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

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## Abstract

I examine the effect of legislative turnover on the size and composition of government expenditures in Indian state elections during 1980-2000. The paper finds that excessive turnover in Indian state elections results in an inefficient government expenditure policy. First, the higher the turnover, the larger is the size of government. Second, excessive turnover affects the allocative efficiency of the government expenditure by skewing the composition of government spending towards pure consumption expenditure and away from more productive investment expenditure. The findings imply that a lack of a proper commitment mechanism in political markets could be a source of inefficiency in government policy.

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# 1 Introduction

The efficiency of political markets has been a much debated issue in the field of political economy. One view, mainly by Stigler (1971, 1972, 1982), Becker (1976, 1983, 1985), Peltzman (1976), and Wittman (1989), argues that competition in political markets, analogous to competition in economic markets, is efficient. According to scholars in this line of research, competition for political office among candidates along with competition among various interest groups ensures that the chosen policy is the most efficient. However, an opposing school of thought is that political markets are inherently inefficient and competition among the players causes excessive rent-seeking activity (Tullock 1967, 1983, 1989; McCormick et al. 1984). The existing literature, in the context of trade policy, also argues that competitive rent-seeking results in an efficiency loss to the economy (Krueger 1974, Bhagwati 1982, Grossman and Helpman 1994). Laband and Sophocleus (1992), for instance, estimate that rent seeking in allocating transfers cost the US at least one-fourth of its GDP in 1985.

This paper contributes to the debate over the efficiency of political markets and examines how the degree of turnover in elected office, as an aspect of political competition, affects government fiscal policy. More specifically, I investigate the effect of legislative turnover in a panel of 15 Indian states, which cover about 90% of Indian population, on the level and composition of government expenditure during 1980-2000. Indian states provide a pertinent laboratory for a study of the sub-national government policy. It is geographically large with a record of regular elections over a period of time allowing the researcher to work with a relatively large dataset. Also, India is the largest democracy in the world due to the sheer size of its electorate. There are about half a billion registered voters, of which, on average, about two-thirds exercise their franchise. Moreover, much scholarly work focuses on the cross-country datasets for studying the effects various political variables on government policy (De Haan and Strum 1994, Alesina and Perotti 1996, Vokerink and De Haan 1999, Perotti and Kontopoulos 2002). Indian states function under the same electoral system electing candidates based on a first-past-the-post system, and have the same political system based on a parliamentary form of government. This accounts for the problems that may plague a cross-country study, which makes it difficult to control for

possible heterogeneities in the electoral or political systems.

Much theoretical work also exists on why political markets may not work efficiently. Informational asymmetries between the electorate (principal) and the elected (agents) are one source of inefficiency. Nordhaus (1975) shows that an opportunistic incumbent, who has an informational advantage over the voters, follows a suboptimal policy right before elections to increase his or her chances of reelection, leading to "political business cycles". Rogoff (1990) extends the political business cycle theory using a rational expectation framework, and shows that an incumbent who is seeking a reelection has incentives to spend too much and tax too little during election years than off-elections years. Poterba (1994) also finds evidence of electoral cycles in the US gubernatorial elections as tax increases and spending cuts are both significantly smaller in gubernatorial election years than at other times. Coate and Morris (1995) also argue that informational asymmetries in political markets result in inefficient government transfers. Besley and Burgess (2002) argue that the resolution of informational disadvantage make the governments more accountable. They find that state governments in India respond better to natural calamities where the newspaper circulation, which mitigates the informational disadvantage of voters, is high.

The literature also identifies lack of credible commitments leading to inability of the current governments to contract with future government as another source of inefficiencies in political markets (Alesina 1988). 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 a successor whose policy preferences are different. The current government accumulates more debt than is optimal passing the burden of paying off the debt to the future government. This tendency to accumulate debt is greater, the less is the likelihood of reelection of the current government or greater is incumbent turnover. Persson and Svensson (1989) also argue that a conservative government may accumulate more debt if it expects to be replaced by a liberal government compared to the case when it expects to stay in power. Polo (1998) shows that in absence of full commitments, an increase in political competition could increase political rents. Crain and Tollison (1993) find that the volatility of fiscal policy is higher in states that have greater legislative turnover. Leblanc et al. (2000) show that when investment and spending decisions are made by majority-

rule, even fully informed, non-myopic citizens will typically choose an inefficiently small level of public investment and high level of public consumption due to lack of credible commitments.<sup>1</sup> Acemoglu and Robinson (2000) argue that current incumbent 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. It is plausible that this tendency towards not undertaking public investment will be greater, the greater is the turnover. Bardhan and Yang (2004) suggest that incumbent turnover as an aspect of competition in political markets could backfire if it becomes too high, forcing incumbents to extract maximum rents today, affecting both efficiency of and accountability in political markets.

The results of the paper can be summarized as follows. First, the higher the legislative turnover, the higher is the size of the government. The officeholders become more profligate when they are less likely to retain their office in the next election. The current officeholder rationally uses government spending as an instrument to constrain the future policies of a rival as the latter will have more debt to pay off as a result of the current incumbent's profligacy. Second, I find that much of the increase in government spending is unproductive in nature. More specifically, the higher the turnover, the higher is the revenue expenditure (see below for definition) and the lower is the expenditure on the capital outlays. A shorter time horizon due to high turnover skews an incumbent's incentives towards unproductive revenue expenditures and away from more productive capital outlays. This is rational because the current incumbent enjoys the benefits of the short term spending in the present (may be in terms of higher probability of reelection), but the costs may be borne by the future governments in terms of paying off a higher level of public debt. However, in case of the capital outlays, the future government benefits from the returns on the investment.

The results of the paper have serious implications for economic growth. Grier and Tullock (1987) show in a pooled cross-section of 113 countries that the growth of government consumption is significantly negatively correlated with the economic growth. Barro (1990,

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<sup>1</sup>Glazer (1989) shows that lack of commitments between different generations of voters is responsible for a bias of current voters towards durable projects rather than more efficient smaller projects. However, he focuses on the choice among different size of investment projects rather than choice between public consumption and investment.

1991) shows that the greater the share of public consumption, the unproductive government expenditure, in GDP compared to public investment, the productive expenditure, the lower is the economic growth. It is likely that increasing public consumption not only crowds out public investment, but also crowds out private investment bringing the rate of growth of an economy down.

The remainder of the paper is organized as follows. I discuss the fiscal position of Indian states in section 2. In section 3, I lay out the empirical model, and describes the data. I present the results of the paper in section 4. Section 5 concludes the paper, and provides a discussion of the results.

## **2 Fiscal position of Indian states and legislative turnover**

India has a federal form of government with significant autonomy to the states. The Indian Constitution lists the following functions for the central or federal government under the heading of the Union list: defense, foreign relations, macroeconomic issues including money supply, international trade and so on, and any inter-state issues. The major subjects assigned to the states under the State list comprise public order, public health, agriculture, irrigation, land rights, fisheries and industries and minor minerals. There is also the Concurrent list, which describes the powers and functions under the joint jurisdiction of federal and state governments. The States also assume a significant role for subjects in the Concurrent list such as education and transportation, social security and social insurance. On the revenue side, broad-based taxes, which include taxes on income and wealth from non-agricultural sources, corporation tax, taxes on production (excluding those on alcoholic liquors) and customs duty, come under the federal jurisdiction. The major taxes assigned to the state list include taxes on the sale and purchase of goods, taxes on agricultural income and land, property taxes, and motor vehicle taxes.<sup>2</sup>

Lahiri (2000) argues that states' own tax revenues have not grown much, mainly due

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<sup>2</sup>Also, under the Constitution, the federal government shares the proceeds of certain centrally levied taxes with the states, and makes grants to the states from the Consolidated Fund of India. The shares of the center and the states and their allocation among different states are determined by the Finance Commission appointed by the President of India every five years (or earlier if needed). In addition to tax devolution, the Finance Commission is also required to recommend grants to the states in need of assistance.

to their unwillingness to tax agriculture income and wide spread tax evasion. The sales tax is the biggest component of state tax revenues amounting to about two-thirds of their total tax revenues. However, the state expenditures have grown at a much rapid pace. The panel (a) in Figure 1 plots average state government expenditure and revenues per year as percentage of state GDPs. The state government expenditures have long diverged from the revenues, which include states' own tax revenue, non-tax revenue and revenues from devolution of central taxes. As a result, Indian states have come under increasing fiscal stress as their fiscal deficits have ballooned over the years. The fiscal deficit as a percentage of state GDP for all states taken together increased from about 3% in 1980 to 5.5% in 2000.<sup>3</sup> Lahiri (2000) also argues that growing fiscal deficits at the state level have further constrained the ability of the central government, which also runs large deficit, to enact economic reforms, and have threatened the macroeconomic stability of the Indian economy.

Rao (2002) notes that much of the growth of state government expenditure is due to increasing revenue (or current) expenditure, which is the expenditure on daily running of the government not leading to the creation of assets, and hence, represents public consumption. Revenue expenditure is comprised most notably of salaries of government employees and military staff, perks for ministers, office furniture, grants to local bodies, subsidies, interest on loans taken, and pensions. Rao argues that the growth in the revenue expenditure has crowded out the capital expenditure. Capital expenditure is the other category of total expenditure and mainly refers to the money spent on creating physical assets such as roads, highways, and dams, buying land or building, purchasing machinery and equipment, and hence, reflects public investment. The panel (b) in Figure 1 plots the average revenue expenditure and capital expenditure as proportion of state GDP. The average revenue expenditure for all the states taken together has increased from about 8% of state GDP in 1980 to about 13% in 2000, while the average capital expenditure has declined from 5% of state GDP in 1980 to about 3% in 2000. Moreover, as Rao (2002)

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<sup>3</sup>The central government imposes borrowing restrictions on the states giving the impression that the latter have a hard budget constraint. However, Lahiri (2000) notes that the budget constraint appears hard only on the surface. There are avenues that can soften the budget constraint, such as resources raised from the small savings schemes under the public accounts, ways and means advance and overdraft from the Reserve Bank of India (RBI), and resources raised from the state public sector enterprises.

argues, much of the increase in the revenue expenditure is attributable to growth of non-development expenditures, such as wages and salaries, subsidies, and interest payments on government debt, rather than the development expenditure, which is expenditure on proper running of economic and social services. Ravallion and Datt (2002) find that the development expenditure is a significant determinant of poverty in India. The panel (c) in Figure 1 plots the development expenditure as a proportion of revenue expenditure. The development expenditure has declined over the years implying further deterioration in the quality of government expenditure.

The level of legislative turnover has also increased over the years in Indian elections. Uppal (2009) finds that incumbents are significantly less likely to win compared to challengers, and this incumbency disadvantage has increased after the 1990s. Figure 2 plots the average turnover for each state. A legislature has, on average, about 69% new members. This is in stark contrast to what we observe in the United States, where incumbent turnover is only about 8-10% (Lee 2008; Uppal, forthcoming). Also, there is considerable variation in the degree of incumbent turnover across states. It is the highest in Harayana (0.82) and lowest in West Bengal (0.42). Figure 3 plots the average turnover per year. The turnover schedule has shifted up over the years (for reasons I argue below). Lahiri (2000) argues competitive politics in India has damaged any chances of fiscal prudence by the states for the want of securing their vote bank. They have enacted various populist policies, such as supply of free electricity to farmers, inadequate water charges, increase in government employment, and across the board pay increases, which have led to a growing deficit, mainly on the revenue account, and crowding out of the more productive capital expenditure. This paper exploits the variation, both across states and over time, in legislative turnover in India to formally examine if high turnover adversely affects government spending in Indian states resulting in much inefficiencies in political decision making.

### 3 Model specification and data

#### 3.1 The empirical model

The paper estimates the following empirical model:

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

where  $GOVTEXP_{it}$  is the natural log of per capita real government expenditure -total, revenue, and capital- in state  $i$  in year  $t$ . The total government expenditure per capita is a measure of the size of government. I also use the proportion of total expenditure in state income as an alternative measure of the size of government. As argued above, the revenue expenditure is a measure of public consumption as it is expenditure on daily maintenance of the organs of state, and the capital expenditure is a measure of public investment. The state fixed effects,  $\alpha_i$ , control for any state-specific, time-invariant factors. These time-invariant factors may control for factors, such as ethnic heterogeneity among the Indian states, which stays fairly constant over time, especially for a relatively shorter time period considered in this paper. The time fixed effects,  $\gamma_t$ , account for any secular changes common across states. Legislative turnover,  $TURNOVER_{it}$ , is the proportion of new legislators in state  $i$  in election year  $t$ . This measure of turnover reflects the simple probability that a legislator will not be reelected in the next election. As such, the higher is this probability, the higher is the legislative turnover. This measure of turnover does not distinguish between the turnover in ruling party and the parties sitting in the opposition, and hence, takes into account how turnover affects the pressure the minority party may put on the government policy. However, I also check for the robustness of my results by accounting for turnover only in the ruling party, which is mainly responsible for the government decision making. Since turnover is observed only for election years, it is assumed constant in between two elections.

The  $X_{it}$  is a vector of control variables, such as economic, political, demographic, and natural factors that may affect government expenditures. The economic factors I control for are:  $TAXREVENUE_{it}$ , which is the natural log of state tax revenue;  $GRANTS_{it}$ , which

is the natural log of the federal grants to each state; and  $INCOME_{it}$ , which is the natural log of state income per capita. The demographic controls are  $POPULATION_{it}$ , which is the natural log of state population, and  $URBAN_{it}$ , which is the proportion of urban population in each state. The government expenditure and its composition may be affected by natural factors, such as a calamity. The most frequent calamities in India are floods and drought due to excessive or deficient rainfall. Following Besley and Burgess (2002), I include an indicator variable,  $CALAMITY_{it}$ , which takes a value of 1 if the rainfall is two standard deviations above (flood) or below (drought) the average rainfall and 0 otherwise. I also control for political factors, such as  $TURNOUT_{it}$ , which is the rate of voter turnout, and  $ELECTIONYEAR_{it}$ , which takes a value of 1 for an election year and 0 otherwise. The latter controls for any electoral fiscal policy cycles as the governments may attempt to be more competent around election times.

As Alesina and Tabellini (1990) argue, in the absence of a credible commitment mechanism, an incumbent has incentives to implement a suboptimal fiscal policy if he or she is less likely to get reelected. In the context of this paper, this implies that a higher rate of legislative turnover should increase the size of government. Since the current incumbent has greater likelihood of losing power, he or she may incur sub-optimally higher amount of spending. This is perfectly rational behavior by the current incumbent as the burden of paying for the large government will fall on the future incumbent, who may have to either raise the taxes or cut the spending. This testable relationship is specified in Hypothesis 1.

**Hypothesis 1** *The higher the turnover, the higher is the government expenditure.*

Also, a higher rate of legislative turnover could reduce an incumbent's expected tenure in the office, shortening his or her time-horizon. As a result, a higher rate of turnover is expected to increase public consumption expenditure at the expense of public investment expenditure. An incumbent, faced with a lower likelihood of reelection, has an incentive to spend on avenues that have immediate results when he or she is still in the office rather than to spend on investment projects that take longer to yield returns and likely benefit the future incumbent. The implied relationship between turnover and the composition of the total expenditure is given in Hypothesis 2.

**Hypothesis 2** *The higher the turnover, the higher is the revenue expenditure and the lower is the capital expenditure.*

The second hypothesis implies that much of the increase in total expenditure as a result of turnover is due to rising revenue expenditure. Turnover affects the allocative efficiency of government expenditure by encouraging unproductive public consumption expenditure, which crowds out the productive public investment expenditure.

### 3.2 Data

The paper examines the effect of legislative turnover on government expenditures in a panel of 15 Indian states during 1980-2000. The source of the election data is the Statistical Reports on General Election to Legislative Assembly of States published by the Election Commission of India (ECI).<sup>4</sup> The dataset provides information on candidates' names, vote shares, party affiliation, and the rate of voter turnout.

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. The dataset also provides information on the sources of revenue of the state governments, such as own tax revenue, 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 data on state income, total population, and proportion of urban population are taken from the Central Statistical Organization (CSO), India. The state income is the net state domestic product in 1980 prices. The data on total population and proportion of urban population are available from the decennial census of India in 1981, 1991 and 2001. The values were interpolated for the non-census years. The state-wise rainfall data are available from the Indian Institute of Tropical Meteorology (IITM) website.<sup>5</sup> Figure 4 plots the average total, revenue and capital expenditures per capita for each state. There

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<sup>4</sup>The source of the data is ECI's website at [www.eci.gov.in](http://www.eci.gov.in). The data are in Acrobat Reader format and were converted in a format suitable for empirical analysis using an elaborately written software program.

<sup>5</sup>URL: <http://www.tropmet.res.in/> accessed in December, 2007.

is considerable variation in the per capita expenditures across states. Whereas Punjab and Haryana spend more per capita than other states, Bihar and Uttar Pradesh spend very little. Table 1 provides descriptive statistics for all the variables with standard errors in the parentheses.

## 4 Empirical analysis

### 4.1 Main results

Table 2 examines how legislative turnover affects total government expenditure and alters an incumbent's incentives towards division of expenditure into revenue and capital types. All regressions include state and time fixed effects to control for state specific, time-invariant factors and secular changes constant across states, respectively, and use robust standard errors, which are given in the parentheses. Column (1) regresses log of total real expenditure per capita on turnover using the ordinary least squares (OLS) method. Turnover has a positive effect on the size of the government, and the effect is statistically significant at 1% level of significance. A one percentage point increase in turnover increases the total real per capita expenditure by about 0.25 percent. The sign and significance of the effect of turnover implies that a lower chance of reelection makes the current incumbent profligate. It is perfectly rational for the current incumbent to do so, as it passes the burden of paying for his or her profligacy to the future incumbent, who may have to raise taxes or cut spending to pay for the big government inherited from his or her predecessor. As Dixit et al. (2000) argue, both the current and future incumbent would be better-off by coordinating on a compromise policy. However, due to a lack of proper commitment mechanism, it is rational for all incumbents to pursue a suboptimal spending policy. In column (2), I include various economic, political, demographic, and natural factors that may affect the total government expenditure. The effect of turnover, though slightly smaller in magnitude, remains positive and statistically significant at 1% level. The effects of various control factors in column (2) are as expected. The states that have more tax revenues or receive more grant money from the federal government have higher spending. The richer a state, the more it spends. The effects of these economic factors are highly significant. Also, more

populous states have lower spending per capita, and the effect is significant at 10% percent level. The election year spending is lower, as supported by the electoral fiscal cycle theory, but is highly insignificant. The effects of proportion of urban population, turnout and calamity are also highly insignificant.

In column (3), log of revenue expenditure per capita is regressed on turnover. The effect of turnover is positive and highly significant. A one percentage point increase in turnover increases revenue expenditure by about 0.34 percent. The effect is similar in column (4) where I include various control variables in the model. In column (5), I regress log of capital outlays per capita on turnover. In contrast to a positive effect on revenue expenditure, the effect of turnover on capital outlays is negative. However, the effect is insignificant at the conventional levels of statistical significance. The effect stays negative, albeit highly insignificant, when I include other explanatory variables. However, a look at the proportion of revenue expenditure in total expenditure provides a stronger evidence of an adverse effect of turnover on the composition of total expenditure. In column (7), the proportion of revenue expenditure in total expenditure increases significantly with turnover. A one percentage point increase in turnover increases the proportion of revenue expenditure by about 0.07 percentage points. The effect of turnover on proportion of revenue expenditure is also positive and significant in column (8) when I include other explanatory variables. Although tax revenue significantly affects the level of expenditure, it does not have a significant effect on its composition. Federal grants finance capital outlays more than revenue expenditure, decreasing the proportion of revenue expenditure. The proportion of revenue expenditure is lower in richer states. Also, greater turnout and incidence of a calamity decrease the proportion of revenue expenditure significantly.

The above findings suggest an adverse effect of legislative turnover on the allocative efficiency of public expenditure. An incumbent with lower likelihood of reelection has an incentive to target spending towards avenues that show results in the immediate future when he or she is still in the office and could possibly raise his or her chances of reelection. With high turnover, there is a greater probability that the cost of these increased spending are borne by the future incumbent, thus constraining the latter's policy set. However, the money spent on public investment projects will only reap benefits later when the future

incumbent will be in the power. This further underscores the importance of commitment problems evident in the behavior of politicians causing much inefficiencies in political markets.

Table 3 uses alternative measures of expenditures to confirm the effect of turnover on the government policy. The dependent variables are the expenditures - total, revenue, and capital - expressed as proportions of state income rather than the levels of expenditures. In column (1), I regress the proportion of total expenditure in state income on turnover. A one percentage point increase in turnover results in about 0.02 percentage point increase in the total expenditure as a proportion of state income. The effect is significant at 10% level of significance. The effect is more pronounced in column (2) where I include various control variables. The findings related to the composition of expenditure are much similar to what we found above in Table 2. Legislative turnover affects the revenue expenditure as a proportion of state income positively and significantly. In column (3), a one percentage point increase in turnover increases the revenue expenditure as a proportion of income by about 0.023 percentage points. The effect is also positive and significant in column (4) after including other variables. However, the effect of turnover on capital expenditure as a proportion of state income, though still negative, is highly insignificant.

In column (7), the dependent variable is the development expenditure as a proportion of revenue expenditure. As noted earlier, the revenue expenditure has two components - the development and non-development expenditures, and the development expenditure is a significant determinant of poverty in India. A higher level of turnover negatively affects this component of revenue expenditure. One percentage point increase in turnover results in a decrease of about 0.12 percentage points in development expenditure as a proportion of revenue expenditure. The effect is significant at 1% level of significance. The effect is similar in column (8) where I include various control variables. This underscores the adverse effect of turnover on government expenditure policy, and suggests that much of the increase in the total expenditure in Indian states is due to an increasing revenue expenditure, which, in turn, has increased owing to rising non-development expenditure at the expense of the development expenditure. Other than turnover, economic factors, such as tax revenue, grants, and state income, have a positive and significant effect on

the proportion of development expenditure. The proportion of urban population has a negative and significant effect on development spending. This would be the case, for instance, if more development monies are spent on rural projects than urban projects to alleviate poverty. Also, a higher level of turnout increases development expenditure significantly. This effect might be explained by, generally, an overwhelming turnout of poor and lower strata of population in India (Yadav 2000). Also, an incidence of calamity results in greater development spending as a proportion of revenue expenditure.

## 5 Robustness checks

Table 4 performs a few robustness checks on the effect of turnover on the level of government expenditures. In column (1), I include the lagged values of log of the total expenditure per capita. The lagged value of total expenditure has a significantly positive effect on the total expenditure. However, the effect of turnover remains positive and significant. The effect is similar in column (2) after inclusion of other explanatory variables. In columns (3) and (4), I include the lagged values of log of revenue expenditure per capita as an additional regressor. The effect of turnover on the revenue expenditure is positive and significant in column (3), and in column (4) where I also include all the other variables. As above, the effect of turnover on the capital outlays is negative, but insignificant. In column (7), the effect of turnover on the revenue expenditure as a proportion of the total expenditure is positive and significant at 10% level when lagged values of the dependent variable are included. In column (8) when I include all other variables in addition to lagged values of proportion of revenue expenditure, the effect of turnover is positive, but no longer significant. However, it is similar in magnitude to the effect in the previous column.

Table 5 checks the robustness of the effect of turnover using an alternative measure of turnover. The turnover variable in Table 5 measures the proportion of seats that the incumbent party loses in the next election. In column (1), the effect of turnover on the size of government is still positive. A one percentage point increase in turnover in the ruling party increases the total government expenditure per capita by about 0.1 percent and, the effect is significant at 1% level of significance. In column (2), I include all the

other control variables. The effect of turnover on the size of government is still positive and significant. In column (3), the effect of turnover on the revenue expenditure in the ruling party is positive and significant. The effect stays positive and significant in column (4) where I include all the other variables. In columns (5) and (6), the effect of turnover on capital outlays, as found above, is insignificant. As found above, the effect of turnover on the proportion of revenue expenditure is positive in in columns (7) and (8). The effect is significant at 10% level when I include the other control variables.

As discussed above, the OLS method could be problematic if turnover is endogenously determined. Although I do not reject the null hypothesis of exogeneity of turnover using the Hausman test, I still present results from the IV method using an indicator variable for the anti-defection (AD) law as an instrument for legislative turnover.<sup>6</sup> The anti-defection law was passed in March, 1985 as the 52<sup>nd</sup> amendment to the Indian constitution and banned defections, that were commonplace in the preceding period, of individual members from their political parties.<sup>7</sup> The law, although did make individual defections illegal, encouraged en bloc defections due to a few major loopholes. 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. As a result, the AD law of 1985, by banning individual defections, left a split of parent parties as the only option for sincere members, who had ideological differences with the party, or for any opportunist members. According to Spieb and Pehl (2003), there were more defections after the law was enacted than before the law. The bulk defections gave new impetus to the process of fragmentation of Indian party system, which had started in the mid-1960s at the state level due to declining dominance of the Congress party. Shridharan (2002, pp 495-96) argues that although at the aggregate national level Indian political system became more fragmented, the party system at the state level followed Duvergerian dynamics due to aggregation of votes around a leading party and its principal rival.<sup>8</sup> He further argues that this led to a consolidation

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<sup>6</sup>The results of the Hausman test are available from the author upon request.

<sup>7</sup>These defections were questioned on many grounds because not only they altered the electoral mandate, but also encouraged opportunistic behavior by the elected members to trade support for or against the government (Kamath 1985). The rationale behind the law is that if a candidate decides to defect to another party, he or she should be suspended from the membership of the elected body, and seek a fresh mandate from the voters as a member of his or her new party.

<sup>8</sup>Maurice Duverger put forward a proposition, later came to be known as Duverger's law, that the first-

of party system at the state level over time. As could be seen in Figure 3, there is also a trend towards declining turnover at the state level over the same period except right after the AD law is passed. There is a distinct jump in legislative turnover after 1985. It is highly plausible that the consolidation of Indian party system was halted due to incentives towards bulk defections and smaller parties that increased legislative turnover.

Table 6 summarizes the results using the IV method. The results using the IV method are similar to the results of the OLS method above. In column (1), the effect of turnover on the level of government expenditure is positive and highly significant. A one percentage point increase in turnover increases the government expenditure by about 0.68 percent. In column (2) which includes other explanatory variables, the effect remains positive and significant at 10% level. In columns (3)-(6), turnover affects the revenue expenditure positively and the capital expenditure negatively. Much similar to the results above, the effect on the revenue expenditure is significant, while the effect on the capital outlays is insignificant. In columns (7)-(8), turnover positively affects the revenue expenditure as a proportion of total expenditure.

## 6 Conclusions and discussion

I examine the effect of legislative turnover on government expenditures in Indian state elections. I find that turnover increases the level of public expenditure per capita. A high rate of turnover changes a legislator's calculation of his or her expected tenure, and hence, alters his or her incentives while in the office. A higher level of turnover may result in increased government spending because a legislator, who is less likely to get reelected, would want to constrain the policies of his or her successor, who may have to either rein in spending or increase taxes to pay for the big government inherited from the current incumbent.

I also find that the higher the turnover, the higher is the revenue expenditure per capita, and the lower is the capital expenditure per capita. Further, a high level of turnover decreases the proportion of development expenditure. So, a higher level of turnover not

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past-the-post electoral systems tend towards a two party system due to the tendency over time for third and more parties to become uncompetitive and get eliminated.

only increases the level of expenditure, but also alters the composition of expenditure. More specifically, the reelection concerns arising due to a higher level of turnover shorten current incumbent's horizon. He seeks to signal his or her competency by spending on programs that show results immediately when he is still in the office rather than undertaking any public investment that will longer to show results and will likely benefit the future incumbent.

The results of this paper have important implications. First, the paper finds that turnover raises public consumption, which crowds out public investment. Increasing public consumption may affect growth by affecting public investment, as argued by Barro (1990) or by crowding out private investment, as argued by Alesina and Perrotti (1996). Second, decreasing share of development expenditure may seriously constrain the functioning of various necessary government programs, such as education and health, a higher level of turnover adversely impacts these activities, which are a main recourse for the poor and disadvantaged in the developing countries, as argued by Ravallion and Datt (2002).

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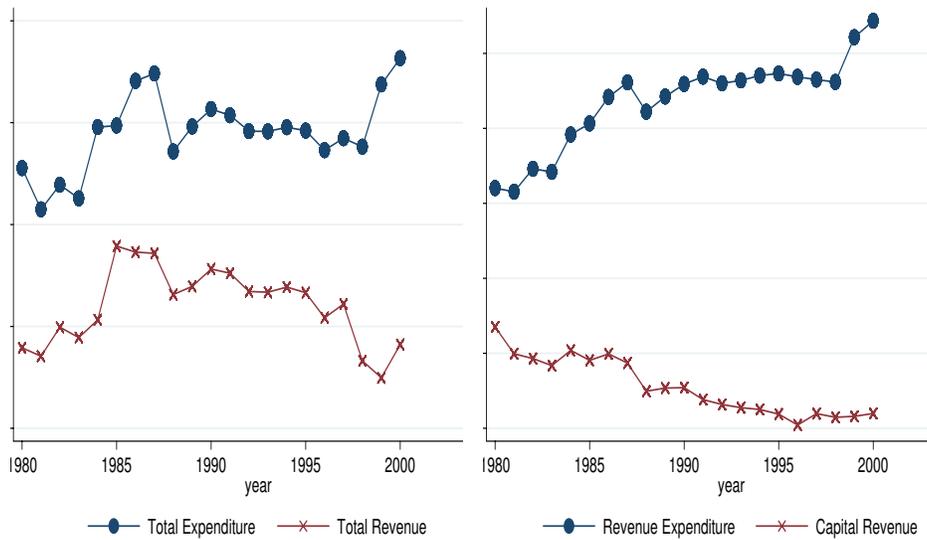
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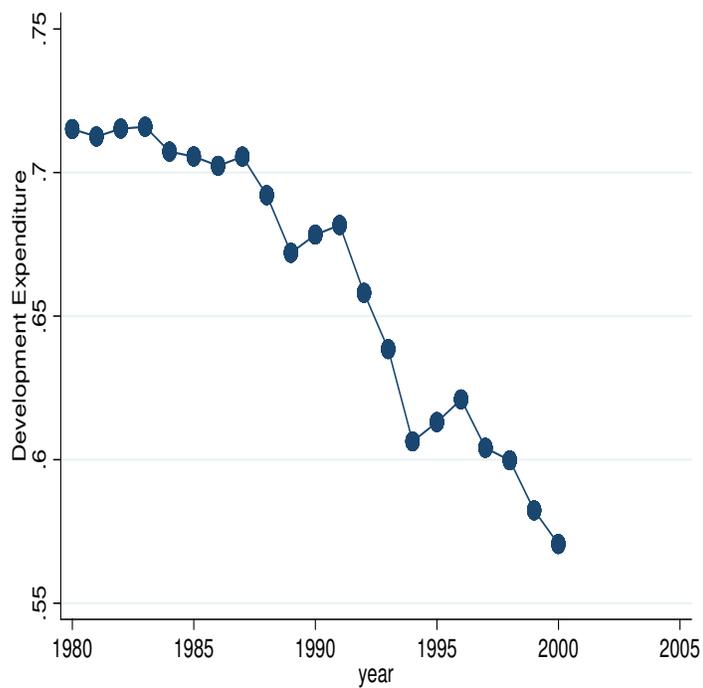
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Figure 1: Fiscal situation of Indian states



(a) Total expenditures and revenues

(b) Revenue and capital expenditures



(c) Development expenditure

Figure 2: Average turnover, by state

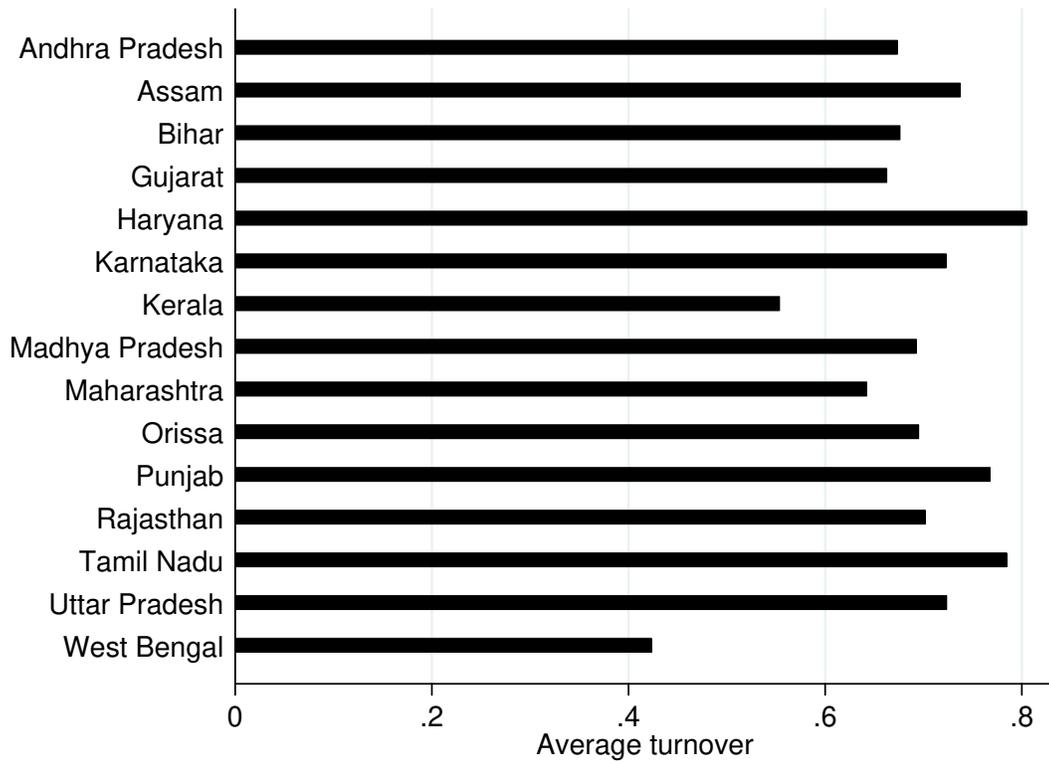


Figure 3: Average legislative turnover, by year

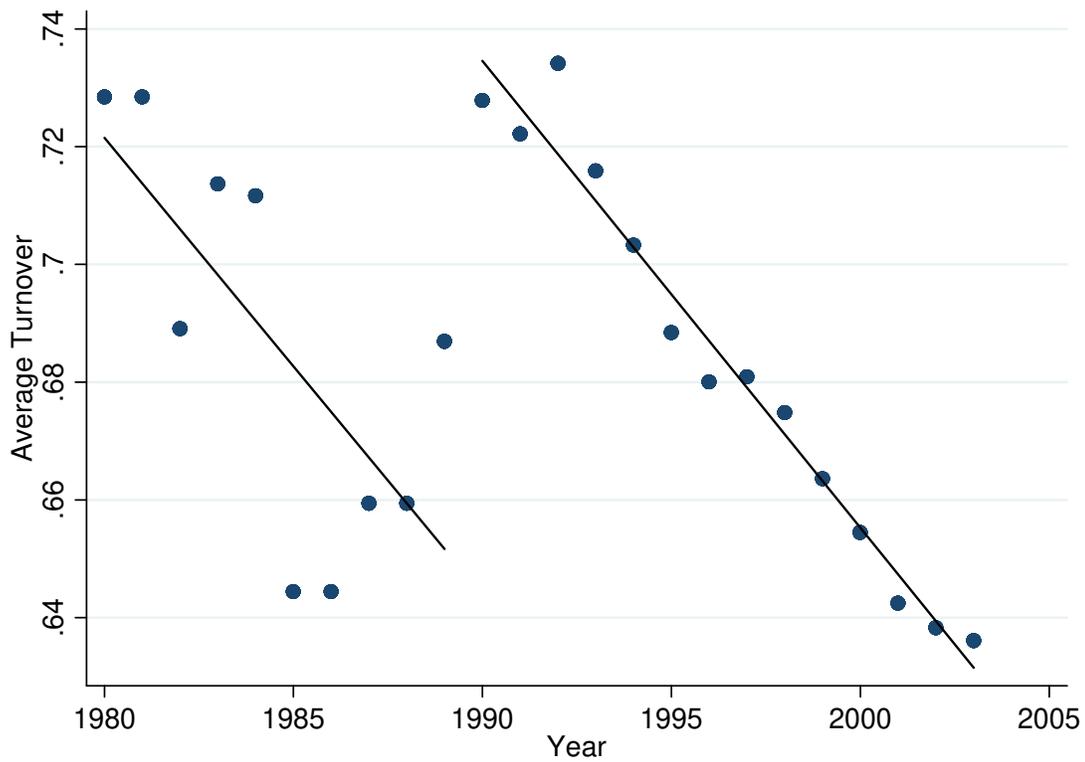


Figure 4: Average government expenditures, by state

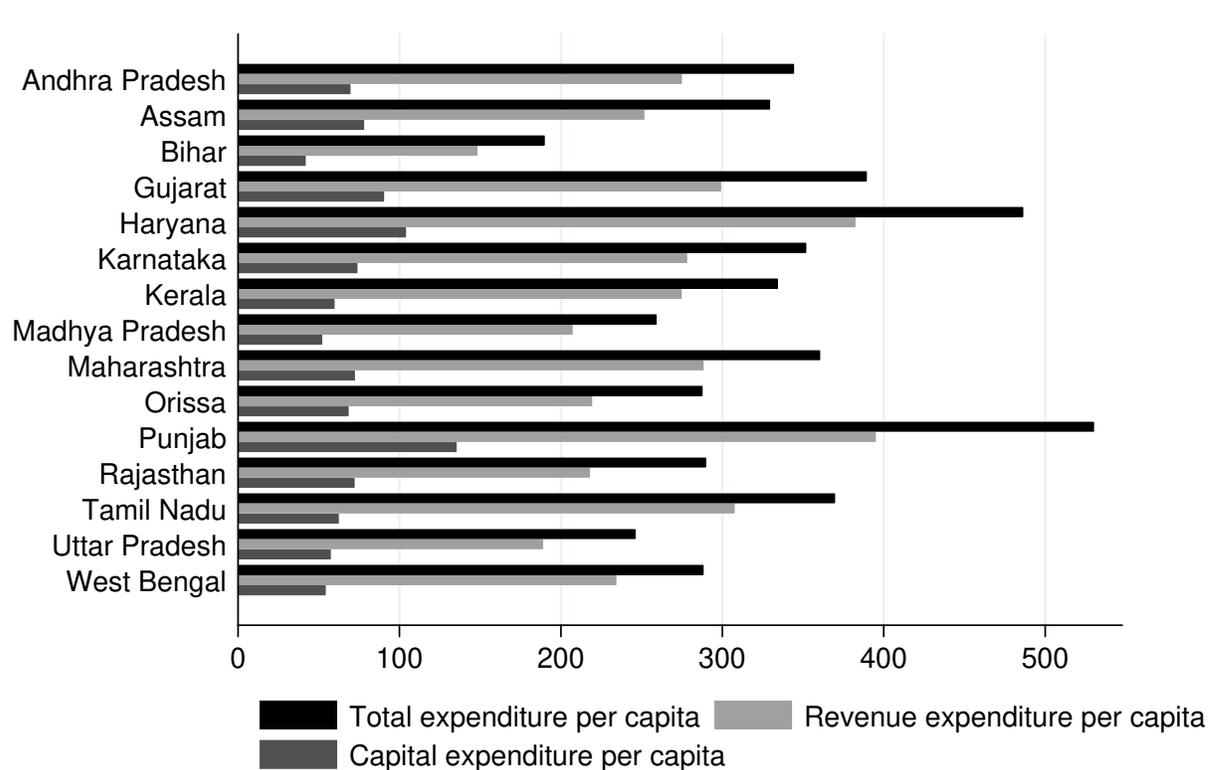


Table 1: Descriptive statistics

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: Government expenditures and legislative turnover

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log of total expenditure per capita	Log of total expenditure per capita	Log of revenue expenditure per capita	Log of revenue expenditure per capita	Log of capital outlays per capita	Log of capital outlays per capita	Revenue expenditure as proportion of total expenditure	Revenue expenditure as proportion of total expenditure
Political turnover	0.247*** [0.066]	0.185*** [0.068]	0.340*** [0.066]	0.275*** [0.074]	-0.156 [0.176]	-0.100 [0.183]	0.071** [0.032]	0.065* [0.036]
Tax revenue		0.142** [0.068]		0.132* [0.072]		0.152 [0.202]		-0.005 [0.036]
Grants		0.113*** [0.031]		0.084** [0.035]		0.199*** [0.065]		-0.021* [0.012]
Per capita income		0.240*** [0.069]		0.088 [0.067]		0.776*** [0.189]		-0.115*** [0.031]
Population		-0.420* [0.240]		-0.167 [0.292]		-0.517 [0.690]		0.155 [0.129]
Proportion of urban population		-0.485 [0.671]		-0.324 [0.796]		-1.801 [1.777]		0.170 [0.333]
Election year		-0.003 [0.012]		0.007 [0.014]		-0.027 [0.033]		0.008 [0.006]
Turnout		0.000 [0.001]		-0.002** [0.001]		0.006** [0.003]		-0.001*** [0.000]
Calamity		0.007 [0.027]		-0.019 [0.027]		0.098 [0.063]		-0.020* [0.012]
Observations	301	299	301	299	301	299	301	299
<b>R-squared</b>	0.94	0.95	0.95	0.96	0.68	0.73	0.75	0.79

Notes: All regressions include the state and year fixed effects. The standard errors are robust and given in the parentheses. The values with \*, \*\*, and \*\*\* are significant at 10%, 5%, and 1% levels of significance respectively.

Table 3: Legislative turnover and alternative measures of government expenditures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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* [0.01]	0.026** [0.01]	0.023*** [0.008]	0.027*** [0.008]	-0.004 [0.005]	-0.001 [0.006]	-0.12*** [0.031]	-0.073** [0.028]
Tax revenue		0.028*** [0.01]		0.024*** [0.008]		0.004 [0.006]		0.059** [0.028]
Grant		0.014*** [0.005]		0.008** [0.004]		0.005** [0.002]		0.03*** [0.01]
Per capita income		-0.09*** [0.01]		-0.09*** [0.01]		0.002 [0.006]		0.092*** [0.022]
Population		-0.021 [0.036]		-0.013 [0.033]		-0.008 [0.02]		-0.11 [0.1]
Proportion of urban population		-0.074 [0.097]		-0.07 [0.09]		-0.004 [0.05]		-0.83*** [0.26]
Election year		-0.001 [0.002]		0.0004 [0.002]		-0.001 [0.001]		0.002 [0.005]
Turnout		0.0001 [0.0001]		-0.0001 [0.0001]		0.0002*** [0.0001]		0.0015*** [0.0005]
Calamity		0.0006 [0.004]		-0.001 [0.002]		0.002 [0.002]		0.034** [0.013]
Observations	301	299	301	299	301	299	301	299
<b>R-squared</b>	<b>0.77</b>	<b>0.85</b>	<b>0.77</b>	<b>0.86</b>	<b>0.71</b>	<b>0.73</b>	<b>0.75</b>	<b>0.82</b>

Notes: All regressions include the state and year fixed effects. The standard errors are robust and given in the parentheses. The values with \*, \*\*, and \*\*\* are significant at 10%, 5%, and 1% levels of significance respectively.

Table 4: Robustness checks: the lagged values of the dependent variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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	0.134** [0.060]	0.130** [0.063]	0.192*** [0.061]	0.174*** [0.062]	-0.128 [0.163]	-0.052 [0.163]	0.050* [0.027]	0.043 [0.029]
Tax revenue		0.130* [0.068]		0.080 [0.066]		0.240 [0.205]		-0.031 [0.034]
Grant		0.083*** [0.031]		0.074** [0.033]		0.109* [0.061]		-0.002 [0.010]
Per capita income		0.149** [0.063]		0.061 [0.056]		0.465** [0.180]		-0.056** [0.028]
Population		-0.338 [0.251]		-0.230 [0.244]		-0.164 [0.709]		0.033 [0.124]
Proportion of urban population		-0.675 [0.659]		-0.351 [0.681]		-1.970 [1.715]		0.270 [0.282]
Election year		-0.006 [0.012]		0.007 [0.013]		-0.038 [0.032]		0.010* [0.005]
Turnout		0.000 [0.001]		-0.001 [0.001]		0.005* [0.003]		-0.001** [0.000]
Calamity		0.020 [0.028]		-0.002 [0.024]		0.107 [0.072]		-0.018 [0.014]
Lagged total expenditure	0.460*** [0.065]	0.363*** [0.062]						
Lagged revenue expenditure			0.518*** [0.058]	0.492*** [0.059]				
Lagged capital outlays					0.463*** [0.063]	0.364*** [0.066]		
Lagged proportion of revenue expenditure							0.503*** [0.057]	0.439*** [0.060]
Observations	291	289	291	289	291	289	291	289
<b>R-squared</b>	0.95	0.96	0.96	0.97	0.76	0.78	0.81	0.83

Notes: All regressions include the state and year fixed effects. The standard errors are robust and given in the parentheses. The values with \*, \*\*, and \*\*\* are significant at 10%, 5%, and 1% levels of significance respectively.

Table 5: Robustness checks: party turnover and government expenditures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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	
Party turnover	0.095*** [0.021]	0.041** [0.020]	0.102*** [0.019]	0.064*** [0.020]	0.057 [0.059]	-0.020 [0.056]	0.006 [0.010]	0.016* [0.009]
Tax Revenue		0.132* [0.069]		0.116 [0.074]		0.156 [0.200]		-0.008 [0.036]
Grants		0.107*** [0.032]		0.074** [0.035]		0.203*** [0.065]		-0.023* [0.012]
Per capita income		0.212*** [0.066]		0.045 [0.067]		0.792*** [0.184]		-0.127*** [0.031]
Population		-0.479** [0.238]		-0.241 [0.287]		-0.484 [0.659]		0.143 [0.122]
Proportion of urban population		-0.337 [0.680]		-0.093 [0.814]		-1.890 [1.774]		0.227 [0.334]
Election Year		-0.004 [0.012]		0.006 [0.014]		-0.027 [0.033]		0.007 [0.006]
Turnout		-0.000 [0.001]		-0.002*** [0.001]		0.006** [0.003]		-0.002*** [0.000]
Calamity		0.012 [0.027]		-0.011 [0.028]		0.096 [0.063]		-0.018 [0.012]
Observations	299	299	299	299	299	299	299	299
<b>R-squared</b>	0.94	0.95	0.95	0.96	0.67	0.73	0.75	0.79

Notes: All regressions include the state and year fixed effects. The standard errors are robust and given in the parentheses. The values with \*, \*\*, and \*\*\* are significant at 10%, 5%, and 1% levels of significance respectively.

Table 6: Robustness checks: Government expenditures and legislative turnover using the IV method

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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	0.685** [0.281]	0.835* [0.462]	1.101*** [0.330]	1.387** [0.611]	-1.160 [0.901]	-1.491 [1.073]	0.327* [0.195]	0.427* [0.245]
Tax revenue		0.171** [0.074]		0.181** [0.091]		0.091 [0.220]		0.011 [0.042]
Grants		0.117*** [0.033]		0.090** [0.043]		0.192** [0.079]		-0.019 [0.016]
Per capita income		0.291*** [0.079]		0.176* [0.093]		0.666*** [0.229]		-0.087** [0.042]
Population		0.197 [0.538]		0.888 [0.702]		-1.837 [1.213]		0.498* [0.269]
Proportion of urban population		-1.091 [0.901]		-1.361 [1.141]		-0.503 [2.238]		-0.168 [0.448]
Election year		-0.003 [0.015]		0.008 [0.020]		-0.028 [0.038]		0.008 [0.008]
Turnout		0.002 [0.002]		0.002 [0.002]		0.002 [0.004]		-0.000 [0.001]
Calamity		-0.011 [0.035]		-0.049 [0.040]		0.136* [0.070]		-0.030** [0.015]
Observations	301	299	301	299	301	299	301	299
<b>R-squared</b>	0.93	0.94	0.93	0.93	0.64	0.68	0.69	0.69

Notes: All regressions include the state and year fixed effects. The standard errors are robust and given in the parentheses. The values with \*, \*\*, and \*\*\* are significant at 10%, 5%, and 1% levels of significance respectively.