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# Does Public Good Provision Determine Incumbent's Fate? Evidence from India

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## Abstract

In this paper we empirically examine whether public facilities like providing primary school, medical clinics, electricity etc help incumbents to stay in power. Specifically, we analyze the parliamentary election outcomes in 483 constituents in rural India from 1971 to 1991. This study is based on a simple voter model where the voter looks at the supply of public goods provided by the incumbent and then decides whether to re-elect the incumbent. We find empirical evidence that voters do significantly care about educational, electricity and communication facilities, whereas incumbents face defeat if they provide more medical or safe drinking water facilities.

JEL classification: D72, H11, H41, H73

Keywords: Election and voting behavior; performance of government; public good; inter-jurisdictional differential and their effect; India

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## **1. Introduction**

In this paper we analyze voting behavior with respect to the level of public facilities provided. We compare the incumbent performance in 483 parliamentary constituencies in rural India by looking at the level of important public facilities including education, medical clinics, safe drinking water, power (electricity) and communications (road and post office). We use the same mapping method in our research as Banerjee and Somnathan (2004) to approximate the level of public facilities in an electoral district from administrative district data. We empirically examine whether the probability of voting for the incumbent increases (decreases) in Lok Sabha-parliamentary-elections with an increase (decrease) in the provision of public facilities on a panel of fifteen major states in India for the period 1971 to 1991.

Public choice theories link government spending with voting behavior (Lindbeck and Weibull, 1987; Bratton and Van de Walle, 1997 and Clapham, 1985). Levitt and Snyder (1997) find that in the United States, an additional \$100 per capita in non-transfer federal spending results in a 2% vote increase for incumbents. A recent study by Posner and Simon (2002) on Zambia shows that voters withdraw their support for the incumbent regime when economic conditions worsen. Persson, Roland and Tabellini (2000) find both theoretically and empirically that parliamentary regimes have less underprovision of public goods, and more rents to politicians relative to presidential-congressional regimes.

In India, both the central government and state governments are responsible for all government functions and the allocation of funds to lower authorities for public goods provision. Like most other representative democracies, voters in India delegate control rights and collective decision making to elected representatives. The elected representatives are the agents to the higher authority, and their lobbying and legislative bargaining results in the final outcome. Pande

(2003) shows that mandated political representation favors the scheduled castes (lower castes) and tribes to redirect resources to their constituencies. The majoritarian voting system in Indian politics induces a politician's incentives, as normal.

It has been claimed that India may be the only contemporary case where incumbent political contestants severely disadvantaged<sup>1</sup>. The last parliamentary election in 2004 was a striking example where the government (coalition led by Bharatiya Janata Party (BJP)), enjoying a high economic growth rate and significantly improved foreign relations, lost to the Indian National Congress-led United Progressive Alliance (INC-UPA)<sup>2</sup>. Linden (2003) estimates that incumbents in Indian parliamentary election are fourteen percent less likely to be elected compared to challengers. Kumar (2003) analyzes the incumbency effect by looking at the number of wins and losses of seats by the incumbent party. Chakrabarti, Gangopadhyay and Krishnan (2005) find anti-incumbency a salient feature of Indian elections by looking at changes in the proportion of votes polled by the incumbent party.

In spite of the considerable empirical literature on incumbency effects in general (Erickson, 1971; Cox and Katz, 1994), there has been little work done on this topic in the Indian context until recently. One problem is that most studies done on incumbent performance in US elections (Levitt and Wolfram, 1997; Alford and Hibbing, 1981) are restricted to a two-party system, which does not reflect the Indian situation. Katz and King (1999) came up with a statistical approach to analyze the incumbency effect in a multi-party context. This approach is theoretically close to Indian politics but is difficult to fit in Indian political complexities. Growing numbers of political parties and frequent changes in electoral alliances or coalitions make it complex to track incumbent performance chronologically.

One problem has been access to proper election data, which only recently has been available electronically. Another problem is aligning outcomes to socio-economic data since decennial census data on social and economic factors are published by district, not parliamentary constituency<sup>3</sup>. Banerjee and Somnathan (2004) tried to overcome this problem by mapping district areas to constituency boundaries to approximate the socio-economic status of each constituency. Virmani (2004) pointed out the lack of good governance behind the poor performance of incumbents in both parliamentary and state assembly elections in India. His theoretical work is intuitively appealing but is not supported by sufficient empirical evidence.

Beyond the poor availability of public goods data for other periods, there were other reasons to choose these particular time period used in this research. This period marks the transition of Indian politics from single-party to coalition government at the national level. Apart from this political change, the contemporary five-year plans (fifth five-year plan, 1974-79 and sixth five-year plan, 1980-85) necessitated the delivery of public goods especially in rural India, for the first time since independence in 1947. It was during this time when delivering public goods became one of the crucial political campaign agendas for the first time, such as Indira Gandhi's "Garibi Hatao" (eradicate poverty) program in the 1971 parliamentary election. We thought it would be particularly interesting to see the effect of increasing public facilities on incumbent performance in this changing political environment.

Another difficulty we faced is in defining the incumbency factor. In a complex election system like India, the incumbency effect can be measured by looking at party performance as well as each candidate's. Sometimes the incumbent coalition ruling at the center affects state election results or vice versa, which can also be called an incumbency effect. Here, we are interested only in the performance of the incumbent party, that is, whether a single party won the

last election in a constituency is getting reelected in the same constituency. In addition we also look at the percentage of votes polled by an incumbent party if it gets reelected compared to the percentage of vote polled by it in the previous election.

The rest of the paper is organized as follows. In section 2 we provide a description of the data. Empirical model and specification issues are discussed in section 3. We discuss the main findings are in section 4, followed by some concluding remarks in section 5.

## **2. Description of the Data**

We define incumbent performance as ‘party incumbency’, where we look at the individual parties (both recognized and unrecognized) to see whether they have won two consecutive parliamentary elections (see appendix 1 for detailed description of all political parties).

We analyze outcomes of five parliamentary elections from 1977 to 1991 (1977, 1980, 1984, 1989 and 1991) comparing with public good data from three decennial census years 1971, 1981 and 1991 in fifteen major Indian states. We leave out the northeastern states, Assam since there was no parliamentary election held in 1981 and Jammu and Kashmir as there were no parliamentary elections in 1991. Apart from that we exclude the constituencies, in urban areas like those within the city boundaries of Mumbai (Bombay), Calcutta and Madras. This is done because we have public good data from the village statistical abstract, which compiles data only for rural India. We ultimately consider 483 (over 90% of the 543 parliamentary constituencies in India at present) constituencies spread over fifteen of states.

[Table 1 is about here]

The data on political variables are taken from the Election Commission of India (ECI) website. We only consider the parliamentary general election results from the period 1977 to 1991 in order to match with the public good data. We collected detailed figures for electors, percentage of voter turnout, the number of candidates contested and the vote shares polled by five major parties (in descending order of polled vote) for our sample of 483 parliamentary constituencies. Descriptive statistics for all these political variables are shown in table 1. The average number of electors per constituency rose from 611.08 thousand in 1977 to 980.13 thousand in 1991. The average candidates contested increased more than three-fold over these years. Our dependent variable, the party-incumbency success rate, is found to be around 35% suggesting an anti-incumbency effect.

Village census directory data in the decennial District Census Handbook shows the availability of public facilities at a village level. We calculate to see how many villages in a particular district have any particular public facility, instead of the total number of facilities in a district<sup>4</sup>. Total number of facilities often does not tell us whether it is reaching people in every corner of rural India. For example we look at the share of villages in any district having a primary school rather than total number of primary schools in a district. This in addition enables us to measure the equality of public good distribution across the districts, which is an important issue of redistributive policies in a caste and religion-based society like India<sup>5</sup>.

[Table 2 is about here]

There are six broad categories of public amenities reported by the census of India at a village level. These are education, medical, power (electricity), water, post and telegraph and

communication. We consider any educational facility (includes primary school, middle school, high school etc), any medical facility (includes hospitals, maternity center, health center etc) any electrical provision (electricity for agricultural purpose, electricity for household purpose etc), provision for safe drinking water through pipe (tap water), availability of post office facility and finally paved road for communication. The average shares of villages per district for each of these facilities are shown in table 2. Provision of electricity is found to increase substantially from 28% in 1971 to 78% in 1991. All other important public goods show a steady but slower increase in the share of villages having that particular good over the period.

Decennial census data are published on a district basis, not a constituency area. To overcome this problem, we mapped<sup>6</sup> district-based data into parliamentary Constituency areas. Political variables are constituency-based and public amenity data are district-based. There were many new districts carved out from existing ones in 1981 and 1991 compared to 1971. In contrast to the district boundaries, there have been relatively few changes in constituency boundaries. There were 518 constituencies in 1971 going up to 543 in 1991. To generate the data on public goods constituency-based, we attach weights to district areas by comparing district and constituency maps<sup>7</sup>. Weights are assigned by looking at the share of a constituency belonging to each district. (See Appendix 2 for the detailed method).

### **3. Empirical Model and Specification Issues**

The pure theory of electoral competition deals with the electorate's choice over candidate platforms (V. O. Key, 1966; Barro, 1973; Kramer, 1977). In this kind of electoral model, voters solve a forward-looking private maximization problem. Incumbent parties maximize their payoff by prolonging their stay in office, spending the minimum that ensures their win (Ferejohn, 1986).



They strategically look at the electorate's demands and give importance to those that are more important for reelection. Voters can punish an incumbent candidate if she has not performed well, but the punishment is ex-post not ex-ante.

The goal of this paper is to see if there is an increase in the percentage of villages having any public facility in a constituency, the incumbent has an advantage to win the election in that particular constituency. This follows from these theories when voters compare incumbent's performance with a challenger's promise (McKelvey, 1975 etc), and incumbent performance plays the active role. Voters can punish an incumbent who is unsuccessful in resource allocation, but that is ex-post. There is a time lag between incumbent performance and voter reaction. So the empirical model should be of the form:

$$(\text{Incumbent Win})_t = f(\text{Incumbent Performance})_{t-1},$$

where election outcomes at period  $t$  is a function of resource allocation (in terms of number of villages having a specific public facility in a constituency) in period  $t-1$ . We have 1971, 1981 and 1991 census data to measure incumbent performance in terms of levels of public facility provided. The left hand side is election outcomes; to match with the public facility data we have considered six parliamentary election data 1971, 1977, 1980, 1984, 1989 and 1991. We generate an incumbent party win dummy from 1977 to 1991. For the sake of comparison we use linear interpolation to create public good data for the mid years like 1977, 1984 and 1989. Since public good data is available every ten years, if there is an increase in number of villages having primary school of a district, it is hard to tell in which year it was built. This linear interpolation gives us an approximation of the direction and magnitude of change in the number of villages having any public facility in a district. We propose two base models. The first empirical model specifies a logit model in the level form

$$Y_{it} = \alpha + \theta_t + \gamma_i + X'_{it}\beta + Z'_{it}\delta + \varepsilon_i \quad (1)$$

where  $Y_{it}$  takes value 1 if the incumbent in constituency  $i$  wins the election in  $t$  period, 0 otherwise;  $\alpha$  is constant,  $\theta_t$  is a year fixed effect,  $\gamma_i$  is the state fixed effect and  $X_{it}$  is the level of public provision,  $Z_{it}$  is the political control variables associated with election outcomes;  $t \in (1977, 1980, 1984, 1989, 1991)$  and  $i = 1$  to 483. This model finds the associated probability of an incumbent party win resulting from the public facility level, controlling for other political factors.

In the second model we consider the marginal change in public provision instead of public provision in levels. The rest of the specifications remain the same. In this model we explain the probability of incumbent win by marginal change in the level of public facilities over five periods from 1971-77 to 1989-1991.

$$Y_{it} = \alpha + \theta_t + \gamma_i + (X_{it} - X_{it-1})' \beta + Z'_{it}\delta + \varepsilon_i \quad (2)$$

#### 4. Findings

Table 3 provides bivariate correlation of all the public facilities. We find around 70% correlation between paved roads and electricity on average. If new paved roads' constructed in a village then the probability of having a post office is around 63% on average.

[Table 3 is about here]

Most of these bivariate relationships are in the vicinity of 0.5 correlations with fewer exceptions such as educational facilities being less correlated with medical facilities (0.42) and safe drinking water provision (0.35). Overall we find positive relation between all of them meaning there by all them provided at an increasing rate over the period of study, 1970 to 1990.

[Table 4 is about here]

We run regressions on both base models with respect to incumbency measured as party performance. Our first empirical model outcomes are shown in table 4 for the dependent variable incumbency performance on level data. In table 4 we show four different specifications of equation 1. Model 4.1 considers only the public facilities without controlling for political variables. We find providing medical facilities, electricity and safe drinking water increases the probability of party incumbent win whereas providing more educational facilities, post offices or paved roads actually does the opposite. We have statistically significant coefficients for educational, safe drinking water and post offices. In models 4.2, 4.3 and 4.4 we control for different combinations of political variables, where only the congress party dummy is found to be statistically significant in model 4.4. Turnout is robust, although not statistically significant in dampening chance of an incumbent win. Safe drinking water is the only public facility found to be robust being statistically significant in all the models.

[Table 5 is about here]

In table 5 we show the outcomes of the second model of equation 2. This used the marginal change of the public facilities as an explanatory variable for the probability of an incumbency win. Overall findings are more robust in this second base model. Among the political controls, voter turnout and electors are robustly negative. Electricity was positive and robust in the first model, but in the second model we find as more villages get electrified, an incumbent has a lower chance of getting reelected. Increases in number of villages having post offices increases the probability of win except in model 5.4. In these two models we control for a Congress party dummy instead of margin of win or win vote share. In the marginal model we find a more statistically significant role of the control variables than in the level form model.

The overall statistical findings are mixed. It is hard to believe where we find negative coefficients of the public facilities-people turn the incumbent down because they got more of that particular facility? Paved road and post offices are robust in this regard. We can interpret these results in two ways. First, voters were always concerned about other facilities, so even if incumbents provided more of these goods, voters did not care. Second is populist voting. It could be the case that when incumbents win because they are popular, they had heavily neglected these particular facilities. In both of these cases we could expect negative coefficient on these particular facilities. The Congress party dummy is statistically significant and positively related with the probability of incumbency win. This is expected as the Congress party dominated the representation in parliament until mid nineties.

## **5. Conclusion**

The last parliamentary election outcomes in 2004 turned all expectations upside down, as the incumbent BJP-NDA (Bharatiya Janata Party (BJP) coalition) with outstanding economic

performance and foreign relations lost to the INC-UPA (Indian National Congress coalition (INC) coalition). Political pundits might explain this as a call for the present ruling INC-UPA coalition to concentrate on reducing poverty mostly in rural areas rather than opting for higher but inequitable economic growth. This reminds us that both efficiency and equity may be the key policy strategies for incumbents. These political turmoil suggest a sensitive analysis by looking at the distribution of resources rather than accumulation.

In this paper we found some interesting relations between the basic necessities of the voters in rural India and their political actions. Today, more than 70 percent of India's population live close to the poverty line, and for them basic amenities are much important than high-technology based growth. But the complex bureaucratic process by which funds are distributed to local authorities is not transparent and therefore it is always hard to measure how or how it takes place. Factors like populist voting, or the charismatic personality of the politicians is much easier to deal with in theoretical models, but become extremely difficult when we try to interpret them empirically.

Castes and religions play major pivotal roles in the case of swing votes and both of these factors are outside the scope of this paper. Analyzing caste and religion-based politics along with these public facilities for incumbent performance may be an useful extension. This may also explain why among the first-past-the-post election systems, India is a rare case with multiple dominant party, refuting Duverger's law. This is left for future research.

Notes:

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<sup>1</sup> Compared to the nations where free elections are held.

<sup>2</sup> See Wilkinson (2005) for detailed summary of 2004 parliamentary election in India.

<sup>3</sup> In India the administrative district areas are not same as constituency areas.

<sup>4</sup> See Banerjee and Somnathan (2004) for detailed description

<sup>5</sup> For detailed discussion about public good provision in rural India and its associated social structure see Banerjee and Somnathan (2004), Discussion paper 04-17, Indian statistical Institute, New Delhi

<sup>6</sup> This idea is drawn from Banerjee and Somnathan, 'The Political Economy of Public Goods: Some Evidence from India', Discussion paper 04-17, Indian statistical Institute, New Delhi

<sup>7</sup> (Butler et al, India Decides)

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## Appendix 1: Party Abbreviations, Name and Code

Abbreviations	Name	Party Code
ADC	Autonomous State Demand Committee	1
ADK	All India Anna Dravida Munetra Kazagham	2
BAC	Bangla Congress	3
BJP	Bharatiya Janata Party	4
BJS	Bharatiya Jan Sangh	5
BKD	Bharatiya Kranti Dal	6
BLD	Bharatiya Lok Dal	7
BSP	Bharatiya Samajbadi Party	8
CPI	Communist Party of India	9
CPI(M)	Communist Party of India (Marxist)	10
DMK	Dravida Munetra Kazagham	11
FBL	All India Forward Block	12
GNLFF	Gorkha National Liberation Front	13
HMS	Akhil Bharatiya Hiundu Mahasabha	14
HVP	Haryana Vikash Party	15
ICJ	Indian Congress(J)	16
ICS	Indian National Congress (Socialist)	17
ICS(SCS)	Indian National Congress (Socialist-Sarat Chandra Sinha)	18
INC	Indian National Congress	19
INC(I)	Indian National Congress (Indira)	20
INC(U)	Indian National Congress (Urs)	21
IND	Independent	22
IPF	Indian People's Front	23
JD	Janata Dal	24
JD(G)	Janata Dal (Gujarat)	25
JKD	Jharkhand Party	26
JKP	All India Jharkhand Party	27
JMM	Jharkhand Mukti Morcha	28
JNP	Janata Party	29
JNP(S)	Janata Party (Samajwadi)	30
KCJ	Kerala Congress (J)	31
KCM	Kerala Congress (M)	32
KEC	Kerala Congress	33
LKD	Lok Dal	34
MCOR	Marxist-Coordination	35
MIM	All India Majlish-E-Ittehadun Muslimeen	36
MUL	Muslim League	37
NCO	Indian National Congress (Organization)	38
PSP	Praja Socialist party	39
PWP	Peasants and Workers party of India	40
RPG	Republican party of India	41
RPK	Republican party of India (Khobragade)	42
RSP	Revolutionary Socialist Party	43
SAD	Shiromani Akali Dal	44
SAD(M)	Shiromani Akali Dal (Simranjit Singh Mann)	45
SHS	Shivsena	46

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SSP	Samyukta Socialist Party	47
SWA	Swatantra Party	48
TDP	Telegu Desham	49
TPS	Telengana Praja Samiti	50
UTC	Utkal Congress	51
VHP	Vishal Haryana	52

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Source: Election Commission of India

Notes: we coded only those parties, which won any parliamentary seat between the period 1971 and 1991.

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## Appendix 2: Mapping District Data into Parliamentary Constituencies

### **Case 1: Single constituency area from a single district area**

This is 1:1 mapping. We use district data directly as constituency data.

### **Case 2: Multiple constituencies from a single district**

N: 1 mapping, (where N is the number of constituency from a particular district) here also we use district data directly as constituency data.

### **Case 3: Single constituency from multiple district areas**

Most of the constituencies fall in this category. For constituencies like these weights for public goods are calculated by using the fraction of the constituency that came from a particular district as weights for the public good of that particular district. For example in 1981, 60% of Porbandar constituency area came from Junagarh district, 20% came from Jamnagar district and rest from Rajkot district. We calculated the public good provision of Porbandar constituency as  $.6*[\text{public goods in Junagarh}] + .2*[\text{public goods in Jamnagar}] + .2*[\text{public goods in Rajkot}]$ .

We used Butler, Lahiri and Roy (1991) for constituency boundaries and political map of India for district boundaries and physically compared both boundaries to get the mapping coefficients.

Source: Butler, David, Ashok Lahiri and Prannoy Roy. 1991. *India Decides: Elections, 1951-1991*. New Delhi: Living Media India and district map from atlas of India <http://www.maps-india.com/>

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## Appendix 3: Data Description and Source

### Political Data

Electors ('000) – number of listed voters per constituency (in thousands)

Turnout – Voter turnout in each constituency

Candidates – number of candidates contested in a constituency

Win Vote Share – Percentage of vote polled by the winner party

Margin of Win – Difference of vote share between Winner and runner-up

Party Incumbency – Takes the value 1 if a party gets reelected, 0 otherwise

Source: Election Commission of India, Parliamentary Elections 1971, 1977, 1980, 1984, 1989, 1991 <http://www.eci.gov.in/>

### Public Good Data

Educational – number of villages having any educational facility (primary school, middle school, college etc) per district

Medical - number of villages having any medical facility (health centers etc) per district

Safe Drinking water – number of villages having water facility from tap per district

Electricity - number of villages electrified (for any purpose agricultural etc) per district

Post Office - number of villages having post office per district

Paved Road - number of villages having bricked road per district

Source: District Census Handbook, Census of India 1971, 1981, and 1991

Table 1: Summary Statistics of Political Variables

		1977	1980	1984	1989	1991
Electors ('000)	Mean	611.08	691.39	757.79	965.47	980.13
	SD	57.28	61.73	72.04	98.80	105.78
Turnout	Mean	60.35	56.65	63.41	62.18	55.56
	SD	10.12	10.10	10.23	10.84	12.85
Candidates	Mean	4.48	8.52	10.04	11.16	15.93
	SD	2.19	4.61	6.09	7.97	8.87
Win Vote Share	Mean	60.91	50.42	53.93	51.17	47.51
	SD	9.06	9.41	7.99	9.15	9.72
Margin of Win	Mean	27.66	18.81	19.81	15.83	14.24
	SD	17.01	13.09	13.72	11.99	11.78
Party Incumbency	Mean	0.34	0.33	0.34	0.33	0.37
	SD	0.48	0.47	0.48	0.47	0.48
Number of observations each year :483						

Table 2: Summary statistics of Public Good Data

		1971	1981	1991
Educational	Mean	0.67	0.77	0.82
	SD	0.21	0.18	0.14
Medical	Mean	0.12	0.21	0.43
	SD	0.18	0.20	0.30
Safe Drinking water	Mean	0.04	0.11	0.21
	SD	0.08	0.15	0.24
Electricity	Mean	0.28	0.56	0.78
	SD	0.26	0.30	0.25
Post Office	Mean	0.23	0.24	0.33
	SD	0.18	0.15	0.24
Paved Road	Mean	0.33	0.42	0.49
	SD	0.19	0.25	0.25
Number of observations each year: 483				

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Table 3: Correlation matrix of the public goods

	Educational	Medical	Tap	Electricity	Post office	Paved road
Educational	1.00					
Medical	0.42	1.00				
Tap	0.35	0.55	1.00			
Electricity	0.61	0.52	0.52	1.00		
Post office	0.68	0.48	0.46	0.57	1.00	
Paved road	0.59	0.61	0.54	0.76	0.63	1.00

Table 4: Incumbent Performance (level form)

Independent Variables	4.1	Marginal effect	4.2	Marginal effect	4.3	Marginal effect	4.4	Marginal effect
Educational	-0.66*	-0.15	-0.59	-0.13	-0.56	-0.13	-1.43***	-0.31
	0.37	0.08	0.37	0.08	0.37	0.08	0.40	0.09
Medical	0.16	0.04	0.17	0.04	0.16	0.04	0.28	0.06
	0.24	0.05	0.25	0.06	0.25	0.06	0.26	0.06
Safe Drinking water	1.05***	0.24	0.94***	0.21	0.95***	0.22	0.67**	0.15
	0.30	0.07	0.30	0.07	0.30	0.07	0.32	0.07
Electricity	0.15	0.03	0.14	0.03	0.14	0.03	-0.18	-0.04
	0.23	0.05	0.26	0.06	0.26	0.06	0.28	0.06
Post Office	-0.34**	-0.08	-0.26	-0.06	-0.23	-0.05	0.29	0.06
	0.35	0.08	0.36	0.08	0.36	0.08	0.39	0.08
Paved Road	-0.70	-0.16	-0.58	-0.13*	-0.60	-0.13	-0.60	-0.13
	0.31	0.07	0.33	0.07	0.33	0.07	0.35	0.08
Electors ('000)			-0.0001	-2.2E-05	-0.0001	-0.00002	0.0004	8.54E-05
			0.0003	0.00007	0.0003	0.00007	0.0004	0.00008
Turnout			-0.009	-0.002	-0.008	-0.002	-0.005	-0.001
			0.004	0.0009	0.0040	0.0009	0.0040	0.0009
Candidates			0.006	0.001	0.005	0.001	0.004	0.0009
			0.007	0.002	0.007	0.002	0.007	0.002
Win Vote Share			0.004	0.0009				
			0.005	0.001				
Margin of Win					0.0028	0.0006	0.004	0.0008
					0.0031	0.0007	0.003	0.0007
Congress Party dummy							1.56***	0.34
							0.10	0.02
Constant	-0.009		0.207		0.311		-0.314	
	0.221		0.452		0.391		0.420	
Pseudo-R <sup>2</sup>	0.009		0.011		0.011		0.104	
Observations	2415		2415		2415		2415	

(Second row = standard errors)

\*10%, \*\*5% and \*\*\*1% significance levels



Table 5: Incumbent Performance (marginal form)

Independent Variables	5.1	Marginal effect	5.2	Marginal effect	5.3	Marginal effect	5.4	Marginal effect
Educational	-4.33*** 1.44	-0.98 0.32	-4.44*** 1.44	-1.00 0.32	-4.46*** 1.44	-1.00 0.32	2.13 1.54	0.47 0.34
Medical	2.32*** 0.48	0.52 0.11	2.38*** 0.49	0.54 0.11	2.39*** 0.49	0.54 0.11	0.18 0.52	0.04 0.11
Safe Drinking water	-0.37 0.70	-0.08 0.16	-0.42 0.70	-0.09 0.16	-0.41 0.70	-0.09 0.16	-0.42 0.73	-0.09 0.16
Electricity	-0.40 0.57	-0.09 0.13	-0.39 0.57	-0.09 0.13	-0.39 0.57	-0.09 0.13	1.20** 0.61	0.26 0.13
Post Office	1.50** 0.73	0.34 0.16	1.45** 0.74	0.33 0.17	1.46** 0.74	0.33 0.17	-0.68 0.80	-0.15 0.17
Paved Road	-1.06 0.90	-0.24 0.20	-0.98 0.90	-0.22 0.20	-0.99 0.90	-0.22 0.20	0.77 0.96	0.17 0.21
Electors ('000)			-0.0002 0.0003	-0.00004 0.00007	-0.0002 0.0003	-3.46E-05 0.00007	-0.0001 0.0003	-2.2E-05 0.00007
Turnout			-0.014*** 0.004	-0.003 0.0009	-0.013*** 0.004	-0.003 0.0009	-0.013*** 0.004	-0.003 0.0009
Candidates			0.009 0.007	0.002 0.002	0.009 0.007	0.002 0.002	0.008 0.007	0.002 0.002
Win Vote Share			0.002 0.005	0.0004 0.001				
Margin of Win					0.002 0.003	0.0005 0.0007		
Congress Party dummy							1.58*** 0.11	0.34 0.02
Constant	-0.60*** 0.08		0.17 0.41		0.18 0.34		-0.84** 0.34	
Pseudo-R <sup>2</sup>	0.01		0.01		0.02		0.1	
Observations	2415		2415		2415		2415	

(Second row = standard errors)

\*10%, \*\*5% and \*\*\*1% significance levels