

Fiscal Federalism, State Lobbying and Discretionary Finance: Evidence from India

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Keywords: state lobbying, discretionary disbursement, political variables

JEL classification : H0, H79

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The authors would like to thank Carla Marchese and Nicolas Gravel for their valuable comments on two earlier drafts. Various versions of this paper were presented at the first world meeting of the Public Choice Societies, Amsterdam, March 29-April 1, 2007 and the IDEP-GREQAM Conference, Marseille, June 14-15.

Abstract:

In a quasi-federal democratic polity that India has, lobbying for central funds by the states is often done in a subliminal fashion. Hence, it becomes difficult to get an account of how much lobbying has been done to a particular end. Our paper attempts at constructing certain political proxy variables to quantify the extent of such lobbying in India. We quantify lobbying through the ministerial representation in the council of ministers. We also use several time and state dummies to account for the constituent states' political alignment with the centre as well as the coalition and the reform period breaks in the Indian system. Taking panel data that covers 29 years and 14 major states we show that our constructed variables do explain disparity in central fund disbursements under the non-formulaic 'discretionary' head in a robust way. Our findings remain true even after we take into account the impact of possible endogeneity of net state income on the transfers. Additionally, our exercise brings to the fore the fact that the coalition governments and economic reform measures impact upon state lobbying at the centre in a significant manner.

1 Introduction

By now, it is a well-established fact that inter-governmental transfers are not necessarily driven by normative considerations only. Very often political forces play a major role in determining these transfers. In recent times a lot of studies have gone into analyzing how inter-governmental transactions in various countries are determined by political factors.¹ Wright (1974), Grossman (1994), Worthington and Dollery (1998), Porto and Sanguinetti (2001), Case (2001), Johanssen (2003), Stratmann and Baur (2002), Scady (2000), Cadot, Roller and Stephen (2006), Golden and Picci (2008) are some of the examples that show how partisan politics influence distributive aspects in countries like USA, Australia, Argentina, Albania, Sweden, Germany, Peru, France and Italy.

Inter-governmental transfer systems in India similarly have a political bargaining aspect that goes beyond the normative considerations. In this paper we focus on one such aspect of political bargaining- lobbying on the part of the regional states at the federal level and its impact on fiscal disbursement from the federal to the state level of a specific type. This paper attempts to construct a number of political indices that capture the endeavour on part of the constituent states to pull central funds toward their end. The very complex structural set-up of India as a federation makes it difficult to construct suitable variables to examine how political incentives influence economic decisions. Still, considering the worth of the task some economists have attempted to do so in recent times. This paper, we hope, would add to this nascent discourse significantly.

¹ Riker (1975) is considered to be a classical text in this context.

That Indian states do lobby at the centre to pull funds towards their own end where there is scope for manipulation is a well-known fact that does not lend itself easily as a verifiable hypothesis. This is so because, lobbying in the Indian political structure is not legitimized and that makes it very difficult to quantify the extent of such an action. We discuss this issue later in more details. This paper, despite this obvious difficulty, aims to construct a hitherto unattempted political index- lobbying at the level of the council of ministers (the central cabinet). It also aims to bring to light any significant change that economic reform and the coalition government era might have brought about regarding discretionary fiscal disbursement. To our knowledge no research in this field has till date dealt with these ‘breaks’ in the Indian politics. Neither has any study tried to evaluate the impact of lobbying at the council of ministers in the Indian context before us.² We also allow for the possibility of the advantages that parties belonging to the ruling coalition can bring to their own states. Finally, any attempt at evaluating lobbying and establishing the connection between discretionary federal finance and the former with the help of a rich panel dataset is something quite new in the literature. Our results establish significant and positive relationship between the constructed explanatory political variables and discretionary disbursement.

The theoretical inspiration of the study is drawn from the models of distributive politics. The two basic voting models, Core and Swing, differ with respect to the conjecture about which section of the voters the contesting parties need to appease more for electoral purposes-voters who are partisans or those who are vacillating. The former hypothesis says that vote-maximizing parties will allocate distributive benefits primarily to their core voters. The swing voter logic, on the other hand, runs as

² This index developed in two earlier versions of this paper Biswas and Marjit (2000), Biswas and Marjit (2002) generated a considerable amount of interest among researchers in this topic. This index was tested in Singh and Vasistha (2004). See also Arulampalam, Dasgupta, Dhillon and Dutta (2009) and Rao and Singh (2007) where this index has been referred to in different contexts.

follows: The parties should not waste resources on voters who are committed to the party because core voters will not withdraw their support if their favoured party withholds distributive rewards. Empirical studies cited as supporting the thesis that material benefits are disproportionately directed toward swing voters include Wright (1974), Stein and Bickers (1994), Bickers and Stein (1996), Denmark (2000), Herron and Theodos (2004), Stokes (2005), Dahlberg and Johansson (2002), and Case (2001). Empirical studies supporting the hypothesis that such benefits disproportionately go to the core voters include Ansolabehere and Snyder (2003), Levitt and Snyder (1995), Balla, Lawrence, Maltzman and Sigelman (2002), Diaz-Cayeros, Magaloni and Weingast (2000), Murillo and Calvo (2004), Bickers and Stein (2000), and Hiskey (2003). Coming to the theoretical models of electoral competition, Cox and McCubbins (1986) propound a core voting model that says risk-averse politicians will invest relatively more in core groups whereas Dixit and Londregan (1996) predict that it is the swing voters who are disproportionately favoured in terms of benefits for electoral purposes. Lindbeck and Weibull (1987) obtain the result that with an objective of maximizing the total number of seats in the legislature (expected plurality maximization), more weight should be given to the districts where electoral races are tight (swing districts) whereas with an objective of maximizing the probability of winning a majority (gaining a plurality), more weight should be given to the pivotal (core) districts which means that these two models are state-contingent and neither should be taken as reflecting any universal truth. Their model generally predicts a bias towards swing voting groups because the second case holds good only under specific circumstances: a) if parties are unequally popular in the sense that there are differences in prior voting probabilities in the electorate b) the electorate is large and c) if the term core voters are meant to be such voters of the more popular party ; the model predicts

that in the second case both parties would try to favour the core/partisan voters of the more popular party. Following them, we test a model in the Indian economy where maximizing the probability of winning a majority seems to be the natural choice for the parties since, despite a first-past-the-post (majoritarian) voting system, the party that wins the maximum number of seats has to prove majority in the Indian parliament to assume power if the total number of seats falls short of absolute majority. Also differences in popularity between the parties in terms of prior voting probability and a large electorate seem to be the natural conditions in which we are operating. Therefore, we would expect that the core-voting model would be the more appropriate one in this context. Based on a panel dataset that covers a 29 year period we indeed show that non-formulaic discretionary federal funds flow more to the state-constituencies from where the central cabinet draws larger number of ministers, supporting the core voting model in pork-barrel politics. Our results also point towards the fact that parties belonging to the ruling coalition have an advantage over their counterparts in pulling the general share of the pie towards their end. Moreover, the time dummies capturing breaks in the Indian economic and political systems each show significant impact individually.

Our study is important not only because of the emerging interest in the functioning of India's complex fiscal federal system. The straightforward translation of electoral incentives into lobbying for federal funds in the Indian context can be generalized in case of many other countries that have the majoritarian system (43 out of the 191 countries of the United Nations including United Kingdom, United States, Canada, France, Republic of China have this system) and any emulation of this exercise, given

the results lend support to such a connection between electoral compulsions and federal financing, will have far-reaching policy implications.³

The paper proceeds as follows: Section 2 gives a brief overview of the fiscal-federal relationship between the centre and the constituent states in India and the existing literature thereof. Section 3 discusses the construction of political indices given the Indian background. Section 4 elaborates on the data and explains the model and the estimation methodology. Section 5 interprets the results. Section 6 concludes the paper.

2 Centre-State Federal Fiscal Relation in India and the Literature

India can be described as a quasi-federation with the nature of a polity compelling the union to be a federation of states. There has been a lot of debate whether the label quasi should be attributed to it or not⁴ and despite the fact that scholars in comparative federalism would like to place India squarely in the category of established federal systems, it is still governed by a complex mixture of federal and unitary principles.

There are three broad categories of transfer from the centre to the states in India - the Finance Commission transfers, the Planning Commission transfers and the transfers through the union ministries. Finance Commission transfers are called statutory transfers and this transfer is pre-determined and largely formula-based in the distribution between states. There might be a discretionary element in their

³ Golden and Picci (2008) find that in Italy under an *open list proportional representation* system the parties in the ruling coalition are not, per se, capable of extracting more resources if their vote share increases and neither are, of course, parties in opposition. Only powerful politicians in alliance with the ruling coalition can do so. As they explain, in a single member district electoral setting (like ours) the individual characteristics of the legislators are incorporated into the models of partisan bias whereas the open-list PR system warrants an aggregation of the characteristics of various legislators into the electoral districts. Given this background, the difference in the results between the two papers are not difficult to follow.

⁴ Arora (2006) gives a preliminary exposure to the debate.

distribution between states, but because they are prescribed by a group of technical experts, they could in principle be seen as determined outside a bargaining context.⁵ Right from the start, the statutory flow was supplemented by an assortment of non-statutory flows for developmental assistance called Plan flows. A major part of this Plan flows is based on certain formula and the latter itself is subjected to changes over time (known as Gadgil or modified Gadgil formula). But there is also another part of the Planning Commission transfer that does not come under the purview of this formula. This part comprises centrally sponsored and central sector schemes. A third category of transfer that is known as the ad-hoc transfer is made through the union ministries and is at every instant non-formulaic.

Discretionary transfer is defined as the grants and loans made by the central government for centrally sponsored and central sector schemes⁶ (which as mentioned are under the purview of the Planning Commission but beyond the scope of its formulaic transfer) plus all forms of ad-hoc assistance by the centre to the states in the form of grants and loans.⁷ This kind of direct financial assistance through the individual union ministries were supposed to be used sparingly and only under exceptional circumstances under the Indian constitution. But they remained quite substantial over the years (Rao and Singh, 2005, Thimmaiah, 1997) and drew the largest criticism from the economists practicing in the field of federal finance.

⁵ Rao and Singh (2000) find a surprising result that in certain econometric specifications, even these transfers could be explained by some constructed variables. They also find some part of the Planning Commission formulaic transfers contingent on political factors. These results however are not corroborated by any other study.

⁶ There are sometimes other categories or categories with changed names like central Plan schemes and special Plan schemes. All this are not subordinated through Gadgil Formula. We consider them as discretionary transfer.

⁷ The ad-hoc allocation includes 'relief for natural calamities' and 'others' in the Grants part and 'share of small savings', 'relief for natural calamities', 'ways and means advance', 'loans for special schemes' and 'others' in the loan part.

Although the need to test the connection between political influence and federal financing in India with systematic tools was long felt, it was only in recent times that economists have started paying attention to this particular aspect of India's political economy. Few papers came up in the late 1990s- early 2000s. Kletzer and Singh (1996) argue that when the federal government has some discretion over intergovernmental transfers between itself and the states or across states, state fiscal authorities have incentives to try to influence the allocation of grants to favor their constituencies. According to them, such discretionary transfers appear to have grown as a proportion of revenue sharing with the states in recent years. Rao and Singh (2000) analyze three categories of transfer from the centre to the states.- Statutory, Grants for State Plan Schemes and Discretionary Transfers to find that there is an impact of political alignment on grants for state plan schemes, albeit with a lag. Khemani (2003) finds evidence in favour of the fact that not only transfer instruments are affected by political objectives in the Indian political system, but greater transfers are directed towards those states where the national ruling party has more seats to gain⁸. Dasgupta, Dhillon and Dutta (2004) use three political explanatory variables. Taking panel data for 15 states over 29 years (starting from 1968) they find strong supports in favor of the importance of political effects on discretionary transfers. Biswas and Marjit (2000), Biswas and Marjit (2005) and Biswas, Marjit and Marimoutou (2008) study 14 major non-special category states to prove existence of strong relationship between political lobbying and discretionary disbursement.⁹ The

⁸ This touches upon the classical debate on whether swing states or core states are more favoured, see Cox and McCubbins, (1986), Parikh and Weingast (2003).

⁹ Dasgupta, Dhillon and Dutta (2004) considers additionally one special category state-Assam which we think is problematic since despite the fact that Assam is a major state in India, it falls in the category of special category states for which the federal government has specific formula for transferring its financial resources. Pooling of special and non-special category states could indeed be a problem in establishing a relationship between political interference and financial transfer in India.

present paper, we think, is a substantial improvement over the previous three and any further discussion on it is postponed for the later sections.¹⁰

Few studies have also devoted themselves in establishing political biases in certain non-pecuniary disbursements in India. Khemani (2004) studies political cycles through the impact of elections on public service delivery in India. Biswas and Marjit (2002) show how the disbursement of letters of intent and industrial licenses in the era of strong public intervention (the pre-liberalization regime popularly known as the *license-quota-permit raj*) was politically influenced, vitiating the very objective of a balanced regional development.

Political scientists have also contemplated on this issue for long. Chatterjee (1997) according to whom the whole process of continuous bargaining between the centre and the states over the distribution of revenues takes the form of an orderly and rational transaction by such statutory bodies as the Finance Commissions, but immediately spills over into the disorderly immediacy of contingent political considerations. These political considerations, he thinks, may not always be a fall-out of a well planned process of deliberate centralization but may generate out of the compulsions of party politics, electoral advantage or the pressures of influential interest lobbies. Hence, according to him, the central fund disbursement in India has, over the decades, taken a form of an ever-growing series of ad hoc allocations.

Below we attempt to provide an account of the non-formula based transfer in the form of so-called discretionary transfer and relate it to certain political influence variables constructed in the Indian context.

¹⁰ First in terms of econometric methodology and second, in terms of the number of observations, the time period being chosen is much longer in this paper (till 2002 whereas in the earlier case it was till 1994).

3 Concept of state lobbying in the Indian context and index construction

We construct a benchmark index of lobbying based on deductive argument which, as will be seen, fares reasonable well in explaining disparity in disbursement. A representative in a democratic structure like India is bound to take certain actions, more often than not, towards a tangible financial end in favor of her constituency. To put it differently, an individual representative's utility function must internalize the preferences of the constituents in order to have the most efficient solution. This requires clearer knowledge about the preference patterns of the members of the electorate. However, the most common proxy to this may be in terms of the financial commitment of the elected representative towards her constituency. In other words, if we assume a general standard of efficiency, each representative member in a democratically elected government will invest a considerable amount of effort to attract funds to the specific state-constituency's end. Acceptance of this leads us to a second question. If this behavioral pattern is common to any elected representative in a parliamentary democracy, can one think of an aggregate behavioral pattern, which is structured by conflicting interests of different states? In other words, can we say that homogeneity of behavior would enable the elected members of a state (region) to behave as a *pressure group* in alluring funds towards their own state's end, treating other such groups as rival entities? In reality, state lobbying does exist in a country like India, but due to the lack of a process of legitimization, it operates in a covert manner. In a federal structure like the USA, lobbying is institutionalized, organized through cohesive and professional methods. But lobbying continues to be regarded with suspicion in India. Therefore, it becomes very difficult to have a quantitative

account of how much lobbying is done to a particular end by various groups of lobbyists/pressure groups.

In the two bodies of our legislature—the parliament and the government--elected representatives (members of parliament and ministers in the council of ministers respectively) fight for their state-constituencies. The amount of pressure they exert as a group is proportionate to their strength of representation. So the number of representatives from a state in the council of ministers can be taken as a reasonable surrogate for the amount of lobbying done:

Lobbying Power (LP)_{jt} =

$$\frac{h_{jt} / \sum_j h_{jt}}{pop_{jt}}$$

where h_{jt} is the total representation of the j th state in the council of ministers at time period t and pop_{jt} is the population of the j th state in the same period in time.

Next, we introduce two political time dummies (our chosen time period is 1974-2002, we elaborate on the choice of the time period on in section 3.2) - the coalition dummy and the reform dummy. For a state j ,

The coalition dummy

$coa_{jt} = 1$ if the year is 1977 or falls in the group 1990 - 2002, both boundaries included.

= 0 otherwise

The reform dummy

$ref_{jt} = 1$ if the year falls in the group of years 1985-2002, both boundaries included

= 0 otherwise¹¹

We now look at another index of lobbying where lobbying is measured by a dummy, which takes a value of 1 if the state's ruling party has an *alignment* with the party/coalition in power at the centre and 0 otherwise. We call this the alignment index. Construction of this index seems necessary because there has been a long-standing claim that the party at the centre favors those states that are ruled by the parties in alliance with the central government.¹² So, we finally define the dummy index as:

$align_{it} = 1$ if the state's ruling party has an alignment with the party at the centre
= 0 otherwise.

¹¹ The coalition dummy takes a value of 1 in 1977 and 1990 when Morarji Desai and VP Singh headed the (centre-left) coalition governments at the centre respectively and also in the post-1990 Congress government headed by Narasimha Rao where congress (the centrist party) won, but the seats that the congress government had as a percentage of total seats was 44.5%. For the other governments that congress formed at the centre till that date, seats won by it as a percentage of total seats was always more than 50%. We are taking 50% as the cut-off value for percentage of seat share, below which we assume that the government in power has only that much of bargaining capacity vis-à-vis the opposition which makes it closer to a coalition government rather than a non-coalition one. After Narasimha Rao, all the governments that were formed following the general parliamentary elections in 1996, 1998, 1999 were by definition coalition governments. So, the years after 1996 also get a value of 1 for the coalition dummy. The reform dummy tries to measure the impact of economic reforms introduced primarily by Rajiv Gandhi and later carried ahead by all the other governments (see footnote 12). In setting up this dummy, we put the value of the dummy = 1 in the years 1985-2002 for all the states. The rest of the years get 0. Rajiv Gandhi came to power in the 1984 election. We consider the year next to it as the beginning of the reform year.

¹² To quote one of India's leading historian and political scientist: "The alliance in power in New Delhi tends to favor those state governments run by their own people. A World Bank study for the period 1972-95 found that states ruled by parties which were also in office in Delhi received 4%-18% more central funds than did states that did not enjoy this status. Another study, by two Indian economists and for a more recent period, estimated that grants were 30% higher when the same party was in power in the state as well as the centre" (Guha, 2007). Generally speaking, we have constructed the index in a way that captures the relationship between the central party and the regional party at the central level. For instance, if a regional party is contending the central party at the state level but it forms an alliance with the same at the central level, we give the alignment dummy a value of 1. The best example would be the position of the Left Front (the ruling coalition in West Bengal, one of the states in India) in the 1989 election vis-à-vis the Janata Dal government (centre-left) at the centre. They supported the government from outside at the centre but there was no such alliance at the state level. Secondly, for any state in any year if there is a president's rule for most of the year, we give it a value of 1. Thirdly, for a change in government within a calendar year, we consider the government that stays at the end of the year. So, in years with transitions during the year, the closing situation is taken (same as Rajaraman, 2007).

We would expect state income to have an influence on this disbursement. Thus the income index is defined as, $incin_{jt}$ = per capita net state domestic product of the state j at time period t / total income of all the states at time t.

We construct the index of fiscal disbursement for discretionary fund as follows:

$$MD_{jt} = \frac{m_{jt} / \sum_j m_{jt}}{pop_{jt}}$$

where MD_{jt} is the discretionary fiscal flow index (proportional disbursement to a state normalized in terms of that state's population) under the discretionary head. m_{jt} is the money disbursed under the discretionary head to the jth state at time period t and pop_{jt} is the population of the jth state at time period t. The states we look at are: Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.¹³

Exclusion of small savings from the discretionary disbursement is necessitated by the fact that central allocative loans for small savings maintains a particular ratio (3:4) with the concerned state's total small saving collection. Obviously, for such a category political variables do not serve as an explanation. So in total we have 364 observations pooled over time and states together.

¹³ Assam, Jammu & Kashmir and Himachal Pradesh are left out by virtue of being special category states. The special category states have specific transfer formula applicable for transferring federal finance towards them. For the same reason the six small north eastern states are left out also.

4 Elaboration of the data, regression model and estimation methodology

1. Time period: Our time period stretches from 1974 to 2002. Since we are constructing political variables, certain information on Indian politics and geography of this period are warranted. This period covers many major upheavals in India's post-independence political history—10 parliamentary elections, the 1975 internal emergency period, two minor coalition breaks of 1977 and 1990 and the post-1995 period of coalition governance at the centre and finally the very important phase of economic reforms first implemented by the Rajiv Gandhi government at the centre and then carried on with no less gusto by the other governments.¹⁴ The issue of reform assumed a special dimension after India took the structural adjustment loan from IMF in 1991 but Rajiv Gandhi's election in 1984 can be called the start of the period of reform.

Initiation of the data in 1974 was warranted by the fact that classification with regard to both discretionary finance and the state boundaries stabilized in that year. In the two and half early post-independence decades, the boundaries of the states were ill-defined or at least were very different from what they were for the major part of the time period chosen. It was thus sensible to start from a time point where classification with regard to either geographical boundaries or discretionary finance would not cause problem.¹⁵ This was needed for compatibility with the rest of the dataset.

¹⁴ Non-Congress, non-BJP (Bharatiya Janta Party, centre right) governments under V.P. Singh, Chandra Shekhar, H.D. Deve Gowda and I.K. Gujral (representing various centre-left parties) have all stayed in power for short periods and despite sometimes not being too open about it, they were either unwilling or unable to reverse the process of economic reform. So, since Rajiv Gandhi assumed power in 1984, we consider the entire period upto 2002 as the period of economic reform. For the congress and the BJP governments, of course, the reform was done in a proactive manner.

¹⁵ The problem of changing state boundaries reappeared in 2000, albeit to a much smaller extent. The state of Jharkhand was separated from Bihar during that year. In the same year the state of Chhattisgarh was

For the years 1978 and 1989 we did not have separate information regarding the ministerial representation. Our data source grouped them with 1977 and 1988 respectively. For this reason, it will be unwise to take that year into consideration. So we, in fact, have 26 years of data instead of 28. That we have annual data on ministerial representation for the rest of the time period might seem strange at first sight because elections, under normal circumstances, take place after every 5 years. However, in the Indian political scenario cabinet reshuffling is such a frequent event that the annual data show sufficient year to year variation. Also during the period 1989 to 2002, India had witnessed 7 different prime ministers because of political instability. Each of them had a separate cabinet of his own, thereby inducing a lot of change in the ministerial formation.¹⁶

Our purpose is to primarily check whether the indices that we have constructed here could explain the disparity, if any, in the discretionary fiscal disbursement among the 14 major Indian states over the entire range of time period that we mentioned. Do the political influence variables that we have constructed explain the disparity in this kind of disbursement in an econometrically significant manner?¹⁷

Concerning discretionary disbursement, there are many categories (centrally sponsored schemes and central sector schemes, for instance) where the central government matches grants with the state governments and obviously, the richer states can come up with higher matching grants than poorer states. This is the main reason

separated from Madhya Pradesh and the state of Uttaranchal was separated from Uttar Pradesh. For the 3 years 2000, 2001 and 2002, we have considered the newly created states as part of the old states.

¹⁶ Data source: Our raw data for ministerial representation has been taken from India Reference Annual, a Government of India Publication. Data on discretionary finance has been taken from Reserve Bank of India Bulletins. To find out the data on the dynamics of electoral alliance for the period under consideration, several books and articles on elections in India and state politics in India have been consulted because no such 'political' data is available in an orderly manner as opposed to the psephological data which are always there. The details of the texts and authors are given in the Bibliography.

¹⁷ By this we mean with proper specification, minimizing the omitted variable bias, taking care of the standard problems of heteroscedasticity, multicollinearity, autocorrelation and so on.

why the high income states get more funds. But more funds mean more investment in infrastructure and other schemes which also make a high income state richer compared to its poorer counterpart over time (refer to Kletzer and Singh, 1996). This endogeneity problem needs to be taken care of. For this, we run regressions with income as a single period lagged explanatory variable. Secondly, lobbying power as a political variable should have a persistent effect on disbursement. Especially, lobbying done in a period is expected to affect disbursement later. To address this issue, we take lobbying as a lagged explanatory variable introducing a single period lag again. For the dummy variables, the question of persistence or endogeneity does not arise.

To take care of heteroscedasticity and autocorrelation, we run the regression with the Generalized Least Square Method with Ordinary Least Square residuals instead of running simple fixed effect panel regression. This method yields an estimated parameter that is a matrix weighted average of the between and the within estimated parameters. Therefore, we have the state fixed effects internalized in the regressions to account for heterogeneity arising between the states.¹⁸

The equation to be estimated is:

$$MD_{jt} = \alpha + \beta_1 LP_{j,t-1} + \beta_2 align_{j,t} + \beta_3 incin_{j,t-1} + \beta_4 coa_{j,t} + \beta_5 ref_{j,t} + \mu_{j,t} \quad (1)$$

MD_{jt} is the discretionary disbursement to the j th state at t th period of time. $LP_{j,t-1}$ is lobbying power of the j th state at $(t-1)$ th period of time. $incin_{j,t-1}$ is the income index of the j th state at $(t-1)$ th period of time. $coa_{j,t}$ and $ref_{j,t}$ are the coalition and the reform dummies respectively.

¹⁸ All the regressions repeated with maximum likelihood method (MLE) yield more or less the same results, we do not show them separately.

This equation yields inefficient estimates because of the high degree of collinearity observed among the dummy variables. We present the principal component analysis in Table 1 in the Appendix. It is clear from the analysis that this equation would yield inefficient estimates. So, we take one of each of the dummy variables at a time.

The appendix shows the equations and the results of the three regressions each with one intercept dummy among the alignment, coalition and reform dummies (Tables 2, 3 and 4). Following are the three regression equations that tries to explain discretionary fiscal disbursement MD_{jt} within a linear structure where the explanatory variables are lobbying power and income (each with a one year lag) along with alignment, coalition and reform dummies (each taken separately in that order in different equations)

$$MD_{jt} = \alpha + \beta_1 LP_{j,t-1} + \beta_2 incin_{j,t-1} + \beta_3 align_{j,t} + v_{j,t} \quad (2)$$

$$MD_{jt} = \alpha^* + \beta_1^* LP_{j,t-1} + \beta_2^* incin_{j,t-1} + \beta_3^* coa_{j,t} + \varepsilon_{j,t} \quad (3)$$

$$MD_{jt} = \alpha^{**} + \beta_1^{**} LP_{j,t-1} + \beta_2^{**} incin_{j,t-1} + \beta_3^{**} ref_{j,t} + \psi_{j,t} \quad (4)$$

We also take the effect of interaction of each of the dummy variables with the principal political variable – lobbying power in different regressions. Tables 5, 6 and 7 present the results. This is exactly similar to the structure above, only in each equation the corresponding dummy is multiplied by the lobbying power variable. Following are the equations:

$$MD_{jt} = a + b_1 LP_{j,t-1} + b_2 LP_{j,t-1} \times align_{j,t} + b_3 incin_{j,t-1} + \tau_{j,t} \quad (5)$$

$$MD_{jt} = a^* + b_1^* LP_{j,t-1} + b_2^* LP_{j,t-1} \times coa_{j,t} + b_3^* incin_{j,t-1} + \rho_{j,t} \quad (6)$$

$$MD_{jt} = a^{**} + b_1^{**} LP_{j,t-1} + b_2^{**} LP_{j,t-1} \times ref_{j,t} + b_3^{**} incin_{j,t-1} \quad (7)$$

5 Results and interpretation

Our result clearly shows that lobbying power acts as a significant variable in explaining the per capita share of discretionary fund disbursement among the Indian states. It also shows that if a state has an alignment with the centre, for each amount of lobbying done, that state gets more funds compared to the others (Table 3). Also, alignment as an interactive dummy (with lobbying) is significant which implies that for each unit of extra lobbying done (at the level of the council of ministers) a state that has an alignment with the centre will gain more funds than a non-aligned state. As table 6 shows, for one unit of extra lobbying, the aligned states gain almost 11% more funds than non-aligned states. Lobbying, per se, contributes to a 14% additional gain in funds. The Income index contributes the most- for each additional unit of income, there is a 67% increase in discretionary fiscal disbursement. This corroborates the claim that states at the higher income range typically obtain a much higher percentage of grants compared to states in the lower income range. Discretionary fiscal disbursement is regressive. In fact, the impact of income on this disbursement remains the highest irrespective of the combination of variables that are taken. Tables 5 and 8 show the impact of the reform dummy on the disbursement. The intercept dummy is negatively significant. In the reform years lobbying as a whole has had a lower impact on disbursement compared to years that do not fall under economic reform years. This is not difficult to interpret. Once economic reform measures came into being, outside vigilance became stronger as a result of which the Reserve Bank of India (the central bank) stopped acting as an organization fully under the control of the union government and withdrawal of funds on deficit as and when necessary became less easy. So as a whole, discretionary finance was reduced in the face of reduced

flexibility on the part of the government. The reform slope dummy is negative (has the correct sign), but is not significant even at 10% (it is significant at around 12%). So we can only say, although weakly, that with economic reform one unit increase in lobbying has a chance of increasing the fiscal disbursement by 9% less than what it used to do in the pre-reform period. Along with the overall decline in distribution under this heading, the impact of lobbying on disbursement got diluted in the reform period. The coalition intercept dummy's significance (Table 4) once again confirms the fact that with coalition governance because of the overall pressure of coalition politics, the discretionary element in the flow started getting reduced as a whole and this seems a natural consequence of shifting to such a regime from a single-party government. The coalition slope dummy also shows significance (Table 7) indicating the fact that for a unit rise in lobbying in the coalition era, the increase in such funds would be less by 15% than what it used to be under a single-party government. This is so because we are measuring state lobbying and in almost all the coalitions, partners are mostly state or region based parties. So, the within coalition threats make it difficult for a high-lobbying state to bag that high amount of funds which was possible under a single-party government. Similarly, under the coalition regime, it is not that easy to rob the low-lobbying state of the funds to the extent of a single-party government.

6 Conclusion

To summarize, lobbying in the context of a quasi-federal state like India is structured in a manner in which it operates in a subliminal fashion. However, a representative democracy exerts a certain amount of pressure on the elected members, which indirectly acts as the primary incentive for lobbying. This paper has, on the basis of

preliminary indices, made an attempt to formulate significant relationship between discretionary disbursement and lobbying. The argument seem to establish the issue of 'contingent political interests' in the bargaining of funds between the centre and the states which has been a long standing claim of the economists in federal finance, the historians and the political scientists of this country.¹⁹

There are a number of ways in which research along this line can be pursued. Firstly, state plan schemes, which are based on consensus formulae and therefore cannot be described as discretionary, can still be shown to retain certain elements of discretion. This is so because while each state proposes its plan size to the Planning Commission, the final approval rests on the Commission itself. Hence there is some scope for negotiation and persuasion. Second, the formula explicitly sets aside 7.5 % of the grants on account of special problems of states. This certainly allows for subjective judgments to creep into the system. All these issues make it worthwhile to study the impact of political variables on the state plan schemes. Secondly, three more political control variables, two of whom are often used for psephological purposes, might be worth taking into account. The first is voter turn-out percentage in the last parliament election which in a way proxy voter consciousness in a state.²⁰ The second variable is the index of opposition unity (IOU) which is given by the ratio of the vote of the largest opposition party and the sum of the votes of all opposition parties (Butler, Roy and Lahiri, 1996) in a state assembly election. This variable is important in the context of tactical distribution in a federal structure since it measures the extent of

¹⁹ Chatterjee (1997).

²⁰ Dasgupta et al. (2004) take this as a control variable but they predict and indeed find a negative relation (although statistically insignificant) between voter turn-out and central fund disbursements. However, they do not explain why it is expected that these two will have a negative relationship. On the contrary, it seems that any federal government would have more incentive to appease a state that is politically conscious, so that these two would show a positive relationship.

fragmentation among the opposition parties in a state.²¹ The third variable is another measure of lobbying (lobbying through the parliament) constructed as the proportion of Members of Parliaments that are in alliance with the ruling party or coalition at the centre out of total such Members elected from a state (Biswas and Marjit, 2000, Dasgupta et al. 2004, Singh and Vasishtha 2004). Lastly, repeating the exercise in the case of other central disbursements to the state, for instance, state-wise allocation of assistance (sanctioned and disbursed) by All India Financial Institutions (formally known as Development Financial Institutions, DFIs) as a whole and the three major ones among them – Industrial Development Bank of India, Industrial Credit and Reconstruction Bank of India and Industrial Finance Corporation of India separately would be a worthwhile exercise.

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²¹ A commonsensical prediction would be that a higher IOU will induce the federal government to pump in more money in a state since the ruling party's fear of losing the state election is higher here and this will make the ruling party act as an agency for stronger state lobbying.

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Appendix

Table-1: Principal Component Analysis

Correlation matrix:

coa	1.00		
ref	0.62	1.00	
align	-0.31	-0.26	1.00

	Eigenvalues	% variation	% cumulative
PC1	1.821	60.69	60.69
PC2	0.8056	26.85	87.55
PC3	0.3736	2.45	100.00

Eigen vectors:

	PC1	PC2	PC3
coa	-0.64266	-0.25762	-0.72154
ref	-0.62709	-0.36419	0.68857
align	0.44017	-0.89498	-0.072502

Weights on variables (eigen vectors scaled by standard deviation of variables):

	PC1	PC2	PC3
coa	-1.2891	- 0.51677	-1.4474
ref	-1.3181	- 0.76552	1.4474
align	0.92697	-1.8848	-0.15269

The principal component analysis between the political variables :coalition, reform and alignment shows us that we cannot combine those three variables in any efficient way in our model. So, we place each of those dummy variables in separate regressions along with other variables to measure its individual impact on the MD.

Table 2: Regression Result

Regression 1:

$$MD_{jt} = \alpha + \beta_1 LP_{j,t-1} + \beta_2 incin_{j,t-1} + \beta_3 align_{j,t} + v_{j,t}$$

Result 1 :

	Coefficient	Std. Error	t-value	t-prob
LP _{j,t-1}	0.200181***	0.05014	3.99	0.000
incin _{j,t-1}	0.671511***	0.1102	6.09	0.000
align _{j,t}	1.98719e-10**	9.272e-011	2.14	0.033
Constant	8.86329e-011	2.12e-010	0.418	0.676

sigma	7.82367e-010
sigma ²	6.120981e-019
R ²	0.1885847
RSS	2.1178594054e-016
TSS	2.6100805737e-016
No. of observations	350

(As is the convention, *** denotes significance at 1%, ** denotes significance at 5% and * denotes significance at 10%)

Table 3: Regression Result

Regression 2:

$$MD_{jt} = \alpha^* + \beta_1^* LP_{j,t-1} + \beta_2^* incin_{j,t-1} + \beta_3^* coa_{j,t} + \varepsilon_{j,t}$$

Result 2 :

	Coefficient	Std. Error	t-value	t-prob
LP _{j,t-1}	0.186151***	0.05013	3.71	0.000
incin _{j,t-1}	0.551624***	0.1193	4.62	0.000
coa _{j,t}	-2.82358e-010***	9.386e-011	-3.01	0.003
Constant	5.72535e-010	2.470e-010	2.32	0.021
sigma		7.770827e-010		
sigma ²		6.038576e-019		
R ²		0.1987118		
RSS		2.0893471265e-016		
TSS		2.6074850739e-016		
No. of observations		350		

Table 4: Regression Result

Regression 3:

$$MD_{jt} = \alpha^{**} + \beta_1^{**} LP_{j,t-1} + \beta_2^{**} incin_{j,t-1} + \beta_3^{**} ref_{j,t} + \psi_{j,t}$$

Result 3 :

	Coefficient	Std. Error	t-value	t-prob
LP _{j,t-1}	0.184543***	0.05032	3.67	0.000
incin _{j,t-1}	0.519895***	0.1258	4.13	0.000
ref _{j,t}	-3.01377e-010***	1.062e-010	-2.84	0.005
Constant	6.68831e-010	2.721e-010	2.46	0.014
sigma		7.782104e-010		
sigma ²		6.056115e-019		
R ²		0.1964612		
RSS		2.0954158052e-016		
TSS		2.6077344792e-016		
No. of observations		350		

Table 5: Regression Result

Regression 4:

$$MD_{jt} = a + b_1 LP_{j,t-1} + b_2 LP_{j,t-1} \times align_{j,t} + b_3 incin_{j,t-1} + \tau_{j,t}$$

Result 4 :

	Coefficient	Std. Error	t-value	t-prob
LP _{j,t-1}	0.137532**	0.06062	2.27	0.024
LP _{j,t-1} x align _{j,t}	0.107084*	0.05480	1.95	0.051
incin _{j,t-1}	.672513***	0.1105	6.09	0.000
Constant	6.68831e-010	2.097e-010	0.971	0.332
sigma		7.83048e-010		
sigma ²		6.131642e-019		
R ²		0.1867573		
RSS		2.121548243 e-016		
TSS		2.6087516899 e-016		
No. of observations		350		

Table 6: Regression Result

Regression 5:

$$MD_{jt} = a^* + b_1^* LP_{j,t-1} + b_2^* LP_{j,t-1} \times coa_{j,t} + b_3^* incin_{j,t-1} + \rho_{j,t}$$

Result 5 :

	Coefficient	Std. Error	t-value	t-prob
LP _{j,t-1}	0.272932***	0.05534	4.93	0.000
LP _{j,t-1} x coa _{j,t}	-0.157842***	0.05511	-2.86	0.004
incin _{j,t-1}	0.568056***	0.1181	4.81	0.000
Constant	3.77441e-010	2.203e-010	1.71	0.088
sigma		7.78016e-010		
sigma ²		6.053089e-019		
R ²		0.1967993		
RSS		2.0943689412e-016		
TSS		2.6075288355e-016		
No. of observations		350		

Table 7: Regression Result

Regression 6:

$$MD_{jt} = a^{**} + b_1^{**}LP_{j,t-1} + b_2^{**}LP_{j,t-1} \times ref_{j,t} + b_3^{**}incin_{j,t-1}$$

Result 6 :

	Coefficient	Std. Error	t-value	t-prob
LP _{j,t-1}	0.255325 ***	0.06006	4.25	0.000
LP _{j,t-1} x ref _{j,t}	-0.0921787	0.05928	-1.55	0.121
incin _{j,t-1}	0.600252***	0.1263	4.75	0.000
Constant	3.23670e-010	2.301e-010	1.41	0.160
sigma		7.849371e-010		
sigma ²		6.161262e-019		
R ²		0.1835378		
RSS		2.1317968075 e-016		
TSS		2.6110172081e-016		
No. of observations		350		