Political variables and subnational debt expenditures in India

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What political variables explain variations in subnational fiscal expenditures on interest payments on the debt? The author argues that the political business cycle and political party ideology — rather than the ideological proximity between the central government and constituent units, the effective number of parties, alternation of power, or political party ideology — can help explain the level of expenditures on interest payment of subnational debt. Controlling for economic variables such as a subnational unit’s per capita income and level of intergovernmental fiscal transfers, the author shows that the expectation of an election motivates politicians to engage in fiscal manipulation, that is to ensure that the fulfillment of politically unpopular fiscal transfers are postponed until after an election has taken place. The author will also show that, although most political parties advocate fiscal prudence, whenever a particular political party wins a state assembly election it increases interest payments on the debt. Using an original dataset, called POLXDEBT-India, the paper will evaluate the explanatory power of some key political variables — political ideology, effective number of parties, alternation of power, timing of an election — in serving as a predictor of variation in the expenditure levels on interest payments on debt across India’s states. The author will argue that cyclical electoral variables and ideology appear to be important political predictors for variation in the levels of interest payments on debt.

Keywords: party politics; political business cycle; fiscal discipline; India

One of the most important phenomena in countries that have decentralized their fiscal powers to subnational governments is the decline in expenditures on public services. India, the world’s largest and most heterogeneous federation, has often served as an important laboratory for a wide range of analyses of the effects of decentralization (Khemani, 2007; Khemani, 2002; Nooruddin & Chhibber, 2008; Saez & Sinha, 2010; Banerjee & Somanathan, 2007). In this country, since the 1980s, there has been overall decline in state expenditure on social services (52.9% in 1980s
to 35.4% in 1990s) and economic services (44.4% in 1980s to 30.6% in 1990s). Moreover, there is ample evidence of subnational variation in public service expenditures (Besley & Burgess, 2002; Banerjee, 2004; Saez & Sinha, 2010).

In India’s case, a decline in public service expenditure has been accompanied by an increase in subnational expenditure on debt servicing. The phenomenon of greater subnational borrowing has been replicated in other developing country federations — such as Brazil, Mexico, Argentina — and have, at times, resulted in unsustainable levels of indebtedness leading to severe subnational fiscal crises. The implications of this trend are serious for countries that experience similar phenomena as an overall increase in subnational expenditure on interest payments for debt servicing leads to reduction of fiscal space for growth enhancing forms of public expenditure (Heller, 2005) and increases in electoral volatility (Nooruddin & Chhibber, 2008).

The fiscal decentralization literature on India, such as Purfield (2004), offers a wide spectrum of causal factors for the increase in subnational expenditure on debt servicing. However, these causal explanations have tended to overlook the importance of political variables. Some authors have tried to offer political explanations to specific types of fiscal expenditures at the subnational level. For instance, Khemani (2003) argued that states that have higher spending and higher fiscal deficits when party governing state government is the same as the party governing at the federal level. Elsewhere, Khemani (2004) showed that there is a relationship between election timing and fiscal expenditure on road infrastructure. Chhibber and Nooruddin (2004) showed that two-party states provide a greater share of public goods than multiparty-led states. However, little attention has been paid to the political causes of increase debt servicing.
Some efforts have been made to link political variables to state government expenditure in India. For instance, in Saez and Sinha (2010), it was observed that changes in the specific type of subnational public expenditures (e.g., education, health, agriculture) could be predicted by the timing of an election. In their evaluation, Saez and Sinha found that alternative explanations, such as the type of ideology of the political party controlling a subnational government or the effective number of parties, did not have a substantial impact on such expenditures. The basic premise of this paper is that some of the alternative explanations dismissed in Saez and Sinha (e.g., political ideology, effective number of parties) may be more salient than the timing of an election as a predictor of variation in the expenditure levels on interest payments on debt. To test our argument, we use an original dataset of political variables and fiscal expenditures on interest payments on the debt from 1960 to 2006.

We begin by reviewing some of the key political economy literature relating to the causes of fiscal expenditure on interest payments on the debt. Then we proceed to describe the principal political variables used in our analysis. We conclude with a discussion about the possible extension of our findings for other work in comparative federalism.

**The Causes of Subnational Debt: A Political Economy Explanation**

India is a federal union administratively divided into 28 states and 7 union territories (including the national capital territory of Delhi). Consistent with other federal systems, the central government and its key constituent units (or states) have constitutionally delineated powers, functions, and responsibilities. India’s fiscal federalism structure provides for a separation of revenue systems, enabling the central
government or the states specific jurisdiction to collect taxes. In practice, India’s federal system is highly centralized with most revenue raising powers residing with the central government. Under this fiscal framework, though, Indian states are constitutionally prompted to shoulder the fiscal burden for financing a wide range of public services.

Although India’s federal system operates as a revenue-sharing system where the central government transfers resources to the states through a complex grants-in-aid mechanism, the consequence of this fiscal asymmetry has been growing fiscal instability at the subnational level, particularly as Indian states have been unable to meet large public service expenditures. As Rodden (2002), Wibbels and Rodden (2003) have shown, India’s trend of unsustainable fiscal deficits and growing transfer dependence is not unique, as similar patterns have been found in developed and developing countries.

What makes the Indian case distinctive is that it has been asynchronous to the economic business cycle and to sustained policy efforts to redress this problem. The Indian case is also interesting because India also has one of the world’s largest subnational debt to GDP ratios. According to the World Bank (2009: 241), in 2007, the central government’s total debt as a proportion to GDP was 53.7 and the central government’s interest payments as a proportion to total revenue was 23.9 percent. Likewise, state governments in India have been affected by an increasing debt burden. The Reserve Bank of India (2009) calculates that between 1991 and 2004, the debt to GDP ratio of Indian states increased from 22.5 to 33.2 percent. More importantly, the combined liabilities of the state and central governments in India is equivalent to 84.3 percent of GDP.²
As a result of the large levels of subnational debt accumulated by state government, many states have had to devote sizable amounts of their fiscal resources to interest payments on the debt. The Reserve Bank of India (2009) estimates that, in 2007, interest payments amounted to 18.4 percent of the aggregate revenue expenditures of Indian states. Figure 1 shows a histogram of the frequency distribution of the percentage levels of interest payments made by 16 states in India from 1960-2006.

[Figure 1 about here]

As can be shown in Figure 1, most states have devoted between 10 and 20 percent of their overall fiscal expenditures on interest payments on the debt. As Figure 1 shows, in exceptional cases, some states have devoted up to 40 percent of their fiscal resources on interest payments on the debt.

Articles 292 and 293 of India’s Constitution sets out the borrowing capacity of central and state governments, which are not to exceeded legislatively prescribed annual borrowing limits. Accordingly, state governments have typically financed their fiscal deficits with centrally provided loans. In turn, loans are repaid from the state government’s own fiscal resource. As observed by Rudolph and Rudolph (2001: 1546) and Jenkins (2003a: 70; 2003b: 618), an important change in Indian state government finances is that state governments are increasingly financing fiscal deficits through market borrowings and away from loans from the central government.

Since the enactment of a federal law relating to inter-generational fiscal management, the Fiscal Responsibility and Budget Management Act of 2003, most states in India have place adopted legislation which binds them to meet the fiscal
deficit targets. At the same time, though, states governments have been given greater flexibility to engage in market borrowing. For instance, in 1980, net loans from the central government amounted to 42 percent of the financing of state government fiscal deficits. By 1999, net market borrowings surpassed net loans from the central government as the largest source of gross fiscal deficit financing. The Reserve Bank of India (2009: 60) calculates that, in 2008, market borrowings amounted to 58.9 percent of gross fiscal deficit financing by states. However, as a result of the large interest rate for market borrowings, it is anticipated that the liquidity position of state governments in India is likely to deteriorate. India’s central bank, the Reserve Bank of India (2009: 61) offers a grim assessment of the sustainability of Indian state government finances and concludes that “the structural weakness of the state finances manifested in large and persistent RD [revenue deficit] resulting in high GFD [gross fiscal deficit] and large accumulation of debt and a concomitant increase in debt service burden.”

Given the peculiarities of India’s example, the effects of India’s high level expenditures on interest payments on the debt have received a great deal of attention in the literature on fiscal decentralization (Purfield 2004). Such literature maintains that disproportionately large subnational expenditures on interest payments on the debt reduce fiscal space for growth enhancing forms of public expenditure (Heller, 2005) or that it increases electoral volatility (Nooruddin & Chhibber, 2008). In the case of India, the state government non-developmental expenditures on interest payments on the debt is equivalent to the states’ combined developmental expenditures in education, sport, arts, and culture. Equally arresting findings on macroeconomic performance have been found in the broader comparative fiscal federalism literature (Rodden & Wibbels, 2002; Wibbels, 2000).
In general, the comparative federalism literature has focused its attention to the effects of growing subnational debt, there has been less attention to the causal factors for the emergence and durability of subnational debt burdens. Taking into account this gap in the literature, Rodden (2002) suggested that future research in comparative fiscal federalism should examine “the incentive effects of different types of intergovernmental transfers and local taxes within countries” (p. 684). The method suggested by Rodden to uncover the political nature of vertical fiscal imbalances is to examine “the precise role of intergovernmental transfers in shaping the perceptions and incentives of voters and politicians” (ibid.)

Although Rodden’s suggestion is helpful, we think that in order to evaluate the political impact on subnational debt reduction expenditures, one ought to make the incentives of voters and politicians exogenous. Thus, in determining the effect of intergovernmental transfer on subnational debt reduction, there is a two-step mechanism. The first step is that the hard budget constraints from intergovernmental transfer imbalances may affect the incentives of voters and politicians, largely by limiting their fiscal space. The second step is to determine if, in turn, the political incentives of voters and politicians may affect the decision to finance subnational debt expenditure, compared to other forms of subnational fiscal expenditure.

Broadly, we suspect that the degree of ideological proximity between the central government and its constituent units, political party ideology or the electoral cycle may prompt politicians to adopt different postures with respect to servicing interest payments on debt. As Khemani (2007: 693) has observed in the case of India, whenever a state governments is controlled by the same political party that controls the national government, that specific state government tends to have higher spending and an above average fiscal deficit. The implications of this finding are that some
subnational level politicians may engage in soft budget constraints if they have ideological proximity to the political party in power at the central government.

Moreover, one could anticipate that there are other forms of partisan or ideological effects on higher expenditure on interest payments on the debt. For instance, some politicians may propose fiscal discipline measures on the basis of their political party ideology and such politicians (e.g., fiscal conservatives) may seek voters’ support on the basis of a commitment to fiscal discipline. Alternatively, as suggested by Nordhaus (1975), Tufte (1978), Alesina et al. (1997) and Khemani (2004), politicians may engage in fiscally irresponsible expenditure requests in order to enhance their probability of re-election in anticipation of an election. Therefore, election cycles may affect the level of interest payments on the debt as incumbent subnational level politicians (e.g., populists).

We believe that India, with a wealth of data on subnational expenditure data and substantial legacy of continuous democratic elections at the subnational level could be an optimal test case for determining the link between intergovernmental transfers, the incentives of voters and politicians, and subnational fiscal expenditures on debt reduction.

The Empirical Model

As discussed above, there has been a substantial variation with time across Indian states in terms of the level of fiscal interest payments on subnational debt. Few studies have attempted to provide causal explanations of state deficits through cross-sectional or panel (pooled cross-sector and time-series) data for the states (Rao & Singh, 2005; Khemani, 2002; Purfield 2003)
It is anticipated that economic variables, such as a previous year’s level of expenditure on interest payments on the debt, net state domestic product per capita or the ratio of fiscal deficit as a proportion of net state domestic product, should have an effect on a state government’s yearly expenditures on interest payments on the debt. However, we are unclear as to whether specific types of political or partisan variables affect the level of expenditures on interest payments on the debt.

To answer the questions raised in this paper, we estimate the following model with a lagged dependent variable specification:

\[
\text{INTEREST/StateTRE}_{it} = \eta \ Z_{it} + \delta_t + \alpha_i + \epsilon_{it} + \beta_1 \ \text{Electionp1}_{it} + \beta_2 \ \text{BJP}_{it} + \beta_3 X_{3i} + \ldots + \beta_k X_{3i-1} + \ U_t
\]

in which INTEREST/StateTRE\(_{it}\) is interest payment on the debt in state \(i\) in year \(t\), expressed as a percentage of a state government’s total revenue expenditure. Time-varying economic and demographic characteristics of states (real per capita state domestic product) are included in vector \(Z_{it}\).\(^4\) The variable \(Nsdpcap\) represents net state domestic product per capita. This measure uses yearly data on per capita net state domestic product (NSDP) at current prices available from the Reserve Bank of India (RBI) since 1960. For 1960-1993, NDSP data are derived from EPW, *Domestic Product of States of India*. (EPW 2003: 191-266). For the 1993-2006 time series, we utilize government data (CSO 2002) on per capita NSDP at current (1993-1994) prices (see [http://mospi.nic.in/national_accounts_division_index.htm](http://mospi.nic.in/national_accounts_division_index.htm)).

A time effect for each year, \(\delta_t\), is included to control for various shocks to the economy in any year, and state fixed effects, \(\alpha_i\), are included. In sum, these variables account for variations in state income differentials. The other variables capture the
hypothesized impact of political or partisan variables on state government expenditure on interest payments on the debt, and their coefficients are identified in this empirical specification as the change in a state’s expenditures on interest payments on the debt from its own average expenditures on the debt when its political conditions change. The unobservable error term in this specification is denoted by $U_{it}$. An estimator, ordinary least squares (OLS), are used in the regressions for this autoregressive distributed lag model.

There is a considerable debate in the literature on the validity of the political business cycle. On the one hand, Nordhaus (1975), Tufte (1978), Alesina et al. (1997), Sen and Vaidya (2003), and Khemani (2004), have argued that political choice between economic objectives over time can be gauged to the electoral cycle. On the other hand, Golden and Poterba (1980) and Beck (1982) have cast doubt on the importance of electoral timing in directing macroeconomic stabilization policy. In order to test the political business cycle in India, we have incorporated four electoral cycle variables. The variable $Electionp1$ is an indicator variable which equals 1 the year after a state assembly election is held. We hypothesize that the political effects on a state’s budgetary expenditures would be evident the year after a new state assembly election is held in a given state, giving the electoral winners the opportunity to alter the budgetary expenditures of their state. Other electoral cycle variables $Electionm1$ and $Election$ have also been included in the model. $Electionm1$ is a lagged variable which equals 1 the year before a state assembly is held. Likewise, the variable $Election$ equals 1 the year when a state assembly election is held. The final political business cycle variable $Electdis$ is an interval variable which counts the number of years until the next state assembly election.$^5$
Scholars who find evidence of a political business cycle make the assumption that politicians are office-seeking policy-makers. On the other hand, it is plausible that politicians are policy-seeking policy-makers, so their motivations may be driven by partisan or ideological cycles. Drawing on India’s three principal national political parties, the model attempts to capture the impact of political party ideology on state government expenditure on interest payments on the debt. Variable Left is an indicator variable which equals 1 when the political party leading the state government is controlled by the Communist Party of India (Marxist), India’s leading leftist national party. Likewise, variable Congress is an indicator variable which equals 1 when the political party leading the state government is controlled by the Congress Party, a center-left party and one of India’s most important national political parties. Finally, variable BJP is an indicator variable which equals 1 when the political party leading the state government is controlled by the Bharatiya Janata Party (BJP), India’s center-right party and the main national rival to the Congress Party.\(^6\)

The BJP is a political party that acquired national prominence in the 1990s. In its initial economic policy statements, the BJP has embraced a platform of economic self-reliance (swadeshi).\(^7\) Over time, the BJP has gradually stressed the need for fiscal restraint and often campaigns on that basis.\(^8\) For instance, in its 2004 election manifesto, the BJP had three fiscal policy aims: “1. restructuring of debts by state governments will be further encouraged and pursued, 2. states will be encouraged to carry out fiscal reforms and to reduce revenue deficit in every State to zero by 2006, 3. political consensus will be evolved to reduce unproductive expenditure and enhance states’ own revenue mobilization.” (Bharatiya Janata Party 2005: 95). It is worth noting, though, that other political parties in India (including the Congress Party) have also expressed the policy goal of fiscal responsibility.
Other political variables are incorporated into this model. One of the key developments in the transformation of India’s party system has been the growth of regional parties and inter-jurisdictional competition. As argued by Saez (2002: 47), the “regional fragmentation of the Congress Party has contributed to the growth of regional politics.” Saez (2002: 55) shows evidence that the increasing weightage of regional parties in India’s state assemblies has been notable, in some cases exceeding 77 percent of the votes obtained in a state assembly election. The changes in the structure of regional party systems has aided in the development of inter-jurisdictional competition in India. This transformation has important theoretical links to the proper allocation of fiscal resources. Weingast (2006: 6) suggests that inter-jurisdictional competition provides subnational politicians “with strong fiscal incentives that provide for a healthy local economy.” Hence, by representing explicitly local, rather than national, interests it is expected that state assembly elections that are controlled by regional parties are likely to have different fiscal allocation preferences than those state assemblies that are not controlled by regional parties. In order to assess the impact of regional parties, the variable \( \text{Regional} \) is incorporated into the model. The variable \( \text{Regional} \) is an indicator variable which equals one when the political party leading the state government is controlled by a regional political party.\(^9\)

India is a country that has been ruled by minority governing coalitions, both at center and in the states. As hypothesized in Khemani (2007), single-party majority governments have stronger incentives for fiscal discipline than do coalition governments. We would anticipate that a similar phenomenon would occur at the subnational level. Thus, the variable \( \text{Coalition} \) is an indicator variable that equals 1 when the political party leading the state is a coalition member. Indian state legislatures operate on a Westminster style parliamentary system where a political
party (or coalition of parties) that controls over fifty percent of the state assembly seats is able to form a government. However, last minute party switching is rife in Indian state assemblies, particularly in cases where the single largest party is unable to obtain a simple majority of the seats in a state assembly. For the sake of consistency, we have classified state governments as being in a coalition if the largest political in the state legislature fails to obtain at least 45 percent of the total number of seats in the state legislative assembly.\textsuperscript{10}

Building on Jones et al (2000), Dillinger and Webb (1999), Wibbels and Rodden (2002), and Khemani (2003), Khemani (2007: 698) argued if a state government is led by the same political party as the political party at the center, then “the center is likely to have leverage in affiliated states though internal party disciplinary mechanisms and might be able to preempt state fiscal profligacy.” In this paper we shall determine whether this particular political linkage has an effect on state government expenditure on interest payments on the debt. The variable $Center$ is an indicator variable which equals 1 when the political party leading the state government is the same as that leading the national government.\textsuperscript{11}

We shall consider whether the effective number of parties has an effect on state government expenditure of interest payments on the debt. Party system variation has been found to be an important variable in determining the allocation of club and public goods (Chhibber & Nooruddin, 2004) and, in conjunction with a reduction on fiscal space, on augmenting the electoral volatility of state governments in India (Nooruddin & Chhibber, 2008). This paper uses two measures of effective number of parties: the variable $\text{Effectvt}$ (that is, effective number of parties using votes) and the variable $\text{Effectst}$ (that is, effective number of parties using seats). The effective number of parties in a state assembly in India, using votes ($n_{\text{VOTES}}$) and seats ($n_{\text{SEATS}}$)
was calculated using the widely used index (N) developed by Laakso and Taagepera (1979). For either variable, the calculation was made using the basic formula:

\[ n = \frac{1}{\sum p_i^2} , \]

where \( n \) is the effective number of parties and \( p_i \) is either the proportion of seats controlled by all political parties in a given state assembly or the proportion of votes received by all political parties in a state assembly election, respectively. Following the method used in calculating the effective number of parties in the statistical supplement to the special issue on political parties and elections in Indian states (Palshikar & Yadav 2003: 381-443), the percentage of seats obtained and the percentage of votes received by independents was excluded from the analysis.

Finally, we shall test whether other forms of political institutional variables have an impact on interest payments on the debt. Incumbents have powerful incentives to improve voters’ economic fortunes. On that basis, it could be anticipated that policymakers may attempt to alter the nature of public expenditures to signal their ability to improve the economic welfare of voters. Such incentives may disappear, however, if there is persistent alternation of political power from one political party to another. The variable Alternation is an indicator variable which equals 1 when there has been a change in the political party controlling a state government following a state assembly election, and 0 otherwise. Likewise, incumbents who have obtained power though a large margin of victory may be less risk averse and engage in populist fiscal measures that may not be sustainable in the long term. Nevertheless, these incumbents may be less worried about their reelection chances, but be impelled to have higher levels of borrowing to sustain current fiscal expenditures. As such, it is anticipated that large
margins of victory should correspond with higher levels of interest payments on the
debt. The variable Margin is a variable that measures the margin of victory between
the percentage of votes obtained by the largest recipient of votes in a state assembly
election and the second largest party.

Data and Results

The independent variables use a mixture of ordinal scale and dummy variables.
The dependent variable is a ratio scale variable representing the proportion of state
government expenditure on interest payments on debt as a proportion of total state
government revenue expenditures. The original dataset for this study has been
compiled from different sources for 16 Indian states. These 16 states account for over
ninety percent of India’s population. The political data have been primarily
calculated from data available at the Election Commission of India website.
Supplemental electoral data has been derived from Butler, Lahiri & Roy (1995) and
from updated data available in the statistical supplement to the special issue on
political parties and elections in Indian states (Palshikar & Yadav, 2003: 381-443).

The dependent variable consists of the percentage of state government expenditure
on interest payments and servicing of the debt as a proportion of total state
government expenditure in a given state in India. The data on state government
expenditures has been calculated from yearly data provided by the Reserve Bank of
India Bulletin over a 46-year period (1960-2006). The Reserve Bank of India (RBI)
divides expenditure data into two broad categories: developmental and non-
developmental. Interest payments on servicing the debt are, appropriately, classified
as a non-developmenta.
expenditure into six further categories: organs of state, fiscal services, interest payments and servicing of the debt, administrative services, pensions, and miscellaneous general services. In this study, in order to facilitate replication of our results, we have isolated data on interest payments and servicing of the debt from other forms of non-developmental expenditures. Supplementary fiscal data has been compiled from yearly data provided in the Ministry of Finance’s *Indian Public Finance Statistics*.

In order to facilitate replication of our results, both the political and public finance data used in this study are merged into an original dataset, called POLXDEBT-India, and is available online. The POLXDEBT-India dataset, in our view, is a useful tool for scholars who wish to make precise predictions on disaggregated fiscal expenditures in India. Nevertheless, the dataset presents some a priori econometric challenges, including serial correlation, heteroskedasticity, and omitted variable bias. The theoretical literature on public expenditures in India suggests that the data on subnational public expenditures necessitates that one include a lagged dependent variable (t-1), in this case last year’s expenditures on interest payments on the debt as an independent variable. Accordingly, following on the technique used in Chhibber and Nooruddin (2004) and Nooruddin and Chhibber (2008), we have estimated our models with a lagged dependent variable and corrected the standard errors for clustering by state.\(^\text{12}\)

In addition to the standard econometric challenges, a dataset on Indian fiscal expenditures encounters additional problems, seldom discussed in the literature. The most obvious is that it is a pooled dataset for a small number of cases. In this sense, Gujarati (2003: 342, 348, 355) alerts us about what he terms to be a problem of
micronumerosity. We have addressed this problem by extending the individual number of cases to a 46 year period, the most extensive dataset of this type to date.\textsuperscript{13}

Likewise, Gujarati (2003: 441-445) also discusses the inherent problem that pooled datasets have with respect to possible autocorrelation between the residuals. For a test of a political business cycle, it may be worth assuming that the autocorrelation can be lagged across a $t$ year period. Some of the independent variables also show an alarming degree of skewness in the distribution of regressors. As Gujarati (2003: 391) alerts us, such skewness is a key source of heteroskedasticity. We are also concerned about detecting potential heteroskedasticity as a result of having an overspecified model of political outcomes. Our concerns about heteroskedasticity are also linked to an additional problem referred to earlier, namely that of likely contamination in the pooled dataset, particularly as a result of the presence of a lagged dependent variable among the independent variables. A graphical examination of the residuals, using histograms and normal P-P plots of normally distributed residuals and no heteroskedasticity was detected. Moreover, we have tested whether the error terms in the regression models are autocorrelated by using the Durbin-Watson test. We have reported these results in Table 1 and Table 2 are we have determined that the residuals are not positively autocorrelated.

The POLXDEBT-India dataset also has some potentially challenging features. For instance, several of the independent variables are dummy variables. Following on the choice of variables adopted in Chhibber and Nooruddin (2004), Nooruddin and Chhibber (2008), Khemani (2007), we have used equivalent dummy variables. Gujarati (2003: 301-303) provides ample warnings about the extensive use of dummy variables. Having evaluated the descriptive statistics from the dataset, we have some specific concerns. One is finding a resolution to the potential multicollinearity among
two of the independent variables. Conducting a basic scalar matrix test, we found that a couple of the variables (i.e., \textit{Congress} and \textit{Center}, \textit{Effectvt} and \textit{Coalition}) and showed an unusually high $R^2$ (.696 and .575, respectively). The relationship between \textit{Congress} and \textit{Center} make sense in the Indian context, as India was often described as a one-party dominant (OPD) system. Accordingly, there is some correspondence between the party that controls the central government and the party that controlled the state legislatures. Similarly, there is some theoretical (or logical) reason why this is the case for the second set of variables (\textit{Effectvt} and \textit{Coalition}). As the effective number of parties controlling a legislature increases, it would be anticipated that the likelihood of entering into a coalition would increase. As our results will show below, none of these variables appears to be statistically significant and dropping these variables from a summary model does not appear to reduce the explanatory power of the statistically significant variables.

Finally, in trying to evaluate whether there would be some interaction effects among the regressors, we have followed the example of Khemani (2007), we have also estimated the model using interaction effects between \textit{Center} and \textit{Effectvt} and between \textit{Coalition} and \textit{Effectvt}. We also tested a wide range of other possible interaction effects (including \textit{Center} and \textit{BJP} and \textit{Center} and \textit{Congress}). Save for one exception, to be shown below in model 3, none of these tests appeared to generate statistically significant results as far as it concerns interactions effects.

We have identified a range of the econometric challenges and we have evaluated that they are not insurmountable. There is an ongoing debate on the use of various transformations of a general autoregressive-distributed lag model for the purposes of estimating long-run multipliers. It is beyond the scope of this paper to resolve econometric debates that are decades old. We merely seek to find a practical solution
to our theoretical queries, replicating some of the techniques adopted by other leading researchers in the field. Other researchers may choose to adopt alternative econometric techniques, such as a generalized error-correction model. We justify our choice of techniques supported by recommendations from the theoretical econometrics literature (e.g., Banerjee, Galbraith, & Dolado, 1990) as well as from its subsequent usage in leading work in the literature on fiscal effects in India (e.g., Nooruddin & Chhibber, 2008). However, as we will develop below, having conducted extensive tests of possible configurations of the models developed in previous work, we noted that our results depart from some of the findings in previous work. For instance, building on Saez and Sinha (2010), it appears that some ideological variables in predicting the level of state government expenditure on interest payments on the debt. This preliminary finding is perhaps not surprising given that some political parties campaign on the basis of fiscal discipline, although some do some more vigorously than others. Likewise, Saez and Sinha (2010) find that the timing of elections on interest payments on the debt is quantitatively related to the timing of a state assembly election. It is time to explore these reasons further.

Overall, our results support the argument that a mix of ideological and cyclical variables account for interstate variation in state government expenditure on interest payments on the debt. The ideological variable $BJP$ and the lagged cyclical variable $Electionp1$ appear to support the argument that ideology and the timing of expenditures after a state assembly election has taken place has a notable impact on state government expenditure on interest payments on the debt. Various configurations of the model are reported in Table 1. The size of the effect of these two variables is sizable. For instance, in Model 1, the estimated coefficient of BJP ideology is 1.30. In other words, whenever the center-right party BJP controls a state
government in India, we can predict that state government expenditure on interest payments on interest payments on the debt will increase by nearly 1.3 percent of overall state government expenditure. Likewise, the effect of the lagged cyclical variable Electionp1 is noteworthy. We can predict that an increase in state government expenditure on interest payment of the debt of nearly 1 percent (0.86) will take place a year after a state assembly election has taken place.

[Table 1 about here]

The results in Table 1 and 2 show that a mix of political and cyclical variables have an effect on a state’s government’s decision to alter its budgetary expenditures on interest payments on the debt.

As we discussed in the previous section, we also decided to test for possible interaction effects that could be missed estimating for single variables. Replicating the interaction effects shown in Khemani (2007), we included interaction effects for Center and Effectvt and Center and Effectst. Given the statistically significant results in Table 1, we also expanded the list of ideological or party identification interaction effects, notably by focusing on the possible interaction whenever the Congress Party or the BJP are in control of a state government and that particular party controls the central government. Table 2 shows the additional impact of such interaction effects.

[Table 2 about here]

Table 2 shows, once again, that a mix of ideological and cyclical variables have an impact on a state government’s fiscal expenditures on interest payments on the debt.
Compared to Model 1 and 2, as Table 2 shows, the statistically significant electoral cyclical variable (i.e., Electp1) has a slightly weaker impact on a state’s fiscal expenditures on interest payments on the debt, roughly a 0.6 percent increase the year after a state assembly election is held. From the results from Model 4 in Table 2 it is also interesting to note that the impact on fiscal expenditures on interest payments on the debt from a state government that is controlled by the BJP remains high, roughly 1.2 percentage points. However, the impact of the effective number of parties variable and its variant (the interaction effects variable or coalition:effectst) is not statistically significant.

Conclusion

Much of the classical literature on fiscal federalism (Tiebout 1961, Musgrave 1969, Oates 1972) assumes that the fiscal decentralization can lead to substantial efficiency and welfare gains. However, recent analyses on decentralization (e.g., Sinha 2005, Prud’homme 1995) as well as leading institutional literature on optimal federal design (Bednar 2009) argue that a decentralized federal structure may create incentives for constituent governments and subnational units to act opportunistically in fiscal matters, thus diminishing a federation’s economic benefits, productive efficiency, and expected welfare maximization. Within the context of growing fiscal devolution in developing countries, this paper provides new empirical evidence on the impact of political variables on a state government’s fiscal expenditures on interest payments on the debt, an issue area where fiscal shirking is more likely. This phenomenon is of great importance in the comparative federalism literature as state or provincial governments and other types of subnational units have engaged in
dangerously unsustainable levels of borrowing. In the case of Brazil, for instance, lower fiscal discipline and excessive subnational borrowing have required frequent federal government bailouts (see, Bevilaqua 2002, Dillinger and Webb 1999). Other federations, such as Argentina, Belgium, Mexico, Nigeria, Russia, and South Africa, have adopted fiscal responsibility laws in an attempt to circumscribe subnational borrowing. In sum, as Bednar (2009: 85) theorizes, increased decentralization has the capacity to reduce a federation’s productive efficiency and to exacerbate allocative problems.

Using an original dataset of political variables and fiscal expenditures, this article finds that state governments are likely to increase the level of interest payments on interest on the debt as a proportion of total state government expenditures the year after a state assembly election is held. The cyclical effects of state assembly elections have been examined in Saez and Sinha (2010), Khemani (2003, 2004, 2007). In contrast to the findings in Saez and Sinha (2010), where changes in certain types of electorally powerful expenditures (e.g., education, health, agriculture) appeared to have taken place the same year when a state assembly election is held, this paper shows evidence that state governments only have an incentive to alter their fiscal expenditures toward fiscally prudent measures the year after an election has taken place. This particular trend may be termed a hangover effect, that is politicians who control the state government switch fiscal expenditures to fiscally responsible items.

This paper also provides empirical evidence for another political effect on a state government’s fiscal expenditures. India’s state elections are often a battleground for fiscally irresponsible investment promises by populist politicians (e.g., free electricity to farmers, heavily subsidized food to favored constituencies). As Rao (2002: 15) has observed “expenditure growth [in India] has been determined by competitive
populism and redistribution of expenditures in favor of ‘distributional coalitions’.”

Although it is hard to win state assembly elections on the basis of fiscal prudence, this paper shows that at least one political party, the BJP, appears to significantly increase the state government’s budgetary expenditures on interest payments to meet the state debt obligations whenever it is in power in a given state government. As the results show, this effect increases whenever the BJP controls a state government and it is the party that controls the central government. This particular trend may be termed the *BJP effect*, that is the BJP has a clear preference for certain types of fiscal expenditures dealing with interest payments on the debt. This conclusion is by no means an endorsement of the BJP or any of its policies, nevertheless it is a noteworthy political impact that ought to be examined more carefully in future studies of fiscal expenditures in India. At the same time, it is important to note that an increase in fiscal expenditures on interest payments on the debt can diminish fiscal space on other developmentally desirable expenditure items (e.g., education, health).

Finally, this paper also provides empirical evidence to the observation that whenever a state government is formed using a coalition and the effective number of parties in a state assembly increases, then it appears that the incentives are for state governments to reduce state government expenditures on interest payments on the debt. In the case of India, some state governments (e.g., Uttar Pradesh, Bihar) operate on the basis of weak governing coalitions that preside over a highly fragmented state assembly. These particular state governments are not fiscally responsible. Thus, this negative fiscal trend may be termed the *overcrowding effect*, namely that a situation where a coalition government in a highly fractured legislature is likely to be fiscally irresponsible.
Bibliography


Figure 1
Fiscal expenditure of interest payments on the debt: Frequency distribution
Table 1
The Impact of Political Variables on Interest Payment on the Debt

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 1</th>
<th>SE</th>
<th>Model 2</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest_{t-1}</td>
<td>0.768***</td>
<td>0.023</td>
<td>0.771***</td>
<td>0.023</td>
</tr>
<tr>
<td>Election</td>
<td>0.691</td>
<td>0.462</td>
<td>0.698</td>
<td>0.462</td>
</tr>
<tr>
<td>Electm1</td>
<td>0.415</td>
<td>0.362</td>
<td>0.419</td>
<td>0.362</td>
</tr>
<tr>
<td>Electp1</td>
<td>0.858**</td>
<td>0.315</td>
<td>0.840**</td>
<td>0.315</td>
</tr>
<tr>
<td>Electdis</td>
<td>0.061</td>
<td>0.133</td>
<td>0.067</td>
<td>0.133</td>
</tr>
<tr>
<td>Left</td>
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<td>0.536</td>
<td>0.554</td>
<td>0.554</td>
</tr>
<tr>
<td>BJP</td>
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<td>0.555</td>
<td>1.209**</td>
<td>0.549</td>
</tr>
<tr>
<td>Congress</td>
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<td>0.389</td>
<td>0.146</td>
<td>0.392</td>
</tr>
<tr>
<td>Regional</td>
<td>-0.082</td>
<td>0.444</td>
<td>-0.103</td>
<td>0.445</td>
</tr>
<tr>
<td>Coalition</td>
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<td>0.358</td>
<td>-0.504</td>
<td>0.415</td>
</tr>
<tr>
<td>Center</td>
<td>-0.246</td>
<td>0.339</td>
<td>-0.241</td>
<td>0.339</td>
</tr>
<tr>
<td>Effectvt</td>
<td>0.175</td>
<td>0.099</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectst</td>
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<td></td>
<td>0.252</td>
<td>0.145</td>
</tr>
<tr>
<td>Margin</td>
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<td>0.009</td>
<td>0.012</td>
</tr>
<tr>
<td>Alternation</td>
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<td>0.250</td>
<td>-0.296</td>
<td>0.250</td>
</tr>
<tr>
<td>Constant</td>
<td>1.858**</td>
<td>0.746</td>
<td>1.923**</td>
<td>0.734</td>
</tr>
<tr>
<td>Nsdpcap</td>
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<td>0.000</td>
<td>7.881E-5</td>
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<tr>
<td>Number of observations</td>
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<td>764</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R^2</td>
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<td>0.716</td>
<td></td>
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<tr>
<td>DW</td>
<td>2.371</td>
<td></td>
<td>2.370</td>
<td></td>
</tr>
</tbody>
</table>

Note: Dependent variable is the ratio of state fiscal expenditure on interest payments on the debt to state total revenue expenditure; year effects and state fixed effects included; OLS regressions with robust standard errors have been corrected for clustering by state; Models were estimated using R, version 2.7.2, exact commands used are available in the POLXDEBT-India codebook.

*p<.05. **<.01. ***<.001.
Table 2
The Impact of Political Variables (With Interaction Effects) on Interest Payment on the Debt

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 3</th>
<th>SE</th>
<th>Model 4</th>
<th>SE</th>
</tr>
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<tbody>
<tr>
<td>Interest_{t-1}</td>
<td>0.768***</td>
<td>0.022</td>
<td>0.774***</td>
<td>0.022</td>
</tr>
<tr>
<td>Electp1</td>
<td>0.676**</td>
<td>0.260</td>
<td>0.674*</td>
<td>0.261</td>
</tr>
<tr>
<td>BJP</td>
<td>1.212**</td>
<td>0.466</td>
<td>1.105*</td>
<td>0.465</td>
</tr>
<tr>
<td>Effectst</td>
<td>0.466**</td>
<td>0.176</td>
<td>0.096</td>
<td>0.094</td>
</tr>
<tr>
<td>Coalition:effectst</td>
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<td>0.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center:effectst</td>
<td></td>
<td></td>
<td>0.038</td>
<td>0.077</td>
</tr>
<tr>
<td>Nsdpcap</td>
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<td>0.000</td>
<td>7.065E-5***</td>
<td>0.000</td>
</tr>
<tr>
<td>Constant</td>
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<td>0.463</td>
<td>2.557***</td>
<td>0.385</td>
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<tr>
<td>Number of observations</td>
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</tr>
<tr>
<td>Adjusted R^2</td>
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<td>0.710</td>
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<tr>
<td>DW</td>
<td>2.356</td>
<td></td>
<td>2.359</td>
<td></td>
</tr>
</tbody>
</table>

Note: Dependent variable is the ratio of state fiscal expenditure on interest payments on the debt to state total revenue expenditure; year effects and state fixed effects included; OLS regressions with robust standard errors have been corrected for clustering by state; Models were estimated using R, version 2.7.2, exact commands used are available in the POLXDEBT-India codebook.

*p<.05. **<.01. ***<.001.
Notes

1 In India, the crucial distinction between a state and a union territory is that states have their own state legislature whereas union territories are governed directly by the federal central government. Most Indian states are governed by a bicameral legislative body, whereas others are governed by a unicameral legislature.

2 The latest available figures from the Reserve Bank of India are for fiscal year 2007-2008. GDP is calculated at factor cost.

3 The gross fiscal deficit (GFD) is the difference between the aggregate net disbursements of debt repayments and recovery of loans and revenue receipts and non-capital receipts. Revenue deficit (RD) is the difference between revenue expenditure and revenue receipts.

4 Three states in this study (Assam, Haryana, and Punjab) have missing data for net state domestic product per capita during the 1960-1965 period. The Reserve Bank of India provides data for 1960 and 1965, but no data for the interim years. Although some scholars (e.g., Horton & Kleinman 2007) wisely warn that recoding missing values in time series cross-section data has the potential for introducing bias, in this dataset we have recoded the missing values for these three states using linear interpolation from the data that is available (i.e., 1960 and 1965). We believe that this choice is prudent given that net state domestic product per capita tends to have a smooth trend over time. We have tested the model with and without this imputation and we have observed noticeable alteration to the results. In the case of the missing data from the state of Himachal Pradesh (from 1960 to 1967 inclusive) we have no imputed any data because unit did not exist as an Indian state during this period of time.

5 The author has collected electoral data for 16 states in India from 1960-2006. However, the electoral data for four states in this sample is partially incomplete. The states of Gujarat and Jammu and Kashmir held their first state assembly election in 1962, while the states of Haryana and Himachal Pradesh held their first state assembly election in 1967. The overall number of missing electoral cases is not large and imputation would be inappropriate, therefore in estimating the model, missing electoral data has been excluded pairwise.

6 The depiction of the BJP as a center-right political party belies the fact that the BJP remains a very controversial party among many in India and elsewhere, particularly on the basis of some of its ideological tenets on issues of secularism. As such, it is often referred to as a Hindu nationalist party (Malik & Singh 1999) or, less charitably, as a Hindu supremacist party with fascistic tendencies (Sarkar, 2004; Banerjee, 1998). The purpose of this paper is not to attach any given normative label to the BJP and the effects of its policies. It merely attempts to determine whether there is an impact on state government expenditures on interest payment on the debt at times whenever a state legislature is controlled by the BJP. For a fuller evaluation of the BJP and the effects of its policies, please refer to Adeney and Saez (2005) and other such work.

7 Nayar (2000) and others have highlighted the internal tensions within the BJP’s macroeconomic approach, being simultaneously guided by an embrace of economic nationalism while supporting greater economic liberalization and global integration.

8 In its 1991 election manifesto, for instance, the BJP vowed to “reduce non-plan expenditure drastically, balance the revenue budget (zero budgeting deficit under revenue account) and reduce the overall debt burden.” (BJP 2005: 329)

9 India’s principal regional political parties include the Telugu Desam Party (TDP) in Andhra Pradesh, the Asom Gana Parishad (AGP) in Assam, the Jammu and Kashmir National conference (JKNC) in Jammu and Kashmir, the Shrimoni Akali Dal (SAD) in Punjab, and the All India Anna Dravida Munnetra Kazhagam (AIADMK) and the Dravida Munnetra Kazhagam (DMK) in Tamil Nadu.

10 A more stringent definition of being in a coalition, whereby the largest party has to receive at least 50 percent of the votes would only alter the coding for eight state assembly
elections episodes from 1957 to 2006. We have carried out tests with the more stringent
coding, but there has been negligible difference in the empirical results.

The variable Center is virtually identical to Khemani’s (2007) Strictly Affiliated
variable. However, we have relaxed the interpretation of this variable to accommodate for the
fact that since 1989 India has been governed by minority government coalitions. In our
configuration, the variable Center equals 1 if the political party leading the state is the same as
the largest party leading the national government coalition (e.g., the BJP from 1998-2004, the
Congress Party from 2004-2009). In our coding, we have also accounted for changes in the
national and state governments where a political party rules for a few months out of the year.
If a political party is in control of the national or the state government for a period of six
months or longer, then we have coded that specific political party as being in control of that
particular legislature.

Only two states have a visible number of missing variables (Haryana, 1960-1965;
Himachal Pradesh, 1960-1969). We do not think that in a time series of 46 years, the missing
values from these two states would significantly alter the findings based on the findings from
14 other states. Some previous researchers, notably Khemani (2007: 709), have decided to
eliminate Himachal Pradesh from their analysis, while others (e.g., Chhibber & Nooruddin,
2004; Nooruddin & Chhibber, 2008) have opted to start their datasets from 1967 (partially to
incorporate Haryana and Himachal Pradesh fully, generating a rectangular dataset with no
missing values). These are sensible options to the problem of missing values for two states,
though in our view the decision to eliminate seven years of data for other 14 states for which
there is available fiscal data may be an exceedingly drastic solution. At the other end of the
time scale, some scholars have noted that in the year 2000, 3 states (Chhattisgarh, Jharkhand,
and Uttarakhand) were created from district in 3 existing states (Bihar, Madhya Pradesh, and
Uttar Pradesh). It is too early to incorporate the 3 newly created states into a long-term
econometric analysis of fiscal issues in India, but there is a question (especially in Khemani,
2007) that the inclusion of Bihar, Madhya Pradesh, and Uttar Pradesh (the states whose
boundaries were altered) could lead to a discontinuity in the units of observation. We hold
the view that eliminating these three states from any analysis of fiscal issues past the year
2000 is not an optimal solution, particularly since these three states are some of the most
populous in India. In estimating our model, we have decided to exclude missing values
pairwise.

The government of India did not maintain standardized fiscal expenditures prior to 1960.
For that reason, most fiscal datasets based on Indian data start no earlier than 1960. Some
economic and demographic data suffers from a two or three year lag from the time of
collection until it is actually published. For this reason, as of the time of the writing of this
paper, it is not possible to collect a more timely dataset than 2006. Nevertheless, this study
uses a more extensive dataset than other similar efforts, a dataset of 16 states from 1960 until
also uses a dataset from 1960-1992, Khemani (2007) uses a dataset from 1972 to 1998,
Chhibber and Nooruddin (2004) use a dataset from 1967 to 1997 and in Nooruddin and