Political Determinants of the Allocation of Public Expenditures: A Study of the Indian States

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Abstract

This study examines whether the allocation of public expenditures of the Indian states are significantly influenced by government specific political characteristics. Three types of government specific characteristics are considered: forms of governments, ideology of the government, and the electoral cycle. A number of hypotheses are designed to link these characteristics with expenditure allocation. The hypotheses are tested using a panel dataset of 14 Indian states spread over 27 fiscal years, from 1980-81 to 2006-07. The overall findings of the study suggest that the relationship between expenditure allocation and political determinants across the Indian states validate the proposed hypotheses even after controlling for the traditional and other unobservable determinants. These findings are robust to various forms of sensitivity analyses.

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Introduction

What determines the size and composition of public expenditure in an economy? A large body of literature discusses a wide range of determinants. The traditional literature uses standard economic and demographic determinants such as income level, growth rate, population size, geographical structure, and trade participation rate are used to explain the variations in the size and composition of public expenditure.[1] On the other hand, the alternative set of explanations come from a relatively new strand of literature which argues that, apart from the traditional determinants, the government specific political determinants play important roles in determining the size and composition of public expenditure. In a democratically elected political system the elected government enjoys considerable power in managing and allocating its annual budget. Hence, there are enough reasons to believe that political considerations play a significant role in influencing the size of total public expenditure and its composition, which includes spending on government consumption, public investment, and payments of subsidies and debt services of an economy.[2]

While the traditional determinants of the public expenditure enjoy wide empirical support, the empirical literature on the political determinants of the public expenditure is confined to the OECD countries with the exception of Mukherjee (2003), which considered a sample of 110 countries. There has been very little country-specific work done. It has been observed that expenditure allocation of the Indian states varies enormously just as it varies across the countries. India follows a multi-party electoral system with different national and regional political parties forming governments at national and state levels. Budgets are passed at both levels of governments as per the constitutional provisions. Different political parties have different objectives and come from different social, political, and historical backgrounds. These parties constitute parts of different governments at different levels. In the light of these facts, it would be interesting to investigate whether these political factors affect the expenditure allocation of the Indian states or not. Using a panel dataset of 14 major Indian states spread over 27 years, from 1980-81 to 2006-07, this study attempts to examine whether the size and composition of public expenditure of the Indian states are systematically related with government specific political characteristics or not.

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[1] The major studies in this area of research are by Cameron (1978), Ram (1987), Musgrave and Musgrave (1989) and Alesina and Wacziarg (1998).
[2] Major studies along this dimension include studies by Roubini and Sachs (1989), De Haan and Sturm (1994), Harrinvirta and Mattila (2001), Perotti and Kontopoulos (2002), Rucciuti (2004) and Bawn and Rosenbluth (2006).

The paper is organized as follows. Section 2 reviews the literature and identifies the gaps in the studies on the Indian states. Section 3 discusses the political practices of India in brief. Section 4 discusses the hypotheses of the study. Section 5 deals with data and variables and section 6 discusses the model specification. Section 7 discusses the empirical results and checks the robustness of the results. Finally, section 8 summarizes the finding of the study and concludes.

1. Literature Review and identifying the gaps in the studies on the Indian states

The political practices evolve over the years and they vary from country to country, government to government and election to election. Various types of political practices are identified in the literature and, subsequently, linked with the allocation of public expenditure of an economy. Broadly, they are such as:

(a) Forms of governments: single party government verses coalition government [3] (Roubini and Sachs, 1989; Harrinvirta and Mattila, 2001; Mukharjee, 2003; Ricciuti, 2004);

(b) Ideology of the government (Blais et al., 1993; Van Dalen and Swank, 1996; Perotti and Kontopoulos, 2002; Mukharjee, 2003; Tavares, 2004);

(c) Frequency of elections, which is known as the political or electoral cycles in the literature (Nordhaus, 1975; Rogoff and Sibert, 1988; Schuknecht, 2000; Shi and Svensson, 2006);

(d) Majority system: simple majority verses super majority (Roubini and Sachs, 1989; De Haan and Sturm, 1994; Ricciuti, 2004); and

(e) Role of the opposition: strong opposition verses weak opposition (Padovano and Venturi, 2001; Ricciuti, 2004).

1.1. Studies on the Indian states and a summary of their findings

At least four studies have attempted to link the political determinants with the expenditure allocation of the Indian states (Rao, 1981; Dutta, 1996; Lalvani, 2005; Chaudhuri and Dasgupta, 2006). The results of the previous studies show that:[4]

(a) Political Fragmentation is negatively related with public expenditures (Chaudhuri and Dasgupta, 2006), whereas Lalvani (2005) finds a positive relation. However Dutta (1996) finds unstable coalition governments overspend on current account.

(b) Chaudhuri and Dasgupta (2006) find that the electoral cycle years are associated with lesser spending on the current account and more spending on capital account development expenditure.

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[3] The coalition governments are also known as divided governments or fragmented governments or weaker governments. These different names of the coalition government are used interchangeably in this study.
[4] In a time-series study, Rao (1981) has established the link between political determinants and non-plan revenue expenditures for four Indian states and his findings are state-specific. Since the present study concentrates on 14 major Indian states and does not analyze the findings of individual states, findings and limitations of Rao (1981) are not discussed in this study.

1.2. Limitations of the studies on the Indian states

There are several problems with the above studies that are worth mentioning:

Dutta (1996) and Lalvani (2005) used binary dummy variables to capture the fragmentation level of a government, whereas Chaudhuri and Dasgupta (2006) used the number of months of a fiscal year that is ruled by a coalition government to capture the same. However these measures do not captured the *degree* of fragmentation of a government completely. The studies merely differentiate between a single party government and a coalition government. Theoretically, coalition governments could have of two political parties at one extreme end or could be comprised of as many as political parties that are required to form the government with required majority (i.e. when every political party holds just one *seat* in the legislature) at the other extreme end. Ignoring other possible forms of coalition governments is the *first* limitation of the existing studies on the Indian states.

Considering misrepresenting sample of time period is the *second* limitation of the existing studies. In Dutta (1996) and Chaudhuri and Dasgupta (2006) the time period begins with early 1970's and ends up in early 1990's, whereas Lalvani (2005) starts with the year 1981-82 and ends up in 1998-99. Elections held before the general election of 1980-81 are known for little or no political competition and not many coalition governments were seen during this period.[5] All these studies end when the era of coalition government in India had just begun. Years from 1976-77 to 1979-80 are known as the period of political instability.[6] Hence, the years after 1980-81 seem to be the ideal time period for such an analysis.

Not considering other potential government specific attributes such as position of opposition, electoral cycle, type of majority of a government, and a government's ideology is the *third* limitation of these studies. The comparative role of a strong (united) opposition to a weak (fragmented) opposition in making the government accountable and transparent is well discussed in the literature (Padovano and Venturi, 2001; Ricciuti, 2004). Similarly, using the redistributive political strategies such as budget expansion and deficit budgets by the ruling parties to appease the voters just before the year of election are commonly observed pre-electoral political practices across the world (Schuknecht, 2000; Shi and Svensson, 2006).[7] Such practices are also observed across the Indian states (Khemani, 2004). The excess support (i.e. over and above of simple majority rule) that a government enjoys in the legislature provides some sort of stability to the government (Brass, 1977; Roubini and Sachs, 1989; Dutta, 1996). Stability of a government helps it in making firmer policy decisions. Ideology of a government also plays a crucial role in shaping the fiscal outcomes (Van Dalen and Swank, 1996; Perotti and Kontopoulos, 2002; Tavares, 2004).[8] Only Chaudhuri and Dasgupta (2006) controls for the

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[5] Pre-1980-81 elections were dominated by the Indian national Congress (INC) party at both centre and states. Hence, neither political competition was observed nor many coalition governments were formed.

[6] During this period governments fell prematurely; president's rule was imposed frequently and unconstitutionally to serve the political interests (Dua, 1979); and unprecedented constitutional amendments were made on a regular basis (Austin, 2003).

[7] Such practices are known as the 'Political Cycle' or the 'Electoral Cycle' in the literature.

[8] Findings of this literature suggest that the left wing governments emphasize more on redistributive policies than their right wing counterparts.

electoral cycle years among the existing studies, but ideology is used to test the robustness of the results. However they have used the number of months, converted into years, a left-wing government ruled in a state during an accounting year as the measure of the ideology of a government. Again, ideology is not simply a binary measure. A government can take many other intermediate ideological positions in between the two extreme positions.[9]

When the president's rule[10] is imposed in an Indian state, the elected state government is suspended from ruling that state. In such a situation, a suspended government cannot be considered as responsible for the fiscal outcomes of that year. Therefore, such years should be ignored from the analysis. However the *duration* of the president's rule matters. Only those years whose major portion is spent under president's rule should be dropped from the analysis. Hence, there should be a criterion to decide whether the years that are affected by the imposition of president's rule should be dropped from the analysis or not. Among the existing studies, only Lalvani (2005) has controlled for the years affected by the president's rule by including a dummy variable in the analysis. This has the tendency to exclude those years that may have had presidents rule imposed for a very short period and one which may not influence the fiscal outcomes at all from the analysis. Hence, this could be considered as the *fourth* limitation of the existing studies.

The elections are not always held either in the beginning of the fiscal year or at the end of it. Many times elections are held in the middle of a fiscal year. Government specific attributes also change along with the government after a fresh election. Sometimes governments change without an election. Such possibilities and their redressal measures are discussed later in this study. When the governments change in the middle of a fiscal year necessary adjustments for the changes in the government specific attributes need to be incorporated in the analysis. Not accounting for such changes is the *fifth* limitation of the existing studies on the Indian states.

Given these limitations the present study provides a more robust and complete analysis that takes into account the above mentioned problems and incorporates the necessary variables that would overcome the shortfall of existing studies:

(a) *Effective number of parties in the government* is used as the measure to capture different possible forms of coalition governments.

(b) The time period of this study (1980-81 to 2006-07) is far more relevant.

(c) Other government specific variables such as majority of government, electoral cycle, position of opposition, and ideology of government are introduced.

(d) An explicit criterion is evolved to accept or drop particular years from the dataset in which president's rule was imposed.

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[9] For instance see Perotti and Kontopoulos (2002), which discusses of five different types of ideological stands.

[10] President's rule is imposed when: (i) a state government fails to control the law and order situation within the state and/or (ii) no political party or a coalition of parties enjoy clear majority in the assembly to form the government. Article – 356 of the Indian constitution deals with the issue of imposing president's rule in detail.

(e) The method of weighted averages is used to account for the changes in the government specific variables whenever governments changed during a fiscal year.

This study extends and refines the previous studies in a significant way and thus provides results that are far more robust than those reported previously. It is seen that some results differ from the previous studies.

2. A brief political profile of India

Governments exist both at the national and state level in India. Indian states' governance structure is a replica of the central government's governance structure. India has adopted the pluralistic voting practice where voters directly elect their representatives. Every Indian state is divided into few electoral districts, based on population size, and the corresponding elected representatives represent these respective districts. Finally, governments are formed according to the number of seats occupied by the political parties in the state legislature. As per the constitutional provisions, governments in India are elected for a tenure of five years. However governments find it difficult to rule for five years in the era of coalition governments. Hence, the frequency of holding elections in India has increased in the recent times.

The electoral experiences of India since its independence could be divided into two sub-periods. During the first sub-period, which spreads from 1951 to 1977, the Indian National Congress (INC) dominated all elections at both levels with occasional failures and the degree of political competition that INC faced from other national and regional political parties was negligible. The second sub-period begins with the fall of the congress government for the first time at the centre in 1977 and still continues. However, the practice of single party ruling, either a congress party government or a non-congress party government, was the order of forming governments till the years of late 1980's both at the centre and in the states. Since then, coalition governments' ruling has dominated the elections in India. Observing the electoral practices in the recent decades, it appears that the coalition government formation has become an inherent feature of the Indian political system.

In the second sub-period many coalition governments are formed and new political parties, both national and regional, of different ideological backgrounds emerged powerful and got an opportunity to form governments particularly in the Indian states. Table 1 presents a state-wise snapshot political picture for the time period from 1980-81 to 2006-07.

Table 1: A snapshot picture of politics in the Indian states

States	Forms of Governments			Ideological stands of Governments		
	No. of years ruled by democratically elected govt.	No. of years ruled by single party govt.	No. of years ruled by coalition govt.	No. of years ruled by right-wing govt.	No. of years ruled by centric govt.	No. of years ruled by left-wing govt.
Andhra Pradesh	27	27	0	15	12	0
Bihar	26	10	16	6	20	0
Gujarat	27	22	5	17	10	0
Haryana	27	17	10	11	16	0
Karnataka	26	21	5	9	17	0
Kerala	27	0	27	0	16	11
Madhya Pradesh	26	26	0	6	20	0
Maharashtra	27	11	16	5	22	0
Orissa	27	20	7	12	15	0
Punjab	21	16	5	7	14	0
Rajasthan	27	18	9	11	16	0
Tamil Nadu	26	26	0	0	26	0
Uttar Pradesh	25	12	13	3	22	0
West Bengal	27	0	27	0	0	27
Overall	366	248	118	102	226	38

Note: The sample period of the study is from 1980-81 to 2006-07. Broadly, all forms of governments are divided into single party and coalition governments. From the point of view of ideology of a government, three types of ideological stands are identified. Under the category of centric governments, ideologically right-centric and left-centric governments are also included. President's rule imposed fiscal years of the corresponding states are excluded from the sample.

During this period, 366 fiscal years are ruled by all democratically elected governments across the 14 major Indian states. Single party governments have ruled for 68 percent of the total fiscal years and the rest is ruled by the collation governments. Along the ideology measure, 62 percent of the total fiscal years are ruled by an ideologically centric government, 28 percent times by a right-wing government, and 10 percent by a left-wing party.

3. The derivation of testable hypotheses

Three broad categories of public expenditures: current expenditure, capital expenditure, and total expenditure are considered and three sets of testable hypotheses are developed linking each category of public expenditure with the political determinants. Political determinants such as electoral cycle, a government's ideology, majority of a government, degree of fragmentation of a government and of its opposition are considered in this study. The first political determinant is determined constitutionally as the elections are held as per the constitutional provisions. On the contrary, other four political determinants are related to post electoral outcomes. Formation of a government, the ideological it subscribes, the role of its opposition, and the type of support it enjoys in the legislature are decided after the election. Since the position of the government is closely associated with the type of opposition it faces and majority enjoys, only the level of fragmentation of a government is considered while formulating hypotheses. Hence, electoral cycle, government's ideology, and government fragmentation are the only determinants that are used in deriving the hypotheses.

3.1. The General Hypotheses

Coalitional governments are referred as weaker governments as such governments often fail to make and implement stricter fiscal policies due to various reasons such as multiple party interests, lack of majority, disagreement among multiple decision makers, and are subject to interest group capture at various levels.[11] Since the future of the coalition governments is relatively uncertain as compared to the single party governments, such governments are expected to end up with myopic fiscal policies, which may be undesirable from the long-term perspective. Ideologically left-wing governments do not seem to be much concerned about the long-term fiscal and economic outcomes as the studies on ideology predict (Van Dalen and Swank, 1996; Tavares, 2004). Similarly, the literature on electoral cycles predicts that the fiscal policies change just before the year of election and become more of redistributive kinds (Nordhaus, 1975; Rogoff and Sibert, 1988).

3.2. Hypotheses on Expenditure

Current expenditure includes the expenditures incurred to meet the day to day running expenses of a government. Capital expenditure is the money spent by the government to generate new assets and maintain the existing ones. Both the categories of expenditures constitute the total public expenditure and a government has complete discretion in spending the whole amount. Different government specific characteristics are expected to influence the allocation of public expenditures differently.

E1. Hypotheses on current Expenditure

The fact that all political parties are affiliated to various interest groups is well-established in the literature.[12] Political parties need the support of interest groups to win elections and the interest groups continue supporting their affiliated parties as long as their interests are taken care of. Political parties use various populist policies to appease their respective interest groups. Regular salary hikes, quick promotions for the employees, and creating fresh employment opportunities are some of the populist policies that political parties use to appease the interest groups. Political parties also found to be introducing various government sponsored schemes related to poverty eradication, employment generation, public health and insurance, and subsidization of various public goods and services to serve their political purposes.[13] An important characteristic of such schemes is that every time a new party comes into power, it introduces more number of such schemes and makes the existing ones more attractive. The components of salary and subsidy constitute a major part of current expenditure. Since the number of interest groups affiliated with a fragmented government would be larger, the size of current expenditure under such governments is expected to be higher in comparison to the single party governments.

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[11] The notable studies in this line of research are by Roubini and Sachs (1989), De Haan and Sturm (1994), Harrinvirta and Mattila (2001) and Perotti and Kontopoulos (2002).

[12] Major studies that have linked the role of interest groups in influencing the government decisions are by Roubini and Sachs (1989), Harrinvirta and Mikko (2001), Perotti and Kontopoulos (2002), and Ricciuti (2004).

[13] Schemes like supplying free electricity to farmers (in the state of Andhra Pradesh) and competition among political parties, both at centre and states, to subsidize the price of rice further are the recent examples in India.

Traditionally, left-wing political parties are in favour of increasing government intervention and do not subscribe the view that market mechanisms can take care of most of the economic problems of a country. [14] Hence, governments lead by left-wing political parties believe in expanding the public sector by generating mass employments, subsidizing public goods and services, and introducing various welfare enhancing schemes for the betterment of the larger and the weaker sections of the society. As a result, a larger part of the total expenditure is expected to be spent on current expenditure under the regime of a left-wing government.

The literature on fiscal illusion predicts that policy-makers assume that voters overestimate the benefits of current expenditure in short-run and underestimate the future tax burden that will be needed to finance current expenditure.[15] Hence, just before the year of election, the incumbent political parties are expected to follow more of populist political tactics and the budgetary composition is expected to be shifted more towards current expenditure.[16]

H1a: The current expenditure will be higher under a politically fragmented government as compared to a less fragmented or a single party government.

H1b: The current expenditure will be higher as the ideology of a government becomes more left-oriented.

H1c: The current expenditure will be higher in an electoral cycle year as compared to the other years during an electoral tenure.

E2. Hypotheses on Capital Expenditure

The expenditures incurred in developing and maintaining the economic and physical infrastructures are covered under capital expenditure. Unlike current expenditure, the items covered under capital expenditure are region-specific. Different political parties enjoy strong hold over different geographical regions of a country. Often political parties are paid-off in terms of being re-elected in the elections based on the ability in transferring resources to their supported electoral constituencies during the tenure of their governance. Being region -specific in nature, capital expenditure could be considered as an instrument for the incumbent political parties to transfer the resources to their favourable constituencies.[17] As the number of affiliated political parties increase under coalition governments, the size of capital expenditure is expected to increase under such governments.

Usually, market intervenes in an economy through increasing private investment and the left-wing governments prefer least possible market interventions in the economic activities. Therefore, left-wing governments prefer to meet the investment requirements of an economy through increasing public investment. In this process, such governments are likely to implement supply-side interventionist policies, particularly in forms of the public provision of human and physical capital,

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[14] *See* Blais *et al.* (1993) and Tavares (2004) on ideological differences between political parties and government intervention.
[15] *See* Buchanan and Wagner (1977) on fiscal illusion.
[16] *See* Drazen (2000) for an excellent review of studies on electoral cycles .
[17] Ferejohn (1974) and Tanzi and Davoodi (1997) have argued that public investment projects are often used to serve political purposes.

increasingly to maintain the growth and the competitiveness of the economy.[18] Hence, left-wing governments are expected to spend more in the form of capital expenditure to increase the level of investment in an economy in comparison to their right-wing counterparts.

Since the capital expenditures are region-specific, such expenditures are expected to be incurred more intensively during the electoral cycle years.[19] Constructing roads, providing electricity and establishing telephone connections in the remote place, constructing dams and irrigation projects, and establishing sanitation facilities are most commonly observed pre-poll public activities that the incumbent political parties undertake in India.

H2a: The capital expenditure will be higher under a politically fragmented government as compared to a less fragmented or a single party government.

H2b: The capital expenditure will be higher as the ideology of a government becomes more left-oriented.

H2c: The capital expenditure will be higher in an electoral cycle year as compared to the other years during an electoral tenure.

E3. Hypotheses on Total Expenditure

Since all three government specific characteristics are associated with increasing current and capital expenditure, total public expenditure, sum of current and capital expenditure, is also expected to be positively associated with all three government specific characteristics.

H3a: The total public expenditure will be higher under a politically fragmented government as compared to a less fragmented or a single party government.

H3b: The total public expenditure will be higher as the ideology of a government becomes more left-oriented.

H3c: The total public expenditure will be higher in an electoral cycle year as compared to the other years during an electoral tenure.

4. Data and Variables

An annual dataset for 14 largest Indian states [20] are compiled for the time period from 1980-81 to 2006-07. These states constitute more than 85 percent of the total Indian gross domestic product (GDP) and population. The years whose major parts are spent under the president's rule are dropped from the analysis. The criterion of selecting an accounting year for the analysis is that at least one-quarter of that year should be ruled by a democratically elected government. The idea is that the

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[18] Boix (1997) has reviewed the literature on partisan economic policy management, and demonstrated such practices in OECD countries.

[19] Khemani (2004) has discussed the literature that puts forward this argument in some detail and tested its empirical relevance in the Indian context.

[20] 14 populous non-special category Indian states are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

government of a state needs a minimum amount of one-quarter time of a fiscal year to rule over it before gaining some control over the expenditure allocation of that state.[21] The fiscal years that do not meet the above mentioned selection criterions are dropped from the analysis. The resulting panel dataset is unbalanced one.

Measures of public expenditure are used as the dependent variables in the regression. All the dependent variables are expressed in percapita Indian rupees (1999-00 base year). Two sets of the independent variables i.e. political determinants and economic and demographic determinants are used in the regression. The political determinants are effective number of political parties in the government,[22] effective number of political parties in the opposition, majority of a government,[23] index of ideology,[24] and electoral cycle. The economic and demographic determinants are fiscal space, percapita state gross domestic product (SGDP), population size (population share of each Indian state in percentage), dependency rate (Percentage of dependents (aged 0-14 and over the age of 65) to total working population (aged 15-64)), and poverty rate (percentage of population living below the poverty line).[25] The size of public spending depends on the fiscal position of an economy to a considerable extent. Fiscal space is used as a measure of fiscal position in this study. Heller (2005) defines fiscal space as 'room in a government's budget that allows it to provide resources for a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy' (p. 32). For the Indian states, Nooruddin and Chhibber (2008) have measured the fiscal space as the difference between total revenue receipts and the primary expenditure commitments on the revenue account (i.e. civil administration, including pensions and other retirement benefits; police; and debt servicing). They also have included the loans that the Indian states receive from the center on the revenue side as the Indian states can obtain more resources from the center particularly in the form of loans. Therefore, a state's fiscal space is defined as:

$$FS = [\{TR - (CivAdm + Police + DebtService) + CenLoans\}/TR] \times 100 \quad (1)$$

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[21] The one-quarter time period is chosen arbitrarily. Changing the length of the time period to two quarters does not affect the findings (See section 7).

[22] This index is the inverse of the Harfindahl Index. Laakso and Taagepera (1979) and Taagepera and Shugart (1989) have discussed the advantages of using this index in detail. Many of the recent studies by Mukherjee (2003), Ricciuti (2004) and Bawn and Rosenbluth (2006) have used this index to measure the fragmentation level of government. The definition of this index is discussed in the appendix A. The same methodology is also used to measure the level of fragmentation of the opposition.

[23] Refer to appendix A for details of the construction of this index.

[24] Index of ideology ranges between 1 and 5. Appendix A deals with the construction of this index in detail and the codes of all parties are displayed in appendix B, table B2. So far Chhibber and Nooruddin (2004) is the only study which has codified political parties according to their ideologies at the state levels in India. However the purpose of their study is different from the purpose of this study.

[25] Among the control variables, the first three variables are annual measures and the last two are decadal measures. Following the standard practices of the literature, the data points for the missing years of the decadal measures are filled by interpolating decadal indicators with the help of the simple growth rate formula.

where *FS* is fiscal space and *TR* is total revenue receipts.[26] Increasing fiscal space is expected to provide more scope for public spending on all the accounts. Percapita income is used as an indicator of development. Developed states are expected to be in a better position to spend more in comparison to the underdeveloped ones. Population size is used to control for the spending requirements of the Indian states. Usually populous states are expected to spend more. However, this true for the size of public spending expressed in absolute terms. Since our expenditure measures are expressed in percapita, percapita spending in populous states is expected to be less due to the economics of scale. States associated with higher dependency rate and poverty are supposed to spend more to support these vulnerable sections of the society. However, since the capacity of such states in generating revenues will be limited, their ability to spend might also be limited. Therefore, the relationship between the demographic indicators and public spending is not direct and has to be context-specific. Description of variables, data sources, and descriptive statistics are displayed in appendix B, table B1.

Many times it is observed that some of the political parties offer external support to a government without being a part of a government and its decisions. Since external coalition partners neither take nor own direct responsibility for the decisions that its supported government undertakes, such coalition partners are ignored as the parts of a government in this study. Hence, the index effective number of political parties in the government accounts only for the active and internal coalition partners of a government. The fiscal year in India starts from 1st April and ends on 31st March of the next year. This is the time duration for which the annual budgets are estimated and approved. Hence, all expenditure measures are estimated during a fresh fiscal year. On the other hand, there is no such hard and fast rule that a government would change either in the beginning or at the end of a fiscal year. Quite often fresh elections are held and new governments are formed in the middle of a fiscal year. When the governments change in the middle of a fiscal year, the government specific attributes also change. Hence, the dataset of government specific variables needs to be adjusted accordingly. Weighted averages of the variables are used to make the necessary adjustments. Weights are calculated according to the number of days each government has ruled in a state during a fiscal year. The simplest example is when a normal fiscal year is completely ruled by only one government. The weight will be *one* in this case. Complicating the case, for instance, if a fiscal year of 365 days loses 65 days under president's rule in a state and rest of the 300 days are ruled by two democratically elected governments. Then the weights will be determined according to the number of days that each government rules from the total of 300 days. Suppose the first government rules for 95 days and the second government rules for the remaining days. Then the assigned weights will be (95/300) and (205/300) for the respective governments. It could easily be generalized for the cases of more than two governments. This weighting scheme is applicable only to the government specific determinants that change with the governments.[27]

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[26] This measure of fiscal space is used by Nooruddin and Chhibber (2008) and we have multiplied it by hundred to express in percentage.
[27] The variable EC is not applicable for the weighted average scheme. Elections do not always precede changes in government. There are numerous occasions when the governments in the

5. Model Specification

Selection of an appropriate econometric model is very important in an empirical study. The basic empirical specification is:

$$Y_{it} = \alpha + \beta P_{it} + \emptyset X_{it} + \lambda_i + \mu_t + \upsilon_{it}; i = 1, \ldots, N, \text{and } t = 1, \ldots, T \qquad (2)$$

where subscript i stands for the Indian states and t for the time-period. Vector Y, the dependent variable, represents the measures of public expenditure. Dependent variables are expressed in log of percapita Indian rupees.[28] On the other hand, all independent variables are divided into two groups: variables of interest and control variables. Political determinants, vector P in the equation, are the variables of interest. Economic and demographic determinants are used as the control variables, vector X in the equation. Among the control variables, percapita income is transformed into log and others are used in their level forms.

The above discussed independent variables have both temporal and spatial variations. There are determinants which vary only in one dimension. The time-invariant and state-specific unobservable explanatory variables like institutions, historical factors, and geographical features need to be controlled for as there is ample evidence suggesting that these factors play significant role in determining expenditure requirements of an economy. Similarly, over the years, the central government of India has implemented various policies and undertaken a number of reforms to stabilize the expenditure measures of its states. The attempts made at the central level will have harmonious effects across all the states. The impact of such policies, state-invariant and time-specific, also needs to be incorporated in the model. Hence, λ_i, the state-specific dummies, and μ_t, the time-specific dummies, are introduced in the regression equation to control for the unobserved state-specific and time-specific explanatory variables respectively. The time-specific dummies also have taken care of the impacts of the state-specific fiscal cycles that would have occurred particularly due to implementation of pay commissions and integrating indirect tax structure to value added tax (VAT) to a large extent, as pay commission implementation and VAT integration have happened almost in all Indian states in the same time. The unexplained variations in the regression are captured by the error term υ_{it}, which is assumed to be normally distributed, homoskedastic, and independent across the observations.

Given the cross-sectional and time-series nature of our dataset, the standard Ordinary Least Squares (OLS) assumption of independent and identically distributed errors is unlikely to be satisfied. In the presence of autocorrelation and heteroskedasticity in a regression equation, the calculated coefficient parameters will be biased. Panel Correcting Standard Errors (PCSEs) estimation method is used to

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Indian states have changed without elections. The weighting scheme is also not applicable for the group of control variables as they do not change with the government.

[28] Percapita public expenditure and income vary enormously across the major Indian states. Hence, the empirical problems related to heteroskedasticity and outliers are most likely to occur and affect our results. Following the standard practice of the literature, only the variables expressed in percapita Indian rupees are log transformed to deal with these empirical issues.

estimate results[29] and the standard errors are corrected for heteroskedasticity and first ordered autocorrelation.[30] PCSEs estimation method holds well for the datasets in which number of years exceeds the number of units. This condition is met well in this study as the number of years (27) exceeds the number of states (14).

Many of the recent studies are seen of using lags of the dependent variable as an independent variable in the regression to correct for autocorrelation. However, introducing lags of the dependent variable on the right-side of the regression equation leads to the problems of endogenity with respect to both time-specific and state-specific fixed effects.[31] As the fixed effect dummies of the Indian states are believed to be affecting the present and past expenditure allocation, introducing the lagged depending variable on the right-side of the equation in the presence of the fixed effects could be seen as a potential source of endogenity problems. Hence, the method of introducing lagged dependent variable as an explanatory variable to redress the problem of autocorrelation is avoided in this study.

6. Results Estimation

6.1. Basic Estimation

Basic empirical specification (2) is used to estimate the results and table 2 reports the results with the expenditure related fiscal outcomes.

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[29] Beck and Katz (1995) have developed this estimation method. They have used Monte Carlo analysis to show the supremacy of this estimation method over other available methods.
[30] Statistical software STATA 10.0 is used to estimate the results of this study.
[31] Bawn and Rosenbluth (2006) discuss the existence of such type of endogeneity problems in detail.

Table 2: The Impact of Political Determinants on Expenditure

	(1) Current Expenditure	(2) Capital Expenditure	(3) Total Expenditure
Political determinants:			
Ideology	0.018*** (0.005)	0.007 (0.008)	0.014*** (0.005)
Electoral cycle	0.001 (0.004)	− 0.005 (0.007)	− 0.002 (0.004)
Fragmented government	0.025*** (0.008)	0.053*** (0.012)	0.027*** (0.007)
Fragmented opposition	0.005 (0.004)	− 0.01** (0.005)	0.001 (0.004)
Support to government	− 0.0002 (0.0002)	0.0008** (0.0004)	− 0.0001 (0.0002)
Economic and demographic determinants:			
Fiscal space	0.0012*** (0.004)	0.001 (0.001)	0.001*** (0.0004)
Percapita income	0.331*** (0.033)	0.322*** (0.04)	0.309*** (0.029)
Population size	− 0.025*** (0.004)	− 0.022*** (0.003)	− 0.029** (0.004)
Poverty rate	− 0.001 (0.001)	− 0.008*** (0.002)	− 0.002* (0.0011)
Dependency rate	− 0.001 (0.007)	0.006 (0.008)	− 0.003 (0.006)
Constant	4.627*** (0.381)	4.016*** (0.425)	5.365*** (0.33)
State effects	Yes	Yes	Yes
Time effects	Yes	Yes	Yes
R-squared	0.99	0.99	0.99
Number of obs.	370	370	370
Number of groups	14	14	14

Note: Standard errors robust to heteroskedasticity and panel specific AR(1) are shown in parentheses.

***p < 0.01; **p < 0.05; and *p < 0.10

Column 1 displays the findings of current expenditure. *Ideology* and *fragmented government* are the only significant variables of interest and both are linked with the current expenditure positively. Since the variable *ideology* varies between value 5 and 1, its coefficient could be interpreted as: when a government's ideological position shifts from a relatively right-wing position to a relatively left-wing position the percapita current expenditure increases by 1.8 percent. The interpretation of the coefficient of *fragmented government* will be different. As the measure of *fragmented government* changes with the introduction of an additional party in the government, its coefficient could be analyzed as percapita current expenditure increases by 2.5 percent with the inclusion of an additional party in the government. Column 2 displays the findings of capital expenditure. *Ideology* and *electoral cycle* are proved to be the only insignificant political determinants. Interpretation of the coefficient of *fragmented government* remains same as of the results of current expenditure. Negative sign of *fragmented opposition* suggests that weak oppositions are associated with reduced size of public investment and the

average percapita capital expenditure of the Indian states decreases by 1 percent with the inclusion of an additional party in the opposition. Increasing *support to a government* helps it in spending more in capital account and its coefficient could be interpreted as one percent extra support of a government increases the size of capital expenditure by 0.1 percent. Even though *ideology* has failed to come significant, it holds the expected sign. One possible reason for its insignificance could be that the left-wing political parties are bogged down with myopic and short-term expenditure policies to win elections. In the coalition era a government's future is relatively uncertain. Hence, instead of spending more on capita account, which would provide return after a relatively longer gestation period, governments probably believe that spending on current account, which offers instantaneous return, is the way to appease voters and win elections. Probably, the left-wing governments are also swayed by such electoral tactics. *Electoral cycle* proved to be an insignificant variable for both categories of expenditures. *Electoral cycle* is expected to be significant if the expenditure related policies put in practice during the electoral cycle years by a government differ significantly from the policies of the normal years. One of the possible reasons for its insignificance could be that in the era of coalition governments and competitive politics in India, the governments do not treat the electoral cycle years different from the normal ones.

Column 3 displays the regression results of total expenditure. Results show that *Ideology* and *fragmented government* are the only significant variables of interest. Interpretation of the coefficients of these variables remains same as of current expenditure and capital expenditure. As hypothesized earlier, both *Ideology* and *fragmented government* are associated with public sector expansion. *Electoral cycle* has failed to come significant. The justifications offered above for its insignificance for current and capital expenditures could also be extended for the present case.

The overall findings suggest that the political determinants explain the variations in expenditure allocation across the Indian states significantly even in the presence of the traditional determinants. *Percapita income* and *population size* are the only control variables which have remained significant for all categories of expenditures. *Fiscal space* matters only for current and total expenditure. Among the demographic characteristics, *poverty rate* emerged significant only for capital and total expenditure, whereas *dependency rate* never came significant.

6.2. Sensitivity analysis and robustness check

The aim of this sub-section is to test the robustness of the baseline results. Sometimes results are found very sensitive to minor modifications in the empirical strategies. In such a case, the original findings cannot be trusted. In this study three different strategies are applied to check the robustness of the baseline results.

(a) Introducing a new variable of interest

The first strategy to check the robustness of the original results is done by introducing a new potential variable of interest. Studies have shown that the intergovernmental transfers have perverse impacts on public expenditures of the

provincial governments.[32] In the Indian context, Khemani (2007) and Arulampalam et al. (2009) have shown that the centre-state political affiliation (i.e. when same political parties rule both at the centre and in the states) plays a crucial role in determining a state's share of transfer that it receives from the centre. Based on the findings of these studies, the centre-state political affiliation could be considered as a potential political determinant of the fiscal outcomes.[33]

The centre-state political affiliation variable is a dummy variable. It holds value *one* if the same political party holds power both at the centre and in a state during a fiscal year, otherwise *zero*. The new variable never emerged significant and no notable changes are observed in the results of the original variables of interest with the introduction of this new variable.[34] The overall findings of this strategy suggest that the baseline results are insensitive to the introduction of centre-state political affiliation variable.

(b) Changing the selection criterion of the fiscal years

The time duration of the imposition of president's rule vary from few days to years. The selection criterion for choosing a fiscal year is at least one quarter rule by a democratically elected government for the baseline analysis. But ruling for just one quarter of a fiscal year might not be long enough for a government to control the fiscal outcomes. As a part of the *second* robustness strategy, the selection criterion is changed to two quarters. Hence, those fiscal years that are ruled by the democratically elected state governments at least for two quarters are included in the analysis. No notable changes are observed in the results estimated after changing the selection criterion of fiscal years.

(c) Alternative estimation method

Estimating the baseline regression model with an alternative estimation method is the *third* robustness strategy. Feasible Generalized Least Squares (FGLS) method is used to calculate the results. The results calculated with FGLS estimation method are not different from the original ones.

The claims that are made on the basis of baseline findings are seen to be robust as the original results passed through all three robustness tests.

7. Conclusion

Traditionally it is believed that the expenditure requirements of an economy are determined by the economic and demographic determinants. However the recent literature on the determinants of expenditure allocations acknowledges the role of political determinants in influencing them. An attempt is made in this paper to verify if political determinants influence the expenditure allocation of the Indian states

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[32] See Dollery and Worthington (1996) for a comprehensive survey of this strand of literature.

[33] To serve the basic purpose of this study, only the endogenous political determinants of the Indian state are considered initially. Since the centre-state political nexus is an exogenous determinant to the system, it is ignored in the original analysis. This exercise is undertaken only to check the robustness of the baseline results.

[34] Considering the issues of space, size and the purpose of this study, the results of robustness tests are not reported. However, interested readers could obtain the robust results from the authors personally.

significantly even in the presence of traditional determinants. Five types of political determinants: government fragmentation, strength of the opposition, majority of the government, ideology of the government and electoral cycle are taken into account and three sets hypotheses are developed by linking the political determinants with the expenditure allocation. A sample of 14 larger Indian states, spread over the period from 1980 -81 to 2006-07, is used to examine the hypotheses.

The results of this study suggest that frequent formation of coalition governments is one of the major driving factors for increasing public spending of the Indian states in the recent decades. Ideology of a government also seems to be contributing significantly to this increase, but mainly through increasing current expenditure. Electoral cycle does not seem to be playing a significant role in influencing public expenditure. Probably in the era of competitive politics and coalition government, where governments are seen to be playing redistributive tactics throughout their tenure of governance, years just before election are no more treated differently. Well supported governments are found to be associated with increasing capital expenditure, whereas government spending on investment are found to be declining in the presence of a weaker opposition. In addition to these findings, results on fiscal space suggest that additional revenue only boosts public consumption, not public investment. These findings are robust to various forms of sensitivity analyses.

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Appendix – A

(a) Ideology: All the political parties that have ever headed a government in the Indian states over the time period of the study are considered. In case of the coalition governments, as most of the time the political parties having relatively similar ideologies form the government, the ideology of such a government is decided on the basis of the ideology of the party that leads the coalition. The spread of the index is from point 1 to 5:

> 1 – When a right-wing political party holds the government;
> 2 – When a right-centric political party holds the government;
> 3 – When a centric political party holds the government;
> 4 – When a left-centric political party holds the government;
> 5 – When a left-wing political party holds the government.

There are few occasions, when governments have changed in the middle of a fiscal year. Some adjustment is requiring to be made in the index. For such occasions, the adjusted index is:

> $IOI = 1.5$: When a right-wing political party holds the government;
> $1.5 < IOI < 2.5$: When a right-centric political party holds the government;
> $2.5 = IOI = 3.5$: When a centric political party holds the government;
> $3.5 < IOI < 4.5$: When a left-centric political party holds the government;
> $IOI = 4.5$: When a left-wing political party holds the government.

(b) ENPG (effective number of political parties in the government): It is defined as:

$$ENPG = \frac{1}{\sum S_i^2}$$

Where S_i represents i^{th} party's share in the government (i.e. the number of seats that the ith party holds / total number of seats the government holds in the legislature). For a single party government the numerical value of this index is 1, and increases as the number of parties increase in a government. The formula and the interpretation remain same for the calculation of ENPO (effective number of political parties in the opposition).

(c) Support to government: It measures what kind of majority a government enjoys in the legislature. It's defined as:

$$Support = \frac{(P - N_1)}{N_2} \times 100$$

Where N_1 is the minimum number of seats required to win in the legislature for a political party or set of political parties to form the government (i.e. by the rule of simple majority). $N_2 = N - N_1$, where N is the total strength of the legislature (N_2 is the rest of the seats in the legislature, which are won by the opposition political parties). P is the number of seats the government has actually won in the legislature. Hence, this variable varies between 0 and 100. It's *Zero*, when the government enjoys an exact simple majority in the legislature, and 100, when all the seats are won by the government.

Appendix – B
Table B1: Descriptive statistics of variables and data sources

Description of Variables	Obs.	Mean	SD	Min.	Max.	Data Source/s
Current expenditure	370	2068.94	905.35	663.07	4582.89	Data calculated from *Reserve Bank of India Bulletin*.
Capital expenditure	370	781.87	374.97	221.09	2026.62	Data calculated from *Reserve Bank of India Bulletin*.
Total expenditure	370	2850.82	1254.74	914.79	6368.64	Data calculated from *Reserve Bank of India Bulletin*.
Ideology	370	2.55	1.21	0	5	Data calculated from *Election Reports on State*; Butler, Lahiri and Roy (1996); and Lalvani (2005).
Electoral cycle	370	0.2	0.4	0	1	Data calculated from *Election Reports on State*; Butler, Lahiri and Roy (1996); and Lalvani (2005).
Fragmented government	370	1.35	0.65	1	4.98	Data calculated from *Election Reports on State*; Butler, Lahiri and Roy (1996); and Lalvani (2005).
Fragmented opposition	370	2.83	1.09	1.12	6.34	Data calculated from *Election Reports on State*; Butler, Lahiri and Roy (1996); and Lalvani (2005).
Support to government	370	25.57	19.07	0	66.67	Data calculated from *Election Reports on State*; Butler, Lahiri and Roy (1996); and Lalvani (2005).
Fiscal space	370	76.54	16.9	23.43	127.65	Data calculated from *Reserve Bank of India Bulletin*.
Percapita income	370	12.74	1.36	9.99	16.53	Data Compiled from the statistics released by *Central Statistical Organization (CSO)*.
Population size	370	7.19	6.9	4.02	18.96	Data Compiled from the statistics released by *Central Statistical Organization (CSO)*.
Dependency rate	370	14428.38	7387.18	3326.87	41168.67	*Census Data*.
Poverty rate	370	31.92	14.58	5.2	70.07	Planning Commission Estimates.

Notes: See the main text for details on the definition of the variables.

Table B2: Ideological codes of the Indian Political Parties

Serial No.	Abbreviation	Party Name	Political Ideology	Ideological Stand	Ideology Scale
1.	AIDAMK	All India Anna Dravida Munnetra Kazhagam	Social Democratic, Populist	Centre	3
2.	BJD	Biju Janata Dal	Populist, Economic liberalism	Right-Centre	2
3.	BJP	Bharatiya Janata Party	Economic liberalism	Right	1
4.	BSP	Bahujan Samaj Party	Dalit Socialism, Socialism	Left-Centre	4
5.	CPI	Communist Party of India	Communism	Left	5
6.	CPI(M)	Communist Party of India (Marxist)	Communism	Left	5
7.	DMK	Dravida Munnetra Kazhagam	Social Democratic, Populist	Centre	3
8.	HVP	Haryana Vikas Party	Social Democratic, Populist	Centre	3
9.	INC	Indian National Congress	Populist, Democratic Socialism, Social Democracy	Centre	3
10.	INLD	Indian National Lok Dal	Populist, Economic liberalism	Right-Centre	2
11.	JD	Janata Dal	Populist, Economic liberalism	Right-Centre	2
12.	JD(S)	Janata Dal (Secular)	Populism, Social Democracy	Centre	3
13.	JD(U)	Janata Dal (United)	Integral Humanism, Conservatism	Right-Centre	2
14.	JP	Janata Party	Populist, Economic liberalism	Right-Centre	2
15.	LDF	Left Democratic Front	Communism	Left	5
16.	LF	Left Front	Communism	Left	5
17.	NCP	Nationalist Congress Party	Populist, Democratic Socialism, Social Democracy	Centre	3
18.	RJD	Rashtriya Janata Dal	Populism	Centre	3
19.	SAD	Shiromani Akali dal	Religious (Sikh), Populist, Economic liberalism	Right-Centre	2
20.	SHS	Shiv Sena	Economic liberalism	Right	1
21.	SP	Samajwadi Party	Populist, Democratic Socialism	Centre	3
22.	TDP	Telugu Desam Party	Regionalist, Fiscally Conservative	Right	1
23.	UDF	United Democratic Front	Populism, Democratic Socialism, Social Democracy	Centre	3

Note: All the political parties who have ever ruled across the Indian states over the time period of the study are considered in this study. The parties are arranged in the alphabetical order. LDF and UDF (in Kerala), and LF (in West Bengal) are not specific political parties. These are the names of alliances formed by different sets of political parties in different states having same ideological stands. The *ideology scale* spreads from point 1 to 5. Each numerical value stands for a specific position of a political party's ideology. Determining the stand of a political party in the ideology scale is straight forward in case of the single party governments. The real problem arises in case of the coalition governments. The ideology of the coalition government is determined according to the party's ideology that leads the government. All parties are codified according to their party objectives and policies that they have subscribed and implemented over the years.