Does Political Competition Influence Human Development? Evidence from the Indian States

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Abstract

Recently, it has been argued that political competition may have similar effects on economic performance as market competition. This study empirically examines this proposition by linking political competition with the Human Development Index (HDI) of the Indian states. The findings suggest that politically competitive governments perform well along the HDI. A more detailed analysis also shows that the rural India benefits the most from the intense political competition as compared to urban India. We also found that if the same government rules a state for a relatively longer period, it helps the state in achieving higher HDI score. Increasing voter participation found to be positively associated with HDI score, but this finding is confined to the sample of major Indian states only. Increasing public spending on developmental activities is also found to have a positive and significant effect on HDI performance. These findings are robust to various forms of sensitivity analyses.

Keywords: political competition, human development, Indian states.

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1. Introduction

One of the most celebrated propositions in economics is that monopoly and market power create economic rents for the producer and market competition maximizes the welfare of the consumers. Whether competition among political parties to form government maximizes the welfare of the voters or not has received far less attention in the literature. The seminal contributions of Downs (1957) and Becker (1958) set the stage for the literature on political competition. Traditionally, it is argued that increasing political competition minimizes the political rents; e.g., expands the set of public policies available to the voters, ensures efficient use of public resources, and works as an instrument of revealing information and improves the principal-agent relationship between voters and political representatives; creates incentives for the elected representatives working towards public interests instead of private, and hence, enhances citizens' welfare (Stigler, 1972; Barro, 1973; Becker, 1983; Wittman, 1995).

From the point of view of accountability, Persson et al. (1997) have argued that higher political competition will make the incumbent politicians accountable for their actions. Besley et al. (2010) have argued that intense political competition may induce political parties to implement growth-promoting policies rather than special-interest policies. However, these arguments are questioned in the recent studies on the ground that they have ignored the possibility that the existing institutional underpinnings could play an important role in affecting the whole process. Lopsided political competition may result declining welfare due to excessive rent-seeking activities (Polo, 1998; Damania and Yalcin, 2008) and inefficient provision of public services (Svensson, 2005). Bardhan and Yang (2004) have argued that an incumbent's probability of getting re-elected goes down as the degree of political competition becomes higher. In such a situation, incumbents may act myopically and target at maximizing political rents during their remaining time in office. Intense political competition may force political parties to adopt pork-barrel policies to cater the narrow interests of specific interest groups instead of implementing the policies that would benefit the majority (Acemoglu and Robinson, 2005; Lizzeri and Persico, 2005).

In recent times, a few attempts have been undertaken to test the empirical validity of these theoretical arguments. Studies by Besley and Case (2003), Svensson (2005), Ashworth

et al. (2006), Padovano and Ricciuti (2009), Besley et al. (2010), and Ghosh (2010) have found that higher political competition improves economic performance, through the choice of more efficient public policies. On the contrary, in a panel data analysis of OECD countries, Padovano and Ricciuti (2008) found that greater political competition is correlated with an increase in short-term, redistributive policy choices, aimed at buying votes, which depress economic performance. Against these extreme evidence, Alfano and Baraldi (2012) have found that the degree of political competition at the intermediate level helps a country's cause. Intermediate degree of political competition reduce the trade-off between the incentive of incumbent politicians to be engaged in productive activities and their opposite incentive to promote pork-barrel policies, and thus increases the efficiency and enhances economic growth (Alfano and Baraldi, 2012). On the other hand, studies by Pinto and Timmons (2005), Cleary (2007), and Moreno-Jaimes (2007) have found that political competition plays a limited role in determining the economic performance. The available empirical evidence does not help one to arrive at a definite conclusion. Therefore, the relation between political competition and economic performance is neither direct nor simple; rather it is context-specific and system-specific.

The majority of the empirical studies that have linked political competition and economic performance of various countries have focused on how political competition influences economic growth and per capita income. To the best of our knowledge, no attempt has been made in the literature to empirically understand the relationship between political competition and Human Development (HD) performance.[2] In recent times, many scholars have questioned the ability of higher growth rates in trickle-down enough to enhance the welfare of the majority.[3] In fact, instead of concentrating only on achieving higher economic growth, increasingly countries, particularly the developing and underdeveloped ones, are urged to focus more on performing well along the HD indicators - education, health, and income - which are considered to be more comprehensive measures of development (UNDP,

[2] In various recent studies, it is recognized that the existence of a well-functioning democratic political set-up is an important pre-condition for the accumulation of human development (Drèze and Sen, 1995; Przeworski et al., 2000; UNDP, 2004; Harding and Wantchekon, 2010; Vollmer and Ziegler, 2009). Quite often, democratic political systems are presumed to be political competitive, which is not true. A democratic political set-up encourages political competition, but might not necessarily result higher political competition. More appropriately, a democratic system allows its citizens to exercise their political rights, whereas political competition is largely determined by the electoral system and the political practices.

[3] Andrews et al. (2011) have discussed this issue in detail.

1990; Sen, 1993, 2000). Considering the case of the largest democracy in the world, India, this study makes an attempt to examine how systematically political competition has affected the Human Development Index (HDI) scores of the Indian states in a much detailed fashion.

In spite of constituting parts of the same country, over the years, the trajectory of economic performance of each Indian state has been very different. Since the present study focuses on the HD performance of the Indian states, based on the methodology described by Mukherjee and Chakraborty (2011), state-wise HDI scores are calculated to measure HD performance. Data suggests that the HDI score varies significantly across the states. At the same time, the degree of political competition has also shown a significant variation across the Indian states, particularly after the emergence of regional political parties in the 1970's.[4] In spite of the growing consensus that political competition plays an important role in determining the economic outcomes of a country, not many attempts have been made to examine the relation between political competition and economic outcomes at the state level in India.[5] Most of the existing studies are confined to the group of a few major Indian states and none of them has considered overall HDI score as a performance indicator. By considering both major and minor 25 Indian states and linking political competition with the HDI, the present analysis not only generalizes its findings across the Indian states, but also contributes to the literature being the first study to do so. Over the years, increasing rural-urban disparities has been of the major concerns in India. To understand how the process of political competition has affected the HD outcomes of rural and urban areas, we have linked political competition with the HDI scores of rural and urban areas separately. HDI scores of

[4] See Chhibber and Nooruddin (2000) for a detailed discussion.

[5] The studies that have linked political competition with socioeconomic performance in the Indian context are by Besley and Burgess (2002), Chhibber and Nooruddin (2004), Gupta and Damania (2004), Keefer and Khemani (2005), and Ghosh (2010). Besley and Burgess (2002) found that intense political competition improve electoral accountability and the quality of governance and, in turn, makes the state governments to be more responsive to falls in food production and crop flood damage via public food distribution and calamity relief expenditure. Chhibber and Nooruddin (2004) found that two-party competitive states spend more on development expenditure and provide better provision of public goods in comparison to multi-party competitive states. Gupta and Damania (2004) found that both higher electoral competition and higher democratic participation have helped the Indian states in reducing the infant mortality rates (IMR). However, they have used voter turnout and the vote share of the opposition as measures of political competition and these are not the appropriate measures of political competition. In a comparative analysis between two Indian states, Kerala and Uttar Pradesh, Keefer and Khemani (2005) have attributed healthy political competition as an important factor for assigning more priority to spending on public health and education, and achieving better socioeconomic outcomes in Kerala in comparison to Uttar Pradesh. Ghosh (2010) found that political competition is positively associated with economic expenditure, per capita income, and per capita income growth across the major Indian states.

five different rounds (spanned across three decades) have been calculated and used in the empirical analysis. Standard panel data estimation methods are used to arrive at the results.

The structure of the current analysis is as follows. Section 2 discusses the political profile of India in brief. Section 3 deals with the data and the empirical model. Section 4 analyses the empirical results of the study and checks their robustness. Finally, section 5 summarizes the finding of the study and concludes.

2. A brief political profile of India

In India, all political representatives are democratically elected and governments are formed based on plurality rule. The power structure of the state governments is a replica of the central government's power structure. Indian constitution has adopted the pluralistic voting system where the voters directly elect the representatives. Each Indian state is divided into few electoral districts, based on population, and the elected representatives represent these districts. Finally, governments are formed according to the number of seats occupied by a party or a set of parties in the state legislature. As per the constitutional provisions, an elected government can rule a state for a tenure of five years. A government holds the right of ruling a state as long as it enjoys at least the support of simple majority in the assembly (i.e. legislature at the state level in India).

The first democratic election in the independent India was held in the year 1951. The Indian National Congress party (INC), ideologically a left-centric political party, which had played a crucial role during the freedom struggle of India, had won most number of elections both at national and state level. In fact, INC had dominated elections at all levels until the year 1967 when the Congress Party lost its power to a regional party in the state of Tamil Nadu. Since then the congress party's dominance has been challenged many times at the central and at the state level elections. The first non-congress government came into existence at the centre after the general election of 1977. This is the year when the Congress Party's domination collapsed for the first time at the centre and also in many states. Hence, the electoral experiences of India could be divided into two sub-periods since independence. The first sub-period spreads from 1951 to 1977, in which INC dominated elections both at the centre and at the states with occasional failures. During this period, the degree of political competition that INC faced from other national and regional political parties was negligible.

The second sub-period starts with the fall of the congress party government for the first time at the centre in 1977 and still continues. During the second sub-period, many new regional political parties emerged and, in turn, contributed to the process of political competition both at the national and at the state level elections. Table 1 presents some of the key electoral indicators of the general elections held in India since independence.

Table 1: Election wise representation of political parties in parliament

Year of general election	No. of parties contested in election	No. of national parties represented in parliament	No. of different parties represented in parliament	Effective no. of parties (ENP) (votes)	Effective no. of parties (ENP) (seats)	Form of govt.
1952	55	8	22	4.5	1.7	Single-party
1957	16	4	12	3.9	1.7	Single-party
1962	29	9	20	4.4	1.8	Single-party
1967	25	8	19	5.1	3.1	Single-party
1971	52	8	24	4.6	2.1	Single-party
1977	34	5	18	3.3	2.6	Coalition
1980	36	6	17	4.2	2.2	Single-party
1984	38	7	21	3.9	1.6	Single-party
1989	117	8	24	4.8	4.3	Coalition
1991	145	9	24	5.1	3.7	Coalition
1996	208	7	28	7.1	5.8	Coalition
1998	176	7	39	6.9	5.2	Coalition
1999	169	7	39	6.7	5.8	Coalition
2004	230	6	40	7.5	6.5	Coalition
2009	370	7	37	7.7	6.6	Coalition

Source: Centre for the Study of Developing Societies (CSDS) data unit, New Delhi.

Above figures suggest that the number of national political parties represented in the parliament has largely remained same, whereas the representation of regional political parties in the parliament has increased from election to election, particularly in the elections held since the general election of 1980. The effective number of political parties (ENP) in the parliament, which measures the degree of political fragmentation, both in terms of votes and seats, has increased significantly over the years.[6] ENP (seats) in the parliament has increased from around two (except for the general election of 1967) in the first sub-period – the period of single-party dominance – to more than six in 2009. The electoral indicators of table 1 suggest that the growth of regional parties have increased the level of electoral competition in

[6] ENP is estimated using the methodology first advocated by Laakso and Taagepera (1979). ENP is inverse of Hirschman-Herfindahl concentration index (HHI) and, is measures as $1/\sum p_i^2$, where p_i is the proportion of votes received by party i in an election or the proportion of seats won by party i in the parliament. See Chhibber and Kollman (2004) for a more detailed discussion on ENP and other measures.

the second sub-period and, as a result of this, the degree of political fragmentation in the parliament has increased and many coalition governments are formed during this period. Looking at the types of governments formed after recently held elections at the centre, particularly since the general election of 1989, it appears that the coalition form of government has become an inherent part of the Indian political system.

3. Data and Methodology

Our empirical analysis has used a dataset of 25 Indian states, includes both major and minor ones, spread across five rounds of HDI scores (1983, 1993, 1999-2000, 2004-05 and 2009-10) to examine the relationship between political competition and human development performance (see the Appendix, Table A1, for more information).

Measuring HDI and political competition of the Indian states holds the centre stage of this study. Three development indicators; inflation and inequality adjusted per capita consumption expenditure, the composite indicator on educational attainment, and the composite indicator on health attainment; are considered and National Human Development Report's (2001) methodology is used to estimate HDI scores for the Indian states.[7] HDI ranges between *zero* and *one* and a higher value would imply better HD performance.

Following the same strategy as most of the empirical studies have (see Padovano and Ricciuti (2009) and Besley et al. (2010) for instance), we have used the *winning differential*, the difference between the seat shares of two largest parties in the state assembly elections,[8] to measure the degree of political competition.[9] *Winning differential* is a more appropriate indicator of political competition as it measures the degree of uncertainty in the electoral outcomes (Blais and Lago, 2008), i.e. the lesser the *winning differential* the higher the degree of electoral uncertainty. Moreover, the differential measure suits well for the present study as, in practice, the competition to form government in the Indian states has largely been between top two parties, even though the constitution of India has allowed for a multi-party electoral system (Abbas et al., 2010). To express the degree of political competition in an ascending

[7] See Mukherjee and Chakraborty (2011) for the HDI scores of the Indian states and the detailed methodology.
[8] It is the number of seats won in the assembly elections, not number of votes won, that matters for government formation. We re-estimated the results using the vote share criterion and found broadly similar results.
[9] Various other measures such as ENP and HHI are used to measure political competition. However, these measures are the results of political competition and, more appropriately, capture the degree of government fragmentation, not direct measures of political competition.

scale, we have used '*one* minus the *winning differential*' in the regression equation. After the change of scale, our political competition measure generates values between *zero* and *one*, higher value indicates a higher level of political competition.

Apart from political competition, other political factors such as democratic participation of the voters and the government stability also could play a crucial role in the process of HD augmentation in a state and the impacts of such factors are also required to be accounted in the regression model. Voter turnout rate (the percentage of valid votes cast as a proportion of total electorate in a state) is used as a measure of democratic participation. Increasing use of voting rights by the citizens could be argued as an indicator of higher political consciousness among the voters and demand for better delivery of public goods and services by the government. HD augmentation is a slow process and the continuation of a stable set of public policies could facilitate it. Usually, the re-elected governments continue, more or less, with similar public policies and a change in government leads to change in public policies. A frequent change of government and its policies in a state might not help the state in achieving HD targets. We have used a dummy variable to account for the effects of a stable government. Its value is *one* if the same government rules between two consecutive rounds of HDI, otherwise *zero*.

A two-way fixed-effects model is employed to investigate the impact of political competition on the HDI of the Indian state. The baseline empirical model is formulated as:

$$HDI_{it} = \alpha + \beta P_{it} + \emptyset X_{it} + \gamma_i + \varphi_t + \varepsilon_{it}; i = 1, \dots, N, and\ t = 1, \dots, T \qquad (1)$$

where HDI_{it} is the measure of HDI scores, P_{it} stands for the political factors, X_{it} is a vector of control variables that are assumed to contribute to HD performance apart from the variables of interest, γ_i are unobservable state-specific effects, φ_t are time-specific effects common to all states, and ε_{it} is the disturbance term.

Vector X_{it} contains a set of control variables such as per capita gross state domestic product (GSDP) growth rate, per capita development expenditure, special category state dummy, and state division dummy. Growing at a higher rate could make a significant difference in the process of HD accumulation and per capita growth rate is used to account for this

possibility.[10] Role of public expenditure in enhancing the HD performance in an economy is well documented in the literature (Mukherjee and Chakraborty, 2011). However, not all types of government spending enhance HD indicators. Public expenditures incurred specifically towards meeting developmental activities are the ones expected to play a crucial role in influencing the HD indicators. Hence, per capita development expenditure is used to control for the effects of public spending on HDI.[11] Some of the Indian states have international boundaries, hilly terrains, geographical disadvantages, and distinctly different socioeconomic development parameters and they are categorized as special category states. We have introduced a dummy variable in the regression model to treat such states differently from their normal counterparts, known as non-special category states.[12] Three new states were created from three major states – Bihar, Madhya Pradesh, and Uttar Pradesh – in 2000 and a dummy variable is used to account for the possible changes in HD outcomes that would have occurred in the divided states due to division.[13] All variables, but the binary ones, are log transformed before using in the regression equation. Since the effects of the independent variables on HD indicators are less likely to be immediate, information available between two consecutive HDI rounds are used to construct the independent variables. Hence, technically, lagged independent variables are used in the regression model, even though our dataset is not an annual one. Data sources and descriptive statistics of variables are displayed in the Appendix, Table A2. To account for unobserved state-specific effects, state-specific dummies, λ_i, are included; similarly, time-specific dummies, μ_t, are included to account for unobserved time-specific effects, common to all states.

Given the cross-sectional and time-series nature of our dataset, the standard ordinary least squares (OLS) assumption of independent and identically distributed errors is unlikely to be satisfied. In the presence of autocorrelation and heteroskedasticity in a regression equation, the calculated coefficient parameters will be biased. Estimation methods such as Panel Correcting Standard Errors (PCSEs) and Feasible Generalized Least Squares (FGLS)

[10] 3-year average growth rate for each HDI round is used in the regression equation.
[11] In the regression model, average per capita development expenditure of the periods 1980-85, 1990-95, 1995-2000, 2000-05 and 2005-10 are used for HDI rounds 1983, 1993, 1999-2000, 2000-05 and 2009-10 respectively.
[12] Eleven special category states are Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura and Uttarakhand.
[13] During 2000-2001, three new states Uttarakhand, Chhattisgarh, and Jharkhand were created by dividing Uttar Pradesh, Madhya Pradesh, and Bihar respectively

are used to estimate the results and the standard errors are corrected for heteroskedasticity and first ordered autocorrelation.

4. Empirical Analysis

4.1 Baseline Results

Basic empirical specification (1) is used to estimate the results. We have included the square of political competition in all regressions to account for the effects of 'optimal' political competition on HD performance. The idea behind using both PCSE and FGLS estimation methods is to show the robustness of the baseline findings across different estimation methods.

Table 2: Political Competition and HDI (Overall): Baseline Regression

	PCSE			FGLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Political competition	0.214***	0.167*	0.198***	0.214***	0.167**	0.198**
	(0.082)	(0.093)	(0.077)	(0.079)	(0.082)	(0.083)
(Political competition)^2	0.122***	0.108***	0.118***	0.122***	0.108***	0.118***
	(0.03)	(0.034)	(0.03)	(0.038)	(0.038)	(0.039)
Voter participation		0.143	0.164*		0.143	0.164
		(0.113)	(0.094)		(0.134)	(0.139)
Government continuation		0.055**	0.065**		0.055**	0.065**
		(0.025)	(0.028)		(0.027)	(0.028)
Per capita growth rate			– 0.008			– 0.008
			(0.016)			(0.019)
Per capita dev. exp.			0.168*			0.168**
			(0.101)			(0.08)
Special category states			– 0.608***			– 1.094***
			(0.178)			(0.167)
State division			– 1.213***			– 1.498***
			(0.111)			(0.098)
Constant	– 0.811***	– 1.502***	– 2.906***	– 0.811***	– 1.502***	– 2.908***
	(0.028)	(0.493)	(0.939)	(0.052)	(0.584)	(0.963)
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.97	0.98	0.98	-	-	-
Wald chi-square	133657***	57041***	236000***	2797***	3076***	3251***
Number of observations	125	125	125	125	125	125
Number of groups	25	25	25	25	25	25

Note: Panel specific AR(1) standard errors are shown in parentheses.
***$p < 0.01$; **$p < 0.05$; and *$p < 0.10$

The baseline regression results on the interrelationship between political competition and overall HDI score are presented in Table 2. The results displayed in the first three columns are estimated by PCSE estimation method and the last three columns' results are

estimated by FGLS estimation method. Irrespective of model specification and estimation method, the results show that political competition has a positive and significant influence on the HD performance of the Indian states. Interestingly, coefficients of both linear and quadratic terms of political competition were found to be positive and significant at an acceptable level of significance. It suggests that, contrary to the existence of 'optimal' level political competition as a few studies have found (Alfano and Baraldi, 2012), this study did not find the presence of 'optimal' level of political competition, not at least when HD performance of the Indian states is considered. Among the other variables of interest, only Government continuation was found positive and significant across all specifications and estimation methods. It indicates that politically stable governments, which are expected to implement similar policies for a relatively longer period, seem to be contributing significantly to HD achievements of the Indian states. The variable voter participation has a positive sign, but does not emerge statistically significant always. It emerges weakly significant (at 10 percent level) only when all variables' specification is estimated by PCSE estimation method. Link between voter participation and public delivery of goods and services in a state would considerably depend on a government's ability to deliver them. Small state governments are not as independent as the large ones in making their own decisions as the former are more reliant on central assistance and other exogenous factors. Probably, voter participation would play a significant role in influencing the economic outcomes of the larger states. Surprisingly, growth rate does not seem to be contributing to the HDI scores significantly. Probably, per capita income would play a more important part in HD formation than the growth rate as HDI is constructed from the base values of socioeconomic indicators. Per capita development expenditure has a positive and significant coefficient and it suggests that increasing public spending on development-oriented activities helps states to perform well on HD front. Negative and significant coefficients of special category states and state division dummies imply that physical barriers and the event of state division have negative impacts on a state's HD performance.

The results of Table 2 confirm the fact that political competition has helped the Indian states to perform better along the HDI. In the next step of our analysis, we have attempted to understand whether it is the rural India or the urban India that has benefited the most from political competition. To undertake this analysis, HDI scores for both rural and urban areas

are calculated separately and the same model specification is used to estimate the results. The results are presented for rural and urban HDI scores in Table 3 and 4, respectively.

Table 3: Political Competition and HDI Score (Rural): Baseline Regression

	PCSE			FGLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Political competition	0.31***	0.278**	0.298***	0.31***	0.278**	0.298***
	(0.096)	(0.117)	(0.107)	(0.097)	(0.101)	(0.105)
(Political competition)^2	0.161***	0.152***	0.16***	0.161***	0.152***	0.16***
	(0.037)	(0.046)	(0.044)	(0.046)	(0.048)	(0.049)
Voter participation		0.161	0.194		0.161	0.194
		(0.178)	(0.136)		(0.167)	(0.173)
Government continuation		0.075*	0.083**		0.075**	0.083**
		(0.041)	(0.04)		(0.033)	(0.034)
Per capita growth rate			0.01			0.01
			(0.017)			(0.023)
Per capita dev. exp.			0.113*			0.113
			(0.066)			(0.095)
Special category states			– 0.798***			– 0.798***
			(0.123)			(0.207)
State division			– 1.032***			– 1.065***
			(0.117)			(0.092)
Constant	– 0.881***	– 1.66**	– 2.717***	– 0.881***	– 1.66**	– 2.717**
	(0.06)	(0.785)	(0.846)	(0.072)	(0.728)	(1.144)
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.97	0.97	0.97	-	-	-
Wald chi-square	7891***	9239***	695480***	2104***	2223***	2262***
Number of observations	125	125	125	125	125	125
Number of groups	25	25	25	25	25	25

Note: Panel specific AR(1) standard errors are shown in parentheses.
***$p < 0.01$; **$p < 0.05$; and *$p < 0.10$

The findings suggest that both linear and nonlinear terms of political competition have positive and significant effects on rural HDI scores and it indicates that the rural areas have benefited the most from political competition. One plausible reason for this finding could be that when the electoral outcomes are relatively uncertain, political parties can improve their chance of winning elections only by performing well in the rural India. About three-fourth of the Indian population live in the rural areas and a political party cannot win elections by ignoring the majority. Probably political parties use delivering improved HD outcomes in the rural areas as one of the performance indicators to survive in the politically competitive states. Same government ruling in a state for a relatively longer period also appears to help its HD performance in both rural and urban areas. Voter participation does not seem to be influencing either rural or urban HDI score significantly. The justifications offered above for

its insignificance for overall HDI could also be extended for the present case. Like the case of overall HDI, growth rate was not found to be playing a statistically significant role in determining the HD performance of rural and urban India. Increasing public spending on developmental activities helps the Indian states in performing well across the HD indicators irrespective of areas, whether rural or urban. However, its impacts are more consistent on urban HDI. States that belong to special category, and are divided have lower rural and urban HDI scores in comparison to the same of the normal states.

Table 4: Political Competition and HDI Score (Urban): Baseline Regression

	PCSE			FGLS		
	(1)	(2)	(3)	(4)	(5)	(6)
Political competition	0.141	0.135	0.183	0.141	0.135	0.183
	(0.17)	(0.162)	(0.154)	(0.147)	(0.15)	(0.154)
(Political competition)^2	0.051	0.049	0.067	0.051	0.049	0.067
	(0.07)	(0.07)	(0.072)	(0.069)	(0.069)	(0.069)
Voter participation		– 0.08	0.024		– 0.08	0.024
		(0.267)	(0.256)		(0.257)	(0.269)
Government continuation		0.071	0.091*		0.071	0.091*
		(0.045)	(0.051)		(0.055)	(0.055)
Per capita growth rate			– 0.024			– 0.024
			(0.03)			(0.036)
Per capita dev. exp.			0.442***			0.442***
			(0.117)			(0.148)
Special category states			– 1.066***			– 1.066***
			(0.243)			(0.329)
State division			– 2.538***			– 0.837***
			(0.518)			(0.18)
Constant	– 0.629***	– 0.352	– 4.257**	– 0.629***	– 0.352	– 4.257**
	(0.075)	(1.179)	(1.782)	(0.137)	(1.122)	(1.833)
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.84	0.84	0.86	-	-	-
Wald chi-square	1827***	33761***	158000***	606***	632***	713***
Number of observations	125	125	125	125	125	125
Number of groups	25	25	25	25	25	25

Note: Panel specific AR(1) standard errors are shown in parentheses.
***$p < 0.01$; **$p < 0.05$; and *$p < 0.10$

4.2 Sensitivity Analysis and Robustness Check

The baseline findings suggest that politically competitive governments, formed after relatively uncertain electoral outcomes, are forced to perform well in the Indian states and that reflects by performing well along the HD indicators. A more detailed analysis also shows that the rural India benefits the most from the intense political competition. This reasserts the

claim that politically competitive governments deliver better outcomes and cater to the interests of the majority. To check how robust these findings are, we have used three different strategies:

(a) Restricting the sample size to the major Indian states

Political factors are expected to play a bigger role in influencing the socioeconomic outcomes of those states where the governments function more independently. To explore this possibility, we have ignored the small and/or special category Indian states and have focused only on 14 non-special categories major states[14] to investigate how political competition in these states has influenced their HD performance (see Appendix, Table A3, for the results). The results estimated from the sample of 14 major states are largely similar to the baseline results with a few exceptions. First, apart from political competition and government continuation, voter participation also came positive and significant. This suggests that higher political consciousness among the voters delivers better HD outcomes in the major states. This could be because the governments in the major states function relatively more independently and the voters expect better provision of public goods and services from the elected government. Second, growth rate emerged significant, but with a negative sign. This could be due to the fact that the income of low-income major states is catching up with the same of high-income major states as many recent studies have shown.[15] Low-income states have grown faster in the recent years, but their per capita income is still lower in comparison to their high-income counterparts. Probably, per capita income, instead of growth rate, would have a strong and positive impact on HDI.

(b) Using an alternative functional form

Sometimes the original findings of a study are functional form specific. Checking the sensitivity of baseline results with an alternative functional form, i.e. the first difference of all continuous variables, is the purpose of this strategy. The results calculated with the alternative functional form are not appreciably different from the original ones (see Appendix, Table A4, for the results).

[14] These states are Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.
[15] Singh et al. (2003) have reviewed the findings of the existing studies on the Indian states in detail.

(c) Past HDI scores may count

It is quite possible that previous HDI scores can have a significant bearing on present HDI scores. To check this possibility, we have introduced the first lag of HDI scores in the regression equation. The lagged dependent variables emerged positive and significant, but the results of other variables have remained, by and large, similar as the baseline findings (see Appendix, Table A5, for the results).

The claims that are made based on baseline findings are seen to be robust as the original results passed through all three robustness tests.

5. Conclusions and Discussion

In this study, we have examined the effect of political competition on HD performance of the Indian states. Our findings suggest that the governments formed after competitive elections perform well on HD front during their tenure. Uncertainty over remaining in power without performance and the pressure that strong political rivalry exerts on the incumbent seem to be working well in India as it has worked in the context of various other countries. Investigating further, we found that it is the rural India, which has received most of the benefits of political competition in the form of improved HD outcomes. This finding reasserts the fact that governments formed after competitively held elections forces such governments to work for the development of the rural areas where the majority of the population live. Apart from political competition, other two political factors, government continuation and voter participation, also found to be contributing to the process of HD accumulation. Both rural and urban HDI scores seem to be improving in the event of same government ruling for a relatively longer time. Availability of more time probably allows such governments to implement the existing policies more effectively and that eventually helps a state to perform well along the HD outcomes. The idea that increasing voter participation could create pressure on a government to deliver better public goods and services in a state has also worked well, but this is applicable only for the HDI performance of 14 major states.

Other than the political factors, a few socioeconomic and geographical factors also have influenced the HD outcomes of the Indian states. Increasing public spending on development-oriented activities contributes to the process of HD accumulation. This finding

could be useful for the policymakers particularly of those states that are not doing well along the HD outcomes. The impressive growth rate that India has achieved in the last two decades does not seem to have much positive effect on the HDI scores of the Indian states. This could be due to the fact that most of low-income Indian states have achieved higher growth rate and growth rate might not have an immediate impact on HDI as it is calculated from the base values of the performance indicators. Low-income states need to grow at a higher rate for a longer time to convert their impressive growth performance into improved HDI scores. Special category and the divided states are lagging behind the normal states as far as the HD outcomes concern. However, the challenges that the policymakers of the special category states would face will be quite different from the challenges that the policymakers of the divided states would face. By and large, the special category states need to overcome their physical difficulties, whereas the divided states – Bihar, Madhya Pradesh, and Uttar Pradesh – where about a one-third of Indian population live, need to address the issues related to governance, and resource generation and their effective utilization.

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Appendix

Table A1: State-wise assembly elections held under different rounds of HDI estimation

States	HDI – 1983	HDI – 1993	HDI – 1999-2000	HDI – 2004-05	HDI – 2009-10
Andhra Pradesh	1978	1983, 1985, 1989	1989, 1994	1999	2004
Arunachal Pradesh	1978, 1980	1980, 1984, 1990	1990, 1995	1999	2004
Assam	1978	1983, 1985, 1991	1991, 1996	1996, 2001	2001, 2006
Bihar	1977, 1980	1980, 1985, 1990	1990, 1995	1995, 2000	2005
Goa	1977, 1980	1980, 1984, 1989	1989, 1994	1999, 2002	2002, 2007
Gujarat	1975, 1980	1980, 1985, 1990	1990, 1995, 1998	1998, 2002	2002, 2007
Haryana	1977, 1982	1982, 1987, 1991	1991, 1996	1996, 2000	2005
Himachal Pradesh	1977, 1982	1982, 1985, 1990	1993, 1998	1998, 2003	2003, 2007
Jammu and Kashmir	1977	1983, 1987	1996	1996, 2002	2002, 2008
Karnataka	1978	1983, 1985, 1989	1989, 1994	1999	2004, 2008
Kerala	1977, 1980, 1982	1982, 1987, 1991	1991, 1996	1996, 2001	2001, 2006
Madhya Pradesh	1977, 1980	1980, 1985, 1990	1993, 1998	1998, 2003	2003, 2008
Maharashtra	1978, 1980	1980, 1985, 1990	1990, 1995	1999	2004
Manipur	1980	1980, 1984, 1990	1990, 1995	1995, 2000, 2002	2002, 2007
Meghalaya	1978	1983, 1988	1993, 1998	1998, 2003	2003, 2008
Mizoram	1979	1979, 1984, 1987, 1989	1993, 1998	1998, 2003	2003, 2008
Nagaland	1977, 1982	1982, 1987, 1989	1993, 1998	1998, 2003	2003, 2008
Orissa	1977, 1980	1980, 1985, 1990	1990, 1995	1995, 2000	2004
Punjab	1977, 1980	1980, 1985, 1992	1992, 1997	1997, 2002	2002, 2007
Rajasthan	1977, 1980	1980, 1985, 1990	1993, 1998	1998, 2003	2003, 2008
Sikkim	1979	1985, 1989	1994	1999	2004
Tamil Nadu	1977, 1980	1980, 1984, 1989, 1991	1991, 1996	1996, 2001	2001, 2006
Tripura	1977	1983, 1988	1993, 1998	1998, 2003	2003, 2008
Uttar Pradesh	1977, 1980	1980, 1985, 1989, 1991	1993, 1996	1996, 2002	2002, 2007
West Bengal	1977, 1982	1982, 1987, 1991	1991, 1996	1996, 2001	2001, 2006

Note: Assembly elections held between 1975-76 and 2006-07 are reported in this table. Midterm elections are ignored as the outcomes of such elections do not change the composition of a government. Information obtained from the mentioned elections under different HDI rounds are used to construct our political variables.

Table A2: Descriptive statistics of variables and data sources

Variables	Obs.	Mean	SD	Min.	Max.	Source
Human development index (Overall)	125	0.36	0.2	0.06	1	Mukherjee and Chakraborty (2011)
Human development index (Rural)	125	0.35	0.19	0.04	1	Mukherjee and Chakraborty (2011)
Human development index (Urban)	125	0.42	0.18	0.01	0.96	Mukherjee and Chakraborty (2011)
Political competition	125	0.66	0.2	0.06	0.99	Data calculated from *Election Reports on State*.
Voter participation	125	68.39	10.46	38.79	90.92	Data calculated from *Election Reports on State*.
Government continuation	125	0.52	0.5	0	1	Data calculated from *Election Reports on State*.
Growth rate	125	6.2	2.57	0.5	13.57	Data Compiled from the statistics released by Central Statistical Organization (CSO).
Per capita development expenditure	125	3269.8	3684.26	180.56	9889.01	Data calculated from Reserve Bank of India Bulletin.

Notes: See the main text for further details on the definition of the variables

Table A3: Political Competition and HDI (Sample of 14 major states)

	HDI - Overall		HDI - Rural		HDI - Urban	
	PCSE	FGLS	PCSE	FGLS	PCSE	FGLS
Political competition	0.645***	0.643***	0.707**	0.706**	0.251	0.25
	(0.197)	(0.244)	(0.305)	(0.325)	(0.188)	(0.314)
(Political competition)^2	0.456***	0.455**	0.547***	0.547**	0.301	0.301
	(0.131)	(0.201)	(0.187)	(0.262)	(0.19)	(0.254)
Voter participation	0.277**	0.276*	0.51**	0.511**	0.193**	0.193
	(0.13)	(0.151)	(0.218)	(0.217)	(0.079)	(0.201)
Government continuation	0.147***	0.146***	0.244***	0.244***	0.008	0.008
	(0.031)	(0.048)	(0.034)	(0.063)	(0.064)	(0.06)
Per capita growth rate	– 0.047**	– 0.046*	– 0.063***	– 0.063**	0.004	0.004
	(0.019)	(0.024)	(0.016)	(0.031)	(0.011)	(0.027)
Per capita dev. exp.	0.104	0.103	0.179**	0.178	0.703***	0.703***
	(0.089)	(0.129)	(0.088)	(0.184)	(0.123)	(0.182)
State division	– 0.034	– 0.173***	– 0.074	– 0.226**	– 0.105*	– 0.627***
	(0.045)	(0.066)	(0.183)	(0.089)	(0.061)	(0.089)
Constant	– 0.23***	– 0.229**	– 0.405***	– 0.405**	– 0.473***	– 0.473***
	(0.08)	(0.115)	(0.078)	(0.165)	(0.09)	(0.178)
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.98	-	0.98	-	0.86	-
Wald chi-square	68235***	1301***	82197***	917***	49123***	860***
Number of observations	70	70	70	70	70	70
Number of groups	14	14	14	14	14	14

Note: Panel specific AR(1) standard errors are shown in parentheses.
***$p < 0.01$; **$p < 0.05$; and *$p < 0.1$

Table A4: Political Competition and HDI (First difference of all continuous variables)

	HDI - Overall		HDI - Rural		HDI - Urban	
	PCSE	FGLS	PCSE	FGLS	PCSE	FGLS
Political competition	0.177**	0.177*	0.251***	0.253**	0.116	0.116
	(0.076)	(0.092)	(0.093)	(0.112)	(0.154)	(0.131)
(Political competition)^2	0.112***	0.113***	0.142***	0.145***	0.096	0.096
	(0.025)	(0.042)	(0.029)	(0.053)	(0.067)	(0.062)
Voter participation	0.253***	0.255	0.396***	0.395*	0.245	0.245
	(0.083)	(0.184)	(0.093)	(0.209)	(0.237)	(0.275)
Government continuation	0.04	0.039	0.074	0.072	0.153**	0.156**
	(0.032)	(0.044)	(0.072)	(0.053)	(0.063)	(0.064)
Per capita growth rate	– 0.005	– 0.005	– 0.006	– 0.006	– 0.004	– 0.004
	(0.022)	(0.02)	(0.02)	(0.028)	(0.018)	(0.032)
Per capita dev. exp.	0.02	0.02	0.161	0.159	0.431***	0.431**
	(0.11)	(0.129)	(0.123)	(0.161)	(0.121)	(0.189)
Special category states	0.057	0.057	0.044	0.084	0.196	– 0.038
	(0.073)	(0.096)	(0.136)	(0.098)	(0.178)	(0.17)
State division	– 0.082	0.136*	0.004	0.144	0.238**	0.659***
	(0.065)	(0.077)	(0187)	(0172)	(0.1)	(0.153)
Constant	– 0.112	– 0.111	– 0.244**	– 0.241*	– 0.461***	– 0.461**
	(0.091)	(0.113)	(0.099)	(0.139)	(0.076)	(0.196)
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.55	-	0.47	-	0.54	-
Wald chi-square	1893***	105***	5891***	78***	1720***	103***
Number of observations	100	100	100	100	100	100
Number of groups	25	25	25	25	25	25

Note: Panel specific AR(1) standard errors are shown in parentheses.
***$p < 0.01$; **$p < 0.05$; and *$p < 0.1$

Table A5: Political Competition and HDI (Lagged dependent variable)

	HDI - Overall		HDI - Rural		HDI - Urban	
	PCSE	FGLS	PCSE	FGLS	PCSE	FGLS
Political competition	0.185***	0.185**	0.246***	0.246**	0.147	0.147
	(0.065)	(0.086)	(0.08)	(0.104)	(0.102)	(0.148)
(Political competition)^2	0.11***	0.11***	0.139***	0.139***	0.84*	0.84
	(0.023)	(0.038)	(0.03)	(0.046)	(0.51)	(0.63)
Voter participation	0.14	0.14	0.119	0.119	0.621*	0.621**
	(0.103)	(0.148)	(0.151)	(0.188)	(0.354)	(0.29)
Government continuation	0.057	0.057*	0.09*	0.089**	0.013	0.013
	(0.038)	(0.032)	(0.054)	(0.04)	(0.052)	(0.054)
Per capita growth rate	– 0.028	– 0.028	0.005	0.005	0.052	0.052
	(0.031)	(0.025)	(0.033)	(0.032)	(0.06)	(0.045)
Per capita dev. exp.	0.257***	0.257**	0.076	0.076	0.824***	0.824***
	(0.041)	(0.109)	(0.085)	(0.134)	(0.177)	(0.183)
Special category states	– 0.322**	– 0.845***	– 0.701***	– 0.354	– 0.095	– 1.757
	(0.148)	(0.236)	(0.139)	(0.288)	(0.135)	(0.407)
State division	– 1.281***	– 1.281***	– 1.29***	– 1.29***	– 1.066	– 0.433***
	(0.11)	(0.148)	(0.419)	(0.148)	(0.878)	(0.169)
Lagged HDI	0.179	0.179**				
	(0.256)	(0.078)				
Lagged HDI - Rural			0.152	0.152*		
			(0.259)	(0.078)		
Lagged HDI - Urban					0.33	0.33***
					(0.242)	(0.085)
Constant	– 3.297***	– 3.297***	– 1.93*	– 1.93*	– 9.815***	– 9.815***
	(0.618)	(1.201)	(1.083)	(1.502)	(2.564)	(2.223)
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.99	-	0.97	-	0.92	-
Wald chi-square	43651***	4008***	21256***	2442***	4737***	1085***
Number of observations	100	100	100	100	100	100
Number of groups	25	25	25	25	25	25

Note: Panel specific AR(1) standard errors are shown in parentheses.
***$p < 0.01$; **$p < 0.05$; and *$p < 0.1$