voter turnout in the Indian states 1951–2004.

Furthermore, turnout has increased over the years indicating the citizens' engagement in the political process despite widespread poverty and illiteracy. Figure 2 shows a box plot of turnout trends in the Indian states in the 14 general elections. Each box represents turnout in a particular election year at the state level, and also shows the range of inter-state variation in that particular year.[2] The boxes are drawn so that their lower and the upper bounds represent 25th and 75th percentile values of the distribution within a particular year. Similarly, the upper and lower bounds of the two whiskers represent almost the whole distribution, while the points outside the whiskers show the outliers. The line drawn inside each box shows the median turnout in a particular election. As can be seen, turnout varies widely across the Indian states, and also over time, thus providing an interesting area of research.

Table 1 shows the summary statistics of turnout in the Indian states by election year. The average turnout in the Indian states was 47.1% in the first general election, and thereafter it increased sharply over the next three elections rising to 65.4% in 1967. In the first two elections – 1951 and 1957 – turnout was low; during this period parties were not especially strong, and the Indian party system both at the national level and the state level was dominated by the Indian National Congress (see Kothari, 1964). The period 1957 to 1967 witnessed a large increase in turnout, and was characterized by development of opposition to Congress, and a move towards a decline of a party system dominated by one party. As Yadav (2000: 121) notes, "the decade of the 1960s which, by all accounts, marked the first democratic upsurge following the establishment of Indian democracy … Voter turnout went up at all levels as political competition became serious and alternatives to the one-party dominance of the Congress began emerging".

The strengthening of party system and mobilization of voters by the parties seems to be an important reason for this large increase in turnout seen in this period.

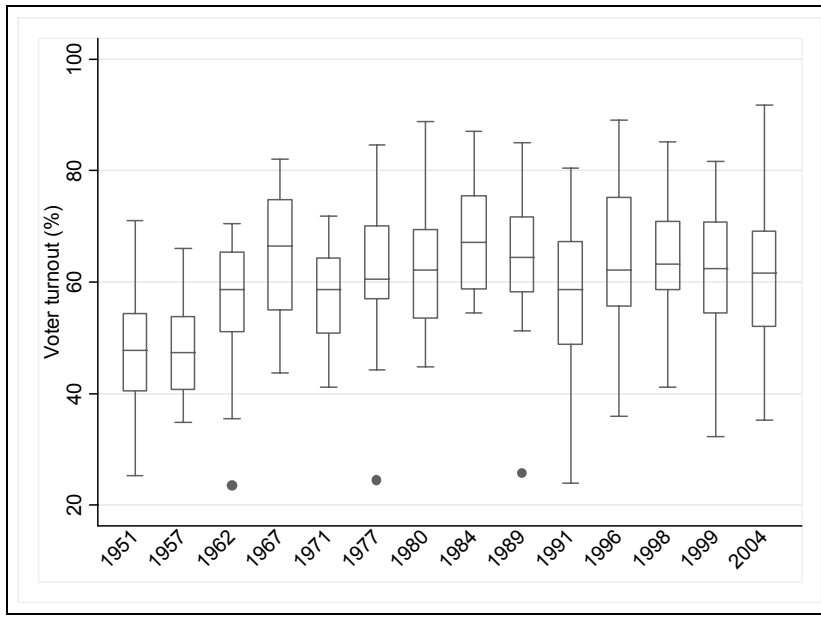

Figure 2. Box plot of turnout across the Indian states over time.

Table 1. Voter turnout in the Indian states by election year

Year	Mean	Median	Std. Deviation
1951	47.1	47.7	11.0
1957	48.2	47.4	9.3
1962	56.2	58.7	12.6
1967	65.4	66.5	10.1
1971	57.8	58.6	8.6
1977	61.6	60.5	11.4
1980	62.6	62.2	11.7
1984	69.2	67.4	10.7
1989	64.2	64.4	11.6
1991	58.9	58.6	12.7
1996	64.4	62.1	13.0
1998	64.5	63.2	10.0
1999	61.6	62.4	11.6
2004	61.6	61.6	11.9
Total	**61.0**	**60.8**	**12.4**

Although Congress continued to be the dominant party during this period, elections in many large states such as Uttar Pradesh, Bihar and Tamil Nadu became more competitive, and this could provide part of the explanation of increase in turnout in these states. On the other hand, in some other states, for example Kerala and West Bengal, turnout increased substantially without any corresponding increase in the competitiveness of the elections, thus indicating that mobilization of voters by parties could also account for the increase in turnout in these states (see Appendix 1 for the trends and explanation of turnout and competitiveness of elections in these states between 1957 and 1967).

Since the 1967 elections, the turnout has generally been above 60%, with the overall average during all elections being 61%. The median value for the whole period under consideration is 60.8% and has corresponded closely with the mean value. The deviation around the mean has averaged 12.4% over all the elections, and has remained stable during this period except for 1957 and 1971 elections where it was 9.3% and 8.6% respectively.

Figure 3 shows a box plot of turnout across the Indian states.[3] Each box represents the turnout for a state, the spread representing the variation over time for that state. This further confirms the large cross-sectional variation in turnout across the Indian states – which is the main focus of this paper.

Table 2 presents turnout statistics on a cross-sectional basis for all election years taken together. As can be seen, there is a wide variation in average turnout across the Indian states. While Kerala, West Bengal and Haryana have turnout rates much above the overall average, turnout in Uttar Pradesh, Rajasthan, Orissa, Madhya

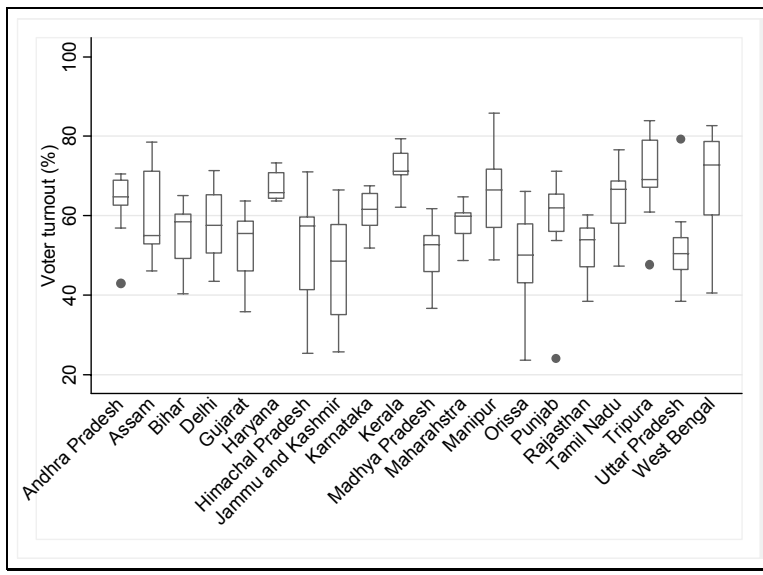

Figure 3. Box plot of turnout in key Indian states.

Table 2. Voter turnout in key Indian states 1951–2004

State	Mean	Median	Std. Deviation	Trend (beta)	p value
Andhra Pradesh	63.3	64.7	7.4	0.30	0.026
Assam	61.0	55.0	11.7	0.54	0.001
Bihar	54.6	58.4	7.9	0.42	0.000
Delhi	58.2	57.6	9.2	–0.36	0.010
Gujarat	53.0	55.5	8.1	–0.39	0.021
Haryana	67.4	65.8	3.5	–0.09	0.352
Himachal Pradesh	51.9	57.5	13.0	0.61	0.001
Jammu and Kashmir	46.7	48.5	12.9	–0.65	0.046
Karnataka	60.8	61.6	5.4	0.22	0.008
Kerala	71.6	71.1	5.3	0.07	0.520
Madhya Pradesh	50.8	52.7	6.5	0.22	0.035
Maharahstra	58.1	59.9	4.4	–0.18	0.062
Manipur	65.7	66.5	11.0	0.29	0.100
Orissa	48.6	50.1	11.9	0.64	0.000
Punjab	59.5	61.9	11.4	–0.09	0.653
Rajasthan	51.6	54.0	7.0	0.16	0.186
Tamil Nadu	64.4	66.7	7.7	0.02	0.873
Uttar Pradesh	51.8	50.5	9.4	0.23	0.146
West Bengal	68.0	72.8	13.1	0.72	0.000
All States	**61.0**	**60.8**	**12.4**	**0.22**	**0.000**

Pradesh, Himachal Pradesh and Jammu and Kashmir is lower than the overall average. In addition to summary statistics, Table 2 also shows (in the last two columns) the coefficient of the time trend and the corresponding *p* values.[4] It is seen that while for most of the states turnout shows a positive trend, there are few states where turnout has declined over the years. These states are Delhi, Gujarat, Haryana, Jammu and Kashmir, Maharashtra and Punjab. However, only Delhi, Gujarat, Jammu and Kashmir and Maharashtra show statistically significant negative trends.

Table 3 shows that average turnout is lower in Hindi belt and North region than in other regions.[5] In particular, turnout tends to be higher in the states located in the South and North East regions. It can be seen that only North region has shown a decline in turnout, while other regions have witnessed an upward trend in turnout rates, and that the upward trend is statistically significant for East, North East, Hindi Belt and South regions.

In addition to the average turnout in the Indian states, it is also important to note the turnout trends in the individual Indian states over time. These are shown in Figure 4.[6]

Figure 4 confirms the findings from the summary statistics in Table 2 that most of the Indian states have witnessed an upward trend in turnout over the years. However,

Table 3. Voter turnout in the Indian states by region 1951–2004

Region	Mean	Median	Std. Deviation	Trend (beta)	p value
East	61.2	60.7	14.1	0.52	0.000
Hindi Belt	54.1	54.4	10.1	0.24	0.000
North	56.2	59.0	11.9	–0.29	0.028
North East	65.2	65.7	12.8	0.28	0.012
South	68.3	67.5	9.7	0.20	0.004
West	60.7	60.1	10.0	0.06	0.538
All States	**61.0**	**60.8**	**12.4**	**0.22**	**0.000**

the rate of increase varies across the states, and in few states such as Delhi, Gujarat and Maharashtra, the turnout has actually declined over time.

The above analysis shows that while turnout has witnessed a general upward trend, there is a wide variation across the Indian states, and this represents an interesting research question to understand the determinants of turnout in the Indian context. Yadav (2000: 124) summarizes the complexity involved in studying the turnout trends in the Indian states by noting that "no single factor satisfactorily explains either the direction or the quantum of the change in turnout in different states [in the 1990s]. Usual explanations like the mobilization strategy of the political parties, greater keenness of the contest, context of regime alteration, or the Election Commission's efficiency, do not seem to work here". This necessitates using a multivariate model to study determinants of turnout especially in the Indian context.

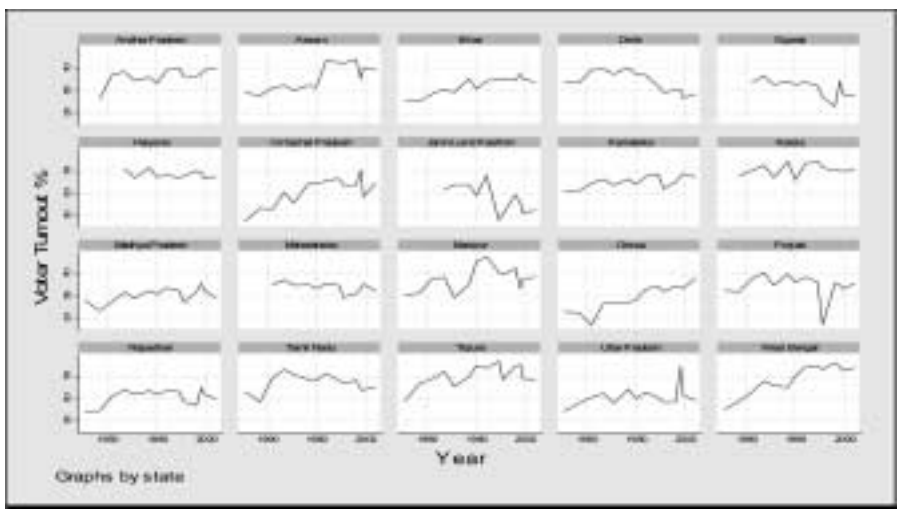

Figure 4. Voter turnout trends for key Indian states 1951–2004.

Data and Methods

The dependent variable is turnout at the state level, while the independent variables include measures of socio-economic characteristics, closeness of elections, social heterogeneity and party system variables.[7] The independent variables are discussed below.

Socio-economic Characteristics

I use literacy rate, percentage urban population and the number of electors to represent the socio-economic characteristics of a state as key variables affecting turnout in the Indian states. Higher degree of awareness and education enable voters to better understand electoral and policy issues, as well as parties' and candidates' abilities to fulfil their electoral promises. Thus, the higher the level of education in an Indian state, the greater will be the voters' appreciation of the importance of participating in the democratic process, and therefore the higher the turnout will be.[8] In the Indian context, literacy brings some sort of privilege in that voters understand that they have the power to influence electoral outcomes, and in a country with widespread illiteracy this might itself motivate a literate person to vote. Thus, literacy rate is specified as one of the independent variables for determining turnout in the Indian states, and I expect the relationship to be positive; higher turnout is expected in states with higher literacy rates. The hypothesized effects of urbanization are based on sociological theory which suggests that urbanization leads to a weakening of interpersonal bonds, primary social structures and consensus and norms (Hoffman-Martinot, 1994: 14; Wirth, 1938). Geys (2006: 643) points out that cities are more individualistic thus resulting in less social pressure to vote. Furthermore, cities tend to be more densely populated, making it difficult for the voters to know the candidates and their policies and thus increasing the information costs of voting in these areas (Geys, 2006: 643). Elections in the rural areas, on the other hand, tend to be more personal and this can lead to increased turnout (Blank, 1974; Davis, 1991; Geys, 2006). Accordingly, the degree of urbanization is included as an independent variable in my study.

Blais (2000) argues that an increase in the size of electorate affects turnout because it entails bringing in new people, and the associated difficulty in mobilizing them for voting. Further, Franklin (2002: 23) points out that an increase in the proportion of new voters also has further consequences in that "An electorate with more new voters will be an electorate that is more responsive to anything that cause change … Changes in electorate size *must* have immediate effects on turnout unless new voters vote at the same rate as existing voters". According to Geys (2006: 642), "Specifically, and intuitively apparent, the greater the size of the community, the smaller the probability becomes that one single voter will make a difference. This decreases the expected utility from voting and makes it more likely that one abstains".

In the Indian context, although the total size of electorate has increased, the average turnout (for all the states) at the state level has also increased. In this regard, it is

important to note that the number of states in India have increased from 14 in the 1951 elections to 35 in the latest 2004 elections. And therefore, as I show in my empirical results, while in the aggregate both the number of voters and the turnout have increased over time, larger states tend to have lower turnout. Thus, while the increase in the number of states (and reduction in average size of state) might have helped to increase the aggregate turnout at the national level over time, the results of this study indicate that the hypothesized negative relationship holds at the state level in India. In my study, I include the size of the electorate as one of the independent variables determining turnout.

Closeness of Elections

As discussed earlier, although many studies have found a relationship between closeness of elections at national level and turnout, this variable is better studied at the district level especially in Single-Member Plurality Systems (SMPS). Therefore, I include a measure of closeness of elections at the district level as an independent variable influencing turnout. In the Indian context, Yadav (2000) notes that rise in turnout in scheduled caste (SC) reserved constituencies is likely to stem from a higher level of competitiveness in these constituencies.

Social Heterogeneity

Cebula (2004: 218) argues that if voters feel "politically disenfranchised from their governments because [of] … the government's unresponsiveness to their needs … they very likely may react emotionally by adopting a Why bother? attitude towards voting". Further, as Cebula and Toma (2006: 36) point out "This form of expressive voting could very easily be expected of any minority that perceives itself as being economically repressed or disadvantaged in the society". On the other hand, it is also possible that the minorities turn out in large numbers at the elections to try and influence the policy outcomes, and improve their situation. Therefore, although the effect of the presence of minority groups in the electorate is an important variable, its effect on the turnout is not unambiguous. In the Indian context, the presence of socially disadvantaged groups such as the SC and scheduled tribes (ST) may therefore affect turnout patterns across the Indian states. The hypothesis is that these groups wish to use the voting power they have to express their opinion, even though their influence on the electoral outcome depends on the distribution of their population in electoral districts. Accordingly, I include the percentage population of these groups and an overall measure of social heterogeneity in the Indian states as independent variables in my regression models.

Party System

I use the number of contesting parties – the number of candidates who contest elections in the Indian states – to represent the size of the party system as one of the

explanatory variables. The raw number of parties rather than the effective number of parties (weighted by the votes received by them) is a more relevant variable in affecting turnout.[9] As mentioned earlier, there is a growing phenomenon of electoral alliances rather than individual parties determining the shape of the party system in the Indian states. However, the effect of this variable is difficult to measure and interpret.

Finally, I also add a dummy independent variable representing the presence of separatist movements in the states of Punjab, Jammu & Kashmir and Assam to account for the effect of any disruption to the democratic process in these states.[10]

It is important to note that there are many significant contextual variables that could influence turnout, but are not included in my empirical model because of measurement issues, and the associated difficulty in modelling them in a comparative study. For example, poor voters might lose a part of their day's wage if they decide to vote, and this factor can affect turnout in poor constituencies. Political violence and intimidation of voters on polling days is another factor which affects turnout in many states, but it is difficult to measure and use in an empirical study.[11] Table 4 shows the dependent and independent variables used in the regression models.[12]

Methodology

Since my data includes cross-sectional (states) and time series (election years) observations, there is a need to use appropriate estimator of regression coefficients, and also suitably correct the resulting standard errors and *z*-values (Wooldridge, 2002; Green, 2003).

Furthermore, there is a need to address potential problems caused by autocorrelation and heteroskedacity in the regression analysis (Green, 2003).[13] Literature also suggests using panel data methods such as the Fixed Effects Model (FEM) – also called the dummy variable approach and the Random Effects Model (REM) to model the unit level heterogeneity. While FEM assumes that each unit has its own intercept, REM treats the intercept as a random constant term (Green, 2003). Regarding FEM, Beck (2001: 285) points out:

> Fixed effects are clearly collinear with any independent variables that are unchanging attributes of the units, so they force us to drop such unchanging variables from the specification … These variables (perhaps characteristics such as democracy) might be of interest …, the fixed effects will soak up most of the explanatory power of those slowly changing variables. Thus, if a variable … changes over time, but slowly, the fixed effects will make it hard for such variables to appear either substantively or statistically significant.

According to Green (2003: 301), "From a purely practical standpoint, the dummy variable (FEM) approach is costly in terms of degrees of freedoms lost". Since my institutional and sociological independent variables either do not vary over time or

Table 4.

Variable category	Variable description	Variable name	Measurement method	Expected association
Dependent	Voter turnout	***TURNOUT***	No. of votes / No. of electors*100	
Independent				
Socio-economic	No of electors	***ELECT***	Natural log of number of electors	–
	Literacy rate	***LITER***	Literate population / total population*100	+
	Urban population	***URBAN***	urban population / total population*100	–
Closeness	Closeness of elections	***CLOSE***	Vote share of winning party less vote share of runner up party averaged at district level for a particular state	–
Social heterogeneity	Effective number of religious groups	***SOCIAL***	$\frac{1}{\sum_{i=1}^{M}\left(\frac{n_i}{N}\right)^2}$ where n_i is the population of a religious group i and N is the total population in an Indian state.	+
	SC population	***SCPOP***	% SC population	+
	ST population	***STPOP***	% ST population	+
Party system	Contesting parties	***CONTEST***	No. of contesting parties	–
Other	Separatist movement dummy	***SEPR***	Dummy variable during periods of separatist movements in the states of Punjab, Assam and Jammu & Kashmir	–

tend to change very slowly, FEM is also not a particularly suitable model for my regression analysis. Beck and Katz (1995) and Beck (2001) suggest using OLS regression coefficients, but with panel corrected standard errors (PCSE) and a lagged dependent variable to model TSCS data.[14] I follow their suggested methodology, and use ordinary least squares (OLS) with PCSE, and include a lagged dependent variable as one of the explanatory variables for my regression analysis.[15] I also include lagged dependent variables, and election dummies in alternative regression models to test the robustness of my results.

Regression Results

Table 5 presents regression results using *TURNOUT* in the Indian states as the dependent variable. Four main models (1–4) are presented with four sub-models (a–d) within each basic model giving a total of 16 (1a–4d) regression models. The sub-models are estimated using combinations of lagged dependent variables and election dummies to test the robustness of the regression results. Model 1 includes the socio-economic variables – number of electors, literacy rate and the degree of urbanization in the state, while an additional variable representing closeness of election is introduced in Model 2. Model 3 adds social heterogeneity variables to Model 2, and finally Model 4 includes all the independent variables including the party system variable and the dummy for the presence of a separatist movement. Table 5 shows for each independent variable the estimated regression coefficient, the associated *p* values and the R square for the model.

Model 1 includes three socio-economic independent variables *ELECT*, *LITER* and *URBAN*. Model 1a includes these independent variables without the use of any election dummies or lagged dependent variables as additional independent variables. The results are consistent with predictions, and the regression coefficients are of the predicted sign and are statistically significant. Thus, while higher number of electors and percentage of urban population in an Indian state reduces voter turnout, higher literacy rate increases it. A 1% increase in literacy rate leads to 0.22% increase in turnout, thus confirming the positive effect of improvement in literacy and education on the voter participation rates in the Indian states. The results for urban population are less strong, but statistically significant. A 1% increase in urban population is associated with a reduction of 0.08% in turnout across the Indian states. This is consistent with Yadav (2000: 126), who interprets the trend of rural turnout being higher in India to explain the participatory upsurge amongst the underprivileged participants. Thus, although increase in literacy rates increases turnout, the presence of higher proportion of urban population reduces it. This can be interpreted by the continuing apathy of the middle classes towards the political process by the urban population. The result for the number of electors is also consistent with theory: a 1% increase in number of electors leads to reduction of 0.2% in turnout.[16] This is because an increase in the number of electors leads to difficulty in mobilizing voters by parties, and also makes the voting decision complex, leading to many voters deciding not to vote. The R square for this model is 0.21.

Table 5. Regression results

	Model 1: Socio-economic variables				Model 2: Socio-economic, closeness of election variables			
Dependent: *TURNOUT*	Model 1a	Model 1b	Model 1c	Model 1d	Model 2a	Model 2b	Model 2c	Model 2d
No. of electors (Log) (*ELECT*)	−1.52 (0.000)***	−1.20 (0.000)***	−0.88(0.000)***	−0.71 (0.000)**	−1.59 (0.000)***	−1.28 (0.000)***	−0.90 (0.000)***	−0.78 (0.000)***
Literacy rate (*LITER*)	0.22 (0.000)***	0.39 (0.000)***	0.04 (0.183)	0.16 (0.000)***	0.20 (0.000)***	0.36 (0.000)***	0.02 (0.477)	0.12 (0.007)***
Degree of urbanisation (*URBAN*)	−0.08 (0.017**)	−0.13 (0.000)***	−0.04 (0.053)*	−0.08 (0.000)****	−0.07 (0.031)**	−0.13 (0.000)***	−0.04 (0.08)*	−0.07 (0.0001***
Closeness of elections (*CLOSE*)					−9.72 (0.045)**	−12.5 (0.01)***	−10.4 (0.017)**	−10.7 (0.015)**
Turnout lagged			0.54(0.000)***	0.55 (0.000)***			0.55 (0.000)***	0.56 (0.000)***
Constant	54.2	41.3	29.4	20.9	57.2	45.3	31.3	24.3
Election dummies	No	Yes	No	Yes	No	Yes	No	Yes
Lagged dependent variable	No	No	Yes	Yes	No	No	Yes	Yes
R square	0.21	0.36	0.42	0.54	0.21	0.36	0.44	0.55
N	383	383	348	348	374	374	342	342

Table 5. *(Continued)*

	Model 3: Socio-economic, closeness of election, social heterogeneity variables				Model 4: All variables also including party system, Separatist movement variables			
Dependent: TURNOUT	Model 3a	Model 3b	Model 3c	Model 3d	Model 4a	Model 4b	Model 4c	Model 4d
No. of electors (Log) (ELECT)	−1.64 (0.000)***	−1.28 (0.000)***	−0.91 (0.001)***	−0.79 (0.004)***	−1.54 (0.000)***	−1.18 (0.000)***	−0.80 (0.009)***	−0.65 (0.029)**
Literacy rate (LITER)	0.19 (0.000)***	0.37 (0.000)***	0.02 (0.610)	0.14 (0.016)**	0.19 (0.000)***	0.34 (0.000)***	0.02 (0.577)	0.11 (0.050)**
Degree of urbanisation (URBAN)	−0.07 (0.053)*	−0.14 (0.000)***	−0.04 (0.162)	−0.08 (0.003)***	−0.06 (0.064)*	0.13 (0.000)***	−0.03 (0.197)	−0.07 (0.010)***
Closeness of elections (CLOSE)	−10.1 (0.039)**	−12.6 (0.009)***	−10.5 (0.016)**	−10.8 (0.014)**	−9.3 (0.05)**	−12.2 (0.010)**	−10.1 (0.019)**	−10.7 (0.013)**
Social heterogeneity (SOCIAL)	2.2 (0.261)	0.85 (0.642)	1.7 (0.356)	0.63 (0.703)	3.22 (0.112)	2.1 (0.259)	2.3 (0.208)	1.4 (0.396)
SC population (SCPOP)	0.18 (0.135)	0.20 (0.057)*	0.10 (0.356)	0.12 (0.189)	0.20 (0.110)	0.22 (0.046)**	0.11 (0.308)	0.13 (0.166)
ST population (STPOP)	0.04 (0.171)	0.06 (0.089)*	0.03 (0.372)	0.034 (0.257)	0.05 (0.153)	0.05 (0.109)	0.03 (0.334)	0.03 (0.307)
No. of contesting parties (CONTEST)					−0.00 (0.567)	−0.00 (0.232)	−0.00 (0.367)	−0.00 (0.123)
Separatist movement (SEPR)					−11.0 (0.007)***	−12.6 (0.000)***	−6.7 (0.099)*	−7.6 (0.026)**
Turnout lagged			0.54 (0.000)***	0.56 (0.000)***			0.53 (0.000)***	0.54 (0.000)***
Constant	51.2	39.2	27.5	20.8	49.6	39.7	27.3	22.8
Election dummies	No	Yes	No	Yes	No	Yes	No	Yes
Lagged dependent variable	No	No	Yes	Yes	No	No	Yes	Yes
R square	0.21	0.48	0.45	0.56	0.23	0.39	0.45	0.57
N	374	374	342	342	374	374	342	342

Linear regression, heteroskedastic panels corrected standard errors (pcse). Figures in parenthesis represent *p* values; Model significance levels: *0.01; **0.05; ***0.001.

Model 1b adds the election dummies to Model 1a. The objective of introducing these dummies is to control for election-specific effects, and to test for the overall robustness of the regression results. The sign for regression coefficients and their statistical significance is consistent with Model 1a, while the value of the R square increases to 0.36. Model 1c adds the lagged dependent variable to Model 1a , and its results are similar to Model 1b except that literacy rate variable is no longer statistically significant, although it still has the predicted positive sign. The lagged dependent variable is positive and statistically significant indicating that turnout is also affected by turnout in the previous election. The explanation of the literacy variable becoming insignificant may be that its effect can be seen in the lagged dependent variable, since lagged turnout already contains the effect of the cross-sectional differences in literacy rates in the Indian states. The R square for Model 1c is higher than Model 1b at 0.42. Model 1d adds both election dummies and the lagged dependent variable to Model 1a. All the regression coefficients in this Model are statistically significant and of the predicted sign, and the explanatory power of the model increases with R square being 0.54.

To summarize, the results from Model 1 and its sub-models confirm the effect of socio-economic variables on turnout in the Indian states. The regression coefficients of these variables tend to be statistically significant and of the predicted signs. The effect of number of electors and literacy rate is more prominent than that of presence of large urban population. Further, turnout is also affected by turnout in the previous election in the Indian states.

Model 2 adds the closeness of election variable *CLOSE* to the socio-economic independent variables in Model 1. The regression results in Models 2a–2d are as per predictions, with all the coefficients being of the predicted sign and all except one variable (literacy rate in model 2c is not significant) being statistically significant. The result for the closeness variable is significant and negative in all the four sub-models. Thus, wherever the elections are closely fought – where difference between the vote share of the winner and the runner-up candidate is small, the turnout tends to be high. The results of Model 2d show that a 1% increase in the difference of the vote share of the winning and the runner party leads to a 10.7% decrease in turnout. The lagged turnout variable is positive and significant in models 2c and 2d where it is used. The R square for models 2a–2d ranges from a minimum of 0.21 in model 2a to the maximum of 0.55 in 2d. Overall, the closeness of elections and the literacy rate emerge as the most important independent variables affecting turnout in the Indian states in Models 2a–2d.

Model 3 adds three social heterogeneity variables *SOCIAL*, *SCPOP* and *STPOP* to Model 2. The results show that the three socio-economic variables and the closeness variable used in Models 1 and 2 continue to be statistically significant and of the predicted sign in this more inclusive model. The coefficients for the three social heterogeneity variables have the predicted positive sign in all the four sub-models, even though these are not statistically significant with the exception of *SCPOP* and *STPOP* (significant at 90% confidence level in Model 3b). Overall, the addition of the social heterogeneity variables does not add to the explanatory power of the

regression, and as such these variables do not appear to be affecting turnout in a statistical significant way. The finding regarding the effect of *SCPOP* and *STPOP* in this study are in line with McMillan (2000) whose evidence suggests that electoral reservation has not affected the turnout of these social groups in India.

Model 4 is a comprehensive model which adds the party system variable *CONTEST* and the separatist movement dummy *SEPR* to Model 3. The coefficient for the party system variable is negative in all the sub-models 4a–4d, which is consistent with predictions. Thus, an increase in the number of contesting parties makes the voters' choice difficult and is likely to reduce turnout. However, this variable is not statistically significant in all the four sub-models. The coefficient of the *SEPR* variable depicting the presence of a separatist movement is negative and statistically significant in all the four sub-models 4a–4b. Thus, the hypothesized negative effect of the presence of a separatist movement on turnout is confirmed from the results of these models. Overall, the results in Model 4 are in line with the pattern shown in Models 1–3; the socio-economic variables are of predicted signs and are significant, and so is the closeness variable. However, the social heterogeneity and the party system variable are not statistically significant. The R square in model 4d which includes all the explanatory variables, including the election dummies and the lagged dependent variable is 0.57, and it is useful to analyse its results further. Thus, the number of electors, literacy rate and the closeness of elections are the most important variables affecting turnout across the Indian states, while the effect of urban population is also significant although small in magnitude. Thus, an increase in 1% in the number of electors leads to 0.52% decrease in turnout, while a similar increase in literacy rate leads to an increase in 0.11% in turnout. The largest effect on turnout results from the closeness of election variable where a 1% increase in the difference of vote share between the winner and the runner-up party leads to a decrease in turnout by 10.7%. Although social heterogeneity leads to increase in turnout, its effects are not statistically significant. Finally, the presence of a separatist movement depressed turnout by 7.6% compared with other states.

Conclusions

My results show that turnout varies widely across the Indian states, even as there is a general upward trend witnessed in most of the states. In general, my empirical findings support the prominent theories of voter turnout: close elections and higher literacy lead to higher turnout, while larger electorates result in lower turnout. The results also show that the presence of a larger urban population depresses turnout in the Indian states, and that the social heterogeneity variables are not significant. This is consistent with Yadav (1996b, 1996c, 1999, 2000), who notes that in India the incidence of voting is higher among the poor than among the rich, among the less educated than the graduates, in the villages than in the cities. Thus, it might be possible to increase turnout in the Indian states by improving literacy rates, and motivating the urban population to vote in larger numbers. Political parties and electoral institutions can influence turnout through improved

communications, thereby reducing any information gap (for example see Zaller, 1991, 1992). The negative relationship between the number of electors and turnout can be addressed by minimizing mal-apportionment and creating smaller states to improve voter–party co-ordination and voter mobilization. In terms of future research agenda, my results highlight the importance of studying turnout at the sub-national level, and a need to develop ways of studying the interactions between the characteristics of the voters and the context in which the elections take place. This is consistent with Blais' (2006: 122) argument calling "for the use of multi-level analysis, in which characteristics of voters interact with the characteristics of the electoral context".

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Notes

1. I used the term "States" to also include Union Territories – federal units which have relatively less financial and administrative autonomy compared to other states. Currently, there are 28 states and 7 Union Territories in India.
2. General elections are held once every five years. After 1971, the next elections were held only in 1977 because of Emergency rule invoked in 1975.
3. For the sake of brevity, I limit the graphical display to 19 Indian states, which cover over 95% of India's electoral districts for the general elections.
4. These are estimated by regression taking turnout as the dependent variable and the election year as the independent variable.
5. The states contained in the five regions are as follows – Hindi belt: Uttar Pradesh, Bihar, Rajasthan, Uttaranchal, Haryana, Madhya Pradesh, Chhatisgarh, Delhi, Himachal Pradesh. North: Punjab, Chandigarh, Jammu and Kashmir; West: Maharashtra, Gujarat, Goa, Dadra and Nagar Haveli. East: Andaman and Nicobar Island, West Bengal, Assam, Orissa, Jharkhand; South: Andhra Pradesh, Kerala, Tamil Nadu, Karnataka, Lakshadweep, Pondicherry; North East: Arunachal Pradesh, Manipur, Mizoram, Nagaland, Meghalaya, Sikkim, Tripura. This is consistent with Rudolph and Rudolph (1987).
6. Important state reorganization took place in India in 1950s and 1960s, whereby many new states were formed. For showing the trend in the chart, the pre-reorganization data has been linked to the appropriate new states which were formed.
7. I use national elections data mainly to control for contextual factors at the national level. McMillan (2005) and Yadav (2000) use data from assembly as well as national elections in their studies of turnout in India. The assembly elections in the Indian states take place at different points of time, and therefore the national context in which these elections take place varies considerably. As Yadav (1996a: 44) puts it, "For an overwhelming majority of underprivileged voters, the Lok Sabha elections have become not more than countrywide state-level elections. What looks like an unclear verdict at the national level is an artificial summation of fairly clearly verdict at the state level".
8. According to Blais (2000) and Norris (2002), education and income affect turnout in emerging democracies.
9. Using Effective number of parties instead of the raw number of contesting parties does not affect the empirical results.

10. The elections for which the dummy variable is used are 1980, 1984 for Assam, 1980–1989 for Punjab and 1989–2004 for Jammu & Kashmir. These elections were severely affected by extremism and violence.
11. Successive electoral reforms and security measures have aimed to reduce the scope of activities such as ballot-rigging and intimidation of voters on the polling day.
12. Appendix 2 shows the data sources for the variables used in this study. The information extracted from Census of India, which is held every 10 years, has been extrapolated to match the election years.
13. Beck (2001) differentiates between TSCS and panel. Panel data are repeated cross-section data, but the units are sampled, and they are typically observed only a few times. TSCS units are fixed; there is no sampling scheme for the units. In panel data, the people observed are of no interest; all inferences of interest concern the underlying population that was sampled. TSCS data are exactly the opposite; all inferences of interest are conditional on the observed units.
14. This method has been widely used in the comparative politics literature for modelling of TSCS data.
15. I have also run regressions using Random Effects Model and find that results are consistent with the method suggested by Beck and Katz (1995). The regression results are shown in Appendix 3.
16. This is calculated by taking the exponential value of –1.52 which is the regression coefficient of no. of electors (Log).

References

Aldrich, John (1993) Rational choice and turnout, *American Journal of Political Science*, 37, pp. 246–278.

Beck, Nathaniel (2001) Time-series–cross-section data: what have we learned in the past few years? *Annual Review of Political Science*, 4, pp. 271–293.

Beck, Nathaniel & Katz, Jonathan N. (1995) What to do (and not to do) with time-series cross-section data, *American Political Science Review*, 89(3), pp. 634–647.

Berelson, Bernard & Steiner, Gary A. (1964) *Human Behavior: An Inventory of Scientific Findings* (New York: Harcourt, Brace).

Blais, Andre (2000). *To Vote or Not To Vote? The Merits and Limits of Rational Choice* (Pittsburgh: University of Pittsburgh Press).

Blais Andre (2006) what affects voter turnout? *Annual Review of Political Science*, 9, pp. 111–125.

Blais, Andre & Carty, R. K. (1990) Does proportional representation foster voter turnout?, *European Journal of Political Research*, 18(2), pp. 167–181.

Blais, Andre & Carty, K. (1991) The psychological impact of electoral laws: measuring Duverger's elusive factor, *British Journal of Political Science*, 21, pp. 79–93.

Blais Andre & Dobrzynska, A. (1998) Turnout in electoral democracies, *European Journal of Political Research*, 33, pp. 239–261.

Blank, R. H. (1974) Socio-economic determinism of voting turnout: a challenge, *Journal of Politics*, 36, pp. 731–752.

Buchanan, John & Tullock, George (1962) *The Calculus of Consent: Logical Foundations of Constitutional Democracy* (Ann Arbor, MI: University of Michigan Press.

Cebula, Richard J. (2004) Expressiveness and voting: alternative evidence, *Atlantic Economic Journal*, 32(3), pp. 216–221.

Cebula, Richard J. & Toma, Michael (2006) Determinants of geographical differentials in the voter participant rate, *Atlantic Economic Journal*, 34, pp. 33–40.

Chhibber, Pradeep & Noorudin, Irfan (2004) Do party systems count? The number of parties and the government performance in the Indian states, *Comparative Political Studies*, 34 (2), pp. 152–187.

Cox, Gary W. & Munger, M. C. (1989) Closeness, expenditures and turnout in the 1982 US house elections, *American Political Science Review*, 83(1), pp. 217–230.

Davis, O. (1991) A multivariate analysis on voter turnout in Louisiana contested non-partisan judicial elections, 1981–1988, PhD Dissertation, UMI Dissertation Services, Ann Arbor, MI.

Downs, Anthony (1957) *An Economic Theory of Democracy* (New York: Harper & Row).

Erikson, R. (1995a) State turnout and presidential voting: a closer look, *American Politics Quarterly*, 23, pp. 387–396.

Erikson, R. (1995b) Pooling and statistical control: a rejoinder to Radcliff, *American Politics Quarterly*, 23, pp. 404–408.

Feddersen, Timothy J. (2004) Rational choice theory and the paradox of not voting, *Journal of Economic Perspectives*, 18(1), pp. 99–112.

Fornos, Carolina A., Power, Timothy J. & Garand, James C. (2004) Explaining voter turnout in Latin America 1980 to 2000, *Comparative Political Studies*, 37(8), pp. 909–940.

Franklin, Mark N. (1996) Electoral participation, in: Laurence Leduc, Richard Niemi and Pippa Norris (eds) *Comparing Democracies: Elections and Voting in Perspective* (Thousand Oaks, CA: Sage), pp. 214–233.

Franklin, Mark N. (1999) Electoral engineering and cross-national turnout differences: what role for compulsory voting?, *British Journal of Political Science*, 29, pp. 205–216.

Franklin, Mark N. (2001) The dynamics of electoral participation, in: Laurence Leduc, Richard Niemi & Pippa Norris (eds) *Comparing Democracies: Elections and Voting in Global Perspective* (Thousand Oaks, CA: Sage).

Franklin, Mark (2002) The voter turnout puzzles, *Analise Socia*, 38, pp. 321–338. Translation into Portugese of a 2002 conference paper presented at the Fulbright Brainstorm Conference on Voter Turnout, held in Lisbon, Portugal, February 2002.

Geys, Benny (2006) Explaining voter turnout: a review of the aggregate-level research, *Electoral Studies*, 35, pp. 637–663.

Gosnell, Harold F. (1927) *Getting Out the Vote: An Experiment in the Stimulation of Voting* (Chicago, IL: University of Chicago Press).

Green, William (2003) *Econometric Analysis* (New York: Prentice Hall).

Hoffman-Martinot, V. (1994) Voter turnout in French municipal elections, in: L. Lopez Nieto (eds) *Local Elections in Europe* (Barcelona: Institut de sciences politiques I socials).

Jackman, Robert W. (1987) Political institutions and voter turnout in industrial democracies, *American Political Science Review*, 81(2), pp. 405–423.

Jackman, Robert W. & Miller, Ross A. (1995) Voter turnout in the industrial democracies during the 1980s, *Comparative Political Studies*, 27(4), pp. 467–492.

Kostadinova, Tatiana (2003) Voter turnout dynamics in post-communist Europe, *European Journal of Political Research*, 42, pp. 741–759.

Kothari, Rajni (1964) The congress "system" in India. *Asian Survey*, 4(12), pp. 1161–1173.

Lijphart, Arend (1997) Unequal participation: democracy's unresolved dilemma, *American Political Science Review*, 91, pp. 1–14.

Lipset, Seymour M. (1960) *Political Man* (Garden City, NJ: Doubleday).

McMillan, Alistair (2005) *Standing at the Margins: Representation and Electoral Reservation in India* (Oxford: Oxford University Press).

Nevitte, Neil, Blais, Andre, Gidengil, Elizabeth & Nadeau, Richard (2000) *Unsteady State: The 1997 Canadian Federal Election Toronto* (Oxford: Oxford University Press).

Norris, Pippa (2002) *Count Every Voice* (Cambridge: Cambridge University Press).

Parry, G., Moyser, G. & Day, N. (1992) *Political Participation and Democracy in Britain* (New York: Cambridge University Press).

Powell, Bingham G. (1980) Voting turnout in 30 democracies: partisan, legal and socio-economic influences, in: Richard Rose (eds) *Electoral Participation: A Comparative Analysis* (London: Sage).

Powell, Bingham G. (1986) American voter turnout in comparative perspective, *American Political Science Review*, 80(1), pp. 17–40.

Powell, G. B. (1982) *Contemporary Democracies: Participation, Stability and Violence* (Cambridge, MA: Harvard University Press).

Radcliff, Benjamin (1992) The welfare state, turnout and the economy: a comparative analysis, *American Political Science Review*, 86(2), pp. 444–454.

Radcliff, Benjamin (1994) Turnout and the democratic vote, *American Politics Quarterly*, 22, pp. 259–276.

Radcliff, Benjamin (1995) Turnout and the vote revisited: a reply to Erikson, *American Politics Quarterly*, 23, pp. 397–403.

Radcliffe, Benjamin & Davis, Patricia (2000) Labor organization and electoral participation in industrial democracies, *American Journal of Political Science*, 44(1), pp. 132–141.

Riker, William H. & Ordeshook, Peter C. (1968) A theory of the calculus of voting, *American Political Science Review*, 62, pp. 25–42.

Rosenstone, Steven J. & Hansen, John Mark (1993) *Mobilisation, Participation and Democracy in America* (New York: Macmillan).

Rudolph, Lloyd I. & Rudolph, Susanne H. (1987) *In Pursuit of Lakshmi: The Political Economy of the Indian State* (Chicago: The University of Chicago Press).

Tullock, Gordon (1971) Adam Smith and the prisoners' dilemma, *The Quarterly Journal of Economics*, 100 (Supplement), pp. 1073–1081

Varshney, Ashutosh (2000) Is India becoming more democratic?, *The Journal of Asian Studies*, 59(1), pp. 3–25.

Verba, Sidney & Nie, Norman H. (1972) *Participation in America: Political Democracy and Social Inequality* (New York: Harper & Row).

Wirth, L. (1938) Urbanisation as a way of life, *American Journal of Sociology*, 44, pp. 3–24.

Wolfinger, Raymond E. & Rosenstone, Steven J. (1980) *Who Votes?* (New Haven, CT: Yale University Press).

Wooldridge, Jeffery M. (2002) *Econometric Analysis of Cross Section and Panel Data* (Cambridge, MA: MIT Press).

Yadav, Yogendra (1996a) How India voted, *India Today*, 31 May.

Yadav, Yogendra (1996b) Reconfiguration of Indian politics: state assembly elections, 1993–1995, *Economic and Political Weekly*, 13 January.

Yadav, Yogendra (1996c) The maturing of Indian democracy, *India Today*, 31 August.

Yadav, Yogendra (1999) Politics, in: Marshall Bouton & Philip Oldenburg (eds) *India Briefing: Looking Back, Looking Ahead* (Armonk, NY: M. E. Sharpe).

Yadav, Yogendra (2000) Understanding the second democratic upsurge, in: Francine Frankel *et al.* (eds) *Transforming India: Social and Political Dynamics of Democracy* (Oxford: Oxford University Press), pp. 120–145.

Zaller, John (1991) Information, values and opinion, *American Political Science Review*, 85(4), pp. 1215–1237.

Zaller, John (1992) *The Nature and Origins of Mass Opinion* (Cambridge: Cambridge University Press).

Appendix 1: Turnout and Competitiveness Trends in 1957–1967 in Selected Indian States

Table A1 shows the turnout trends and the competitiveness of the elections (represented by 'Closeness' variable measured as vote share of winning party less vote share of runner up party averaged at the constituency level for a particular state) in selected Indian states and is useful for understanding the increase in turnout during 1957–1967.

Table A1. Turnout and competitiveness trends in 1957–1967 in selected Indian states (%)

		Closeness (winning party's lead over runner-up party)			Turnout		
No.	State	1957	1967	Trend	1957	1967	Trend
1	Uttar Pradesh	14	10	Increase in competitiveness	46	55	Increase in turnout
2	Bihar	17	13	Increase in competitiveness	41	52	Increase in turnout
3	Tamil Nadu	17	12	Increase in competitiveness	47	77	Increase in turnout
4	West Bengal	9	11	Decrease in competitiveness	48	66	Increase in turnout
5	Kerala	7	17	Decrease in competitiveness	66	76	Increase in turnout

Here, Closeness represents difference between vote share of the winning party and the runner-up party in a constituency averaged for the particular state. Thus, a decrease in Closeness means an increase in competitiveness of the election, and therefore is likely to result in an increase in turnout. It can be seen that on an average, elections in the states of Bihar, Punjab, Tamil Nadu and Uttar Pradesh were more competitive in 1967 than in 1957, and thus likely to produce higher turnout. It can be seen that the turnout in these states did increase between 1957 and 1967, and therefore was in line with expectations. In Kerala and West Bengal, the elections were actually less competitive in 1967, and thus a decrease in turnout was likely. However, even for these states, the turnout increased between 1952 and 1967 indicating that in these states factors other than Closeness – such as increased mobilization of voters by parties – is likely to have led to an increase in turnout. In summary, it can be said that in the years following independence, an increase in turnout was helped by an increase in competitiveness of political system through development of opposition parties, as well as the efforts of the parties to mobilize voters.

Appendix 2: Data Sources

Variable	Variable name	Data source
Voter turnout	*TURNOUT*	Election Commission of India – election reports for general elections
No of electors	*ELECT*	Election Commission of India – election reports for general elections
Literacy rate	*LITER*	Census of India – various years, Indiastat.com available at LSE library
Urban population	*URBAN*	Census of India – various years, Indiastat.com available at LSE library
Closeness of elections	*CLOSE*	Election Commission of India – election reports for general elections
Social heterogeneity	*SOCIAL*	Census of India – various years, Indiastat.com available at LSE library
SC population	*SCPOP*	Census of India – various years, Indiastat.com available at LSE library
ST population	*STPOP*	Census of India – various years, Indiastat.com available at LSE library
No. of contesting parties	*CONTEST*	Election Commission of India – election reports for general elections

Appendix 3: Regression Results using Random Effects Model (REM)

Dependent: TURNOUT	REM
No. of electors (Log) (ELECT)	–0.65 (0.025)**
Literacy rate (LITER)	0.11 (0.05)**
Degree of urbanisation (URBAN)	–0.07 (0.023)**
Closeness of elections (CLOSE)	–10.7 0.003**
Social heterogeneity (SOCIAL)	1.41 (0.361)
SC population (SCPOP)	0.13 (0.134)
ST population (STPOP)	0.03 (0.233)
No. of contesting parties (CONTEST)	–0.00 (0.102)
Separatist movement dummy (SEPR)	–7.6 (0.004)**
Turnout lagged	0.54 (0.000)***
Constant	22.7
Election dummies	Yes
Lagged dependent variable	Yes
R square	0.57
N	342

Figures in parenthesis represent *p* values; Model Significance levels: *0.01; **0.05; ***0.001.