Does political turnover adversely affect the state expenditure policy? Evidence from Indian state legislative elections

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Abstract

I examine the effect of political turnover on government expenditure policy in Indian state legislatures during 1980-2000. Much similar to arguments for term limits, greater turnover of elected may weaken their hold on the office, and hence, forces them to be more competent. However, a counter-argument is that greater turnover shortens an elected official's expected stay in the office, which gives him or her more incentive to pursue policies with shorter horizons to show competency. I find evidence for the latter argument in Indian state legislative elections. The states with greater political turnover spend more per capita compared to states with less turnover. Also, greater political turnover skews the government policies towards expenditures that are unproductive in nature and have shorter gestation period at the expense of long-term and welfare increasing expenditures.

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1 Introduction

Much research examines how a country's political system, such as parliamentary, presidential or dictatorial, affects the government policies. The popular belief is that welfare of citizens is paramount in a democratic political setup than in a dictatorial setup. Since voters in a democracy have the stick of holding the government accountable the next time it faces an election, elected governments or individuals have an incentive to pursue policies that are in higher interest of the society at large than their own narrow self-interest. In no other model of electoral competition this notion is more evident than in the the median voter theorem put forward by Downs (1957). According to this theorem, electoral competition between two office-seeking candidates forces them to announce and pursue an identical policy that is most preferred by the median voter and coincides with the socially optimal policy. An implication is that, just as competition in economic markets is efficient, electoral competition in political markets brings about an efficient outcome for the society.

However, the casual evidence is to the contrary in the real world democracies. Many of them are dictated by the winning majority and overlook preferences of the minority. Also, not everybody in the majority may have equal voice. Certain interests groups may get precedence over others (Grossman and Helpman 1994). Due to the presence of these complexities, the 'political markets' may not work as efficiently in 'delivering the goods' to voters. Inefficiencies may arise, for example, if government transfers do not maximize social welfare and accrue to groups on other considerations than maximizing social welfare. Laband and Sophocleus (1998) estimate that rent seeking in allocating transfers costs US about one-fourth of its GDP per annum.

This has led many scholars to examine how much control can the electorate exercise on their representatives (Barro 1973, Ferejohn 1986). The degree to which the electorate can hold elected officials accountable may depend on incentives they have to maximize the welfare of the public at large. These incentives are, in turn determined by various economic, social, institutional and political constraints in place. For example, swing voters become really significant group in closely fought races. So, an incumbent anticipating a close race may have an incentive to follow policies wooing swing voters before the election

(Persson and Tabellini 2000).

This paper examines how degree of political turnover, as one aspect of political constraint a candidate faces, affects his or her policies on levels and composition of government expenditure in 15 Indian states between 1980-2000. Indian states provide a pertinent laboratory for studying the effects of political turnover as opposed to a cross-country study, which could be confounded by various heterogeneities, such as in the electoral system, political system or cultural differences, among the countries in the data. Indian states function under the same electoral system electing candidates based on a single-member single plurality (SMSP) system, and have the same political system based on the parliamentary form of government. However, there is evidence that Indian elections have high rates of incumbent turnover. Uppal (forthcoming) finds that incumbents are significantly less likely to win the next election compared to challengers in Indian state legislative elections, which is indicative of high turnover in Indian elections.

However, methodologically it is problematic to estimate the causal effect of turnover on government policy. First, it is likely that political instability as measured by turnover of legislators could be endogenously determined. A higher size of the government means a bigger pie for everyone to share attracting more parties in the political arena, and thus increasing the instability, and hence, turnover. Second, it is likely that some unobservable factor, such as voters' preferences, determines both political turnover and size of the government leading to an omitted variable bias. To overcome these methodological issues, I use an indicator variable for the anti-defection law (ADL), which was enacted in 1985 to make it illegal for members of an elected body to defect from their political party, as an instrument for political turnover. The ADL had a paradoxical impact on the nature of defections as will be explained below. It prevented any individual defections by elected officials out of fear of suspension from the legislature, while allowing bulk defections from a party. This accelerated the trend towards smaller parties challenging dominance of already declining Congress Party. This contributed to increased fragmentation of party system in Indian elections, and significantly increased political turnover in Indian elections.

However, there is no clear theory as to what relationship we should observe between political turnover and government policy. The issue has been approached from various

angles. The most notable work is by Alesina (1988) and later work by him highlighting the commitment problem in government decision making. According to him, the median voter theorem is too simplistic because of an assumption that candidates could credibly commit to their policy announcements. He points out that in the absence of credible commitments, it would be rational for the candidates to adapt their most preferred policies after they get elected. So voters merely elect candidates whose preferences are closest to theirs and not policies as argued by the median voter theorem. Lee et al. (2004) find empirical support for the latter result in elections to the US House of Representatives.

Alesina and Tabellini (1990) show that, in the absence of credible commitments, government debt is strategically used by the current government to influence the policies of the successors whose policy preferences are different. The current government accumulates more debt than is optimal passing the burden of paying off the debt to future governments. This tendency to accumulate more debt is greater, the less is the likelihood of reelection of the current government or greater is political turnover. Acemoglu and Robinson (2000) also argue that the dominant political group may not undertake investment due to a threat of losing political power to a competing group so as to reduce the size of the pie for the competitor and discourage any potential competitors. Naturally, this tendency towards not undertaking public investment will be greater, the greater is the political instability. Lizzeri and Persico (2005) also find that greater political competition may lead elected officials to cater to narrow interests of certain groups at the expense of more efficient policies. Dixit et al. (2000) note that a high degree of political turnover is undesirable from view point of voters as it implies that the course their elected officials take is more uncertain due to frequent changes in office. An inability to credibly commit is also responsible for electoral cycles in government expenditure and tax policy. In gubernatorial election years in the US, tax increases and spending cuts are both significantly smaller than at other times (Poterba 1994). Khimani (2004) finds evidence that Indian state governments manipulate the fiscal policy in form of tax breaks for some producers and higher spending on public investment projects around the elections to benefit narrow interest groups for electoral support.

This paper also adds to the debate regarding efficacy of term limitation laws in the US, which are aimed at controlling the turnover of elected officials. For example, the proponents

of term limits argue that longer tenure of elected officials or incumbents serves to strengthen their hold on the power and hence allows them to pursue expenditure increasing policies (Payne 1991, Reed et al 1998) or to collude with other officials on the bills to increase spending on their respective programs (known as logrolling in the literature, Stratmann 1992). In both these cases, the expenditure is expected to deviate widely from its long run norm. There is a counter-argument to the above. The state legislatures in which the officials have longer expected tenure will have more incentive to allow stable long run expenditures. This intuition is borrowed from existing literature on managerial theories of firms (Marris 1971, Heal and Silberston 1977) and notes that managers with shorter tenures are more likely to follow policies which result in higher short run profits. The pursuit of short run profits by managers may go against the long run profit maximization goal of the firm. Similarly, the elected officials with shorter tenures may deviate from long run policy to further their own agenda in the short run. Besley and Case (1995) find evidence that the effect of term limits is to create a cycle in fiscal policy and lower the income when the term limits are binding.

The preliminary results of the paper can be summarized as follows. First, the higher the political competition, the higher is the size of the government. The governments become more profligate when they expect to lose power. Second, a shorter time horizon due to high turnover skews incentives towards unproductive expenditures and away from more productive capital outlays. This is perfectly rational behavior by the government because they enjoy the benefits in the present (may be in terms of higher probability of reelection), but the costs will have to be born by the future governments. However, it is opposite for capital outlays. The current governments foot the bill and future governments enjoy the returns on the investment.

The remainder of the paper is organized as follows. In section 2, I discuss the phenomenon of defections in Indian context and the anti-defection law that was enacted in 1985. In section 3, I discuss the basic empirical model and other methodological issues. Section 4 deals with the data issues. I present the results of the paper in section 5. Section 6 concludes the paper and provides a discussion of the main results.

2 Anti-defection Law

Unlike many western democracies, defections or floor crossings have been a rule rather than an exception in Indian politics. Spieb and Pehl (2003) note that western democracies have had in-built avenues, such as expulsion from the party organization, denial of promotions or cutting of resources, sufficient to uphold party discipline. They argue that accounts of floor crossing and defections in nascent and/or post-colonial democracies, such as in India, however, refer solely to the specific political culture prevailing in these countries, which is said to be especially prone to political opportunism. They also argue that defections were for the most part responsible for the decline of Congress Party in India from the 1960's onwards.

In India, defections, whenever they take place, have resulted in great instability of government tenure. Kamath (1985) notes that defections, especially in the 1970s and the first half 1980s, took on a form of opportunistic behavior by elected officials, which threatened the stability of governments that even had a clear majority of seats. A government report on defections (2002) notes the following:

> Between the fourth and the fifth general elections in 1967 and 1972, from among the 4000 odd members of the Lok Sabha and the Legislative Assemblies in the States and the Union Territories, there were nearly 2000 cases of defection and counter-defection. By the end of March, 1971 approximately 50% of the legislators had changed their party affiliations and several of them did it more than once some of them as many as five times. One MLA was found to have defected five times to be a minister for only five days.

Another notable case in point is the collapse of Janata Party government at the national level.

> The politics of defection in the 1980s was heralded by the political developments within the first non-Congress government at the Center in the 1977-79 period. Despite having a two-thirds majority in the Lok Sabha, the Janata government of Prime Minister Morarji Desai was thrown out of power by the

defection of 76 MPs, mostly the supporters of Charan Singh. What followed was a period of prolonged uncertainty at the Center.

These defections were questioned on many grounds. First, defection of members elected from a certain party amounts to contempt for the electorate, particularly when they alter clear electoral mandates. The Congress government in the center led by Indira Gandhi, whose dominance began to erode in state elections, engineered defections from the majority governments of opposition parties in many states, such as Harayana, Himachal Pradesh, Jammu and Kashmir, and Andhra Pradesh, to form a Congress government. This was termed as assumption of power through the back door rather than through a direct mandate from the electorate. Second, defections encourage corrupt practices by defectors and political parties alike. Kamath argues that various means, such as monetary incentives, ministerial posts in the government, and coercion, were used to secure defections of elected members. He notes that in the 1960s, the price quoted for a would-be defector varied between Rs. 200,000 and 400,000. In the 1980s, the price tag increased, allegedly, to Rs. 1-1.5 million.

Overtime, it was widely believed that defections were creating excessive instability in the political system and should be banned. If a candidate decides to defect to another party, he or she should cease to be the member of the elected body. The logic of this argument is that if a candidate is dissatisfied or has any disagreements with her party, she should resign from her seat, which she won as a nominee of the party, and seek a fresh mandate from the voters as a member of different party. As a result, the 52^{nd} amendment to the Indian constitution, which banned opportunistic defections by the members of elected bodies, became a law on March 1, 1985. According to the law,

> A member of a House belonging to any political party shall be disqualified for being a member of the House:
>
> 1. if he or she has voluntarily given up his membership of such political party; or
> 2. if he or she votes or abstains from voting in such House contrary to any direction issued by the political party to which he or she belongs or by any

> person or authority authorized by it in this behalf, without obtaining, in either case, the prior permission of such political party, person or authority and such voting or abstention has not been condoned by such political party, person or authority within fifteen days from the date of such voting or abstention.

However, the 52^{nd} amendment, though did make individual defections illegal, encouraged en bloc defections due to a few major loopholes in the law. For instance, if at least one-thirds of the members of a party decide to split and form a new party, called a split, the defected members are not disqualified. Also, at least two-thirds of members of a party could leave the original party and merge with another party, called a merger, without facing disqualification. As a result, the anti-defection law of 1985, by banning individual defections, left a split of parent parties as the only option for a sincere member who has ideological differences with the party or for an opportunist member.

According to Spieb and Pehl (2003), there were more defections after the law was enacted than before the law. So the law did not prevent defections, and moreover, changed the nature of these defections by encouraging bulk defections. The bulk defections accelerated the process of fragmentation of Indian party system, which was already coming apart at the seams due to declining dominance of Congress party, and factionalization within the party (Pai 2002). The fragmentation of party system meant there were a number of smaller parties in the system and larger parties were prone to defections within their cadre. Thus, the en bloc or bulk defections have been really detrimental to the tenure of a government and have resulted in many legislatures facing elections more frequently, and hence, higher political turnover.

3 The Empirical Model

Our main objective is to estimate the following empirical model:

$$GOVTEXP_{it} = \alpha_i + \gamma_t + \beta \times TURNOVER_{it} + \delta \times X_{it} + \mu_{it} \tag{1}$$

where $GOVTEXP_{it}$ is the log per capita real government expenditure in state i in year t, α_i are the time-invariant state fixed effects, γ_t are the time fixed effects, $TURNOVER_{it}$ measures the political turnover, X_{it} are various economic, demographic, natural and political factors which may affect government expenditures, and μ_{it} is the error term. The paper looks at the three types of government expenditure - total expenditure, revenue expenditure and capital outlays. Any expenditure for the normal running of the government, which does not lead to the creation of assets, is called revenue expenditure, and hence, represents public consumption. Revenue expenditure comprises most notably of salaries of government employees and military staff, perks for ministers, office furniture, grants to local bodies, subsidies, interest to be paid on loans taken, and pensions. Capital spending (capital expenditure) refers to the money spent on creating assets such as roads, highways, and dams etc., buying land or building, purchasing machinery and equipment, and hence, reflects public investment.

I define political turnover simply by the proportion of first-time legislators in state i in election year t, which is constant for the whole term of a legislature. The relationship of political turnover with government policy on expenditure is not entirely clear. If we go by what Alesina and Tabellini (1990) argue, the effect of political turnover on the size of government should be positive. However, it should be negative if the popular premise that elections serve to discipline the elected officials is right. Also, greater turnover in the office is expected to give elected officials more incentive to increase the types of spending that have high short term returns, such as revenue expenditure in form of salaries of government employees and subsidies, than spending that will show results in longer run, such as capital outlays.

The economic factors I control for are state tax revenue, grants from the federal government, and state income per capita. The demographic controls are state population and proportion of urban population. I also control for natural factors that may have an effect of government expenditures by deriving a variable that indicates if a particular year had a calamity due to an excessive rainfall or a deficient rainfall. This variable takes a value of one if the rainfall is two standard deviations above or below average, and zero otherwise. I also control for various political factors such as voter turnout, and electoral fiscal policy

cycles. I also control for electoral fiscal cycles by including an indicator variable, which takes a value of one for an election year and zero otherwise.

As pointed out above, the specification in (1) may be problematic due to endogeneity and omitted variable bias. To resolve these methodological issues, I instrument political turnover by an indicator variable for the anti-defection law (ADL). Though this law was enacted in 1985, it impacted political turnover in states at different points in time. Since states do not hold their elections simultaneously, the law becomes effective whenever the next election is due or takes place. As a result of this varying impact, the date of law becoming effective can be used to identify any variation in political turnover.

4 Data

The data on levels and composition of state government expenditures is taken from the Reserve Bank of India (RBI), the Indian central bank. This data is the most comprehensive data on state finances in India and provides information on various components of state government expenditure - total, revenue and capital, and is available for the period 1980-2000. I also use information on development expenditure, a component of revenue expenditure, that is devoted to economic and social services.[1] The dataset also provides information on the sources of revenue of the state governments such as own tax revenues, grants from the federal governments and so on. All the expenditure and revenue variables are deflated using the average of consumer price index (CPI) for industrial and agricultural workers. The RBI also provides information on the per capita net domestic product for each state.

The election data is obtained from the Election Commission of India (ECI).[2] The election period considered is from 1980-2000 for 15 Indian states. Another reason for using this time period is that district boundaries were constitutionally fixed between 1976 and 2001. The data on total population and proportion of urban population are available from the

[1] Ravallion and Datt (2002) find that the development expenditure is a significant determinant of poverty in India. Non-development expenditure on the other hand is the expenditure on largely unproductive avenues such as the organs of state, administrative services, interest of debt and so on.

[2] The source of the data is ECI's website at www.eci.gov.in. The data is in acrobat reader form, and is converted in a format suitable for empirical analysis using an elaborately written software program.

decennial census of India in 1981, 1991 and 2001. The values were interpolated for the non-census years. The state-wise rainfall data is available from the Indian Institute of Tropical Meteorology (IITM) website.[3]

Table 1 provides the descriptive statistics of all the variables in the data. As can be seen, there is considerable variation in the per capita expenditures across states. Whereas Punjab and Haryana have spend more per capita than other states, Bihar and Uttar Pradesh spend very little. The capital outlays per capita are, on average, much smaller than per capita revenue expenditure across all states. However, they are the lowest in Bihar and the highest in Punjab. Uttar Pradesh along with Madhya Pradesh and Bihar has the lowest development expenditure among all the states. Many states also vary in their ability to raise taxes, and that partly explains their lower expenditure levels. The per capita tax revenues are the highest in Punjab and the lowest in Bihar. The political turnover is, on average, very high as 69% of sitting legislators are voted in any election. There is considerable variation in the degree of political turnover. It is the lowest in West Bengal (0.42) and the highest in Haryana (0.83). The voter turnout is also towards the higher side in Indian elections as about 62% of registered voters turnout to vote. Indian elections are highly competitive as the average number of parties is about 4. Low spending states are also some of the poorest states in India, such as Bihar, Uttar pradesh, and Madhya Pradesh as can be seen from the per capita income levels. Table 2 provides the information regarding the year in which the law affected turnover in different states. Many states held an election in 1985, which is the same year the law was passed. But there are a few states where law affected turnover when those states held their election after the law.

5 Empirical Results

Table 3 regresses log of per capita expenditures - total, revenue and capital - on political turnover and various economic, demographic, natural, and political control variables using ordinary least squares (OLS) and instrument variable (IV) method. All the regression equations include the state and time fixed effects to control for any state-invariant and

[3]URL: http://www.tropmet.res.in/ accessed in December, 2007.

time-varying factors. In column (1), log of total expenditure per capita is regressed on political turnover. The higher the political turnover, the higher is the total expenditure per capita. An increase in proportion of new legislators by one percentage points means 0.247 percent increase in per capita government expenditure, and the effect is highly significant. The effect of political turnover is similar in column (2), where I include various control variables. Also, the size of the government is larger in states that have higher tax revenue, more money in form of grants from the central government, and are richer. In line with the fiscal cycle theory, governments attempt to appear more efficient just before the election as they reduce spending in the election year. However, the effect is not significant. Column (3) depicts the results of the IV method with the indicator variable for ADL as an instrument for political turnover. Various control variables have similar effects as in column (2). However, the effect of political turnover is positive and significant at 10% level.

An examination of composition of government spending throws further light on how political turnover results in an inefficient government policy. I regress log of revenue expenditure per capita on political turnover in column (4) using OLS. A higher turnover in the office results in government spending more on public consumption, and the effect is highly significant. The same is true in column (5) where I include various control variables. A percentage point increase in political turnover increases the revenue expenditure by about 0.28 percent. The effect is positive and significant when I use the IV method in column (6). This contrasts dramatically with the negative effect of political turnover on capital outlays. In column (7), one percentage point increase in political turnover reduces the capital outlays by about 0.16 percent. However, the effect is not significant. The effect reduces (in absolute value) in column (8) when I control for other variables. In column (9), the effect using the IV method is much higher and implies a percentage point increase in political turnover decreases capital outlays by about 1.5 percent. These findings support what Alesina and Tabellini (1990) argue that the governments that face greater instability will spend more than optimal level. Moreover, a higher level of political turnover skews legislature's incentives towards more unproductive expenditures and away from long run capital expenditures, thus undermining the efficiency of the political system. This is further evident in columns (10)-(12) where an increase in political turnover results in an increase

in the proportion of total expenditure spent on public consumption.

Table 4 uses alternative measures of expenditure to confirm the arguments made above. In column (1), an increase in political turnover results in an increase in total expenditure as a proportion of state income. The effect of turnover is significant at 10% level of significance. The effect is positive and significant in column (2) after controlling for other variables. The effect is positive and significant at 10% level in column (3) using IV method. The effect of political turnover on revenue expenditure as a proportion of state income is positive and significant across specification in columns (4)-(6). The opposite is true for capital outlays as a proportion of state income. The effect is negative but insignificant. However, the signs of the relationship support the theory that increased turnover adversely affects legislatures' incentives to follow more efficient government policies. A high degree of political turnover adversely affects the development expenditure, the component of revenue expenditure devoted to economic and social services, in columns (10) and (11) further confirming negative impact of turnover on government policies. The effects are significant at 1% level. The coefficient on political turnover in column (12) using the IV method is positive. However, it is highly insignificant.

Table 5 performs some robustness checks using different specifications of the right hand side. Column (1) includes a linear and quadratic trend to check if the positive sign on turnover is due to an upward trend in total expenditure per capita. As can be seen, there is indeed a positive trend. However, the effect of political turnover on total expenditure is robust to inclusion of trends. Column (2) includes one-period lagged value of per capita total expenditure in the specification. The effect of turnover on total expenditure is positive and significant. The effects of political turnover are fairly robust when we look at composition of expenditure. Table 6 performs similar checks using IV method. Finally, in Table 7 I investigate how well ADL serves as an instrument for political turnover. In column (1), I consider the results of first stage regression in the IV method. As can be seen, ADL has a positive and significant effect on turnover. This confirms that turnover indeed increased after the ADL became effective. In column (2) I include one-year lag and lead of the indicator variable for ADL. This is a placebo test to check if the ADL is capturing a trend towards increasing turnover. Though the effect of turnover weakens slightly, it is

still positive and significant at 10%. All the lag or lead variables have a much weaker effect and are highly insignificant. The same is true when I include 2-year leads and lags in the specification.

6 Conclusions

I examine the effect of political turnover on government expenditures in Indian state legislative elections. A high rate of political turnover changes changes a legislator's calculation of his or her expected tenure, and hence, alters his or her incentives in the office. I find that high turnover in Indian elections results in an inefficient political system. The higher the turnover, the larger is the size of the government. This result is line with theories that predict that governments facing higher likelihood of a defeat want to spend more and accumulate more debt so as to constrain the functioning of future governments that are led by their opponents. More in line with arguments against term limitation laws in the US, I also find that higher turnover gives the current legislature to pursue policies that show results in the short term. The logic behind this is that a legislator, who is uncertain about his or tenure, wants to signal his or her competency by showing results in the short run. Since the negative effects of this short run behavior will be evident in the future, he or she is able to increase his or chances of reelection. In Indian elections, the higher the turnover, the higher the revenue expenditure, and the lower is the capital expenditure. Also, a high level of political turnover adversely affects the component of revenue expenditure that is spent on developmental activities.

There are a few issues that I will consider in the future. First, this paper does not make a distinction between turnover in legislators of the ruling party and legislators in the opposition. I suspect that a higher turnover in the ruling party should have even stronger effect on the government expenditures than a high turnover in the opposition. Second, I have not accounted for political ideology of elected officials. Since what policies government follows may be heavily determined by its ideology, it will be interesting to examine how this changes the results found here. Third, Alesina (1999) finds that an important determinant of government policy is heterogeneity among the electorate. In

a political system that is as diverse as India's, we need to account for heterogeneity of the voters. Finally, it will be interesting to examine how this myopic behavior by elected officials affects the actual supply of public goods. In a developing country, such as India, the provision of public goods will be affect more severely as a large part of budgetary expenditure gets pocketed by the people who are in charge of spending those moneys.

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Figure 1: Average government expenditures, by states

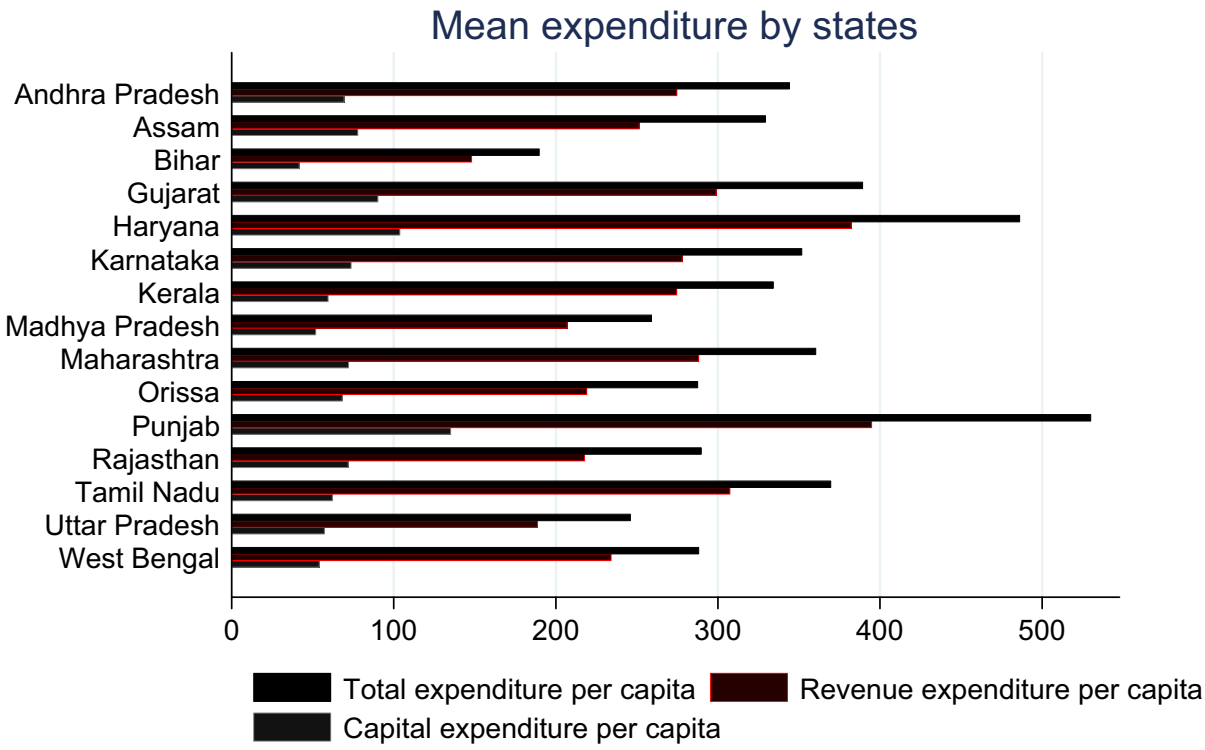

Table 1: Descriptive statistics

States	Total expenditure per capita	Revenue expenditure per capita	Capital outlays per capita	Development expenditure per capita	Tax Revenue per capita	Grants per capita	Political turnover	Voter turnout	Income per capita	Population	Proportion of urban population
Andhra Pradesh	367.02 [83.93]	294.56 [68.86]	72.47 [21.14]	203.90 [36.19]	137.48 [30.05]	36.28 [7.29]	0.68 [0.06]	68.50 [1.47]	*2119* [440]	65840 [5981]	0.26 [0.01]
Assam	344.51 [43.38]	269.81 [41.90]	74.70 [15.57]	177.23 [19.72]	57.24 [9.47]	102.12 [23.93]	0.75 [0.07]	72.73 [13.18]	1561 [88]	22445 [2303]	0.11 [0.01]
Bihar	189.89 [31.42]	148.11 [37.74]	41.77 [16.65]	93.48 [18.50]	37.36 [6.21]	23.45 [7.44]	0.68 [0.06]	59.14 [2.59]	1070 [95]	85544 [11906]	0.13 [0.00]
Gujarat	389.38 [108.79]	299.07 [102.22]	90.31 [13.29]	214.24 [67.60]	162.59 [42.38]	24.83 [8.06]	0.68 [0.12]	52.34 [5.23]	2878 [770]	40745 [4994]	0.34 [0.02]
Haryana	505.08 [124.77]	400.63 [135.94]	104.45 [26.25]	239.85 [42.53]	191.86 [37.75]	30.22 [7.24]	0.83 [0.05]	68.82 [2.04]	3402 [621]	16554 [2273]	0.25 [0.02]
Karnataka	370.84 [65.53]	296.47 [68.29]	74.37 [10.08]	197.20 [40.05]	165.89 [40.05]	27.40 [6.06]	0.73 [0.08]	65.55 [1.60]	2330 [549]	45082 [4172]	0.31 [0.01]
Kerala	334.25 [90.44]	274.68 [91.46]	59.57 [9.53]	172.13 [42.97]	142.45 [45.62]	26.66 [8.12]	0.56 [0.06]	73.56 [3.46]	1908 [465]	28415 [2066]	0.24 [0.03]
Madhya Pradesh	259.08 [41.55]	207.11 [52.16]	51.97 [11.85]	142.11 [28.60]	78.71 [17.23]	29.44 [6.53]	0.70 [0.06]	54.63 [5.34]	1640 [269]	64499 [8888]	0.23 [0.02]
Maharashtra	360.47 [72.00]	288.26 [68.68]	72.20 [13.47]	189.44 [39.12]	166.39 [37.80]	20.60 [5.11]	0.66 [0.06]	59.86 [6.14]	3599 [998]	77087 [10369]	0.38 [0.02]
Orissa	287.59 [71.18]	219.22 [66.71]	68.38 [12.50]	142.71 [34.56]	55.04 [14.79]	50.60 [9.89]	0.71 [0.09]	57.37 [9.74]	1507 [169]	30922 [3209]	0.13 [0.01]
Punjab	526.55 [135.03]	389.33 [147.01]	137.22 [39.36]	215.22 [49.01]	194.37 [37.01]	27.51 [9.71]	0.77 [0.10]	55.71 [17.69]	3730 [689]	19905 [2406]	0.30 [0.02]
Rajasthan	289.85 [65.85]	217.83 [64.31]	72.02 [11.86]	140.58 [33.14]	77.62 [21.19]	41.13 [11.70]	0.71 [0.05]	57.15 [4.14]	1762 [380]	43212 [6701]	0.22 [0.01]
Tamil Nadu	369.72 [101.30]	307.51 [108.81]	62.21 [11.10]	210.57 [61.83]	172.67 [57.58]	27.45 [6.68]	0.78 [0.12]	66.69 [3.91]	2308 [639]	54578 [4227]	0.36 [0.03]
Uttar Pradesh	242.50 [43.41]	184.84 [47.09]	57.66 [10.54]	111.13 [18.38]	61.90 [11.73]	31.15 [8.96]	0.72 [0.09]	50.13 [5.15]	1543 [171]	135073 [18112]	0.19 [0.01]
West Bengal	296.56 [80.83]	243.03 [70.99]	53.53 [13.30]	152.33 [32.48]	99.56 [14.82]	31.12 [10.12]	0.42 [0.04]	77.08 [2.88]	2412 [537]	67324 [7263]	0.27 [0.00]
Total	339.98 [118.35]	267.61 [105.91]	72.36 [28.17]	172.52 [56.71]	119.43 [61.96]	34.86 [20.94]	0.69 [0.12]	62.38 [10.61]	2242 [948]	53508 [31078]	0.25 [0.08]
Obs.	299	299	299	299	299	299	299	299	*299*	299	299

Table 2: The first election after enactment of the anti-defection law

Year the anti-defection law became effective	***States***
1985	Andhra Pradesh; Assam; Bihar; Gujarat; Karnataka; Maharashtra; Madhya Pradesh; Orissa; Punjab; Rajasthan; Uttar Pradesh
1987	Haryana; Kerala; West Bengal
1989	Tamilnadu

Table 3: Government expenditures and political turnover: OLS and IV methods

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*
	Log of total expenditure per capita			Log of revenue expenditure per capita			Log of capital outlays per capita			Revenue expenditure as proportion of total expenditure		
Political turnover	0.247***	0.185***	0.835*	0.340***	0.275***	1.387**	-0.156	-0.100	-1.491	0.071**	0.065*	0.427*
	[0.066]	[0.068]	[0.462]	[0.066]	[0.074]	[0.611]	[0.176]	[0.183]	[1.073]	[0.032]	[0.036]	[0.245]
Tax revenue		0.142**	0.171**		0.132*	0.181**		0.152	0.091		-0.005	0.011
		[0.068]	[0.074]		[0.072]	[0.091]		[0.202]	[0.220]		[0.036]	[0.042]
Grants		0.113***	0.117***		0.084**	0.090**		0.199***	0.192**		-0.021*	-0.019
		[0.031]	[0.033]		[0.035]	[0.043]		[0.065]	[0.079]		[0.012]	[0.016]
Per capita income		0.240***	0.291***		0.088	0.176*		0.776***	0.666***		-0.115***	-0.087**
		[0.069]	[0.079]		[0.067]	[0.093]		[0.189]	[0.229]		[0.031]	[0.042]
Population		-0.420*	0.197		-0.167	0.888		-0.517	-1.837		0.155	0.498*
		[0.240]	[0.538]		[0.292]	[0.702]		[0.690]	[1.213]		[0.129]	[0.269]
Proportion of urban population		-0.485	-1.091		-0.324	-1.361		-1.801	-0.503		0.170	-0.168
		[0.671]	[0.901]		[0.796]	[1.141]		[1.777]	[2.238]		[0.333]	[0.448]
Election year		-0.003	-0.003		0.007	0.008		-0.027	-0.028		0.008	0.008
		[0.012]	[0.015]		[0.014]	[0.020]		[0.033]	[0.038]		[0.006]	[0.008]
Turnout		0.000	0.002		-0.002**	0.002		0.006**	0.002		-0.001***	-0.000
		[0.001]	[0.002]		[0.001]	[0.002]		[0.003]	[0.004]		[0.000]	[0.001]
Calamity		0.007	-0.011		-0.019	-0.049		0.098	0.136*		-0.020*	-0.030**
		[0.027]	[0.035]		[0.027]	[0.040]		[0.063]	[0.070]		[0.012]	[0.015]
Method	OLS	OLS	IV	OLS	OLS	IV	OLS	OLS	IV	OLS	OLS	IV
Observations	301	299	299	301	299	299	301	299	299	301	299	299
R-squared	0.94	0.95	0.94	0.95	0.96	0.93	0.68	0.73	0.68	0.75	0.79	0.69

Table 4: Alternative measures of government expenditures: OLS and IV methods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Total expenditure as proportion of income			Revenue expenditure as proportion of income			Capital outlays as proportion of income			Development expenditure as proportion of revenue expenditure		
Political turnover	0.019*	0.026**	0.124*	0.023***	0.027***	0.15**	-0.004	-0.001	-0.03	-0.12***	-0.073**	-0.007
	[0.01]	[0.01]	[0.072]	[0.008]	[0.008]	[0.07]	[0.005]	[0.006]	[0.04]	[0.031]	[0.028]	[0.15]
Tax revenue		0.028***	0.032***		0.024***	0.03***		0.004	0.003		0.059**	0.062**
		[0.01]	[0.01]		[0.008]	[0.01]		[0.006]	[0.007]		[0.028]	[0.028]
Grant		0.014***	0.014***		0.008**	0.009*		0.005**	0.005**		0.03***	0.03***
		[0.005]	[0.004]		[0.004]	[0.005]		[0.002]	[0.002]		[0.01]	[0.01]
Per capita income		-0.09***	-0.08***		-0.09***	-0.08***		0.002	-0.0006		0.092***	0.1***
		[0.01]	[0.012]		[0.01]	[0.01]		[0.006]	[0.007]		[0.022]	[0.03]
Population		-0.021	0.072		-0.013	0.11		-0.008	-0.035		-0.11	-0.05
		[0.036]	[0.08]		[0.033]	[0.08]		[0.02]	[0.042]		[0.1]	[0.17]
Proportion of urban population		-0.074	-0.166		-0.07	-0.19		-0.004	0.023		-0.83***	-0.9***
		[0.097]	[0.133]		[0.09]	[0.13]		[0.05]	[0.068]		[0.26]	[0.3]
Election year		-0.001	-0.001		0.0004	0.0005		-0.001	-0.001		0.002	0.002
		[0.002]	[0.002]		[0.002]	[0.002]		[0.001]	[0.001]		[0.005]	[0.005]
Turnout		0.0001	0.0004		-0.0001	0.0003		0.0002***	0.0001		0.0015***	0.002**
		[0.0001]	[0.0003]		[0.0001]	[0.0002]		[0.0001]	[0.0001]		[0.0005]	[0.001]
Calamity		0.0006	-0.002		-0.001	-0.005		0.002	0.003		0.034**	0.032**
		[0.004]	[0.005]		[0.002]	[0.004]		[0.002]	[0.002]		[0.013]	[0.013]
Method	OLS	OLS	IV	OLS	OLS	IV	OLS	OLS	IV	OLS	OLS	IV
Observations	301	299	299	301	299	299	301	299	299	301	299	299
R-squared	0.77	0.85	0.80	0.77	0.86	0.75	0.71	0.73	0.71	0.75	0.82	0.82

Table 5: Robustness checks using alternative specifications: OLS method

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	**(8)**
	Total expenditure		Revenue expenditure		Capital expenditure		Revenue expenditure as a proportion of total expenditure	
Political turnover	0.185***	0.130**	0.275***	0.174***	-0.100	-0.052	0.065*	0.039
	[0.068]	[0.063]	[0.074]	[0.062]	[0.183]	[0.163]	[0.036]	[0.034]
Tax revenue	0.142**	0.130*	0.132*	0.080	0.152	0.240	-0.005	-0.028
	[0.068]	[0.068]	[0.072]	[0.066]	[0.202]	[0.205]	[0.036]	[0.036]
Grant	0.113***	0.083***	0.084**	0.074**	0.199***	0.109*	-0.021*	-0.018
	[0.031]	[0.031]	[0.035]	[0.033]	[0.065]	[0.061]	[0.012]	[0.011]
Per capita income	0.240***	0.149**	0.088	0.061	0.776***	0.465**	-0.115***	-0.123***
	[0.069]	[0.063]	[0.067]	[0.056]	[0.189]	[0.180]	[0.031]	[0.029]
Population	-0.420*	-0.338	-0.167	-0.230	-0.517	-0.164	0.155	0.137
	[0.240]	[0.251]	[0.292]	[0.244]	[0.690]	[0.709]	[0.129]	[0.119]
Proportion of urban population	-0.485	-0.675	-0.324	-0.351	-1.801	-1.970	0.170	0.357
	[0.671]	[0.659]	[0.796]	[0.681]	[1.777]	[1.715]	[0.333]	[0.276]
Election year	-0.003	-0.006	0.007	0.007	-0.027	-0.038	0.008	0.008
	[0.012]	[0.012]	[0.014]	[0.013]	[0.033]	[0.032]	[0.006]	[0.006]
Turnout	0.000	0.000	-0.002**	-0.001	0.006**	0.005*	-0.001***	-0.001***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.003]	[0.003]	[0.000]	[0.000]
Calamity	0.007	0.020	-0.019	-0.002	0.098	0.107	-0.020*	-0.019*
	[0.027]	[0.028]	[0.027]	[0.024]	[0.063]	[0.072]	[0.012]	[0.011]
Trend	0.023**		0.051***		-0.056*		0.020***	
	[0.011]		[0.012]		[0.032]		[0.007]	
Quadratic trend	0.000		-0.000		0.001		-0.000**	
	[0.000]		[0.000]		[0.001]		[0.000]	
Lagged total expenditure		0.363***						
		[0.062]						
Lagged revenue expenditure				0.492***				0.130***
				[0.059]				[0.023]
Lagged capital outlays						0.364***		
						[0.066]		
Observations	299	289	299	289	299	289	299	289
R-squared	0.95	0.96	0.96	0.97	0.73	0.78	0.79	0.81

Table 6: Robustness checks using alternative specifications: IV method

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	**(8)**
	Total expenditure		Revenue expenditure		Capital outlays		Revenue expenditure as proportion of total expenditure	
Political turnover	0.835*	0.571	1.387**	0.879	-1.491	-1.034	0.427*	0.287
	[0.462]	[0.429]	[0.611]	[0.549]	[1.073]	[0.905]	[0.245]	[0.242]
Tax revenue	0.171**	0.158**	0.181**	0.127	0.091	0.180	0.011	-0.012
	[0.074]	[0.077]	[0.091]	[0.086]	[0.220]	[0.217]	[0.042]	[0.042]
Grant	0.117***	0.089***	0.090**	0.081**	0.192**	0.104	-0.019	-0.016
	[0.033]	[0.032]	[0.043]	[0.036]	[0.079]	[0.070]	[0.016]	[0.014]
Per capita income	0.291***	0.202**	0.176*	0.132	0.666***	0.374*	-0.087**	-0.098**
	[0.079]	[0.083]	[0.093]	[0.084]	[0.229]	[0.221]	[0.042]	[0.041]
Population	0.197	0.078	0.888	0.448	-1.837	-1.143	0.498*	0.375
	[0.538]	[0.499]	[0.702]	[0.620]	[1.213]	[1.142]	[0.269]	[0.274]
Proportion of urban population	-1.091	-1.174	-1.361	-1.100	-0.503	-0.850	-0.168	0.094
	[0.901]	[0.889]	[1.141]	[0.996]	[2.238]	[2.248]	[0.448]	[0.408]
Election year	-0.003	-0.006	0.008	0.008	-0.028	-0.039	0.008	0.008
	[0.015]	[0.013]	[0.020]	[0.015]	[0.038]	[0.035]	[0.008]	[0.007]
Turnout	0.002	0.002	0.002	0.001	0.002	0.002	-0.000	-0.001
	[0.002]	[0.002]	[0.002]	[0.002]	[0.004]	[0.004]	[0.001]	[0.001]
Calamity	-0.011	0.012	-0.049	-0.016	0.136*	0.127*	-0.030**	-0.024*
	[0.035]	[0.030]	[0.040]	[0.030]	[0.070]	[0.076]	[0.015]	[0.013]
Trend	0.002		0.016		-0.012		0.008	
	[0.020]		[0.027]		[0.048]		[0.011]	
Quadratic trend	0.001		0.000		0.000		-0.000	
	[0.000]		[0.001]		[0.001]		[0.000]	
Lagged total expenditure		0.323***						
		[0.076]						
Lagged revenue expenditure				0.411***				0.101***
				[0.093]				[0.038]
Lagged capital expenditure						0.354***		
						[0.071]		
Observations	299	289	299	289	299	289	299	289
R-squared	0.94	0.95	0.93	0.95	0.68	0.75	0.69	0.76

Table 7: First stage regressions in IV estimation

	(1)	*(2)*	**(3)**
		Political turnover	
Defection	0.056***	0.056*	0.059*
	[0.027]	[0.029]	[0.031]
1-period lag of defection		0.004	
		[0.009]	
1-period lead of defection		-0.013	
		[0.009]	
2-period lag of defection			0.004
			[0.01]
2-period lead of defection			-0.003
			[0.01]
Tax revenue	-0.052	-0.05	-0.054
	[0.056]	[0.06]	[0.064]
Grant	-0.000	-0.014	-0.011
	[0.022]	[0.024]	[0.026]
Per capita income	-0.079	-0.050	-0.05
	[0.055]	[0.057]	[0.06]
Population	-0.93***	-0.89***	-0.82***
	[0.2]	[0.21]	[0.22]
Proportion of urban population	0.822	0.64	0.72
	[0.54]	[0.57]	[0.600]
Election year	-0.005	-0.005	-0.004
	[0.011]	[0.012]	[0.012]
Turnout	-0.003***	-0.003***	-0.003***
	[0.001]	[0.001]	[0.001]
Calamity	0.026	0.021	0.017
	[0.025]	[0.025]	[0.027]
Observations	299	274	253
R-squared	0.73	0.74	0.74