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India: Election Outcomes and Economic Performance

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Abstract

In this paper we provide the first analysis of the relationship of growth to election outcomes in India. Using a comprehensive data set consisting of all candidates contesting the election, we also provide the first systematic quantitative analysis of the 2009 Lok Sabha elections. Our key result is that superior growth performance at the level of the state gives a definite advantage to the candidates of the state incumbent party in the constituencies of that state. Conversely, poor growth performance of a state is associated with poor electoral performance by the candidates of the state incumbent party in the constituencies of that state. We offer two additional results: personal characteristics such as education and wealth have at most a small impact on election outcomes; and, at least in the 2009 election, incumbency at all levels contributed positively to election prospects of a candidate.

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1. Introduction

Indian election results often spring surprises. It was particularly the case when the Bhartiya Janata Party (BJP), which led the National Democratic Alliance (NDA) government, unexpectedly lost the 2004 Lok Sabha election. Many critics of economic reforms celebrated the outcome as a vote against the reforms.¹ Since party of NDA ally and Andhra Pradesh Chief Minister Chandrababu Naidu, who had been strongly identified with economic reforms, also suffered a bitter defeat in the state elections held simultaneously, this view gained additional currency. An alternative explanation offered for this outcome was the anti-incumbency factor.² This view assumed without offering the underlying reason that the Indian voters preferred change to status quo.

But the outcome of the 2009 national elections seemingly went against this alternative hypothesis: it returned the Congress, the main ruling party, to power with significantly larger number of seats in the Lower House of the Parliament. This time around, the state elections held in 2009 also returned the incumbent state governments in many states such as Andhra Pradesh, Orissa, Maharashtra and Haryana. These outcomes also seemed to contradict the incumbency disadvantage hypothesis.

Election outcomes in India, thus, seem not to show a clear pattern in terms of incumbency disadvantage. At the same time, even if the UPA government has let the reform process stall, neither it nor other governments have disavowed the reforms let

¹ "Lok Sabha," translated as the "House of People," is the lower house of the Indian Parliament. For purposes of elections to Lok Sabha, the country is divided into 543 constituencies, principally on the basis of population, with each constituency electing one member. Elections to the upper house, called Rajya Sabha, are indirect with the vast majority of its members elected by the state legislative assemblies.

² The political-economy literature refers to this view as the incumbency disadvantage.

alone reverse them. Seen this way, the election outcomes in India remain something of a puzzle.

In this paper, we take the first stab at a systematic quantitative analysis of the determinants of election outcomes in India using the data for 2009 elections. Our analysis focuses on the personal characteristics of the candidates such as their wealth and education levels as well as the role incumbency may play at the level of the candidate as well as parties in power at national and state levels. Most importantly, we ask whether growth at the state level has a perceptible impact on victory prospects of the candidates contesting on the ticket of the party in power in the state. We ask whether the candidates of the main ruling party enjoy an advantage in states experiencing superior growth outcomes and suffer a disadvantage in states with poor growth outcomes.

Given the relative ease of gathering the candidate-specific data for more recent elections, our analysis in the paper focuses on the latest 2009 parliamentary election. The 2009 election is of interest in its own right as well since, like the 2004 election, it too carried a large element of surprise. Given the general disarray in both the Congress-led UPA, which ruled during 2004-09, and the BJP, the main opposition party, predictions of the election results varied widely from marginal victories for the UPA and NDA to the emergence of a “Third Front” consisting of a group of the left-of-center parties. Yet, defying all forecasts, the Congress greatly increased its tally from 145 to 206 seats and comfortably formed government with a group of smaller parties.

To carry out our analysis, we assembled a large new data set covering all 8,071 candidates that contested the 2009 election. The data set includes several relevant characteristics of all candidates, their party affiliation, their incumbency status as

candidates, the incumbency status of their parties at the center and in the state in which their constituencies are located and the relative growth rates of various states. The candidate specific information includes gender, level of education, wealth and criminal record and is compiled from the affidavits that the Election Commission requires each candidate to file with his or her nomination. The determination of incumbency status at the level of the candidate requires matching the names of the outgoing Members of Parliament (MPs) with those of the candidates in the 2009 election. The determination of the incumbency status of the party of affiliation at the center and at the level of the state requires the examination of the election records provided by the Election Commission. Finally the data on growth rates are collected from the Central Statistical Organization (CSO).

Our main result may be summarized as follows. First, the 2009 Parliamentary election show very strongly that controlling for other relevant determinants of elections, on average, candidates of the incumbent party in a state have a better chance of scoring a victory if that state exhibits higher growth than the median state. Symmetrically, on average, the candidates of the incumbent party in a state growing slower than the median state are punished. The larger the deviation from the median growth rate, the larger is this effect in either direction. Second, on average, incumbency at all levels was helpful in winning the 2009 election. That is to say, on average, an incumbent candidate and the candidates of the ruling parties at the center and states had better chances of victory than other candidates. This incumbency effect could be due to a variety of reasons such as the incumbent candidates and parties having more resources to spend on election campaigns, having better name recognition or even being more charismatic. Our results here do not

separate the pure incumbency effect on which a great deal of the political science literature focuses. Finally, we also find that on average, more educated and wealthier candidates have a better chance of victory. These advantages turn out to be far more important in the states exhibiting low growth and indeed have a tendency to become statistically insignificant in states exhibiting high growth rates.

The idea pursued here is similar to the one proposed in an op-ed article in Wall Street Journal by Bhagwati and Panagariya (2004). Commenting on the trend that shows that anti incumbency seems to have become more dominant in Indian elections since 1991, they propose that in more recent years voters have started taking into account the economic performance to decide whether to vote in favor of or against the incumbents. Whereas in earlier years during the 1950s through the mid 1980s when the overall economic performance in general was not impressive, people saw no perceptible change in their lives, which led them to turn extremely pessimistic in so far as their economic fortunes were concerned. Resigned that a significant change was impossible their, voting decision was perhaps based on other factors, which often resulted in the incumbent Congress Party being voted back to power. With the high growth of the 1980s and thereafter, when incomes began to grow at higher rates on a sustained basis and poverty began to decline, people's aspirations were fundamentally altered: having experienced change for the better, they wanted more of it and sooner than later. And if a current government would not deliver it, they would look for another one. Thus Bhagwati and Panagariya (2004) propose that in more recent years economic performance has become an important determinant of the way voters behave, and it perhaps explains why anti

incumbency has become a more prominent feature of election outcomes.³ We offer a more detailed discussion of the relevant literature in Section 3.

The paper is organized as follows. In Section 2, we offer a quick preview of our main result. In Section 3, we discuss the literature on elections in general and that on elections in India in particular. In Sections 4 and 5, we describe some salient features of the 2009 election and the relevant characteristics of the candidates, respectively. In Section 6, we present our regression results and in Section 7, we conclude the paper.

2. The Key Result: A Quick Preview

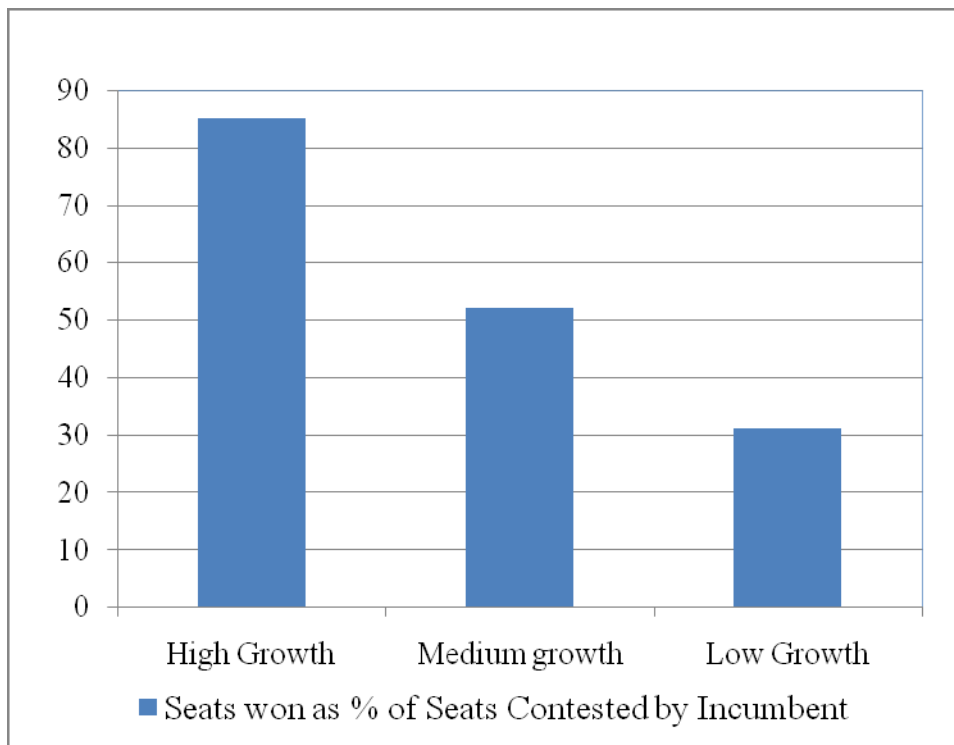
We find it useful to give a preview of our main result at the outset. This requires the definitions of the incumbent party at the state level and high- and low-growth states. We define as incumbent party the main ruling party (or two main parties if they shared power) in power in the state in 2007 and the preceding two or three years. This means that if a state legislative assembly election is held in 2008 or 2009 and the government changes hands, the outgoing party is still considered the incumbent in that state for purposes of the 2009 national elections, which were held in April and May of that year. It is a reasonable assumption that voters who punish a party in the state elections in 2008 or 2009 for its poor performance will also punish it in the national election in April-May 2009.

To group the states on the basis of growth performance, we first identify 21 major states, thus, excluding the union territories and eight northeastern states (including Assam and Sikkim), where special circumstances apply due to the history of separatist

³ Linden (2004) suggests that the proliferation of parties in recent years may have further contributed to voters voting for their favorite parties and against the incumbents.

movements and heavy presence of the central government on a continuous basis.⁴ We then calculate the average growth rates in these states between 2004-05 and 2008-09 and rank them in declining order of the growth rates.⁵ This allows us to divide the states into three groups of equal number of states exhibiting high, medium and low growth rates.

Figure 1: The Proportion of the Candidates of the Incumbent Party in the State Winning the National Election According to Growth Performance



Armed with this classification of the states and the definition of the incumbent party, we can ask the following key question: what proportion of the candidates fielded by the state incumbent party in the Lok Sabha constituencies located in that state won the national election? The outcome is depicted in Figure 1. Remarkably, incumbent parties

⁴ We include Delhi as a state in our analysis.

⁵ Years 2004-05 and 2007-08 and other similarly expressed periods refer to India's financial year, which begins on April 1 and ends on March 31. Therefore, 2004-05 stands for the period from April 1 2004 to March 31, 2005.

in the high-growth states won 85 percent of the seats they contested. In contrast, those in medium and low growth states could win only approximately 50 and 30 percent of the seats contested, respectively. This strong relationship between growth performance and election outcomes handsomely survives every model modification we consider in our regression analysis in Section 6.

3. The Relevant Literature

A large body of the literature on electoral competition developed in the context of the western democracies employs the principal-agent framework and focuses on how the desire to win elections conditions the behavior of politicians. This literature asks how political incumbents might try to maximize their chances of reelection through tax and expenditure policies favorable to their constituencies, cast legislative votes that conform to the ideological make-up of their constituencies and exchange political favors for campaign contributions.⁶ Given that our objective is to study the determinants of electoral outcomes rather than incumbent behavior to maximize the chances of electoral victory, this literature is at best indirectly relevant to our work.

A different strand of the literature examines whether incumbency by itself is an asset or liability in elections. This literature is closer to our paper in that it focuses on the determinants of election outcomes but it is somewhat narrowly focused on the identification of the incumbency advantage. The literature stems from the fact that higher unconditional probability of victory of an incumbent over non-incumbents may be the

⁶ For example, Rogoff and Sibert (1988) and Alesina and Rosenthal [1989] analyze the use of fiscal and monetary policy actions and Besley and Case (1995) of tax-expenditure choices by incumbents to gain electoral support. Levitt and Poterba (1994) study the effect of Congressional Representation on state economic growth. Levitt (1994), Baron (1989) and Snyder (1990) examine the response of politicians to campaign contributions. Lee (2001) provides additional references.

result of selection bias and therefore need not represent incumbency advantage per se. Conversely, a lower unconditional probability of victory of the incumbent may not represent incumbency disadvantage. Incumbents may win more frequently simply because they happen to be better candidates or have more resources to spend on campaigns. Alternatively, if incumbents lose more frequently than non-incumbents, this may be simply because they fail to keep a number of inconsistent promises made in the prior election or because they prove themselves to be inept during their term. Therefore, the observed frequencies of losses and wins by incumbents are by themselves insufficient to isolate the effect of incumbency. The most compelling approach to identifying the impact of incumbency is regression discontinuity, which tries to identify incumbents and non-incumbents who are otherwise identical in all respects and compares their probabilities of victory in election.⁷

In the Indian context, the literature on the incumbency advantage or disadvantage is relatively new. In an as yet unpublished paper, Linden (2004) uses the regression discontinuity approach and finds that prior to 1991, incumbents had enjoyed an advantage over non-incumbents. But beginning in 1991, this relationship reversed with incumbents suffering a disadvantage. For the elections from 1991 to 1999, he estimates that on average incumbents were 14 percentage points less likely to be elected than comparable non-incumbents.⁸ He reaches this conclusion by comparing the probabilities of victory of candidates in an election that had barely won (incumbents) to those of the

⁷ An excellent example of this analysis is Lee (2001). A vast body of political science literature is devoted to the analysis of the incumbency effect in election outcomes. For example, see Erikson 1971, Collie 1981, Garand and Gross 1984, Jacobson 1987, Payne 1980, Alford and Hibbing 1981, and Gelman and King 1990 and Lee 2001.

⁸ Uppal (2005) also finds that incumbency has hurt the candidates in recent Indian elections.

candidates who barely lost (non-incumbents) the prior election. The underlying assumption is that the candidates that just win and those that just lose an election are identical in all respect and any advantage or disadvantage to a victorious candidate (incumbent) in the following election must result from incumbency.

While Linden (2004) studies incumbency disadvantage at the level of the candidate, a number of descriptive analytic studies following the 2004 election have focused on the disadvantage arising from association with an incumbent party. Panagariya (2004), and Yadav (2004) note that on average the state ruling parties performed poorly in the 2004 national elections in the constituencies located in their own states but with one major exception: candidates of parties that had defeated the party in power in a state election held just prior to the national election did well in the latter as well.⁹ Yadav characterizes the one to two-year period between the state and national elections when the state ruling party has just come in power as the “honeymoon” period during which the latter’s candidates (i.e., candidates of the recently empowered incumbent party in the state) enjoy a positive advantage. As we will explain later, our definition of the incumbent party in a state takes into account this difference between the “entrenched” and “recent” incumbent.

Ravishankar (2009) carries out a quantitative analysis of the prospects of victory for the incumbent candidates of the main party in power relative to the incumbent candidates of the main opposition party using the national and state election data from 1977 to 2005.

⁹ This point is also made by Panagariya (2004) when he states, “The results [of 2004 Parliamentary elections] broadly reflect an anti-incumbency vote principally at the state level. Even where anti-incumbency explanation does not apply, the state-level politics rather than a rural-urban split remains the decisive factor. Until recently, Rajasthan, Madhya Pradesh and Chhattisgarh had Congress governments, which had pursued policies centered on rural development, primary education and health. Nevertheless, in the state-level elections in December 2003, the Congress governments in all three states lost by landslides to the BJP and its allies. In the current parliamentary elections, all three states voted overwhelmingly for the BJP and its allies. In the December 2003 state elections, the Congress had managed to retain power in Delhi and it swept there in the parliamentary elections as well.”

Because her analysis is strictly restricted to incumbent candidates, it does not compare incumbent and non-incumbent candidates. She finds that setting aside the parties in their honeymoon period, incumbent candidates of the main party in power in both national and state elections face higher probability of loss in their reelection bids than the incumbent candidates of the main opposition party. Ravishankar (2009) also finds a cross effect flowing from party incumbency at the national level to state elections and vice versa. Once again, setting aside the parties in their honeymoon period, incumbent candidates of the main party in power at the center face a higher probability of defeat than the incumbent candidates of the main opposition party at the center. Symmetrically, incumbent candidates of a party in power in a state face a higher probability of defeat in the national election than the incumbent candidates of the main opposition party within that state.

A key shortcoming of Ravishankar (2009) is that it excludes non-incumbent candidates. If the incumbency effect is associated with the party in power, there is no reason why it would not apply to non-incumbent candidates contesting the election on the incumbent party's ticket. Our data set, though confined to the 2009 national elections, includes all candidates and therefore allows for more complete test of the incumbency effect at the level of the party.

4. Salient Features of the 2009 Election

In one fundamental sense, the 2009 national election was different from the 2004 election: it returned the main ruling party, the Congress, to power and with a larger victory margin and with a larger number of seats. The immediate dominant reaction to the results in the press was that incumbency had helped rather than hurt in this election,

though some observers did question this conclusion.¹⁰ How far this is true is part of our investigation.

India has more than one thousand registered political parties. These are divided into unrecognized, state and national parties. Any registered party that lacks the status of state or national party is an unrecognized party. The Election Commission (EC) confers the status of state party on any party that meets certain thresholds in terms of votes received and seats won in an election. A state party acquires monopoly on the use of its party symbol in the state. A party qualifying as state party in four states gets the national status and then has the monopoly over the use of its election symbol over the entire country. It is not unusual for parties to lose the national status if they lose the qualifications for it.

To provide some background, Table 1 reports the broad results of the elections held in 1999, 2004 and 2009. The first point to note is that the national parties numbering six or more in each of these elections have won a little more than two-thirds of the seats. The party winning the largest number of seats has fallen well short of the majority so that each government has been based on a multi-party coalition. Because the party with the second most votes ends up in the opposition, state parties, which together account for approximately 30 percent of the seats acquire great importance.

Led by the BJP, the NDA had ruled from 1999 to 2004. Counting on its popularity at the time, it called for early elections. But, as already discussed, the BJP suffered major

¹⁰ For instance, in an op-ed, Panagariya (2009) argued that the outcome in the 2009 election was consistent with the original Bhagwati and Panagariya (2004) hypothesis that the electorate rewarded the ruling party in a performing state while punishing that in a non-performing state. He went on to point out that the national incumbent, the Congress party, could win only nine out of 72 seats in the states of Bihar, Orissa and Chhattisgarh, which had performing non-Congress governments. On the other hand, Delhi and Andhra Pradesh had performing Congress chief ministers and the party respectively bagged seven out of seven and 33 out of 42 seats in those two states. In Rajasthan, the Congress had trounced out an unpopular BJP chief minister less than six months prior to the national elections. In the national election, it went on to win 20 out of 25 seats in that state.

losses shrinking from 182 to 138 seats. The Congress improved its tally from 114 to 145 seats, well short of the 272 seats necessary to form a government. But remarkably, it was successful in cobbling together a coalition that came to be known as the UPA. The UPA government successfully served its entire term until 2009. At one level, it could be argued that neither the decline in the seats held by the NDA from 182 to 138 nor the rise in the seats held by the Congress from 114 to 145 represented a major shift away from the incumbent towards the opposition. Yet, given the expectations of a clear mandate in favor of a very popular Prime Minister, the media uniformly described the outcome as a clear vote against the incumbents.

Table 1: Broad Results of the National Elections in 1999, 2004 and 2009

Party	1999	2004	2009
National Parties	369	364	376
Indian National Congress	114	145	206
Bharatiya Janata Party	182	138	116
Bahujan Samaj Party	14	19	21
Nationalist Congress Party		9	9
Communist Party of India	4	10	4
Communist Party of India (Marxist)	33	43	16
Rashtriya Janata Dal			4
JD(S)	1		
JD(U)	21		
State Parties (E.g., DMK, TDP, SP, TC)	158	159	146
Other (unrecognized) Parties	10	15	12
Independent candidates	6	5	9
TOTAL	543	543	543

In the 2009 election, which is the subject of this paper, 372 parties in all fielded one or more candidates. Of the winning candidates, 534 had a party affiliation so that independents represented only nine constituencies. Beating even the most optimistic predictions, the Congress increased its tally from 145 to an impressive 206 seats. The Marxist Communist Party suffered the worst losses shrinking from 43 to 16 seats. The BJP also declined from 138 to 116 seats. Between 1999 and 2009, the Congress and the BJP had more or less exchanged their positions.

A total of 8,071 candidates contested the 2009 election. Of these, as many as 3,825 were independent. Another 2,449 came from 41 national or regional parties. These candidates accounted for more than 80 percent of the top four candidates ranked by the number of votes received. Table 2 reports the frequency distribution of seats won by these parties. Four of these 41 parties won no seats. As many as 13 parties won only one seat each. At the other extreme, there were ten parties that won 10 or more seats each. Together, these latter parties won 472 or 87 percent of the seats.

Table 2: Distribution of parties according to the number of seats won

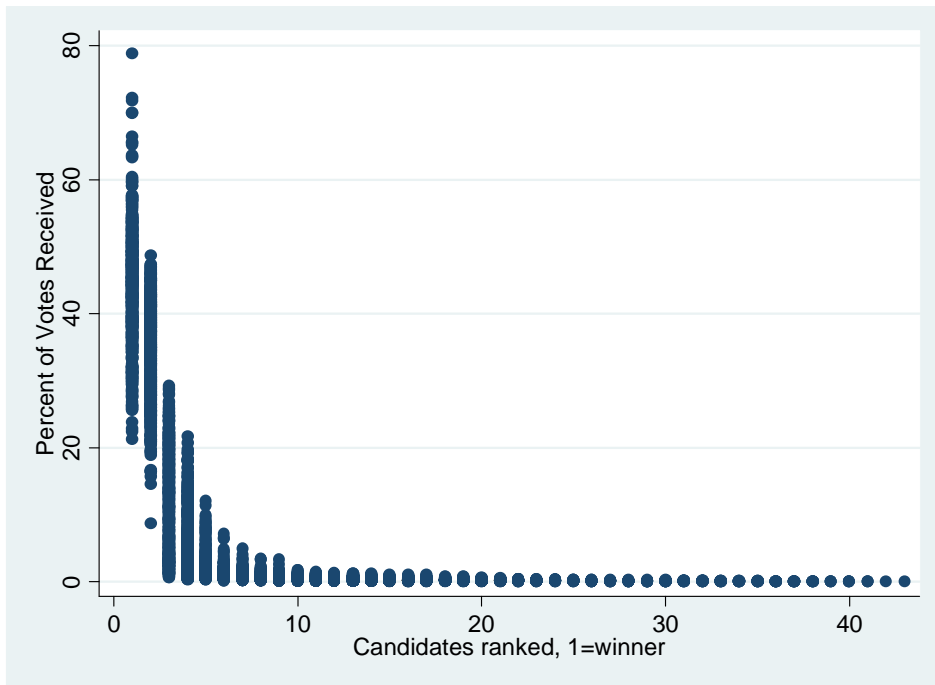
Number of Seats Won	Number of Parties	Cumulative Seats Won
0	4	0
1	13	13
2 to 9	14	71
10 or more	10	543

The average number of candidates per constituency was 15 with the maximum and minimum number of candidates in any constituency being 43 and 3, respectively.

Remarkably, as the latter figure indicates, there was not a single constituency with direct

election between two candidates. Countrywide, 59.4 percent of the voters turned up to vote. The maximum and minimum turnout rates were 90.3 and 25.6 percent, respectively. Constituencies near the higher limit were in West Bengal followed by northeastern and southern states. Those near the lower end were in the states of Jammu & Kashmir, Bihar, Uttar Pradesh and Rajasthan.

Figure 2: Percent Votes Received by Different Candidates in Each Constituency



Top 4 candidates in most constituencies accounted for the bulk of the votes polled in each constituency. This can be gleaned to some degree from Figure 2, which plots for each constituency the percent of votes received by each candidate with the candidates ranked by the proportion of votes received. Thus, for example, the first “bar” in Figure 2 is formed by the proportion of the votes received by the top candidate in each of the 543 constituencies. Although as many as 372 parties fielded as many as 8,071 candidates nationwide, top 4 candidates for each constituency taken together (i.e., 2,172 candidates)

accounted for 90 percent of the total votes polled. This can be gleaned from the fact that the density of votes in Figure 2 is heavily concentrated in the first four candidates. Given this distribution, in our regression model in Section 6, we will often limit the sample to top four candidates.

5. Characteristics of the Candidates

We next turn to a brief description of the characteristics of the candidates. For each candidate, we are able to collect data on wealth, education, criminal cases, gender, and incumbency status. Although we took this information from the website <http://myneta.info>, we randomly checked it against the original affidavits filed by the candidates and available on the website of the Election Commission and found it to be accurate. In the following, we provide the broad picture of the candidates of the 41 main parties along these dimensions.¹¹

Table 3: Distribution of Contesting and Winning Candidates According to Wealth

Wealth Category	Wealth (rupees million)	Number of candidates contesting	Number of candidates winning	Within group unconditional probability of victory
1	0-0.5	392	13	0.03
2	0.5-5	809	132	0.16
3	5-10	348	85	0.24
4	10-50	627	191	0.30
5	50-higher	273	112	0.41
Total		2449	533	0.22

¹¹ The criterion we have used to identify a main party is that it should have one or more member in the 2009 Lok Sabha.

Table 3 provides the distribution of the candidates of the main 41 parties by wealth. It defines five different wealth categories to summarize the raw data. Two features of the table stand out. First, candidates from all wealth categories are able to participate in elections on the tickets of the main parties. Almost half of the candidates of the main parties have the wealth of 5 million rupees or less. Second, nevertheless, the unconditional probability of victory rapidly rises with wealth. This comes out most dramatically if we compare the probability of victory of a candidate in the highest wealth category to that of the lowest wealth category: the former is more than 13 times the latter. We caution, of course, that no causal relationship between wealth and election outcome can be drawn from these data. Wealth can very well be positively correlated with other attributes that define a good candidate in the eyes of the electorate.

Table 4: Distribution of Contesting and Winning Candidates According to the Level of Education

Education Category	Education level	Number of candidates contesting	Number of candidates winning	Within group unconditional probability of winning
0	No Formal Education	8	0	0
1	Up to Class V	108	13	0.12
2	Middle or High School	621	100	0.16
3	Undergraduate degree	650	150	0.23
4	Post graduate or higher or technical degree	860	247	0.29

Next, we consider the level of education across contesting and winning candidates. As in the case of wealth, we divide education levels into five categories beginning with complete illiteracy and ending with post-graduate or higher or a technical degree. The

outcome is reported in Table 4. Three features of the table are noteworthy. First, contrary to the common impression most candidates contesting elections have some formal education. Indeed, the vast majority of those contesting have at least gone through the middle school. Second and more importantly, more than half of the Members of Parliament in the 2009 Lok Sabha boast of an undergraduate or higher degree. At the other extreme, while 8 candidates with no formal education did contest elections reflecting the openness of India’s democracy, none actually won. Finally, the unconditional probability of election consistently rises with the education level. As in the case of wealth, this fact need not reflect causation if education is correlated with other factors that make a candidate attractive to the electorate.

Table 5: Distribution of Contesting and Winning Candidates According to Criminal Cases

Crime Category	Number of criminal cases	Number of candidates	Number of winning candidates	Within group unconditional probability of Winning
0	0	1,850	373	0.20
1	1	305	75	0.25
2	2-4	214	60	0.28
3	5-9	53	14	0.26
4	10	27	11	0.41

The third characteristic we consider is the number of criminal cases pending against the contesting and winning candidates. This is done in Table 5. In constructing the table, we identify five categories based on the number of pending cases. Two features of the table stand out. First, a very large number of candidates have criminal cases pending against them. Even if we exclude candidates with just one case since the prospects of

frivolous cases are high against those in politics, as many as 85 members of the current Lok Sabha have two or more criminal cases pending against them. Second, somewhat disconcertingly, the within group unconditional probability of victory is higher, the larger the number of criminal cases against the candidate.

Table 6: Distribution of Candidates with Criminal Records by State

State	Percent of candidates with one or more criminal cases	State	Percent of candidates with one or more criminal cases
Jharkhand	43	Andhra Pradesh	18
Bihar	42	Tamil Nadu	15
Kerala	41	Goa	14
Maharashtra	39	Madhya Pradesh	14
Uttar Pradesh	35	West Bengal	13
Orissa	32	Assam	11
Gujarat	28	Punjab	9
Delhi	24	Rajasthan	8
Karnataka	23	Chhattisgarh	6
Uttarakhand	22	Himachal Pradesh	6
Haryana	19		

We found no specific pattern of candidates with criminal records across parties but did find a pattern across states broadly conforming to our intuitive expectation. Table 6 reports percent of the total candidates with one or more criminal records. Among the states, Jharkhand and Bihar with 43 and 42 percent of the candidates with criminal cases top the list. Somewhat surprisingly, Kerala follows right behind with 41 percent of the candidates having criminal cases registered against them. Predictably, the states in the south (except Kerala) have somewhat lower rates but these are by no means low. Among

the larger states, Punjab and Rajasthan show the lowest rates at 9 and 8 percent, respectively.

Table 7: Gender Composition of Contesting and Winning Candidates (Top Four Candidates)

Gender	Number of contesting candidates	Number of winning candidates	Composition of Candidates (%)	Composition of Winning Candidates (%)	Within group unconditional Probability of Winning
Women	194	58	7.9	10.9	0.30
Men	2255	475	92.1	89.1	0.21

In Table 7, we show the gender composition of the contesting and winning candidates for the candidates of the main 41 parties. In the 2009 election, women have a relatively small share in both contesting and winning candidates. Within group unconditional probability of winning the election was slightly higher for women than men, however.

Table 8: Average of the Characteristics Across Various Candidates (Four Top Candidates)

	All Candidates	Candidates from the Main Parties	Winning Candidates
Age	46	51	53
Wealth (Category)/average wealth	2.1	2.8	3.5
Criminal Record (probability)	0.14	0.24	0.30
Membership in a main party (probability)	0.30	1.00	0.98
Male (probability)	0.93	0.92	0.89
Education (category)	2.6	2.9	3.24
Incumbent (probability)	0.048	.15	.34

Next, in Table 8, we provide the average of each characteristic across all candidates, candidates from the 41 main parties and the winning candidates. If we could construct a winning candidate with these average characteristics, he would be a wealthy male (with mean assets worth 60 million rupees and median assets worth 12 million rupees) in his mid 50s with at least an undergraduate degree. He would come from one of the main political parties. There is a 30 percent chance that he would have at least one criminal case against him and a 15 percent chance that he will have 2 or more criminal cases pending against him. There is also one-third probability that he had served as an MP in the previous parliament.

Table 9: Incumbents Among all Contestants, Those Among the Main Parties and Among Winners

	All Candidates	Main Parties	Elected 2009	Within group probability of winning
Incumbents	387	373	184	0.48
Non incumbents	7684	2076	357	0.05
Total	8071	2449	543	0.07

Finally, we compare the incumbents and non-incumbents among all contesting candidates, those in the main parties and the winning candidates. Table 9 shows that non-incumbent candidates far outnumber incumbent ones. With 15 candidates per constituency contesting election on average, it should be no surprise that even if half of the incumbents were voted out, the unconditional probability of their victory relative to non-incumbents would be very high. Therefore, losses to a large number of incumbents are quite consistent with the incumbents having a strong showing in a statistical sense. In

a similar vein, even as the main parties such as the Congress and the BJP might experience a decline in their tally of seats, the statistical probability of their candidates winning would still remain very high relative to the rest of the main parties taken together. This feature will be observed in our regression analysis below.

Table 10: Correlations between Various Candidates Characteristics

	Age	Gender	Education	Wealth	Criminal cases
Gender	-0.12***	1			
Education	0.12***	0.01	1		
Wealth	0.22***	0.02	0.13***	1	
Criminal cases	-0.03	-0.07***	-0.09***	0.08***	1
Incumbent	0.19***	0.01	0.09***	0.17***	0.00

As we mentioned earlier, many of these characteristics are likely to be correlated with each other. Looking at the bivariate correlations in Table 10 we see that though many of these characteristics are correlated statistically significantly with each other, the coefficients are numerically small. The table shows wealthier candidates are also more educated and older but have more criminal cases against them; while educated candidates and women candidates have fewer criminal cases registered against them.

6. Regression Model and the Results

We now turn to a quantitative analysis of the election results using candidate level data. For this purpose, we postulate the following regression equation:

$$(1) \quad Y_{ijs} = \alpha_i A_i + \beta_j B_j + \delta_s Incum_s * EconPerf_s + \varepsilon_{ijs}$$

Here Y_{ijs} refers to the election outcome of candidate i , belonging to party j , contesting from state s . It is a binary variable taking the value of 1 in case of victory and 0 in case

of defeat.¹² A_i is a vector of candidate-specific variables such as wealth, education, gender, number of criminal cases pending and candidate level incumbency. B_j , likewise, is a vector representing party-specific variables. For example, it may represent membership in the main ruling or opposition party at the national level, main ruling coalition at the national level or the main ruling party at the state level. Alternatively, we include party specific or coalition specific dummies. Variable $Incum_s * EconPerf$ is our key variable intended to capture the interaction between incumbency at the level of the state and economic performance as measured by growth.¹³ Finally, ε_{ijs} is an error term with usual properties.

The Incumbency at the state level and economic performance variables require further elaboration. Variable $Incum_s$ takes a value of 1 if the candidate in question belongs to the incumbent party in the state in which his or her constituency is located and 0 otherwise. The incumbent party, in turn, is defined as the main ruling party (or two main ruling parties which shared power) in 2007 and the preceding two or three years. If there was an election for the state legislative assembly in 2008 or 2009 and the party ruling until 2007 lost this election, it was still considered the incumbent party for purposes of the national elections held in April-May 2009. The underlying logic is that an electorate would treat the party that was in government for several years prior to 2009 responsible for the policies and performance of the state rather than the party that took over as the government in the year just before the general election.

¹² In our future work, we intend to extend this work by using the proportions of votes received or victory margin for the winner and 0 for other candidates.

¹³ Ideally perhaps one should include the performance at constituency level in the regressions, however since data is not available at such a disaggregated level we use the state level growth data.

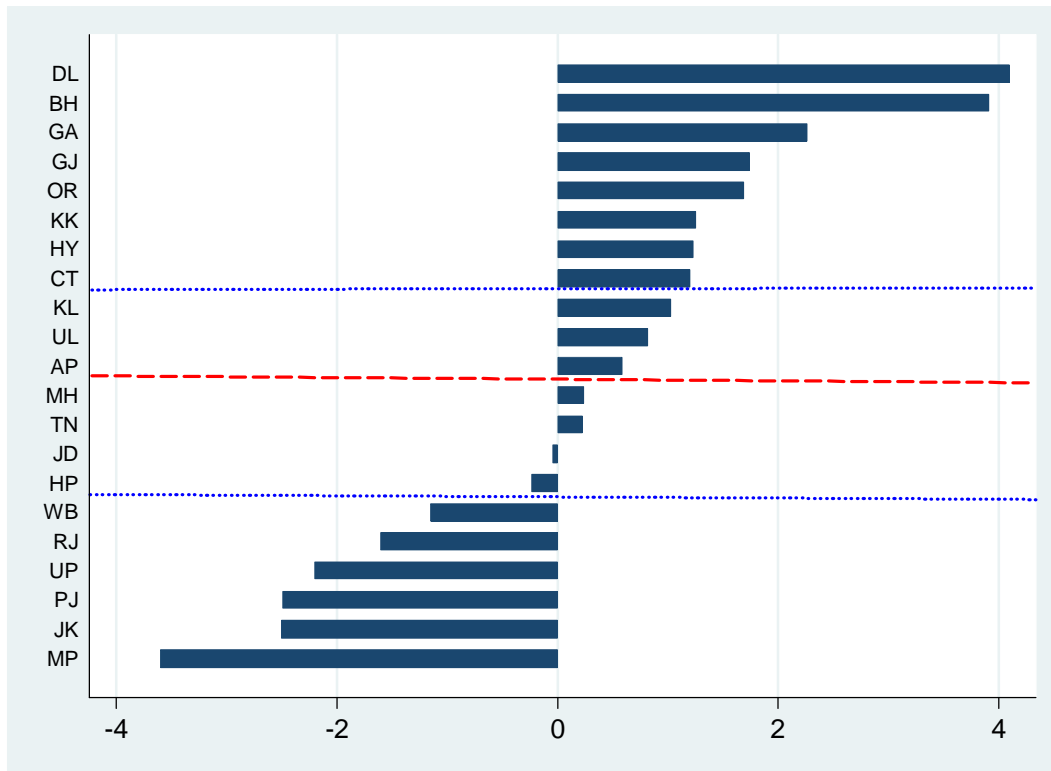
By definition, the union territories do not have territory-level governments and therefore must be excluded from regressions in which we employ the variable representing the state-level incumbency. In addition, we exclude Jammu and Kashmir, the eight northeastern states (including Assam and Sikkim) most of which have a small number of constituencies and have a very strong presence of the central government. In addition, since determining the incumbent state government was not possible for Karnataka due to frequent changes in the government, it had to be dropped. These exclusions limit the sample to 19 large states.

Because the economic performance variable, *EconPerf*, is employed only in conjunction with the state-level incumbency variable, we define it with reference to these 19 states. We use three alternative definitions for this variable. Under the first definition, we define *EconPerf* as a continuous variable setting it equal to the average growth rate in the state from 2004-05 to 2008-09 minus the average national growth rate over the same period. In this case, the variable takes a positive value for states with growth rates above the national average and negative for states below the national average. A positive value of coefficient δ_s implies that candidates of the state-level incumbent party contesting within the constituencies in that state are rewarded or punished relative to the candidates of non-incumbents as the state grows faster or slower than the national average.

Under the second definition, we divide the states into two groups: those experiencing above median growth and those experiencing below median growth. The broken line in Figure 3 shows the division. In this case, *EconPerf* takes the form of a dummy variable that takes a value of 1 for states with above-median growth and 0 for those with below-median growth.

Finally, we arrange the states according to declining average rates of growth and then divide them into three equal-size groups with high, medium and low average growth rates. The dotted lines in Figure 3 demarcate these groups. Under this third definition, we set *EconPerf* equal to 1 for states in the highest-growth group and 0 for the lowest growth group with the middle states dropped from the sample. The expected sign of δ_s in this case is positive. Under a variation of this definition, we set the variable equal to 1 for the lowest-growth group of states and zero for the rest of them. In this case, the expected sign of δ_s is negative.¹⁴

Figure 3 Difference between the Average Growth Rate of State Domestic Product and the GDP Growth Rate (2004-2008)



This completes the description of our empirical model and we can now describe our results. Our first set of regressions is shown in Table 11. We include top four

¹⁴ As noted in the appendix, we also drop Karnataka as determining incumbency was difficult.

candidates in the regressions (thus, the unconditional probability of each candidate being elected is .25). In column I we estimate the model with only candidate characteristics included among the explanatory variables. Consistent with the unconditional probabilities in Section 5, education and wealth are consistently positively associated with the probability of victory.

In columns II, we introduce dummy variable for incumbency at the level of the candidate and in column III, we add a similar variable for the central ruling party. The latter takes a value of 1 if the candidate comes from one of the parties in the UPA and zero otherwise. In Column IV we include dummy variables representing other major party groups that contested the elections together such as the NDA, the Third Front, and the Fourth Front. The excluded category here consists of parties that were not a part of any of the above groups.

In column IV, we also include a dummy variable representing membership in the ruling party (two ruling parties if they share power in the state legislative party) in the state in which the constituency is located. We define the ruling party as the party (or parties if power is shared) in power in 2007 and two or three preceding years. As previously noted, if a legislative assembly election takes place in 2008 or 2009 and the party is in power loses, it still treated as the incumbent. The underlying logic is that the electorate would hold the party ran the government for several years responsible for the policies and performance of the state rather than the incoming party, which barely gets the chance to prove or disprove itself. In column V of Table 11, we add the state-fixed effects to the variables included in column IV as a check on the robustness of the results.

Three main results can be gleaned from Table 11. First, candidate-level incumbency makes statistically highly significant contribution to victory. *Ceteris paribus*, regardless of their party affiliation, sitting members of Lok Sabha have higher probability of victory than the other candidates. Consistent with the unconditional probabilities we observed earlier, the results in column II and III suggest a numerically large positive effect of incumbency at the candidate level. Without any party membership controls (column II), a sitting member of Lok Sabha is 22 percent more likely to win the election than someone who is not a member but has similar characteristics in terms of wealth, gender, education and criminal record. The advantage declines to only 18 percent if we control for membership in the UPA (column III). But the advantage declines dramatically to just 7 percent after we control for membership in other party groupings and in the incumbent party in state (column IV).

The second result to follow from Table 11 concerns the role of party incumbency at the center. Consistent with the general impression, *ceteris paribus*, membership in the UPA gave candidates greater advantage than membership in any other party grouping. Compared with candidates without membership in any major party groupings, memberships in the UPA, NDA, Third Front and Fourth Front raise the probability of victory by 53, 31, 15 and 36 percent, respectively. That is to say, *ceteris paribus*, the UPA candidates had an edge over all other candidates.

Finally, incumbency at the state level plays an important role. *Ceteris paribus*, a candidate belonging to the state incumbent party had 30 percent higher chance of being elected than the candidates of other parties. Interestingly, the addition of state-fixed

effects (column V) has virtually no effect on the results either in terms of statistical significance or numerical values of the coefficients.

Our base specification used in the analysis in the rest of the paper is given by the specification in Column V in which we include state fixed effects and different dummies for party groupings. But to sharp focus, we suppress the coefficients of these variables. In Table 12, we introduce the key variable of interest: interaction between state-level incumbency and economic performance. In column I, we use the variable *EconPerf* in its continuous form and set it equal to the average growth in the state minus the national average growth rate during 2004-2008. For states with average growth rate below the national average, this performance variable takes a negative value. The estimated coefficient is 0.07, which says that the candidate of a state incumbent party has a 7 percent higher probability of victory than the candidates of non-incumbent parties if the average growth rate in that state exceeds the national average by 1 percent. If the growth advantage is 2 percent, the probability is 14 percent higher. On the other hand, if the growth rate in the state is below the national average, candidates of incumbent parties are punished.

In column II of Table 12, we include the interaction between candidate level incumbency and economic performance; and between central level ruling party and economic performance. The coefficients are insignificant. It implies that the incumbency at candidate or central party level is not necessarily rewarded more in better performing states. In Column III we calculate the growth differential over a shorter and more recent period 2006-07 to 2008-09 to calculate the growth differential variable. In column IV of table 11, we define *EconPerf* as a dummy variable, calling it “Dummy for high growth

states.” As explained above, it takes a value of 1 for candidates of incumbent parties in states with above-median growth and zero otherwise. We now obtain a much larger value of 0.45 for δ_s . The candidates of incumbent parties in above median growth on average have an advantage of 45 percent over those of non-incumbents. This large effect also substantially cuts the effect of state-level incumbency in general (from 0.32 to 0.14).

In column IV, we go a step further to sharpen the contribution of growth to the election of the candidates of the state-level incumbent party. We now define the *EconPerf* variable as “Dummy for high growth states 2,” which takes a value of 1 for the states in the group with top third rates of growth and 0 for the states in the lowest growth group with the states in the middle groups dropped from the sample. We now get the effect of growth in high-growth group relative to the low-growth group. Predictably, the value of the coefficient δ_s now increases to 0.65.

In Column V, we explicitly test for the punishment effect by defining the *EconPerf* variable in terms of low growth states, by defining the variable as a dummy that takes a value of 1 for states with below-median growth and zero otherwise. The estimated coefficient is -0.20 . In column 2, we sharpen this effect by setting the dummy equal to 1 for the lowest-growth group and 0 for the highest-growth group and dropping the states in the middle-growth group from the sample. The coefficient now turns out to be negative and larger in magnitude: -0.24 .

Without explicitly reporting the results, we note that we also performed a robustness check with respect to the definition of the incumbent party at the state level. In states where elections took place in 2006-07 or 2007-08 and the ruling party lost, we replace the incumbent by that outgoing party. The modification leads to changes in five

states: Kerala, Uttarkhand, Tamil Nadu, Punjab and Uttar Pradesh. The results in columns V and VI of Table 12 move very little. This suggests that the results we obtain are not dominated by one or two specific states and are therefore not sensitive to a small number of switches in the states on the margin.

7. Concluding Remarks

This paper provides the first analysis of the relationship of growth to election outcomes in India. It also provides the first comprehensive quantitative analysis of the 2009 Lok Sabha elections. We assembled a comprehensive data set consisting of all candidates contesting the election. Our results are robust to virtually every modification that seemed intuitively plausible to us.

Our main results may be summarized as follows. First, personal characteristics such as education and wealth have at most a small impact on election outcomes even though this is not apparent from the unconditional within group probabilities discussed in Section 5. Second, at least in the 2009 election incumbency at all levels—candidate, national ruling party and state ruling party—contributed positively to election prospects of a candidate. Here we use “incumbency” in the ex post sense and it does not control for differences that may arise from unobservable characteristics. Finally, our key result is that superior growth performance at the level of the state gives a definite advantage to the candidates of the incumbent party in the constituencies of that state.

We conclude with a word of caution with respect to our last result. Growth itself may be correlated with several attributes that the voters value. For example, superior growth performance may be positively correlated with good governance including law and order. It may also be associated with reduced levels of poverty. Therefore, there

remains scope for differences of opinion on whether the voters rewarded growth in the 2009 elections or other variables with which it might be correlated. From the policy perspective, we do not see this as a major issue, however. Even if it is these other variables that voters value over growth per se, growth would serve as a reasonable target variable for the state politicians to win the elections.

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Table 11: Probability of Victory and Incumbency at the Candidate and National Party Level

	I	II	III	IV	V
Age	0.00*	0	0	0	0
	[1.92]	[0.76]	[0.23]	[-0.15]	[-0.44]
Gender (female)	0.09**	0.08*	0.06	0.04	0.04
	[2.14]	[1.89]	[1.53]	[1.18]	[1.06]
Education Index	0.04***	0.03***	0.03**	0.02**	0.02*
	[3.00]	[2.70]	[2.35]	[1.96]	[1.74]
Wealth Index	0.07***	0.06***	0.04***	0.02***	0.03***
	[7.44]	[6.31]	[4.53]	[2.70]	[3.27]
Criminal Index	0.01	0.01	0.02	0.02	0.02
	[0.56]	[0.63]	[1.14]	[1.35]	[1.38]
Incumbent		0.22***	0.18***	0.07***	0.07***
		[6.99]	[5.81]	[2.60]	[2.60]
UPA			0.26***	0.53***	0.53***
			[9.55]	[9.18]	[8.95]
NDA				0.31***	0.32***
				[4.70]	[4.74]
Third front				0.15**	0.14**
				[2.35]	[2.18]
Fourth front				0.36***	0.38***
				[4.11]	[4.20]
Incumbent Party in State Assembly				0.30***	0.31***
				[9.29]	[9.36]
Observations	1,750	1,750	1,750	1,750	1,750

Note that *, ** and *** indicate a statistically significant coefficient with probability 0.90, 0.95 and 0.99, respectively.

Table 12: Probability of Victory and State-Level Growth-Incumbency Interaction

Independent Variable	I	II	III	IV	V	VI	VII
Age	0	0	0	0	0	0	0
	[-0.34]	[-0.38]	[-0.49]	[-0.28]	[-1.13]	[-0.28]	[-1.13]
Gender (female)	0.05	0.05	0.05	0.04	0.11**	0.04	0.11**
	[1.24]	[1.26]	[1.26]	[1.08]	[2.21]	[1.08]	[2.21]
Education Index	0.02**	0.02**	0.02*	0.02*	0.02	0.02*	0.02
	[1.97]	[2.00]	[1.90]	[1.88]	[1.22]	[1.88]	[1.22]
Wealth Index	0.03***	0.03***	0.03***	0.03***	0.03**	0.03***	0.03**
	[2.99]	[2.97]	[2.99]	[3.04]	[2.39]	[3.04]	[2.39]
Criminal Index	0.02	0.02	0.02	0.02	0.01	0.02	0.01
	[1.42]	[1.40]	[1.35]	[1.20]	[0.30]	[1.20]	[0.30]
Incumbent	0.09***	0.09***	0.09***	0.08***	0.10***	0.08***	0.10***
	[3.08]	[2.91]	[2.97]	[2.65]	[2.69]	[2.65]	[2.69]
Incumbent Party in State Assembly	0.32***	0.32***	0.26***	0.14***	0.21***	0.58***	0.78***
	[9.30]	[9.24]	[7.66]	[3.87]	[3.66]	[12.44]	[19.39]
Growth difference (2004-08) x UPA		-0.01					
		[-0.58]					
Growth difference (2004-08) x Incumbent		-0.01					
		[-0.70]					
Growth difference (2004-08) x State Incumbency	0.07***	0.06***					
	[6.03]	[5.27]					
Growth difference (2006-08) x State Incumbency			0.04***				
			[4.8]				
Dummy for High state x State Incumbency				0.45***			
				[6.6]			
Dummy for High states 2 x State Incumbency					0.65***		
					[9.8]		
Dummy for Low states x State Incumbency						-0.20***	
						[-10.2]	
Dummy for Low states 2 x State Incumbency							-0.24***
							[-10.1]
Observations	1,750	1,750	1,750	1,727	1,139	1,727	1,139

Note that *, ** and *** indicate a statistically significant coefficient with probability 0.90, 0.95 and 0.99, respectively.