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## Effect of redrawing of political boundaries on voting patterns: Evidence from state reorganization in India

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Effect of Redrawing of Political Boundaries on Voting Patterns:  
Evidence from State Reorganization in India

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**Abstract**

This paper analyzes the effect of a redrawing of political boundaries on voting patterns and investigates whether it leads to closer conformity of an electorate's voting patterns with its political preferences. We study these issues in the context of a reorganization of states in India. In 2000, Madhya Pradesh, the biggest state in India before the reorganization, was subdivided into Madhya Pradesh and Chhattisgarh, the latter accounting for less than one-fourth of the electorate of undivided Madhya Pradesh. Using socioeconomic composition and traditional voting patterns, we argue that there are differences in political preferences between Madhya Pradesh and Chhattisgarh. Next, in the context of a theoretical model that captures some of the basic features of the electoral scenario of the two regions, we predict that before reorganization, the smaller region would vote strategically to elect representatives with preferences more closely aligned to those of the bigger region. Once Chhattisgarh became a separate state, however, this motive would no longer operate, and the voting distributions of the two regions would differ. Using detailed data on state elections in Madhya Pradesh and Chhattisgarh in 1993, 1998, and 2003 as well as a difference-in-differences estimation strategy, we find that voting patterns in the two regions were indeed very similar before reorganization but strikingly different afterwards, with a relative shift in Chhattisgarh toward its inherent political preferences. These findings are reasonably robust in that they continue to hold after controlling for other confounding factors and survive several sensitivity tests.

Key words: political boundaries, voting, transfers

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# 1 Introduction

The last two decades have witnessed the disintegration of several big countries and flaring up of regional separatist tendencies in many countries. For example, Yugoslavia broke up into several new independent countries and many of the constituent republics of the former Soviet Union became independent countries themselves. There were also widespread separatist movements, claiming autonomy or self-rule, in countries like Canada in North America, Belgium, France, Italy, Spain and UK in Europe, China, India, Indonesia and Turkey in Asia, and New Zealand in Australasia.

This begs the question: what is the impact of breakup of a larger state, or of secession of smaller regions from their parent state? This paper relates to this important issue. It analyzes the impact of a redrawing of political boundaries on voting patterns, and also investigates whether this leads to a better conformity of the electorate's voting patterns with their political preferences.

This paper addresses these questions in the context of the recent reorganization of states in India. In its monsoon session in 2000 the Parliament of India passed the Madhya Pradesh Reorganization Bill, the Uttar Pradesh Reorganization Bill and the Bihar Reorganization Bill. As a result one smaller state was carved out of each of these three biggest states in India - Chhattisgarh from Madhya Pradesh, Uttaranchal from Uttar Pradesh and Jharkhand from Bihar. See Figure 1 for a political map of India showing the different states after the reorganization.<sup>1</sup> In this paper we investigate, both theoretically and empirically, whether the 2000 reorganization led to changes in voting patterns in the affected regions. For reasons discussed below we concentrate on Madhya Pradesh, which was the biggest state in India before its eastern part became a separate state called Chhattisgarh in November 2000.

Drawing evidence from the socio-economic composition of Chhattisgarh and Madhya Pradesh and traditional voting patterns of different cultures, groups and regions, we show that political preferences were different in the two regions. Next, we construct a theoretical model that captures some of the basic features of the electoral scenario of Madhya Pradesh and Chhattisgarh,—the objective is to understand relative voting behavior in the two regions before and after reorganization. In India (as well as in other

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<sup>1</sup> Before the reorganization, Madhya Pradesh and Chhattisgarh together constituted Madhya Pradesh, Uttar Pradesh and Uttaranchal together constituted Uttar Pradesh and Bihar and Jharkhand, Bihar.

electoral democracies), the amount of transfers that a constituency<sup>2</sup> gets depends crucially on whether the local representative belongs to the ruling party. Under such partisan transfers, heterogeneity of political preferences between the two regions, and strategic voting, the model predicts that the relative voting patterns in the two regions will be very different before and after reorganization. It finds that when they were part of undivided Madhya Pradesh, the residents of Chhattisgarh would vote strategically to elect representatives with preferences more closely aligned to those of the residents of Madhya Pradesh proper. Consequently, the voting distribution of Chhattisgarh will be similar to that of Madhya Pradesh before reorganization. Once they constitute a separate state however, the above motive will no longer operate. As a result, the voting distributions of Madhya Pradesh and Chhattisgarh will be comparatively disparate and the voting pattern of Chhattisgarh will conform more closely to its own political preferences.

We exploit detailed data on elections to the undivided Madhya Pradesh legislature in 1993 and 1998 together with data on elections to the (post-reorganization) Madhya Pradesh and Chhattisgarh legislatures in 2003 to analyze the regional voting trends pre and post-reorganization. Our difference-in-differences estimates show that voting patterns of Madhya Pradesh and Chhattisgarh were surprisingly similar before reorganization, while they were strikingly different after, with a relative move in Chhattisgarh towards its political preferences. These findings are reasonably robust in that they continue to hold after controlling for other confounding factors and survive several sensitivity tests.

Our paper is related to two strands of literature. The first is the literature on the importance of transfers in electoral competition in a representative democracy. A number of studies provide evidence that discretionary grants are often handed out in a partisan manner, with electoral considerations playing an important part. Recent works in this literature include Ansolabehere and Snyder (2003), Finan (2003), Miguel and Zaidi (2003) and Porto and Sanguinetti (2001). Ansolabehere and Snyder (2003) show that in the U.S., ruling parties skew the distribution of grants in favor of areas that provide them with the strongest political support. In particular, counties that traditionally give the

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<sup>2</sup> In India, a state legislature is known as a legislative assembly, and state legislative districts are referred to as assembly constituencies. In what follows we will use the word constituency and seat interchangeably to refer to a legislative district; and we will use the terms state legislative elections and assembly elections interchangeably to refer to the elections to the state legislature.

highest vote share to the ruling party receive larger shares of state transfers. Miguel and Zaidi (2003) find that in Ghana administrative districts where the ruling party won all parliamentary seats in the 1996 elections received 27 percent more school funding in 1998-99. Finan (2003) provides evidence that federal deputies in Brazil reward municipalities based on political support. Porto and Sanguinetti (2001) show that in Argentina, over-represented provinces, both at the senate and at the lower chamber, receive higher resources from the national government compared to less represented provinces. In the Indian context, Khemani (2003) shows that the ruling party provides greater resources to regions that are politically aligned with it and that are important in maximizing the party's representation in the legislature. In our study we argue that transfers play an important role in the electorate's voting decisions and that this has important implications for the effect of a breakup on voting patterns.

The second strand of literature involves recent studies of endogenous formation of political entities. The standard argument is that in deciding where to draw the political boundaries, residents trade off the advantage of a larger state in providing public services at a lower cost against the disadvantage of increased heterogeneity of preferences that is present in a larger entity. In other words, when contemplating a move towards separation (or integration), electors weigh the efficiency benefits of being part of a larger state (and a larger market) against the benefits to be had from having a government that is more closely aligned to the preferences of the people. In one of the earliest contributions to this literature, Alesina and Spolaore (1997) find that democratization leads to secession and to an inefficiently high number of countries, while economic integration increases the incentive for political separation. Bolton and Roland (1997) emphasize political conflicts over redistribution policies. They argue that a breakup is more likely when regions differ in their income distributions, and when the efficiency gains from unification are small. Goyal and Staal (2004) find that unification takes place between similar sized regions, and that majority voting leads to excessive separation, just like in Alesina and Spolaore. For good in-depth reviews of this literature, see Alesina and Spolaore (2003).

Alesina, Baqir and Hoxby (2004) focus on local political jurisdictions (school districts and municipalities in the U.S.) and find strong evidence of tradeoff between economies of scale and racial heterogeneity and also find some (though less) evidence in favor of a tradeoff between economies of

scale and income heterogeneity. Thus there are quite a few studies that analyze the tradeoff between economies of scale and homogeneity of preferences in the formation of nations. However, there is no study thus far that analyzes the effect of a breakup of states on voting patterns. This paper fills this important gap. The notion in the literature is that a breakup can lead to greater homogeneity of preferences. Exploiting political preferences of groups, peoples and regions, this study investigates whether changes, if any, in voting patterns following a breakup represented a better alignment of the electorates' voting patterns with their political preferences.

## 2 Why Madhya Pradesh and Chhattisgarh?

As mentioned in the introduction, three Indian States—Bihar, Madhya Pradesh and Uttar Pradesh—were subdivided into two states each in 2000. We have chosen this particular pair of states, Madhya Pradesh and Chhattisgarh, for several reasons. First, the boundaries of each assembly constituency remained the same following the reorganization, whether they remained within Madhya Pradesh or formed part of the new Chhattisgarh state. There were 320 assembly constituencies in undivided Madhya Pradesh - after the breakup, 90 of them fell in the new state (Chhattisgarh), the other 230 comprised the new Madhya Pradesh legislative assembly. This enables us to compare the voting patterns of the constituencies in the two states across pre- and post-reorganization elections to the state legislatures. In the partition of Bihar too, constituency boundaries were left unchanged. However, this was not the case for Uttar Pradesh. Since Uttaranchal was carved out of a relatively small part of the state, the existing 22 assembly constituencies were subdivided into 70 smaller ones. This creates a problem for investigating voter behavior because we would ideally like to analyze *within-constituency* changes in voter behavior across pre and post-breakup elections. With changes in constituency boundaries, the true effect of a breakup on voting patterns will be confounded with changes in composition of the constituencies.

Second, unlike most other states in India, the political system in Madhya Pradesh and Chhattisgarh revolves around two major national parties, the Bharatiya Janata Party (BJP from now on) and the Indian National Congress (INC). Typically these parties together account for more than 80% of the

votes polled in these states, and over 90% of the assembly seats.<sup>3</sup> The only other important parties in the two states are Bahujan Samaj Party (BSP) and the Samajwadi Party (SP). However, even apart from the fact that the support for these parties is low and concentrated in particular pockets,<sup>4</sup> there do not seem to have been any major changes in support for them in the few years before and after the breakup.<sup>5</sup> In most other states in India, third parties (together with smaller regional parties) have a considerable amount of leverage. This can become a problem because parties often enter into electoral alliances just before the elections. If the composition of an alliance changes from one election to another it could be difficult to extricate the change in support for a particular party from that of the change in composition of the alliance. For example, in Uttar Pradesh the four largest parties - BJP, SP, BSP and INC - often enter into alliances with each other and with other smaller regional parties that make it difficult to ascertain the true change in support for one particular party. Similar is the case in Bihar, where factions of the original Janata Dal party and other smaller parties make the electoral system much more multi-party and in a state of flux.

Third, there have been elections to the state legislature in undivided Madhya Pradesh in 1998, and to the state legislatures in Madhya Pradesh and Chhattisgarh in 2003. This is important, since to investigate the effect of breakup on voting patterns, we need elections that straddle 2000, the year in which reorganization took place. (Note that since the breakup took place at the state level, elections of interest here are the state legislative elections.) There has recently been elections to the state legislatures in Bihar and Jharkhand (February 2005) - the first after their reorganization. However, the last elections in undivided Bihar were held in February 2000 - too close to the passage of the Bihar reorganization bill in the parliament in that summer - so these 2000 elections may not offer a clean pre-program event. There have been assembly elections in Uttar Pradesh and Uttaranchal in February 2002, but as mentioned above, significant problems are created by changes in constituency boundaries

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<sup>3</sup> In the elections to the (undivided) Madhya Pradesh state legislature in 1998, the BJP and the INC together got 79.9% of the total votes polled. In terms of actual seats, the two parties together won 91% (291 out of 320). In the 2003 elections, the two parties secured 91.7% of the seats (211 out of 230) in Madhya Pradesh, and 96.7% of the seats (87 out of 90) in Chhattisgarh. See Table 3 for details.

<sup>4</sup> For example, the BSP draws most of its support from the region in northern Madhya Pradesh called Vindhya Pradesh. Vindhya Pradesh borders the state of Uttar Pradesh which is the main political base of the BSP.

<sup>5</sup> For example, the BSP and SP together got 5.5% and 11% of the total votes polled in Chhattisgarh and Madhya Pradesh respectively in 2003. In the 1998 assembly elections, this figure was 5.8% for Chhattisgarh and 9.5% for Madhya Pradesh.

in the latter state as well as the major role played by smaller parties.

Fourth, the breakup in Madhya Pradesh was supported equally by both the main parties, BJP and INC. So any change in relative voting patterns in Chhattisgarh in the post-breakup period cannot be explained in terms of either party being ‘rewarded’ (or ‘punished’) for help (or hindrance) in creation of the state. There is no evidence that the voters favored either of the two parties on this issue. The case in Bihar, on the other hand, was very different from Madhya Pradesh. The ruling Rashtriya Janata Dal (RJD) party in Bihar and its leader (Laloo Prasad Yadav) were opposed to the split, primarily because though the support for RJD was concentrated in the northern part of the state, they were afraid of losing the mineral-rich southern part (which eventually formed Jharkhand). On the other hand the Jharkhand Mukti Morcha (JMM), another important political party in Bihar, had been actively demanding separate statehood for Jharkhand. It is arguable that in the post-breakup elections, voters, who had otherwise supported RJD in the past but preferred statehood for Jharkhand would want to switch their votes to reward JMM.

Fifth, neither the BJP nor the INC had any added stake in the split of Madhya Pradesh. Since the constituency boundaries were not redrawn after the breakup, representation in terms of the number of seats, remained the same both at the national and state legislatures, unlike in the reorganization of Uttar Pradesh. Apart from an increase in the total number of assembly constituencies in Uttaranchal there were also changes in the number of seats reserved for different groups. Earlier, out of 22 assembly seats that this region had in undivided Uttar Pradesh, 3 and 1 were reserved for members belonging to the Scheduled Castes and Scheduled Tribes respectively. After reorganization, out of 70 seats in the new Uttaranchal legislature, 11 and 3 were similarly reserved. Note that in the reorganization of Madhya Pradesh, the same constituencies were reserved for members of the Scheduled Castes and Scheduled Tribes both before and after the breakup.

A final point to note is that the main reason undivided Madhya Pradesh was subdivided into two separate entities was the large size of the state, both in terms of area and population, and significant cultural and linguistic heterogeneity across the eastern and western parts of the state.<sup>6</sup> This further

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<sup>6</sup> The boundaries of states in pre-independence (pre-1947) India were not drawn on the basis of language, religion or culture, so that most of the states were multi-lingual and multi-cultural. The arguments for redrawing of state boundaries in the post-independence period, including in the 2000 reorganization, were mostly based on administrative convenience

attests to the exogeneity of the breakup. As seen in Table 1, at the time of the split Madhya Pradesh had a population of about 80 million people - if it were an independent country it would be the 13th most populous in the world, just after Germany.<sup>7</sup> By comparison, California, the most populous state in the U.S., had a population of 36 million on July 1, 2004 and Texas at that time had only 22 million people.<sup>8</sup> Madhya Pradesh was also the largest state in India in terms of geographic area before the breakup.

### 3 Heterogeneity of Preferences across Madhya Pradesh and Chhattisgarh

This section argues that political preferences are different across these two states. Table 1 illustrates some summary statistics for Madhya Pradesh and Chhattisgarh. (For ease of comparison we also show the relevant all-India numbers in the last column.) In terms of population, Chhattisgarh is about one-third the size of post-reorganization Madhya Pradesh. It is more rural and has a higher percentage of females. It also has a much higher child female-to-male ratio compared to Madhya Pradesh (and all-India), both in the rural and urban sectors. Another important demographic feature is the presence of a large tribal population in Chhattisgarh, as compared to Madhya Pradesh. Though the percentage of Scheduled Castes (SCs) is similar across the two states, the percentage of Scheduled Tribes (STs) in the former is more than double that in the latter.<sup>9</sup> We argue below that these demographics have important consequences for preferring one party over the other at the hustings.

As mentioned before BJP and INC are the two main parties in Madhya Pradesh and Chhattisgarh. Tables 2(a), (b) and (c) show the support for the BJP and the INC across different segments of and differences in heritage and socio-cultural preferences.

<sup>7</sup> See the 2002 World Population Data Sheet of the Population Reference Bureau, available online at [http://www.prb.org/pdf/WorldPopulationDS02\\_Eng.pdf](http://www.prb.org/pdf/WorldPopulationDS02_Eng.pdf).

<sup>8</sup> Source: U.S. Census Bureau, State Rankings - Statistical Abstract of the United States, available at <http://www.census.gov/statab/ranks/rank01.html>.

<sup>9</sup> In India, demographic groups designated as Scheduled Castes and Scheduled Tribes constitute the most disadvantaged sections of the population and have traditionally been discriminated against by other better-off groups. After independence in 1947, in an effort to help integrate these groups in the mainstream, some constituencies have been reserved for them, where candidates belonging to only these groups can be elected. The number of constituencies reserved is based on the actual proportions of these groups in the population, and thus represents their respective political clout. We proxy the importance of Scheduled Castes and Scheduled Tribes in each state by the respective number of assembly constituencies reserved for candidates belonging to these groups.

the population. In the Indian context, the BJP is seen to be the right-wing party, with a strong focus on traditional upper caste Hindu way of life, while the INC is considered to be a left-of-center socialist-leaning party. Table 2(a) shows that the support for BJP vis-a-vis the INC increases almost dramatically as one moves from the lower-ranking backward castes to the higher ones. Among the SCs and the STs, the most disadvantaged sections of the Indian population, a majority support the INC. At the other end of the spectrum, however,—only about one-fourth of the Brahmins support the INC and less than one-third of the Kayasthyas support them. Table 2(b) shows that there are differences in support for these two parties across gender too. For males, a clear majority is seen to prefer the BJP. Females, on the other hand, are tied between the two parties, indicating that they prefer INC relative to the males.

Table 2(c), which is taken from an earlier survey done by the same group, shows basically the same patterns. The parties are virtually in a dead heat in the general population (first column), but the level of support differs significantly across the various groups. Once again, the upper castes prefer BJP and the lower castes prefer INC. One interesting finding is that in the rural areas the INC is preferred to the BJP, and vice versa.<sup>10</sup>

Looking back at Table 1, it seems reasonable to argue that the relative support for the INC would be higher in Chhattisgarh, and vice versa. First, Chhattisgarh has a higher share of females in the population, as well as a higher sex-ratio (female-to-male ratio). Second, Chhattisgarh is less urban than Madhya Pradesh. Third, and perhaps most important, Chhattisgarh has a very high share of STs in the population. SCs and STs together account for almost half the population of Chhattisgarh. In Madhya Pradesh, this figure is less than one-third. The popularity that the INC enjoys among women, rural people and the backward classes, as seen in Tables 2(a), 2(b) and 2(c), should make political preferences in Madhya Pradesh and Chhattisgarh quite different.

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<sup>10</sup> These survey data relate to all-India, and are not available for individual states or regions. However, demographic groups in India are very consistent in their political support and these trends are broadly true in individual states. In fact, it is widely known that the lower castes, the rural population and the women prefer and identify themselves more with the INC (rather than the BJP), and vice-versa.

## 4 Theoretical Framework

We construct a theoretical model that captures some of the basic features of the electoral scenario of Madhya Pradesh and Chhattisgarh,—the purpose of the model is to understand relative voting behavior in the two regions before and after reorganization. Two regions  $A$  and  $B$  initially form part of a single state. Each of the regions  $A$  and  $B$  consists of multiple constituencies. After the breakup, the state splits into two independent and separate states:  $A$  and  $B$ .

Consistent with the prominence of two parties in Madhya Pradesh and Chhattisgarh, we assume that there are two parties  $X$  and  $Y$ . The party that wins the majority of seats or constituencies in a state wins in that state. One of the regions, say  $A$ , is considerably bigger than the other in terms of the size of the electorate and the number of constituencies.

Constituencies are the units of analysis here. Preferences of individuals within a constituency are assumed to be homogenous, but they differ across constituencies.<sup>11</sup> Preferences of a constituency (or individuals within a constituency) are given by  $U_{ij}^k = I_{ij}^k + u(t_{ij}^k)$ .  $U_{ij}^k$  denotes the utility that constituency  $i$  in region  $k$  gets if party  $j$  wins in  $i$ .  $I_{ij}^k \in [0, 1]$  is an ideological parameter denoting the utility that constituency  $i$  in region  $k$ ,  $k = \{A, B\}$  gets by electing a representative from party  $j$ ,  $j = \{X, Y\}$ ;  $t_{ij}^k$  denotes the transfer that constituency  $i$  in region  $k$  gets if it elects someone from party  $j$ . The utility function  $u(\cdot)$  is assumed to be increasing and strictly concave in its argument.

In Indian politics (as well as in other countries as documented in the literature, see introduction), party specific transfers play an important role.<sup>12</sup> After state legislative elections, candidates from the winning party that form the state government often reward their constituencies with sizable transfers. While we do not have data on such transfers, there is quite some anecdotal evidence. Our interviews of constituents of some randomly selected constituencies, who chose to remain anonymous, reveal some interesting stories. At some such constituencies, constituents were promised brick houses instead of

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<sup>11</sup> This assumption is made for simplicity. All results hold if preferences of individuals within a constituency are heterogeneous.

<sup>12</sup> In addition to the studies mentioned in the introduction, such transfers are also documented in Mobarak et al (2004) and Rozevitch and Weiss (1991). Mobarak et al (2004) examine health services provision and access in Brazilian counties and find that the per capita provision of doctors, nurses and clinics is greater in counties where the county mayor and state governor are politically aligned. Rozevitch and Weiss (1991) show that transfers from the central government to municipalities in Israel depended on whether the mayor belonged to the ruling party at the Knesset, the Israeli parliament.

their existing mud ones if the candidate won and the party made the state governing party. The candidates and party did win and they delivered on the promise. Constituents at several constituencies revealed that their families were promised cows by a party if its representatives won in that constituency and the party formed the government. Once again these promises were delivered. Apart from these, ruling party candidates often rewarded their constituencies with tube wells, wells, roads, health centers and schools. Note that the opposition party (the losing party) representatives also often made transfers to their constituencies but they were typically considerably less than those of the ruling party representatives.

Consistent with this, we assume that redistribution is along party lines.<sup>13</sup> The amount of transfers that a constituency in region  $k$  gets depends on whether the local representative belongs to the ruling party at the state level. Specifically,  $t_{iW}^k > t_{iL}^k$ , where  $t_{iW}^k$  ( $t_{iL}^k$ ) denotes the transfer that constituency  $i$  gets if it elects a candidate from the ruling (losing) party.<sup>14</sup> For simplicity, we assume  $t_{iW}^k = t_W$  and  $t_{iL}^k = t_L$ . These transfers are financed by taxes that are equally paid by all constituencies.

Define  $\sigma_i^k = I_{iX}^k - I_{iY}^k$ .  $\sigma_i^k$  denotes the ideological bias of constituency  $i$  in region  $k$  toward party  $X$ . A positive value of  $\sigma_i^k$  implies that constituency  $i$  has a bias in favor of party  $X$  and vice-versa.  $\sigma_i^k$  is distributed in the interval  $[-1,1]$  with density function  $f_k(\sigma_i)$  and distribution function  $F_k(\sigma_i)$ . The distribution of  $\sigma_i$  differs across regions  $A$  and  $B$ . Regions  $A$  and  $B$  prefer opposing parties. Assume region  $A$  prefers party  $X$ . The distribution of  $\sigma_i$  in region  $A$  first order stochastically dominates that in  $B$ . The median of  $\sigma_i$  in region  $A$  exceeds zero while that in  $B$  is less than zero. We assume that  $\#A_X + \#B_X > \#A_Y + \#B_Y$ , where  $\#A_X$  ( $\#B_X$ ) denotes the number of constituencies in region  $A$  ( $B$ ) which ideologically prefer party  $X$ , that is, for which  $\sigma_i^A$  ( $\sigma_i^B$ )  $> 0$ . On the other hand,  $\#A_Y$  ( $\#B_Y$ ) denotes the number of constituencies in region  $A$  ( $B$ ) for which  $\sigma_i^A$  ( $\sigma_i^B$ )  $< 0$ . This assumption implies that the relative preference for party  $X$  in region  $A$  is larger than that for party  $Y$  in region  $B$ .<sup>15</sup> The

<sup>13</sup> Note that all results go through if in addition to party specific transfers, there is *region-specific* redistribution. Note that since region  $A$  is substantially larger than region  $B$  in terms of the number of constituencies (Chhattisgarh has 90 constituencies, Madhya Pradesh has 230), theoretically the amount of region-specific transfers to Chhattisgarh can be zero.

<sup>14</sup> Appendix A considers an alternative form of partisan transfers, where transfers are targeted to a region rather than a constituency, and transfers obtained by a region depend on the proportion of the ruling party representatives elected by the region. Results remain the same under this form of transfers also.

<sup>15</sup> The assumption that  $\#A_X + \#B_X > \#A_Y + \#B_Y$  is made for simplicity. It implies that before the breakup, the party that enjoys majority support in region  $A$  enjoys overall majority support in the (undivided) state. All results continue to

preferences of all constituencies are perfectly observable and we allow for strategic voting.

Now consider the voting behavior of the constituencies in region  $B$  before the breakup. The constituencies observe voting preferences in region  $A$  and correctly anticipate that the winner in  $A$ , as well as the overall state, will be party  $X$ . Consider constituency  $i$  in region  $B$ . If  $I_{iX}^B > I_{iY}^B$ , constituency  $i$  elects a representative from party  $X$ . If  $I_{iX}^B < I_{iY}^B$ , electing a representative from party  $X$  yields utility  $U_{iX}^B = I_{iX}^B + u(t_W)$ . On the other hand, electing a representative from party  $Y$  yields utility  $U_{iY}^B = I_{iY}^B + u(t_L)$ . Therefore, constituency  $i$  elects a representative from party  $X$  if and only if:

$$I_{iX}^B + u(t_W) > I_{iY}^B + u(t_L)$$

$$\text{or, } I_{iX}^B - I_{iY}^B > u(t_L) - u(t_W)$$

$$\text{or, } \sigma_i^B > u(t_L) - u(t_W)$$

Note that  $u(t_L) - u(t_W) < 0$ .<sup>16</sup> There exists a cutoff  $\sigma^* \in [-1, 0)$ ,  $\sigma^* = u(t_L) - u(t_W)$  such that all constituencies with  $\sigma_i > \sigma^*$  in region  $B$  elect a candidate from party  $X$  and all constituencies with  $\sigma_i < \sigma^*$  elect a candidate from party  $Y$ . The key insight is that because redistribution is party-specific, residents in some of the constituencies in the smaller region  $B$  will vote strategically to elect representatives with preferences more closely aligned to those of residents in region  $A$ . For these constituencies, there will be a utility loss in electing representatives with preferences less closely aligned to their own, but this will be swamped by the utility gain from having a large transfer.<sup>17</sup>

After the breakup, the party that enjoys majority support in  $B$  ( $Y$ ) wins in region  $B$ . Constituencies with negative  $\sigma_i$  as well as some with positive  $\sigma_i$  sufficiently close to zero elect representatives from party  $Y$ . Therefore, prior to the breakup, voting pattern in region  $B$  will resemble that in  $A$ , while voting pattern after the breakup is likely to be comparatively disparate between the two regions. The voting pattern in  $B$  will then conform more closely to the inherent (ideological) preferences of region  $B$ .<sup>18</sup>

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hold under the assumption that the probability of the majority party in  $A$  winning in the overall state is larger than the probability of the minority party in  $A$  winning in the overall state.

<sup>16</sup> We assume that the  $u(\cdot)$  function, tax and transfers are such that  $u(t_W) - u(t_L) < 1$ .

<sup>17</sup> Note that some constituencies in  $A$  with  $\sigma_i$  below zero but sufficiently close to zero would find it profitable to elect a candidate from party  $X$ .

<sup>18</sup> The party preferred by the median constituency will now prevail in region  $B$ .

**Proposition:** Under divergent preferences, party specific transfers and strategic voting, voting distribution of the smaller region will resemble that of the parent state. Secession from the parent state yields comparatively disparate voting patterns.

Before moving on to the empirical analysis, it is important to talk about an important factor that plays a major role in shaping outcomes in Indian state legislative elections—the anti-incumbency factor. India is characterized by a very strong anti-incumbency factor in that in most years and in most states, the incumbent party loses by large margins. For example, in the last five elections to the Madhya Pradesh state legislature, the incumbent party was always overthrown by the opposition party in the next election except in one year.<sup>19</sup> For the sake of simplicity, the model above does not incorporate anti-incumbency bias. In the model above, the preferred party of the bigger region wins before and the preferred party of the smaller region wins in that state after—this is an artifact of a simple model that does not take into account anti-incumbency bias, and hence should not be generalized to the case of Indian state legislative elections. (The objective of the model is to look at relative voting patterns of the two regions before and after reorganization in a simple setup, while anti-incumbency is a common shock.) Rather, the take away message from the model is that, in spite of differences in political preferences, the voting patterns of the two regions will be similar before but comparatively disparate after reorganization and the voting pattern in the smaller region will show a relative shift towards its inherent political preferences after reorganization. Shocks such as the anti-incumbency factor (or any other common shocks) will be differenced out in the difference-in-differences analysis (absorbed by the year dummies), and the empirical part analyzes *relative* voting patterns before and after reorganization.

Also, as noted earlier, the elections of interest here are the state legislative elections (since the breakup took place at the state level). The analysis (both theoretical and empirical) in this paper including the question posed (effect of breakup on voting patterns) relates to voting patterns in the state legislative elections, and not to voting patterns in the national parliamentary elections. This is because the breakup did not change the relative position of Chhattisgarh and Madhya Pradesh

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<sup>19</sup> The deviation in that year was due to a significant rise in prices in the nation just before the elections which was blamed on the opposition party because it was the ruling party at the national level at that time. Note that the anti-incumbency phenomenon is common to all states and is not specific to Madhya Pradesh.

with respect to the national elections—unlike for state legislative elections where Chhattisgarh now constitutes a separate state and has its own state legislature, independent of Madhya Pradesh.

## 5 Data and Empirical Strategy

### 5.1 Data

Most of the data used in this paper are obtained from the Election Commission of India, which maintains a detailed database of election statistics for the national parliament and for each state assembly. Data on assembly elections include data on the 2003 assembly elections in Madhya Pradesh and Chhattisgarh, and on the 1998 and 1993 assembly elections in undivided Madhya Pradesh. Data on national parliamentary elections (which we use for robustness checks) include those on the last two parliamentary election cycles of 1999 and 2004. The data reported in Table 1 come primarily from the 2001 Census of India. The data in Table 2 come from various surveys conducted over the years, as reported in the sources mentioned.

### 5.2 Empirical Strategy

The empirical part of the paper seeks to investigate whether the voting patterns of Madhya Pradesh and Chhattisgarh were relatively similar before the reorganization and comparatively disparate after. Also if there was a relative shift of voting patterns in Chhattisgarh after the breakup, was it in the direction of its inherent political preferences?

Table 3 shows the performance of BJP and INC in the 1998 and 2003 state assembly elections. For the 1998 elections, when Chhattisgarh and Madhya Pradesh formed part of the same state, we show the number of seats won by INC and BJP in each region separately. The INC had a comfortable majority in 1998, but was defeated by the BJP in both states in 2003.

The interesting thing to note is that in 1998 the performances of BJP and INC were very similar across the two regions of the state. For example, the BJP won 38.84% of the votes in Madhya Pradesh and 39.11% in Chhattisgarh. The respective numbers for the INC were 41.21% and 41.01%. The percentages of seats won by the two parties were also very similar across the two regions. In the 2003 elections, however, there was a clear divergence - while the BJP swept to power in both states,

the INC did much better, in a relative sense, in Chhattisgarh. In 1998 the BJP-INC differential in the percentage of votes won was -2.37% in Madhya Pradesh and -1.90% in Chhattisgarh, with a net differential of about -0.47%. In 2003 the respective differentials in the two states were 10.90% and 2.55%, with a net differential of about 8.35%. The difference is also very large for the percentage of seats won - the net differentials, similarly defined, are -4.5% in 1998 and 44.3% in 2003. This suggests a change in relative voting patterns in these two regions after reorganization and a relative move in Chhattisgarh towards their preferred party, INC. In what follows we pursue this further by using more sophisticated econometric techniques and ruling out confounding factors.

Note that if we look at the parties that won above, it might seem that there is a lack of conformity between the theoretical part and what we see in the data. In the model, opposite parties win in the two regions after reorganization and the winner in the smaller region is its preferred party. In contrast, in the data, BJP (the preferred party of Madhya Pradesh) won in both Madhya Pradesh and Chhattisgarh after reorganization. This apparent inconsistency can be explained by the anti-incumbency factor discussed above—the INC was in power in both Madhya Pradesh and Chhattisgarh between 1998 and 2003, and consistent with the anti-incumbency shock was defeated by BJP in both states in the next assembly elections (2003). As noted earlier, we are interested in relative (not absolute) voting patterns—the objective of the empirical part is to look at relative voting patterns (Chhattisgarh relative to Madhya Pradesh) before and after reorganization. Consistent with this, the empirical analysis controls for year-specific shocks (which will absorb any anti-incumbency effects), and then seeks to investigate whether in spite of the dominance of the BJP in both states in 2003, the shift in favor of BJP was less in Chhattisgarh than that in Madhya Pradesh, or in other words, whether Chhattisgarh exhibited a relative shift in favor of INC in 2003.

To compare the relative voting trends in the two regions pre and post reorganization we run the following regression, separately for each party, BJP and INC. Controlling for year specific shocks, this regression looks for any relative shift in the voting behavior of Chhattisgarh (relative to Madhya Pradesh) after reorganization. We use data from state assembly elections in 1998 and 2003. The unit

of observation is an assembly constituency.

$$Y_{ikt} = \alpha_0 + \alpha_1 D_{CH} + \alpha_2 Yr\ 2003 + \alpha_3 (D_{CH} * Yr\ 2003) + \epsilon_{ikt} \quad (1)$$

Here  $Y_{ikt}$  is a measure of electoral performance of the party in constituency  $i$  in state (or region)  $k$  in year  $t$ .  $D_{CH}$  is a dummy variable taking the value of 1 if the constituency forms part of Chhattisgarh, 0 otherwise;  $Yr\ 2003$  is similarly a dummy variable for 2003. We are interested in the estimate of  $\alpha_1$  and  $\alpha_3$ ,— $\alpha_1$  indicates whether or not voting patterns were similar between Chhattisgarh and Madhya Pradesh before reorganization while  $\alpha_3$  can be interpreted as a difference-in-differences estimate that captures any shift in voting patterns in Chhattisgarh relative to Madhya Pradesh after the reorganization. All specifications we describe here are OLS regressions. We also estimate the fixed effects counterparts of each of these specifications that include constituency fixed effects (correspondingly do not include  $D_{CH}$ ) and hence compare the within-constituency changes across years.

We use three different measures of electoral performance - whether the constituency/seat in question was won by the respective party, the number of votes obtained by the party in the constituency, and the percentage of votes polled by the party in the constituency. We name the variables *bjpwin*, *bjpvote* and *bjppcvote* (for BJP), and *congwin*, *congvote* and *congpcvote* (for INC). For *bjpwin* and *congwin* (which are 0-1 dummies), we also run probit regressions. All standard errors reported are robust to heteroscedasticity.

### 5.2.1 Accounting for voter turnout, within-district correlations and outliers

However, the analysis above can be biased by various factors. We consider them one by one. First, a potential concern is that part of any change in voting pattern that we may observe in 2003 is due to changes in voter turnout rather than actual change in voting patterns. To investigate this issue, we run alternative regressions for the three measures of electoral performance for each party where we control for voter turnout. Second, since each district consists of multiple constituencies, there may be local factors that influence voting across neighboring constituencies.<sup>20</sup> Not controlling for these within district correlations may bias conclusions. Therefore, we also estimate regressions where the standard

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<sup>20</sup> A district is an administrative unit in India, similar to counties in the U.K. and U.S. There are 45 districts in Madhya Pradesh and 16 in Chhattisgarh. So the average district has about 5 constituencies in the former and 5.5 in the latter.

errors allow for within-district correlations. Third, there are a small number of constituencies where neither the BJP nor the INC emerged as either the winner or the runner-up. Since these are only 9 out of a total of 640 constituencies (1993 and 1998 assembly elections taken together), these constituencies might be considered as outliers. Therefore, we repeat the analysis above after dropping the outliers.

### 5.2.2 Is the 1998 voting pattern a year specific effect?

A potential concern is that if we find that the voting patterns of Chhattisgarh and Madhya Pradesh are similar in 1998, this may be caused by a year-specific shock. On the other hand, if this is a general pattern of the pre-reorganization assembly elections, then the resemblance in voting patterns should be a characteristic of other pre-reorganization years also, for example 1993. (We use the terms assembly elections and state legislative elections interchangeably in this paper to refer to elections to the state legislature.) As a check on the validity of the results, we include data for the 1993 assembly elections to undivided Madhya Pradesh also, and check whether both the pre-reorganization election years (1993 and 1998) were characterized by similarity in voting patterns between the two regions and whether the post-reorganization year was characterized by a relative divergence in voting patterns. For this purpose, we run the following regression:

$$Y_{ikt} = \beta_0 + \beta_1 D_{CH} + \beta_2 Yr\ 1998 + \beta_3 (D_{CH} * Yr\ 1998) + \beta_4 Yr\ 2003 + \beta_5 (D_{CH} * Yr\ 2003) + \epsilon_{ikt} \quad (2)$$

As earlier,  $Y_{ikt}$  is a measure of electoral performance of the party in constituency  $i$  in state (or region)  $k$  in year  $t$ .  $D_{CH}$  is a dummy variable taking the value of 1 if the constituency forms part of Chhattisgarh, 0 otherwise.  $Yr\ 1998$  and  $Yr\ 2003$  are dummy variables for 1998 and 2003 respectively. Our parameters of interest are  $\beta_1$ ,  $\beta_3$  and  $\beta_5$ .

### 5.2.3 Ruling out the effect of exogenous shocks that may affect different demographic groups differently

Another concern relates to the fact that the demographic composition of Madhya Pradesh is different from that of Chhattisgarh. If there were any exogenous shocks (policy changes or otherwise) between the two rounds of assembly elections in 1998 and 2003 that affected different demographic groups

differently, then these shocks, rather than the reorganization itself, might be the reason behind the divergence in voting patterns, if any, that we might observe in 2003.

We exploit data from national elections to the Indian parliament to rule out such factors. Apart from electing representatives to the respective state legislatures, all citizens of India also elect representatives to the national parliament, called the Lok Sabha. Since it is the same electorate that votes in both the state and national elections, any exogenous change that differentially affected residents of the two states would get reflected in the national elections in addition to the state assembly elections. This is particularly so since the national elections in this case (April 2004) closely followed the state assembly elections (November 2003). The strategy here is to check whether Chhattisgarh residents exhibited a different voting pattern, compared to Madhya Pradesh, in the 2003 assembly elections relative to the 1998 assembly elections *over and above* their relative voting pattern in the 2004 national elections (relative to the 1999 national elections). Differencing out the relative change in voting pattern of Chhattisgarh residents in the 2004 parliamentary elections (relative to the 1999 elections), if any, helps to get rid of the effect of other confounding factors that might affect the voting patterns of the different demographic groups differently in the two regions.<sup>21</sup>

$$Y_{ijkt} = \gamma_0 + \gamma_1 D_{CH} + \gamma_2 Assembly + \gamma_3 Breakup + \gamma_4 (D_{CH} * Assembly) + \gamma_5 (D_{CH} * Breakup) + \gamma_6 (Breakup * Assembly) + \gamma_7 (D_{CH} * Breakup * Assembly) + \epsilon_{ijkt} \quad (3)$$

Once again, we run this regression separately for each party,— $Y_{ijkt}$  is a measure of electoral performance of the party in constituency  $i$  election  $j$  state  $k$  year  $t$ ; *Assembly* takes the value of 1 for state assembly elections and 0 for national parliamentary elections; *Breakup* takes the value of 1 for post-reorganization years and 0 otherwise. Here  $\gamma_7$  indicates any differential voting pattern in Chhattisgarh (relative to Madhya Pradesh) in assembly elections after the breakup over and above any difference in parliamentary elections after the breakup.

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<sup>21</sup> Note that the breakup will not affect relative voting patterns in the national parliamentary elections. The motive behind the shift in voting behavior at the state level will not be operative in the parliamentary elections. Madhya Pradesh and Chhattisgarh are very small entities in terms of the size of the electorate, when compared to the nation as a whole. Lok Sabha consists of 543 elected members, out of which Madhya Pradesh elects only 29 (slightly more than 5%) and Chhattisgarh elects only 11 (2%). Not only are these number small, but they remained exactly the same before and after breakup. Madhya Pradesh and Chhattisgarh did not have any change in relative position or motive after the breakup as far as the parliamentary elections are concerned.

Note that this strategy serves to eliminate effects of other state specific shocks also (if any) after the breakup. For example, if there are differences in party leadership between the two states after breakup or there are state specific shocks to party campaigns, these could bias the relative voting pattern of Chhattisgarh in the 2003 state legislative elections. However, their effects would be reflected in both the state as well as national elections. Therefore the above strategy serves to get rid of these biases.

#### **5.2.4 Is change in voting pattern an artifact of change in demographic composition?**

Another factor that might in principle bias our results is changes (if any) in demographic composition of Chhattisgarh (relative to Madhya Pradesh) between the 1998 and 2003 assembly elections. Recall that different demographic groups are differently disposed towards the two parties, and it is conceivable that a relative increase in the proportion of female voters or lower caste voters in Chhattisgarh increases the vote share of the INC in that state in 2003. Note, however, that we are looking at only a 5-year interval between the two assembly elections - it is highly unlikely that there were significant demographic changes during this short span of time which affected the two states differently. Unlike in the U. S., mobility or migration, particularly from one state to another, is not very high in India and is not likely to play a major role.

Unfortunately, we do not have data on the number of (and changes in) lower caste voters and higher caste voters by assembly constituency. But we do have data on the number and percentage of female electors in each constituency in each year. So we check for any change in these variables by running regressions similar to equations (1) and (2) with the number and percentage of female electors in a constituency as the dependent variable.

Note that the strategy described in the last subsection using parliamentary elections also helps to shed light on this issue. If there is indeed any change in demographic patterns, that will be reflected in the voting for the national elections also. Therefore, differencing out the relative change in voting pattern in national elections as outlined above will help to take care of any effects on voting pattern due to changes in demographic compositions.

## 6 Results

### Voter turnout

First, we look at the trends in voter turnout in the two elections. Table 4 shows the results from running specification (1) on the percentage of total electors who voted in these elections. In the 1998 elections there were no statistically significant differences in turnout across constituencies in Chhattisgarh and Madhya Pradesh. In the 2003 elections, turnout increased by a large margin in Madhya Pradesh, and interestingly, by an even larger margin in Chhattisgarh.

It is often argued that decentralization brings political power closer to the electorate, and in turn leads to a larger interest in political affairs. This may explain part of the increase in turnout in Chhattisgarh in 2003. When Chhattisgarh was part of the undivided Madhya Pradesh, due to divergence in preferences, some Chhattisgarh residents may not have found it worthwhile to exercise their franchise. Note though that if indeed changes in voter turnout were caused by the breakup (for example, a more effective exercise of franchise by the Chhattisgarh residents in 2003), then this is not a problem for our analysis, since we are trying to investigate the effect of the breakup. However, it becomes a potential confounding factor if changes in turnout were caused by reasons independent of the breakup.

### Performance of INC

Table 5 shows the results from running regression (1) on congwin (the first four columns), congvote (next four) and congpcvote (final four columns). Even-numbered columns are weighted by the total number of electors in a constituency. For congwin we show the results for probit and FE regressions; the results for OLS are very similar. For the others we show both OLS and FE results.

We begin with the results for congwin. These show that in 1998 there was no difference in support for the INC across Chhattisgarh and Madhya Pradesh. In 2003 the BJP did much better. In India there is a strong anti-incumbency factor in most assembly elections - the ruling parties are overthrown by large margins at the hustings, often only to bounce back to power in the next election. Some such force was probably at work here, since the INC had been in power in both Madhya Pradesh and Chhattisgarh from 1998 to 2003. Interestingly, however, the losses for INC were not equally spread across the two states. In Madhya Pradesh the party performed really poorly, with the probability of

winning a seat going down by almost 40%. The losses were much more modest in Chhattisgarh, where the decrease was about 10% or even less.

The results for *congvote* and *congpvote* mirror the same pattern. For example, in 2003 the INC's share of votes in an average constituency went down by about 10% in Madhya Pradesh, a quite large margin. In Chhattisgarh however the decrease was generally less than 5%. In terms of actual votes obtained in each constituency - *congvote* - the results are similar and statistically significant in both the OLS and FE regressions.<sup>22</sup>

### **Performance of BJP**

Table 6 shows the results for the BJP. Note first that like for INC, there is no evidence of any difference in electoral support for BJP across Chhattisgarh and Madhya Pradesh in 1998, as shown by the small and insignificant coefficient on the Chhattisgarh dummy. For *bjpwin* and *bjppvote*, as expected, the effects mirror those seen in Table 5. The BJP dealt a comprehensive defeat to the Congress in Madhya Pradesh, with the former's probability of winning a seat increasing by as much as 40% compared to 1998. In Chhattisgarh the increase was much more muted, increasing by only about 13-14%. Similarly, the increase in the percentage of votes polled by BJP in an average seat in Chhattisgarh (less than 1%) was less than a third of that in Madhya Pradesh (3.5%). The picture is similar for *bjpvote*,— the increase in the number of votes polled by BJP was bigger in Madhya Pradesh than in Chhattisgarh, though the OLS coefficients on the interaction terms are not statistically significant.

### **Accounting for voter turnout, within-district correlations and outliers**

We now provide evidence that these results are reasonably robust. Tables 7 and 8 report results from three robustness checks. First, the empirical analysis above reveals that the voter turnout increased in 2003 and especially in Chhattisgarh. To ascertain that the divergence of voting patterns is not a mere artifact of increased voter turnout, we run the regressions for the party specific outcome variables while controlling for voter turnout. Second, since a district consists of many constituencies, there may be common factors that influence voting across neighboring constituencies. Therefore, we control for within district correlations. Third, we drop the nine constituencies where neither BJP nor INC emerged

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<sup>22</sup> A large part of the Yr 2003 effect on number of votes polled is presumably due to population growth, and not due to a switch in party preference.

as either the winner or the runner-up. This is motivated by the fact that these constituencies may in some sense be outliers, given how few their percentage is (1.4%). Also since neither BJP nor INC occupied the first two places, their inclusion may bias the estimates. All regressions in Tables 7 and 8 are weighted by the number of electors. For brevity, we only report estimates from OLS regressions. The results from the corresponding fixed effects estimates are very similar.

Columns (1)-(4) of Table 7 show the results for *congwin*, columns (5)-(8) are for *congvote* and columns (9)-(12) are for *congpvote*. For comparison purposes, columns (1), (5) and (9) report results from simple OLS regressions for INC which do not control for within district correlations. Columns (5) and (9) are identical to columns (6) and (10) respectively of Table 5. Column (2) introduces the percentage of electors in a constituency who exercised their franchise (turnout) as an independent variable. This slightly reduces the coefficient on the Chhattisgarh-Yr 2003 interaction term, implying that part of the (relatively) better performance of INC in Chhattisgarh is due to a higher turnout in that state.<sup>23</sup> However, the coefficient on the interaction term remains large and statistically significant even after controlling for voter turnout.

In column (3) we use standard errors that take account of within district correlations. Although this increases the standard errors on the Chhattisgarh-Yr 2003 interaction term, it still remains significant at 5%. In column (4), we drop the outlying observations, but the results remain very similar.

The results for *congvote* and *congpvote* once again strongly confirm the robustness of the results. Voter turnout is statistically significant in each of these columns, implying a positive but modest increase in the number and share of votes for INC as turnout rises. But it changes the coefficients on the other variables only marginally.

Table 8 shows the corresponding results for BJP. As expected, these results generally mirror the results for INC seen in Table 7 (though in the opposite direction). As above, controlling for turnout slightly reduces the magnitude of the coefficient on the Chhattisgarh-Yr 2003 interaction term, so that part of the (relatively) worse performance of BJP in Chhattisgarh is accounted for by a higher turnout

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<sup>23</sup> One reason that voter turnout is positively related to the performance of INC is presumably the fact that Congress relies much less on party cadres during voting compared to the BJP. In Indian politics, the conventional wisdom is that cadre-based parties like the BJP and the communist parties do relatively better when voter turnout is low, since these parties rely to a larger extent on its cadres or party faithfuls to show up and vote even when, say, the weather is bad.

in that state. However, the interaction term still remains significant at 5% level.

Unlike for `bjpwin`, voter turnout is insignificant in the results for `bjpvote` and `bjppcvote`. Allowing for within district correlations (columns 3, 7 and 11) or restricting the analysis to a smaller sample (columns 4, 8 and 12) virtually leaves the results the same.

To sum, controlling for factors like voter turnout across constituencies does not seem to affect the results substantially. The same is true when we control for within district correlations or omit the outlying observations. The exact results are slightly magnified or diluted but the overall picture is unchanged. The voting patterns in Madhya Pradesh and Chhattisgarh were strikingly similar before reorganization but there was a significant divergence in voting pattern in the post-reorganization period, with a relative move in Chhattisgarh towards its inherent political preferences.

### **Is the resemblance in voting pattern in 1998 a year specific effect?**

To make sure that the results we obtained above are not driven by effects specific or unique to 1998, we use election results from the assembly elections of 1993. Table 9 presents evidence that our earlier results are robust to inclusion of this additional year. We run regression (2) on election data from the 1993, 1998 and 2003 assembly elections. For brevity we only report the results for INC, the results for BJP present a very similar picture. The first three columns show the results for `congwin`, the next three are for `congvote` and the final three for `congpvote`. For each variable, we report both OLS and FE results.

For `congwin`, there does not seem to be any difference in voting patterns between Chhattisgarh and Madhya Pradesh, either in 1993 or in 1998. But in 2003, consistent with the earlier results, Chhattisgarh residents were much more in favor of INC than their counterparts in Madhya Pradesh. The same is true of the other variables as well. In neither case do we find any evidence of a divergence in voting patterns before reorganization, while the post-reorganization differences are large and statistically significant. We also ran alternative versions of these regressions where we controlled for voter turnout. The results are qualitatively similar. Hence they are not reported here but are available on request.

Figure 2 shows the distribution of the difference in share of votes polled by the BJP and INC across constituencies in Madhya Pradesh and Chhattisgarh.<sup>24</sup> As can be seen, the distribution of relative vote

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<sup>24</sup> The graphs are kernel smoothed plots of differences in share of votes polled by the BJP and INC across constituencies

shares across constituencies in Madhya Pradesh and Chhattisgarh was very similar in both 1993 and 1998. In 2003, however, there is a marked divergence - the distribution for Chhattisgarh has shifted significantly to the left, implying a change in voting patterns in favor of INC.

### **Exogenous shocks affecting different demographic groups differently**

First, table 10 Panel A investigates the performance of INC and BJP in the national elections in Chhattisgarh (relative to Madhya Pradesh). This panel reports results from running a version of regression (1), where the assembly election outcomes are replaced by national election outcomes. The intuition here is that if there were any changes (policy or otherwise) independent of the breakup between 1998 and 2003 that may have affected the voting pattern of the different demographic groups differently, these would also be reflected in the parliamentary elections that closely followed the 2003 assembly elections. (See section 5.2.3 for a more detailed discussion.) Table 10 Panel A finds no evidence of relative change in the voting patterns of Chhattisgarh residents (relative to Madhya Pradesh) in the national elections in 2004 (relative to 1999).<sup>25</sup> Thus these exogenous shocks do not seem to have been important—the significant divergence in the voting pattern seen above in the 2003 state assembly elections seems unique to that elections, and is not reflected in the parliamentary elections, which occurred within six months of the former.

Building on this, table 10 Panel B looks at the relative voting pattern in Chhattisgarh in the 2003 assembly elections (relative to the 1998 assembly elections) after differencing out any differential voting pattern exhibited by Chhattisgarh in the 2004 parliamentary elections (relative to the 1999 parliamentary elections). It reports results from the estimation of specification (3). The first five columns of the table report results for *congwin*, the next five for *bjpwin*. As expected, even after controlling for such exogenous shocks (by differencing out the relative voting patterns in the parliamentary elections), the coefficient on the three-way interaction term (Chhattisgarh-Assembly-Breakup) in each of the regressions show a relative shift of Chhattisgarh in favor of INC in the assembly elections after reorganization.

The coefficient on the Chhattisgarh-Assembly interaction term is always very small and statistically insignificant in Madhya Pradesh and Chhattisgarh. BJP vote share is defined as the share of votes polled by BJP, similarly for INC vote share. The figures have been weighted by the total number of electors in each constituency. (The graphs which do not weight the vote shares are very similar and hence not reported.)

<sup>25</sup> Table 10 shows results for *congwin* and *bjpwin* only, the results for the other measures of electoral performance are similar and hence are omitted.

insignificant indicating similarity in voting patterns between Madhya Pradesh and Chhattisgarh in the assembly elections in the pre-reorganization period. Thus the results obtained here are similar to and reinforce the results obtained earlier for assembly elections. Moreover, consistent with the results obtained in Panel A, the coefficient on the Chhattisgarh-Breakup interaction term is small and insignificant indicating there was no relative shift in voting behavior in Chhattisgarh in the parliamentary elections after reorganization. These imply that it is unlikely that our results are confounded by other extraneous factors differentially affecting the voting behavior of Chhattisgarh residents. Among other things this implies that the differential voting pattern in the 2003 state legislative elections was not caused by state specific post-program shocks as discussed at the end of section 5.2.3.

A caveat, though, should be noted here. If there were *differential exogenous shocks* to Chhattisgarh *after reorganization* that affected voting patterns *only* in the assembly elections (and not in the parliamentary elections), then this strategy will not be able to get rid of these confounding factors. These are pretty stringent requirements, and hence the relevant question is how reasonable is it to expect that such shocks might have happened and consequently biased the results above. For example, one might argue that the relative quality and characteristics (example, likability, charisma) of the Chhattisgarh candidates relative to Madhya Pradesh were different in the post-reorganization period compared to the pre-reorganization period. (Note that in India, unlike in many other countries, candidates do not have separate platforms. Rather, they run on the general party platform.) Our results would be driven by this factor (differences in candidate characteristics) only if the INC candidates in Chhattisgarh were observably better (example, more likeable or charismatic) and/or BJP candidates were less so in the post-reorganization period compared to pre-reorganization. We see no apriori reason why this would be so. (Note that if Chhattisgarh had better INC candidates because of the breakup—example, breakup enabled them to express their preferences better—then this is not a problem for our analysis since we are looking at the effect of the breakup). Nevertheless, to analyze this issue further, we investigate what percentage of the candidates ran in both the 1998 and 2003 assembly elections. It turns out that in both Madhya Pradesh and Chhattisgarh around 60% of the INC and BJP candidates ran in both the elections. Moreover, these percentages were very similar in both Madhya Pradesh and Chhattisgarh

between 1993 and 1998 also. Therefore, as far as candidates are concerned, Chhattisgarh does not seem to have experienced a differential shock after the reorganization.

Another related factor is whether the statewide issues in Chhattisgarh after reorganization were relatively different. Once again, as pointed out above, if such changes were driven by the breakup, then these are not problems for our analysis (example, these might reflect changes as a result of bringing power closer to home). A priori, it is not clear why there would be such exogenous changes, independent of the breakup. Nevertheless, we did some research on this, and to the best of our knowledge, there were no such changes or exogenous shocks that would relatively affect patterns only in the assembly elections.

### **Voting pattern and change in demographic composition**

Table 11 relates to the concern, discussed in section 5.2.4, that a change in the demographic composition may have caused a change in voting pattern in the 2003 assembly elections. It shows that as expected, changes in both the number and percentage of female electors were very similar across Madhya Pradesh and Chhattisgarh during this period. In particular, there is no evidence that there was a disproportionate increase in the number of women voters in Chhattisgarh in 2003, which arguably could drive our results. In fact, the coefficient on the interaction term - Chhattisgarh interacted with a dummy for the year 2003 - is negative in all the specifications, though it is never significant. Note that, in line with the summary statistics presented in Table 1, there is a significantly higher percentage of women voters in Chhattisgarh compared to Madhya Pradesh.<sup>26</sup> Further, results in Table 10 too suggest that, among other things, changes in demographic composition are unlikely to have been an important factor in the post-breakup divergence of voting patterns (because any such changes would be reflected in the voting patterns in the parliamentary elections too).

### **Other Sensitivity Checks**

Some final comments are in order. First, a concern is whether our results are biased by local factors such as weather. We use a regression discontinuity strategy to investigate this issue. We consider a smaller sample consisting of those assembly constituencies in Madhya Pradesh which lie just to the

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<sup>26</sup> The number of women electors in each constituency is on average lower for Chhattisgarh, but that just reflects the smaller size (in terms of population) of the constituencies in that state.

left of the border with Chhattisgarh, and those Chhattisgarh constituencies which lie just to the right of the border. These contiguous districts likely faced the same weather on election day as they were very close to each other. We ran the same regressions as earlier (specifications 1, 2 and 3). The results for this sample of contiguous districts are qualitatively similar to the above results and hence are not reported separately. They are available on request.

Second, one could argue that Madhya Pradesh and Chhattisgarh were beginning to diverge in political preferences and that the split coincided with this divergence in political preferences. However, that does not seem to have been the case. One, the timing of the split was exogenous and was decided at the national level (by the Parliament of India). Not only Madhya Pradesh, but also Bihar and Uttar Pradesh were reorganized at exactly the same time, which further attests to the exogeneity of the breakup and to the fact that the timing of the breakup was not correlated with the preferences of Madhya Pradesh and Chhattisgarh residents. Two, if political preferences did diverge, this would be reflected in the post-reorganization (2004) parliamentary elections also, which closely followed the 2003 assembly elections. However, as seen above (table 10 Panels A and B), there is no differential shift in voting pattern in Chhattisgarh in the parliamentary elections, and the relative voting pattern in the assembly elections remained very similar (to the patterns obtained for assembly elections above, tables (5)-(9)) after differencing out the relative voting pattern in the parliamentary elections. These strongly suggest that divergence of preferences was not a significant factor in the voting patterns we observe.

Third, as mentioned earlier, the better performance of INC in Chhattisgarh was not due to its being ‘rewarded’ in some way by the voters for help in creation of the state. The issue of a separate state for Chhattisgarh was supported by both the BJP and the INC in the past, and there is no evidence that the voters favored either of the two parties on this issue.<sup>27</sup>

The fourth comment relates to the role played by the smaller political parties. The support for most of the existing smaller parties (SP, BSP, GGP<sup>28</sup>, etc.) in Madhya Pradesh remained more or less the same across the years. But there was a new party contesting the elections in 2003, called

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<sup>27</sup> See e.g. the report on Chhattisgarh by Rediff titled “Chhattisgarh Statehood is a Hot Political Issue” (November 23, 1998), available online at [www.rediff.com/news/1998/nov/23chatti.htm](http://www.rediff.com/news/1998/nov/23chatti.htm).

<sup>28</sup> GGP stands for Gondwana Ganatantra Party.

the Nationalist Congress Party (NCP), and it seemed to have higher support in Chhattisgarh than in Madhya Pradesh. However, the NCP in Chhattisgarh was really a breakaway faction of the INC, headed by a former INC party stalwart (V. C. Shukla) who was a rival to the incumbent Chief Minister Ajit Jogi. It is believed that most of the support for the NCP in this election came from those who would have supported INC otherwise.<sup>29</sup> Accounting for this would make our results even stronger.

Finally, one important event that occurred during this period was the Gujarat<sup>30</sup> riots of February-March 2002, where an incident of fire on a railway coach triggered Hindu-Muslim riots in several parts of the state of Gujarat. The Gujarat government, under BJP control, was alleged to be slow in responding to incidents of mob rampage and violence against the minority (mainly Muslim) communities. It is possible that this led to a shift in voter allegiance - the INC, considered the more secular of the two parties, might be expected to increase its support among the minority communities. Note, however, that this is unlikely to bias our results for two reasons. First, as we have just seen, there were not any significant differences in the voting patterns of Madhya Pradesh and Chhattisgarh residents in the parliamentary elections, which closely followed the state elections, and where any such shift in voter loyalties would be apparent. Second, the difference between the two states in the proportion of their populations belonging to different religions is quite small. Muslims constitute a very small proportion of the population in both states, and both states are overwhelmingly Hindu-majority. Hindus comprise more than 90% of the population in both states (the all-India figure is about 80%). While the percentage of Muslims in India as a whole is 13.4%, this number is much smaller and not much different across Madhya Pradesh (about 5%) and Chhattisgarh (3.5%).

To conclude, there is robust evidence that the voting patterns of the two regions (Madhya Pradesh and Chhattisgarh) were similar before reorganization, while the breakup led to relatively divergent voting patterns afterwards, with a relative shift in Chhattisgarh in favor of its more preferred party (INC). Note that this is consistent with the predictions of the theoretical model, but we would not like to go so far as to claim that these empirical results validate the theoretical model. This is because, while we do have some anecdotal evidence on transfers, we do not have data on transfers and hence

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<sup>29</sup> See Sharma and Sharma (2003).

<sup>30</sup> Gujarat is a western state in India. See the political map of India in Figure 1.

cannot scientifically validate the transfer story. But we feel confident in saying that the breakup led to the above interesting changes in voting patterns, and this is consistent with the theoretical model and its findings.

## 7 Conclusions

A recent strand of literature on endogenous formation of political entities studies the equilibrium number and size of nations and highlights the tradeoff between efficiency benefits and heterogeneity of preferences in a large state. However, to date there is no study that seeks to investigate the impact of a reorganization of states on voting pattern of its constituent parts. This paper addresses this important issue. In 2000, Madhya Pradesh, then the biggest state in India, was subdivided into two smaller states, Madhya Pradesh and Chhattisgarh. Using socio-economic composition of Madhya Pradesh and Chhattisgarh and traditional voting patterns of different demographic groups, the paper first finds that political preferences were different between the two regions. Then in the context of a model that captures some of the basic features of the electoral setup of Madhya Pradesh and Chhattisgarh, it investigates the effect of a breakup on relative voting patterns of the two regions. The model predicts that while voting patterns of the two regions will be similar before the breakup, they will be disparate afterwards with a relative move in Chhattisgarh towards its inherent preferences.

Next, we investigate the effect of the breakup of Madhya Pradesh on voting patterns using detailed data from the state legislative elections in 1993, 1998 and 2003, which straddle 2000, the year of the breakup. We find that the voting patterns of the two regions were indeed very similar in the pre-reorganization election cycles (1993,1998), while they were significantly different after reorganization (2003 election cycle) with a distinct shift in voting patterns in Chhattisgarh (relative to Madhya Pradesh) in the direction of its political preferences. These findings are robust to alternative specifications and samples, and survive several robustness checks and sensitivity analyzes including a regression discontinuity analysis. We conclude that breakup of states has important implications on voting patterns of its constituent parts, and perhaps more interestingly, can lead to a better conformity of voting patterns with the electorate's political preferences.

## Appendix A: Voting Patterns Under an Alternative Form of Transfers

This section investigates voting behavior before and after secession under an alternative formulation of partisan transfers. Transfers are now assumed to be targeted to a region as a whole ( $A$  or  $B$ ) instead of a constituency. Examples of such transfers are constructing a highway through the region, building an industry in the region, or even financing a host of local public goods in the region. (Transfers in the previous formulation can be thought of as local public goods such as building tube-wells, paving a local road, etc.) Here transfers obtained by a region are assumed to depend on the proportion of the ruling party representatives elected by the region.<sup>31</sup> Transfers are still financed equally by all constituencies. Specifically, if  $T$  represents the total taxes collected by the state, and  $w_A$  and  $w_B$  the number of ruling party representatives from regions  $A$  and  $B$  respectively, then transfers to region  $A$  ( $t_A$ ) and that to region  $B$  ( $t_B$ ) are respectively represented by:

$$t_A = \frac{w_A}{w_A + w_B} \cdot T$$

$$\text{and } t_B = \frac{w_B}{w_A + w_B} \cdot T$$

The crucial difference with the previous formulation is that a change in voting behavior of a certain constituency affects not only transfers and utility of that constituency but also those of the other constituencies. The utility of a constituency  $i$  in region  $k$  from electing a representative from party  $j$  is given by  $U_{ij}^k = I_{ij}^k + u(t_k)$ . Assume that the number of constituencies in regions  $A$  and  $B$  are given by  $\#A$  and  $\#B$ .

Consider the voting pattern in region  $B$  before the breakup. A constituency that is ideologically biased in favor of party  $X$  elects a candidate from that party. A constituency that ideologically identifies itself with party  $Y$  correctly anticipates voting behavior in all other constituencies and elects a candidate from party  $X$  if and only if:

$$I_{iX}^B + u\left(\frac{w_B}{w_A + w_B}T\right) > I_{iY}^B + u\left(\frac{w_B - 1}{w_A + w_B - 1}T\right)$$

$$\text{or, } I_{iX}^B - I_{iY}^B > -\left[u\left(\frac{w_B}{w_A + w_B}T\right) - u\left(\frac{w_B - 1}{w_A + w_B - 1}T\right)\right]$$

$$\text{or, } \sigma_i^B > -\left[u\left(\frac{w_B}{w_A + w_B}T\right) - u\left(\frac{w_B - 1}{w_A + w_B - 1}T\right)\right] = \sigma_1^B(w_B, \cdot)$$

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<sup>31</sup> Another related and similar form of region specific partisan transfers is where the transfers obtained by a region depend on the proportion of its representatives belonging to the ruling party. All results continue to hold under this form of transfers also.

At equilibrium,  $w_B = \#B[1 - F_B(\sigma_1^B(w_B, \cdot))]\dots(A.1)$ . There exists a cutoff  $\sigma_B^* \in [-1, 0)$ ,  $\sigma_B^* = [u(\frac{w_B^* - 1}{w_A^* + w_B^* - 1}T) - u(\frac{w_B^*}{w_A^* + w_B^*}T)]$ , where  $w_A^*$ ,  $w_B^*$  denote equilibrium  $w_A$  and  $w_B$  respectively, such that all constituencies with  $\sigma_i^B > \sigma_B^*$  elect a candidate from party  $X$  while all constituencies with  $\sigma_i^B < \sigma_B^*$  from party  $Y$ . The basic message is that when constituencies care about their ideological preferences as well as material gains, constituencies that are ideologically biased against the winning party (but are not too far away from the ideologically neutral constituency) will sacrifice their ideological biases in favor of material gains and vote for the winning party.

In region  $A$  constituencies that prefer party  $X$  elect a candidate from  $X$ . Constituencies ideologically biased in favor of  $Y$  vote for  $X$  if and only if:

$$\sigma_i^A > -[u(\frac{w_A}{w_A + w_B}T) - u(\frac{w_A - 1}{w_A + w_B - 1}T)] = \sigma_1^A(w_A, \cdot)$$

At equilibrium,  $w_A = \#A[1 - F_A(\sigma_1^A(w_A, \cdot))]\dots(A.2)$ .  $A.1$  and  $A.2$  together determine  $w_A^*$  and  $w_B^*$ .

There exists a cutoff  $\sigma_A^* \in [-1, 0)$ , such that all constituencies with  $\sigma_i^A > \sigma_A^*$  elect a candidate from party  $X$  while all constituencies with  $\sigma_i^A < \sigma_A^*$  from party  $Y$ , where  $\sigma_A^* =$

$$[u(\frac{w_A^* - 1}{w_A^* + w_B^* - 1}T) - u(\frac{w_A^*}{w_A^* + w_B^*}T)].$$

Since  $(\frac{w_B^*}{w_A^* + w_B^*} - \frac{w_B^* - 1}{w_A^* + w_B^* - 1} > \frac{w_A^*}{w_A^* + w_B^*} - \frac{w_A^* - 1}{w_A^* + w_B^* - 1})$ ,  $w_B^* < w_A^*$  and  $u(\cdot)$  is concave, it follows that

$\sigma_B^* < \sigma_A^*$ . Therefore, in the smaller region  $B$ , constituencies in a larger range of  $\sigma_i$  ( $[\sigma_B^*, 0)$ ) choose to switch in favor of the party they are ideologically biased against as compared to region  $A$  ( $[\sigma_A^*, 0)$ ).

The intuition here is as follows. Since proportion of transfers is smaller in  $B$ , switching one seat in favor of  $X$  in  $B$  increases the proportion and hence the actual transfers by more than that in region  $A$ . In other words, region  $A$  is more likely to be subject to the free-rider problem and will be reluctant to switch in favor of their ideologically less preferred party. After the breakup, party  $Y$  will win in region  $B$ . The transfers financed by region  $B$  are now targeted to the entire region  $B$ . The previous motive for strategically voting for their non-preferred party no longer operates—all constituencies now vote sincerely according to their inherent preferences. This formulation of transfers once again suggests that prior to the breakup, voting pattern of the smaller region will conform closely to that in the parent state, while secession leads to comparatively divergent voting patterns between the regions.

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Table 1: Summary Statistics for Madhya Pradesh and Chhattisgarh

		Madhya Pradesh	Chhattisgarh	All-India
Land Area		308,346 sq. km.	135,100 sq. km.	
Capital		Bhopal	Raipur	
Districts		45	16	
Population (2001) (in millions)		60.39	20.80	1027.02
Percentage Female (2001)		47.91	49.74	48.27
Percentage Urban (2001)		26.67	20.08	27.78
Population Density (2001) (People per sq. km.)		196	154	312
Child Sex Ratio (2001) (Females per 1000 Male)	Rural	941	982	934
	Urban	906	941	903
Number of Assembly Constituencies		230	90	
Assembly Constituencies Reserved for:				
Scheduled Caste Members		33 (14.35%)	10 (11.11%)	
Scheduled Tribe Members		41 (17.83%)	34 (37.78%)	

Source: Most of the figures are taken from the 2001 Census of India. The last three rows are from the Election Commission of India.

Table 2a: Support for BJP and INC across Different Segments of Population  
(All-India Survey, 2003, all figures in percentages)

	Brahmin	Kshatriya	Kayastha	Jat	Vaishya	SCs	STs
Support BJP	71	59	66	61	56	43	41
Support INC	26	39	32	36	39	55	55
Don't Know	3	2	1	2	4	2	4

Notes: Brahmins, Kshatriyas, Kayasthas, Jats and Vaishyas comprise the traditional upper castes. SC and ST stand for Scheduled Castes and Scheduled Tribes respectively and constitute the most disadvantaged sections of the Indian population.

Table 2b: Support for BJP and INC across Different Segments of Population  
(All-India Survey, 2003, all figures in percentages)

	Male	Female
Support BJP	54	48
Support INC	43	48
Don't Know	3	3

Source for tables 2a and 2b: The data for the tables come from the India Today-AajTak-ORG-MARG poll, reported in the February 9, 2004 issue of India Today International. In the original data, some respondents replied “Others” (meaning other political parties). Since in Madhya Pradesh and Chhattisgarh, unlike most other parts of India, parties other than BJP and INC account only for a small share of the votes polled, we have rescaled the numbers proportionally.

Table 2c: Support for BJP and INC across Different Segments of Population  
(All-India Survey, December, 1997, all figures in percentages)

	General (All)	Rural	Lower Caste	Upper Caste
Party Support				
BJP	50	48	46	66
INC	50	52	54	34

Source: The data for this table come from the India Today-ORG-MARG poll, reported in the January 5, 1998 issue of India Today. Like in Tables 2(a) and 2(b), we have rescaled the numbers proportionally.

Table 3: Electoral Performance of BJP and INC, Madhya Pradesh and Chhattisgarh  
(1998 and 2003 Assembly Elections)

	1998 Elections		2003 Elections	
	Madhya Pradesh	Chhattisgarh	Madhya Pradesh	Chhattisgarh
Total Seats	230	90	230	90
Seats won by BJP	83	36	173	50
Percentage of Seats won by BJP	36.09	40.00	75.22	55.56
Percentage of Votes won by BJP	38.84	39.11	42.50	39.26
Seats won by INC	124	48	38	37
Percentage of Seats won by INC	53.91	53.33	16.52	41.11
Percentage of Votes won by INC	41.21	41.01	31.60	36.71

Source: Authors' calculations from the 1998 election results of undivided Madhya Pradesh, and the 2003 election results of Madhya Pradesh and Chhattisgarh.

Table 4: Percentage of Total Electors who Voted, Madhya Pradesh and Chhattisgarh  
(1998 and 2003 Assembly Elections)

	OLS			FE	
	(1)	(2)	(3)	(4)	(5)
Chhattisgarh	0.06 (1.12)	0.18 (1.05)	0.18 (1.83)		
Yr 2003	7.35*** (0.70)	7.21*** (0.71)	7.21*** (0.56)	7.35*** (0.37)	7.19*** (0.35)
Chhattisgarh * Yr 2003	3.61** (1.47)	3.72*** (1.40)	3.72*** (0.90)	3.61*** (0.62)	3.73*** (0.58)
R <sup>2</sup>	0.24	0.24	0.24	0.91	0.91
Observations	640	640	640	640	640
Weighted	N	Y	Y	N	Y

The dependent variable is the percentage of total electors in an assembly constituency who cast their votes. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 2003 is a dummy variable for year 2003. The regressions in columns (2), (3) and (5) are weighted by the number of electors in the constituency. There were 320 assembly constituencies in undivided Madhya Pradesh in 1998, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively in 2003. Robust standard errors are in parentheses. The standard error in column (3) allow for correlation within districts. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 5: Performance of INC in Madhya Pradesh and Chhattisgarh  
(1998 and 2003 Assembly Elections)

	Whether Won				Number of Votes Polled				Percentage of Votes Polled			
	Probit		FE		OLS		FE		OLS		FE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Chhattisgarh	-0.01 (0.06)	-0.01 (0.06)			-2191 (1540)	-2124 (1972)			-0.19 (1.34)	-0.19 (1.37)		
Yr 2003	-0.39*** (0.04)	-0.39*** (0.04)	-0.37*** (0.04)	-0.38*** (0.04)	677 (1346)	661 (1804)	761 (740)	737 (769)	-9.66*** (1.12)	-9.72*** (1.14)	-9.55*** (0.80)	-9.55*** (0.79)
Chhattisgarh * Yr 2003	0.30*** (0.09)	0.31*** (0.09)	0.25*** (0.09)	0.27*** (0.09)	5792*** (2303)	6618** (3030)	5747*** (1440)	6370*** (1591)	4.67*** (1.76)	4.83*** (1.78)	4.59*** (1.47)	4.69*** (1.51)
R <sup>2</sup>	0.10	0.10	0.57	0.57	0.02	0.02	0.84	0.87	0.13	0.14	0.76	0.76
Observations	640	640	640	640	635	635	635	635	635	635	635	635
Weighted	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y

The dependent variable in columns (1)-(4) is a dummy variable, taking the value 1 if INC won the seat, 0 otherwise. The dependent variable in columns (5)-(8) is the number of votes polled by INC in each seat. The dependent variable in columns (9)-(12) is the percentage of votes polled by INC in each seat. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 2003 is a dummy variable for year 2003. Columns (1)-(2) show results from running probit regressions, the figures shown are the estimated effects for discrete changes in the dummy variables from 0 to 1. The OLS regressions for this variable are very similar to the probit ones, and hence are omitted. The regressions in even-numbered columns are weighted by the number of electors in the constituency. There were 320 assembly constituencies in undivided Madhya Pradesh, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively after the reconstitution. Robust standard errors are in parentheses. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 6: Performance of BJP in Madhya Pradesh and Chhattisgarh  
(1998 and 2003 Assembly Elections)

	Whether Won				Number of Votes Polled				Percentage of Votes Polled			
	Probit		FE		OLS		FE		OLS		FE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Chhattisgarh	0.04 (0.06)	0.05 (0.06)			-1460 (1479)	-1211 (1973)			0.27 (1.31)	0.22 (1.39)		
Yr 2003	0.39*** (0.04)	0.40*** (0.04)	0.39*** (0.04)	0.39*** (0.04)	14111*** (1448)	15124*** (2039)	14111*** (858)	15030*** (1036)	3.37*** (1.08)	3.58*** (1.13)	3.37*** (0.72)	3.58*** (0.75)
Chhattisgarh * Yr 2003	-0.25*** (0.08)	-0.27*** (0.08)	-0.24*** (0.08)	-0.25*** (0.09)	-2965 (2559)	-2541 (3707)	-2965** (1457)	-2840* (1687)	-3.08* (1.84)	-2.98 (1.92)	-3.08** (1.40)	-3.07** (1.46)
R <sup>2</sup>	0.09	0.09	0.57	0.57	0.17	0.15	0.86	0.88	0.02	0.02	0.76	0.76
Observations	640	640	640	640	640	640	640	640	640	640	640	640
Weighted	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y

The dependent variable in columns (1)-(4) is a dummy variable, taking the value 1 if BJP won the seat, 0 otherwise. The dependent variable in columns (5)-(8) is the number of votes polled by BJP in each seat. The dependent variable in columns (9)-(12) is the percentage of votes polled by BJP in each seat. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 2003 is a dummy variable for year 2003. Columns (1)-(2) show results from running probit regressions, the figures shown are the estimated effects for discrete changes in the dummy variables from 0 to 1. The OLS regressions for this variable are very similar to the probit ones, and hence are omitted. The regressions in even-numbered columns are weighted by the number of electors in the constituency. There were 320 assembly constituencies in undivided Madhya Pradesh, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively after the reconstitution. Robust standard errors are in parentheses. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 7: Performance of INC in Madhya Pradesh and Chhattisgarh - Robustness Checks  
(1998 and 2003 Assembly Elections)

	Whether Won the Seat				Number of Votes Polled				Percentage of Votes Polled			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Chhattisgarh	-0.02 (0.06)	-0.02 (0.06)	-0.02 (0.08)	-0.03 (0.08)	-2124 (1972)	-2178 (1958)	-2178 (2621)	-2690 (2592)	-0.19 (1.37)	-0.22 (1.37)	-0.22 (1.97)	-0.78 (1.92)
Yr 2003	-0.38*** (0.04)	-0.41*** (0.04)	-0.41*** (0.06)	-0.42*** (0.06)	661 (1804)	-2151 (1962)	-2151 (1429)	-2332* (1325)	-9.72*** (1.14)	-11.19*** (1.25)	-11.19*** (1.24)	-11.50*** (1.13)
Chhattisgarh * Yr 2003	0.27*** (0.09)	0.25*** (0.09)	0.25** (0.11)	0.25** (0.11)	6618** (3030)	5107** (2605)	5107** (2329)	5130** (2294)	4.83*** (1.78)	4.04** (1.76)	4.04** (2.06)	4.16** (2.07)
Percentage of Electors who Voted		0.01** (0.00)	0.01* (0.00)	0.01** (0.00)		398*** (88)	398*** (137)	412*** (134)		0.21*** (0.06)	0.21** (0.09)	0.23*** (0.08)
R <sup>2</sup>	0.13	0.14	0.14	0.14	0.02	0.05	0.05	0.06	0.14	0.16	0.16	0.17
Observations	640	640	640	631	635	635	635	631	635	635	635	631
Allow for Within-												
District Correlations	N	N	Y	Y	N	N	Y	Y	N	N	Y	Y
Smaller Sample	N	N	N	Y	N	N	N	Y	N	N	N	Y

The dependent variable in columns (1)-(4) is a dummy variable, taking the value 1 if INC won the seat, 0 otherwise. The dependent variable in columns (5)-(8) is the number of votes polled by INC in each seat. The dependent variable in columns (9)-(12) is the percentage of votes polled by INC in each seat. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 2003 is a dummy variable for year 2003. All results are from OLS regressions - results from FE regressions are very similar and hence are omitted. All regressions are weighted by the number of electors in the constituency. There were 320 assembly constituencies in undivided Madhya Pradesh, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively after the reconstitution. The standard errors in columns (3)-(4), (7)-(8) and (11)-(12) allow for correlations within districts. Columns (4), (8) and (12) drop the nine observations where neither BJP nor INC emerged as the winner or the runner-up. Robust standard errors are in parentheses. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 8: Performance of BJP in Madhya Pradesh and Chhattisgarh - Robustness Checks  
(1998 and 2003 Assembly Elections)

	Whether Won the Seat				Number of Votes Polled				Percentage of Votes Polled			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Chhattisgarh	0.05 (0.06)	0.05 (0.06)	0.05 (0.08)	0.05 (0.08)	-1211 (1973)	-1229 (1969)	-1229 (2661)	-1557 (2677)	0.22 (1.39)	0.22 (1.39)	0.22 (1.79)	-0.19 (1.80)
Yr 2003	0.39*** (0.04)	0.44*** (0.04)	0.44*** (0.05)	0.45*** (0.06)	15124*** (2039)	14397*** (2356)	14397*** (2318)	14809*** (2477)	3.58*** (1.13)	3.42*** (1.24)	3.42*** (1.17)	3.59*** (1.40)
Chhattisgarh * Yr 2003	-0.25*** (0.09)	-0.22*** (0.09)	-0.22** (0.11)	-0.24** (0.11)	-2541 (3707)	-2916 (3750)	-2916 (2176)	-3367* (2249)	-2.98 (1.92)	-3.06* (1.90)	-3.06* (1.66)	-3.33* (1.78)
Percentage of Electors who Voted		-0.01*** (0.00)	-0.01** (0.00)	-0.01** (0.00)		101 (107)	101 (191)	104 (189)		0.02 (0.06)	0.02 (0.09)	0.03 (0.09)
R <sup>2</sup>	0.13	0.14	0.14	0.14	0.15	0.15	0.15	0.16	0.02	0.02	0.02	0.03
Observations	640	640	640	631	640	640	640	631	640	640	640	631
Allow for Within-												
District Correlations	N	N	Y	Y	N	N	Y	Y	N	N	Y	Y
Smaller Sample	N	N	N	Y	N	N	N	Y	N	N	N	Y

The dependent variable in columns (1)-(4) is a dummy variable, taking the value 1 if BJP won the seat, 0 otherwise. The dependent variable in columns (5)-(8) is the number of votes polled by BJP in each seat. The dependent variable in columns (9)-(12) is the percentage of votes polled by BJP in each seat. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 2003 is a dummy variable for year 2003. All results are from OLS regressions - results from FE regressions are very similar and hence are omitted. All regressions are weighted by the number of electors in the constituency. There were 320 assembly constituencies in undivided Madhya Pradesh, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively after the reconstitution. The standard errors in columns (3)-(4), (7)-(8) and (11)-(12) allow for correlations within districts. Columns (4), (8) and (12) drop the nine observations where neither BJP nor INC emerged as the winner or the runner-up. Robust standard errors are in parentheses. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 9: Is the Resemblance in voting patterns in 1998 a year specific effect?  
Performance of INC in Madhya Pradesh and Chhattisgarh  
(1993, 1998 and 2003 Assembly Elections)

	Whether Won			Number of Votes Polled			Percentage of Votes Polled		
	OLS		FE	OLS		FE	OLS		FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Chhattisgarh	0.08 (0.06)	0.08 (0.07)		-2712 (1584)	-2712 (2198)		-0.88 (1.39)	-0.88 (1.82)	
Chhattisgarh * Yr 1998	-0.10 (0.09)	-0.10 (0.10)	-0.10 (0.09)	588 (2529)	588 (1842)	807 (1601)	0.69 (1.95)	0.69 (1.55)	0.85 (1.61)
Yr 2003	-0.35*** (0.04)	-0.35*** (0.05)	-0.35*** (0.04)	4824*** (1466)	4824*** (1539)	4430*** (963)	-9.83*** (1.05)	-9.83*** (1.20)	-9.91*** (0.85)
Chhattisgarh * Yr 2003	0.17** (0.08)	0.17* (0.11)	0.17** (0.09)	7206*** (2792)	7206*** (2130)	7211*** (1642)	5.51*** (1.79)	5.51*** (2.17)	5.58*** (1.61)
R <sup>2</sup>	0.11	0.11	0.44	0.05	0.05	0.77	0.13	0.13	0.66
Observations	960	960	960	953	953	953	953	953	953

The dependent variable in columns (1)-(3) is a dummy variable, taking the value 1 if INC won the seat, 0 otherwise. The dependent variable in columns (4)-(6) is the number of votes polled by INC in each seat. The dependent variable in columns (7)-(9) is the percentage of votes polled by INC in each seat. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 1998 and Yr 2003 are dummy variables for years 1998 and 2003 respectively. All regressions are weighted by the number of electors in the constituency. There were 320 assembly constituencies in undivided Madhya Pradesh, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively after the reconstitution. Robust standard errors are in parentheses. The standard errors in columns (2), (5) and (8) allow for correlations within districts. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 10: Ruling out the Effect of Exogenous Shocks that may Affect Different Demographic Groups Differently

Panel A	Whether INC Won				Whether BJP Won					
	OLS			FE	OLS			FE		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
(1999, 2004 National Elections)										
Chhattisgarh * Breakup	0.03 (0.08)	0.06 (0.08)	0.06 (0.15)	0.06 (0.07)	-0.02 (0.08)	-0.04 (0.08)	-0.04 (0.15)	-0.05 (0.07)		
R <sup>2</sup>	0.03	0.03	0.03	0.66	0.03	0.03	0.03	0.67		
Observations	640	640	640	640	640	640	640	640		
Weighted	N	Y	Y	Y	N	Y	Y	Y		
Panel B	Whether INC Won					Whether BJP Won				
	OLS			FE		OLS			FE	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1998, 2003 Assembly and 1999, 2004 National Elections)										
Chhattisgarh * Breakup	0.04 (0.08)	0.06 (0.10)	0.02 (0.10)	0.04 (0.07)	0.02 (0.07)	-0.02 (0.08)	-0.04 (0.10)	0.00 (0.09)	-0.05 (0.07)	-0.01 (0.08)
Chhattisgarh * Assembly	0.01 (0.09)	-0.01 (0.11)	-0.00 (0.11)	0.02 (0.08)	0.02 (0.08)	0.02 (0.08)	0.04 (0.10)	0.04 (0.10)	0.03 (0.08)	0.03 (0.08)
Chhattisgarh * Assembly * Breakup	0.22* (0.11)	0.22* (0.13)	0.24* (0.14)	0.21* (0.11)	0.22** (0.11)	-0.22* (0.11)	-0.22* (0.13)	-0.24* (0.14)	-0.21* (0.11)	-0.22** (0.11)
Percentage of Electors who Voted			0.004 (0.002)		0.004 (0.002)			-0.005 (0.002)		-0.005 (0.002)
R <sup>2</sup>	0.10	0.10	0.11	0.40	0.40	0.12	0.12	0.12	0.42	0.42
Observations	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280
Weighted	N	Y	Y	Y	Y	N	Y	Y	Y	Y

Panel A uses data from 1999 and 2004 national elections only. Panel B uses data from 1998 and 2003 assembly elections as well as 1999 and 2004 national elections. Robust standard errors are in parentheses. The standard errors in columns (3), (7), (10)-(11) and (15)-(16) allow for clustering within districts. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.

Table 11: Change in Female Electors in Madhya Pradesh and Chhattisgarh  
(1993, 1998 and 2003 Assembly Elections)

	Number of Female Electors				Percentage of Female Electors			
	OLS			FE	OLS			FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chhattisgarh	-1496 (1329)	-1065 (1928)	-1065 (2445)	–	2.00*** (0.15)	1.95*** (0.18)	1.97*** (0.26)	–
Yr 1998	6900*** (1123)	8019*** (1855)	8019*** (845)	7484*** (571)	-0.21 (0.14)	-0.25* (0.14)	-0.25*** (0.06)	-0.23*** (0.05)
Chhattisgarh * Yr 1998	-778 (2138)	-1065 (3315)	-1065 (989)	-923 (1134)	-0.01 (0.21)	-0.00 (0.25)	-0.00 (0.12)	-0.01 (0.10)
Yr 2003	17563*** (1292)	19459*** (2130)	19459*** (1419)	18818*** (691)	-0.11 (0.14)	-0.11 (0.13)	-0.11 (0.07)	-0.09* (0.05)
Chhattisgarh * Yr 2003	-2565 (2542)	-2121 (4289)	-2121 (2135)	-2314 (1481)	-0.02 (0.21)	-0.05 (0.24)	-0.05 (0.17)	-0.04 (0.10)
R <sup>2</sup>	0.20	0.17	0.17	0.95	0.30	0.28	0.28	0.94
Observations	960	960	960	960	960	960	960	960
Weighted	N	Y	Y	Y	N	Y	Y	Y

The dependent variable in columns (1)-(4) is the (absolute) number of female electors in a constituency. The dependent variable in columns (5)-(8) is the percentage of female electors in a constituency. Chhattisgarh is a dummy variable taking the value of 1 if the constituency is part of the Chhattisgarh region. Yr 1998 is a dummy variable for year 1998, similarly for Yr 2003. There were 320 assembly constituencies in undivided Madhya Pradesh, and 230 and 90 in Madhya Pradesh and Chhattisgarh respectively after the reconstitution. Robust standard errors are in parentheses. The standard errors in columns (3) and (7) take account of clustering at the district level. \*, \*\*, \*\*\* denote significance at the 10, 5, and 1 percent levels.



Figure 1. Political Map of India showing the different states as of 2004.

Notes: The names of states are in upper case letters (e.g. Madhya Pradesh), the names of the respective capital cities are in lower case letters (e.g. Bhopal). There are currently 28 states and 7 union territories in India.

Source: Compare Infobase Pvt. Ltd., Janakpuri, New Delhi – 110058, India.

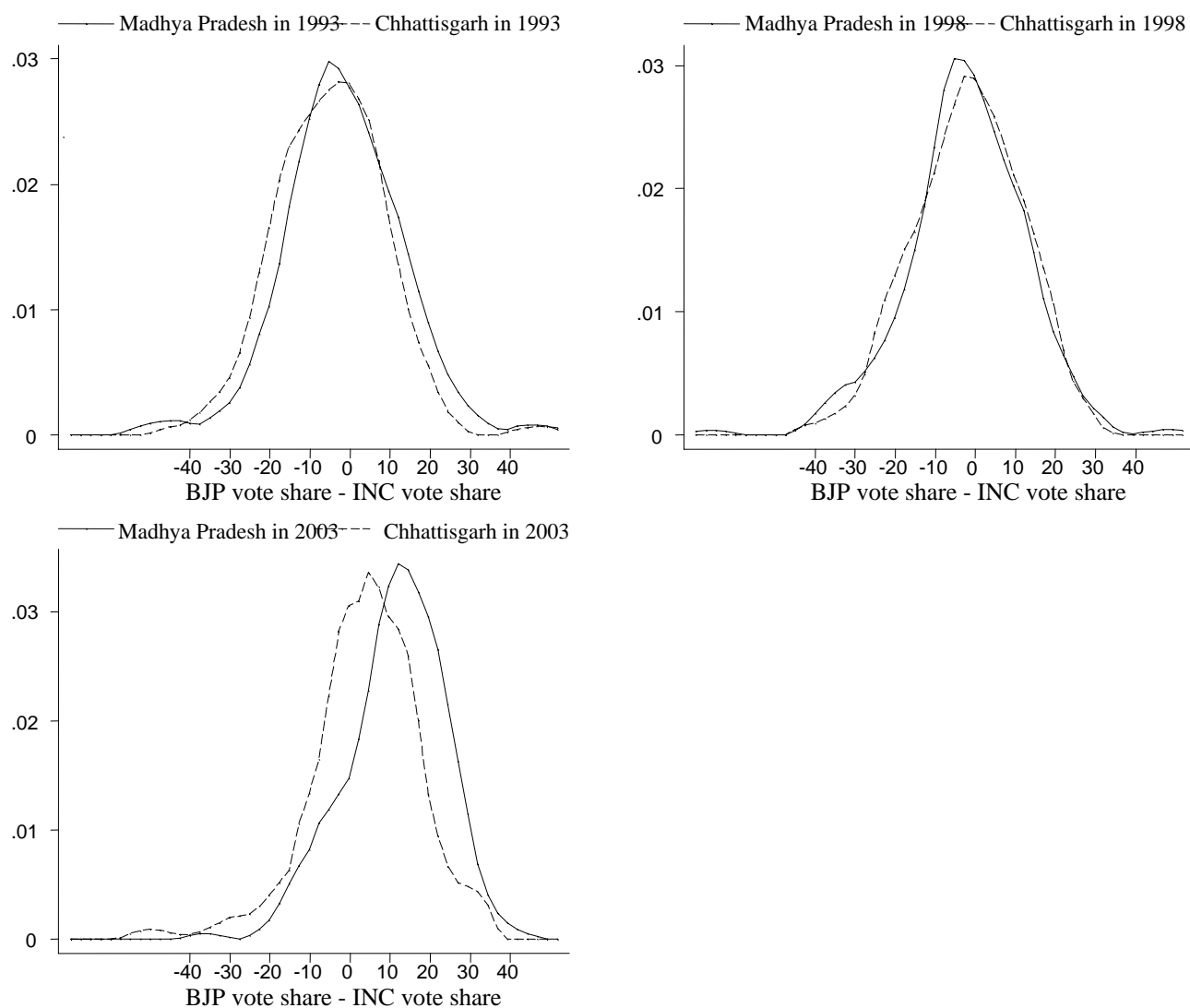


Figure 2. Relative Preference in favor of BJP, Madhya Pradesh and Chhattisgarh (1993, 1998 and 2003 assembly elections)

Notes: The graphs show the kernel smoothed plots of *differences in share of votes* polled by the BJP and INC across constituencies in Madhya Pradesh and Chhattisgarh. *BJP vote share* is defined as the share of votes polled by BJP, similarly for *INC vote share*. The figures have been weighted by the total number of electors in each constituency. (The graphs which do not weight the vote share are very similar and hence not reported.)