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Unintended Consequences of Externally Aided Projects on Fiscal Transfers: A Subnational Study of India

Abstract

We investigate the impact of foreign aid on inter-governmental transfers in India. While anecdotal evidence suggests that the central government substitutes fiscal transfers with earmarked foreign aid for state governments (*fungibility*), empirical evidence is scant due to the complex procedure of accruing foreign aid by the states. By Constitutional design, all foreign aid projects procured by states accrue to the central government which are then distributed to states as Additional Central Assistance (ACA) on Externally Aided Projects (EAPs). Analysing panel data covering 29 states from 1979 to 2017, we find that EAPs per capita are positively associated with the central government fiscal transfers to states under discretionary head (*resource loading*), but not with formulaic transfers. Importantly, the positive effect of EAPs on discretionary transfers is contingent on political alignment between the central and state governments, a finding consistent with previous works that demonstrate how recipient governments target aid at the subnational level based on local political factors. These findings have significant policy implications for the centre, state governments, and external aid donors.

JEL-Codes: F350, H700, H740, H770.

Keywords: fiscal transfers, externally aided projects, India.

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1. Introduction

What is the impact of Externally Aided Projects (EAPs hereafter) financed by international donors (both bilateral as well as multilateral donors like the World Bank Group, Asian Development Bank, among others) on the inter-governmental fiscal transfers in India? Are the effects of EAPs on inter-governmental fiscal transfers driven by political considerations? Generally, donors provide development aid to poor countries who tend to suffer from savings and investments gap (Easterly 1999). The idea then is that aid would supplement recipients' limited resources to undertake various development projects. However, the critics of aid have argued that aid is fungible¹ (Brigitte et al. 2020, Morrissey 2006) and that much of the aid allocation is driven by political considerations. There is a large scholarship on politics of subnational development aid allocation (Anaxagorou et al. 2023, Brazys et al. 2022, Song et al. 2021, Dreher et al. 2019, Masaki 2018, Briggs 2017, 2018, Nunnenkamp, Öhler, & Sosa Andrés 2017, Briggs 2014, Jablonski 2014) These studies refer to the way aid is distributed within a country, often influenced by political motives rather than solely by needs of recipient countries. Governments may allocate more aid to regions that are politically significant, such as areas with strong support for the ruling party (Briggs 2014, Brazys et al. 2022), leader's birth regions (Dreher et al. 2019) or to swing regions where electoral gains are possible (Song et al. 2021, Masaki 2018, Jablonski

¹ Aid fungibility, as defined by Rana and Koch (2020) as "aid resources intended to finance a specific expenditure that are ultimately used to finance an entirely different expenditure."

2014). This can lead to uneven regional development, as politically favored regions receive more resources, while politically not so important areas may be neglected. Such practices can exacerbate regional inequalities, create tensions, and potentially undermine the intended impact of development aid.

We build on this burgeoning literature on politics of subnational aid allocation to examine the prospects of aid fungibility in the context of inter-governmental fiscal transfers (i.e., transfers undertaken by the central government to the state governments) in India. There are studies in the literature that have examined the effects of development aid on public finance and investments in developing countries (e.g., Heller 1975, Pack and Pack 1993, Feyzioglu et al. 1998, Heckelman and Knack 2008, Van de Sijpe 2013). While these studies are an important contribution to the aid literature as they help understand the contours of aid fungibility, the influence of aid altering inter-governmental fiscal transfers and the mediating role of domestic politics within a quasi-federal democratic polity like India remains under studied. This is the gap in the aid literature this paper aims to fill.

In the context of India specifically, the study by Lipton and Toye (1990), one of the early comprehensive works assessing the effects of aid, found that aid did play a role in reducing poverty and financing the savings and investments gap. However, there was no evidence related to aid fungibility. But Jha and Swaroop (1999) do provide qualitative analysis on aid fungibility in the context of central government spending and fiscal transfers. Their descriptive analysis suggests that aid acts as a

substitute to central government spending as well as fiscal transfers to the states. Building on their work, we not only examine the effects of EAPs on fiscal transfers and varying types of transfers, particularly formulaic *versus* discretionary, to the states but also the domestic political considerations, namely the center-state relations and partisan politics, which underpin the relationship between these variables.

India is a quasi-federal democracy wherein the center-state relations embedded in the Constitution in which the expenditure obligation of the states is high on the one hand and on the other hand, their revenue augmentation capacity is low. This asymmetry is largely attributed to the power imbalance in favor of the center to levy and collect taxes on customs, personal and corporate incomes leaving states to solely rely on sales taxes and other indirect taxes to shore up their revenues. The provisioning of range of public services including law and order is deemed to be “state subjects”. This disparity between expenditure obligation and revenue augmentation capacity of the states means heavy reliance on the fiscal transfers from the central government. During the last four decades the average fiscal transfers from the center as a share of states’ own tax revenue (SOTR, henceforth) hovered around 50%, suggesting heavy reliance on fiscal transfers from the central government. It is in this backdrop, attracting EAPs from international donors becomes crucial for the states.

Aid projects can relax budgetary constraints faced by the states by providing an additional source of development finance and even bolster states’ capital expenditure. However, the Constitutional arrangement on fiscal framework in India

suggest that all EAPs (including aid projects earmarked for state governments) accrues to the central government and not to the states. These earmarked funds are then allocated to the states by the center, which came to be known as Additional Central Assistance (ACA) on EAPs. The study by Bajaj (1992) and other anecdotal evidence have indicated that states are not able to reap the full benefits of EAPs. One argument is that EAP flows result in *aid fungibility*. Inter-governmental fiscal transfers to states, particularly those transfers which are under the discretion of the center, are reduced when states secure EAPs. The central government is resource constrained, running a deficit on revenue account since 1982. In this backdrop, if the center believes that the marginal value added of a project undertaken by central governmental bodies/agencies is higher than the marginal value added of a project commenced by the state then one can expect higher levels of aid fungibility with higher EAPs flows to the states. In other words, the central government would divert the transfers which are under its discretion to finance expenditure on development projects elsewhere. In fact, such a scenario is fully plausible given the performance of state governments to implement EAPs has found to be poorer than projects under the central government sector (Bajaj 1992).

The contrary argument is *resource loading* which suggest a complementarity between the EAPs flows and discretionary transfers from the center. Under this argument, the center rewards states for attracting EAPs. Successfully implemented EAPs lead to the creation of income-generating assets, which can, over time, increase

the SOTRs, thereby reducing the state's dependence on the central government for additional development funding. Moreover, due to the central government's resource constraints and the need to access additional foreign exchange inflows, it is in the central government's inherent interest to facilitate state governments in securing EAPs. Thus, it can be expected that the central government might use its discretionary transfers to incentivize and encourage states to attract EAPs. In fact, Bajaj (1992) points out that this was precisely the goal when ACAs were created in 1976. This was an essentially incentive-based response by the center. Bajaj (1992, p.194) argues that "*the states did derive additional benefits from external assistance to the extent that such assistance augmented the totality of the plan resources. This in turn enhanced the capacity of the central government to spend on developmental activities and its ability to transfer resources to the states.*" Given these two competing arguments it is important to examine and analyze how EAPs flows affect the fiscal link between the central and state governments in India.

In tracing the fiscal effects of foreign aid in India, we also consider the political factors which might alter the relationship between EAP flows and inter-governmental transfers. Our argument on the role of domestic political considerations feeds into a more recent literature on aid allocation which began to explore interests beyond donors and central recipient governments. Brazys et al. (2022) emphasizes that local governments at the subnational level are the crucial missing piece in understanding the contours of aid allocation process. Since local governments at the subnational level

are the ultimate beneficiaries, Brazys et al. (2022) and Song et al. (2021) suggest that these local authorities are incentivized to exert influence in order to attract aid flows. As noted in Briggs (2021, 2017), while donors often delegate allocating aid to recipient governments, local political factors frequently end up influencing aid allocation at the subnational level a finding consistent with other studies (Anaxagorou et al. 2023, Min et al. 2023, Song et al. 2021, Briggs 2014, Jablonski 2014; Masaki 2014).

The literature suggests that intergovernmental transfers are often influenced by political considerations rather than solely by normative factors. Studies by Brunnschweiler and Obeng (2021), Neyapti and Oluk (2021), Gonschorek et al. (2018), Johansson (2003), Stratmann and Baur (2002), Porto and Sanguinetti (2001), Levitt and Snyder (1995) have found that intergovernmental transfers in various countries are driven by political factors. India is, of course, no different. Panda (2016), Biswas et al. (2010), Arulampalam et al. (2009), Khemani (2007), Rao and Singh (2007), Singh and Vasishtha (2004) have highlighted the role of partisan politics in influencing the intergovernmental transfers. While these studies offer several theoretical and empirical models of partisan politics and its impact on fiscal federal disbursements, our study differs from them wherein we specifically examine whether the impact of EAPs flows on transfers of a specific type are shaped by domestic political considerations. While substitution between the two would suggest *fungibility*, complementary would mean *resource loading*. But if the latter is true, we expect domestic politics factors to drive this relationship.

In our theoretical framework a central government is *opportunistic* and uses its discretion to make transfers to state governments based on partisan political considerations and thereby maximize its chances of reelection. The various development projects undertaken by the state government using fiscal transfers from the center as well as with EAPs at the local level generate goodwill among voters. However, in a country like India with relatively high levels of poverty and low literacy voters often face information asymmetry problem regarding complex financing patterns of these local development projects. The voters tend to identify the benefits emanating from these projects with the government which is closer to them. It is therefore likely that the incumbent political party in the state reaps electoral rewards. On the other hand, the ruling party heading the central government would also want to maximize its position by increasing its political foothold across states. In this backdrop, one could expect the ruling party heading the central government to reward states ruled by the same party in power in the center or party aligned with center. Thus, if EAPs flows *crowd-out* discretionary transfers from the center, then one could expect the former to *crowd-in* discretionary transfers into those states which are politically aligned with the ruling party in the center. Likewise, if EAPs flows result in more discretionary transfers from the center, then this *resource loading* more likely to be in those states where the incumbent party is in political alignment with the party in power in the center.

We put our theoretical arguments to an empirical test by utilizing the data we have collected on EAPs flows covering 29 states during the 1979-2017 period (39 years). While we find EAPs per capita to be positively associated with the central government's fiscal disbursements to states under the non-formulaic "discretionary" head, this effect is strongly driven by the political alignment between the incumbent parties at the central and state levels. On the other hand, our falsification tests reveal no statistically significant effect of EAPs per capita on non-discretionary transfers, such as tax devolutions and statutory grants allocated by the Finance Commission, or on formulaic state plan grants assigned by the Planning Commission of India. These findings remain robust to alternative data, sample, estimation technique and controlling for endogeneity concerns using an excludable (shift share) instrumental variable approach.

The rest of the paper is structured as follows. Section 2 provides an overview on the institutional framework of fiscal transfers and EAPs allocations to states in India. In section 3 we present our theoretical arguments from an analytical framework we develop to derive some testable hypotheses. In section 4 we describe our data, methods, and identification strategy before presenting our findings in section 5. In section 6, we conclude with our thoughts on broader implications for policymakers in central and state governments in India but also aid donors.

2. Institutional Framework on Fiscal Transfers and External Aid in India

2.1 Inter-government Transfers

India is a quasi-federal democracy, characterized by a complex blend of federal and unitary principles (Wheare 1963). Center-State relations are enshrined within Part IX of the Constitution, specifically under Articles 245-255 (Government of India 2019). Articles 268-293 of the Constitution outline financial relations, specifically detailing the division of taxation powers between the center and the states (Government of India 2019). States in India experience an imbalance compared to the center in controlling and managing public finances. While the expenditure obligation for the states is high, the revenue augmentation capacity, by design of the Constitution, is low. Consequently, states frequently depend on inter-governmental fiscal transfers, which typically constitute around 50% of their total revenue receipts and approximately 8% of their GDP (Rao 2017).

Inter-governmental fiscal transfers in India can be categorized into three main groups viz., Finance Commission transfers, Planning Commission transfers, and transfers facilitated through central government ministries. First, the Finance Commission is appointed by the Government of India once every five years, functions as a quasi-judicial body tasked with allocating tax collections equitably among states in India. Finance Commission transfers, also known as statutory transfers comprising

of tax devolutions² and grants-in-aid,³ are predetermined. These transfers are primarily distributed between states based on a set formula.⁴ Given that the panel consists of technical experts and retired judges from the judiciary, these transfers could theoretically be seen as independent of political influence (Busch and Mukherjee 2017). There is no empirical nor qualitative or anecdotal evidence to suggest that tax devolutions from the Finance Commission is driven by political considerations. Second, the statutory flows by the Finance Commission were complemented by various non-statutory flows for developmental assistance of the states known as state plans. The erstwhile Planning Commission of India,⁵ comprised of technical experts in public finances, was entrusted with the task of designing and allocating the transfers to various states under the state plan schemes. The state governments would formulate their respective annual plans by each sector of the economy based on the available pool of resources (including their own tax revenue, non-tax revenue estimates such as grants). The annual plans are presented to the Planning Commission for approval. While approving the state annual plans, the Planning Commission allots a certain portion of the central transfers to the states following a specific formula,

² Tax devolutions in turn comprises of vertical devolution which is distribution of taxes between center and states and horizontal devolution capturing allocation between states.

³ These are largely “gap-filling” grants arising from the variance between a state’s assessed current expenditure and the anticipated revenue, inclusive of a state’s portion of central tax pool.

⁴ A formula driven weighted average approach is adopted for horizontal tax devolution in which demographic performance of states is assigned a weightage of 12.5%, while income distance from national average carries a weight of 45%. Population and area each receive 15%, with forest and ecology allocated 10%, and tax and fiscal efforts of states receive a weightage of 2.5%.

⁵ The Planning Commission of India, chaired by the Prime Minister, is a government organization which was largely responsible for formulating India’s Five-Year Plans, among other functions to oversee country’s socio-economic development. It was dissolved in 2015.

which itself has undergone changes over time (known as *Gadgil* or *modified Gadgil* formula and later *Gadgil-Mukherjee* formula).⁶

The third category is termed *ad hoc* transfers, facilitated through various central government ministries and at every instance is non-formulaic in nature. Since these transfers are not tied to any specific formula or criteria, they are referred to as “discretionary transfers”. Discretionary transfers encompass grants and loans provided by the central government for centrally sponsored and central sector schemes, which fall outside the realm of formula-based transfers managed by the Planning Commission. Over the years, these transfers have remained quite substantial, drawing criticism from public finance experts (Rao and Singh 2005, Thimmaiah 1997). For instance, Rao and Singh (2005) argue that since the advent of *Gadgil* formula which was used to provide plan assistance under state plan schemes, the central government considerably expanded its scope, enabling it to allocate funds to state governments on a discretionary basis. Since then, the growth of such transfers has exploded. This form of transfers at the discretion of the central government ministries accounted for about 28% of total transfers in 2018. Studies in the literature have shown that this category of transfers to the state has always been subject to

⁶ Gadgil formula was first applied in fourth (1969-1974) five-year plan onwards. It is based on a formula where central assistance was to be distributed to the states using the criteria of 60% on the basis of state population, 25% for per capita income below national average, 7.5% each for tax efforts and special problems of individual states, respectively. This formula was later modified during the sixth five-year plan (1980-1985). This formula was further remodified in 2000 as *Gadgil-Mukherjee* formula named after the deputy chairman of Planning commission Mr. Pranab Mukherjee in which weights were altered (population 55%, 25% for per capita income, 5% fiscal management and 15% for problems in states. Following the dissolution of the Planning Commission in 2015, the *Gadgil* formula ceased to be in effect.

political considerations (Sethia 2017, Panda 2016, Biswas et al. 2010, Arulampalam et al. 2009, Khemani 2007).

2.2 EAP Framework

The Constitution of India includes safeguards to prevent excessive borrowing by both the central and state governments. The states are barred from external borrowings and therefore rely only on domestic sources for borrowings. The same applies to obtaining EAPs as well (Kirk 2005). The constitutional arrangement for states procuring EAPs directly from the international donors is a complex procedure. The constitution under Article 293 prohibits states dealing directly with international donors and are required to seek the permission from the central government (Kirk 2005). The EAPs to the state governments are thus routed through the central government. The executing agencies from various state government departments have to submit project proposals for seeking external assistance. Upon approval the state government forwards the project proposal to the Department of Economic Affairs under Ministry of Finance, government of India. Once the proposal is vetted, the government of India provides assent for the project to seek financing from the international donors. It is the central government which scouts for international donors, on behalf of the state governments, who will be interested to finance the development project. It is noteworthy that the central government cannot deny the states EAPs once they are approved.

There are multiple layers of complexities in this arrangement. Perhaps with the view to prohibit states from excessive borrowing from international sources the central government stipulates a cap on the amount. It is most often the case that the proposed EAPs financing would be lower than the total cost of the project. Thus, the states are expected to match their share of the project cost, which is in the ballpark of around 30% (Bajaj 1992).⁷ For general category states 70% of the project cost would be financed by the EAPs in the form of loans while 30% of the cost was grant component. This number would be 90:10 for special category states (Bajaj 1992).⁸ The second unique feature of this arrangement is that terms and conditions set by the donors, including the generous concessionary rates, are not passed onto the states (Bajaj 1992). While the generous concessionary rates offered by the donors are subsumed by the center who assumes the liability of repaying the loans to the international donors, the rate of interest at which EAPs are provided to the states by the central government are far from generous. Upon maturity, the state governments are expected to repay the central government rather than the external aid donors.

The earmarked EAP funds are transferred by the central government directly to the executing agencies in states thereby bypassing the state budgets. Because the

⁷ An example of this can be derived from the Uttar Pradesh state government's details on EAPs in which a project rural water supply and environmental sanitation was approved from the IBRD (The World Bank group) in 1996 for a total cost of 127.56 crores. About 79% of the cost (101.12 crores) was loan from IBRD, while the remaining 31% was financed by the state government. See: <https://eap.up.gov.in/indexeap.html>

⁸ This classification provided by the central government of India based on the recommendations by the Finance Commission in 1969 aims to aid the development of states grappling with geographical and socio-economic disadvantages. Ten states, namely Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Uttarakhand, have been granted special category state status.

EAPs flow through the center, they are also known as Additional Central Assistance (ACAs). However, for the state governments the EAPs are an off-balance sheet item and hence may not always relax the budgetary constraints of the states. The modus operandi of EAPs allocation has undergone some changes in the post-economic liberalization phase of the early-1990s. The financing requirement from the state governments were significantly relaxed for both general and special category states (Bajaj 1992).⁹ More reforms on allocation of EAPs mechanism were implemented post-2005. The major change includes passing on the terms and conditions and the concessionary rates fully to the state governments. In some instances, state governments were allowed to directly approach the international donors and agencies to seek development finance for projects in specific sectors like electricity at the state level (Kirk 2005). Nevertheless, the basic tenets of the constitutional arrangement regarding the allocation of EAPs to states remains intact. Despite these challenges, over time EAPs have become more appealing to the states due to their precarious revenue situation, coupled with the central government's limitations in increasing plan assistance. As a result, there is an increasing demand in the states to utilize external assistance for financing their developmental projects.

⁹ For example, Bajaj (1992) highlights that in the post-liberalization period of the 1990s, the proportion of EAPs flows passed on to the states, consequently reducing the states' share of project costs, rose from 70% to 100% in several sectors.

3. Theoretical framework on aid and local transfers in India

Central government is resource constrained (Kirk 2005, Bajaj 1992). Hence, if the center believes that the marginal value added on various developmental projects undertaken by its agencies and ministries is greater than the marginal value added on the projects undertaken by the state governments, one could expect higher levels of *fungibility* with aid. Meaning, the center's discretionary transfers could be substituted by EAP flows thereby allowing the center to utilize its resources elsewhere in the country. In such a scenario one would expect EAPs flows to be negatively correlated with the discretionary transfers from the center, the *substitution (crowd-out) effect*.

On the other hand, if the center believes that state governments are to be rewarded for their efforts in securing EAPs to finance their developmental needs then one could expect development aid to complement (crowd-in) discretionary transfers from the center. We term this secondary effect as *resource loading*. The center would incentivize the states especially if EAPs are seen to increase the prospects of bolstering State Own Tax Revenue (SOTR) in the long run which in turn would reduce states' dependence on center for fiscal transfers. Under such scenario we could expect EAP flows to be positively associated with the discretionary transfers from the center.

The following model is built precisely to show the context in which these two effects emerge. To this scope, we extend the framework proposed by Khemani (2007) and Porto and Sanguinetti (2001) by incorporating foreign aid. This is done to study the complex interaction between the idiosyncratic increase in EAPs and

the consequent increase (in case of *resource loading*) or reduction (in case of the *fungibility*) of transfers from central to the state governments.

Assume for simplicity that $s = (1, 2, \dots, n)$ is the finite number of states in the federalist Indian system. In each state, we focus on the representative electoral district d in which elections take place to select the incumbent party at the state level. Each district government has the (benevolent) objective of increasing the well-being of its citizens and has preferences in terms of utility over provision of public P_S and private goods C_S at the state level:

$$U_S = f(P_S, C_S) \quad [1]$$

The utility specification in [1] has standard properties with respect to each of the two goods. Production of non-traded public goods (teachers, roads etc.) happens domestically and it entails unit costs summarized by ρ_S . The local government is therefore limited by the following budget constraint:

$$Y_S(T_S, A_S) + G_S = C_S + \rho_S * P_S \quad [2]$$

In [2], exogenous income $Y_S(T_S, A_S)$ is an additive and separable function of both tax revenues T_S and A_S , the latter being aid received from international donors. G_S represents fiscal transfers from the central government. On the side of expenses, $\rho_S * P_S$ is the total costs for the domestic production of non-traded public goods. Standard optimization exercise of [1] with respect to (P_S, C_S) constrained by [2] gives the following indirect utility function for the state

s, on the same lines of Khemani (2007):

$$V_S[Y_S(T_S, A_S), G_S, \rho_S] \quad [3]$$

The partial derivatives would of course be positive for the revenue variables (both taxes and aid, since they provide more funds to be spent on public goods) and negative for the expenses, $V'(T) > 0, V'(A) > 0, V'(G) > 0, V'(\rho) < 0$.

In order to decide on the allocation of central funds to the states, the central government maximizes the following additive social welfare function in which each state is assigned equal weights:

$$SW = \sum_{s=1}^n V_S[Y_S(T_S, A_S), G_S, \rho_S] \quad [4]$$

This implies that, given two hypothetical states 1 and 2, the optimal condition derived from the maximization of [4] is that of equalizing welfare across states:

$$V_1[Y_1(T_1, A_1), G_1, \rho_1] = V_2[Y_2(T_2, A_2), G_2, \rho_2] \quad [5]$$

Now, one can claim that under very general utility specifications we will get that, for each state s:

$$\frac{\partial G_S}{\partial Y_S(T_S, A_S)} \leq 0 \quad [6]$$

This means that, for any increase in exogenous income to the state Y_s , given by foreign aid flows, the central government can react in two different ways.

When the derivative in [6] is negative, the *substitution effect (fungibility)*

dominates. In other words, the central government counterbalances the increase in revenues by allocating less funds to the specific state in question. This implies a negative effect of EAP flows on discretionary transfers from the center. This derives from the assumption in [5] that each state is given the same weight in the allocation of discretionary transfers from the central government. In other words, the optimal condition given in [5] still holds.

On the other hand, when the derivative in [6] is positive, the central government would incentivize the states especially if EAPs are expected to increase the prospects of increasing State Own Tax Revenue (SOTR) in the long run. When this *complementary effect (resource loading)* dominates, the central government arbitrarily deviates from the optimal condition posited in [5]. We will now introduce domestic politics into the model to examine which prediction is corroborated by the empirical evidence at our disposal.

3.1 Introducing domestic politics.

Let us now introduce domestic politics into the model. Assume political party A is the party ruling at the national level, whilst both parties A and B govern a positive fraction of the federalist states. Khemani (2007) introduces a model of probabilistic voting and assumes a popularity bias in favor of the national incumbent party A . Define the popularity bias in our framework as μ , hence we can state that the representative electoral district d of state s is assigned to

national incumbent party A whenever:

$$V_{ds}[Y_s(T_s, A_s), G_s, \rho_s] + \mu > \sigma_{ds} \quad [7]$$

where σ_{ds} represents the randomly distributed cut-off point for the performances of the incumbent party against which the citizens confront and evaluate the parties operate. If the above inequality [7] is instead of negative sign, the national incumbent party A loses the electoral district that will be governed by the other party B . The proportion of seats at the representative district for the total number of states n that are assigned to the national incumbent party is given by:

$$\varphi_A = n_A * \theta\{V_{ds}[Y_s(T_s, A_s), G_s, \rho_s] + \mu\} \quad [8]$$

in which n_A is the fraction of states in which the national incumbent party A is elected, and $\theta(\sigma_{ds})$ is the cumulative distribution function of the cut-off points. On the other hand, the same expression for the party B is given by:

$$\varphi_B = n_B * \{1 - \theta\{V_{ds}[Y_s(T_s, A_s), G_s, \rho_s] - \mu\}\} \quad [9]$$

We conclude that, if political parties care about reelection, both parties A and B will allocate transfers under their discretion to different states in order to maximize the number of seats in the state governments. If this assumption holds, then [8-9] imply that $G_A > G_B$; in other words, affiliated states receive on average more discretionary transfers from the central government than states in which the opposition party is in power.

3.2 Testable implications

Summarizing the conceptual framework above delivers two parallel set of results:

- 1) Abstracting from the political party in power, the analytical results of our model show that two different effects can emerge. In the *substitution effect*, states receiving additional exogenous income (foreign aid – EAPs) will get a correspondingly lower volume of discretionary transfers from the central government. On the contrary, when the derivative in [6] is positive (violating the assumption of welfare equalization across states), the *resource loading* effect dominates, implying a positive effect of EAP flows on discretionary transfers from the center.
- 2) Adding political considerations imply that, as summarized in [8-9] and *ceteris paribus*, affiliated states receive more transfers than non-affiliated states to secure reelection.

[1] and [2] can in principle turn to be counteracting mechanisms, due to the following reasoning. If the substitution effect explained in (1) dominates, the state receives a reduced chunk of discretionary transfers from the central government, in response to increased EAPs. However, since affiliated states receive on average more discretionary transfers, this reduction will be counteracted or even offset by the central government in case state 1 is

governed by the national incumbent party. The net effect will be ambiguous. Instead, if the resource loading effect from [1] dominates, there will be an unambiguous positive effect of EAP flows on discretionary transfers from the center. This will therefore not be counteracting the domestic politics effect explained in [2]. Let us summarize these considerations in the following alternative testable hypothesis:

H0: Substitution effect dominates. In principle, without digging into domestic politics, this implies a negative effect of EAP flows on discretionary transfers from the center. However, in case the domestic politics effect is strong enough, the higher discretionary transfers from national incumbent party to affiliated states counterbalances the reduction in funds as a consequence of increased EAPs. In other words, the main result of a negative effect of EAP flows on discretionary transfers from the center is counterbalanced due to higher transfer to affiliated states.

H1: Resource loading effect dominates. In all cases, and even introducing domestic politics considerations, the resource loading effect will imply a positive effect of EAP flows on discretionary transfers from the center. The domestic politics effect will simply determine the magnitude of this effect. When [2] is valid because the state in question is an affiliated state, then the resource loading effect becomes even stronger.

In the following empirical section will put both these theoretical arguments to an empirical test in the context of India covering the 1979-2017 period.

4. Data and Methods

4.1 Model specifications

We utilize a cross-section data of 29 states in India (see Appendix 1 for list of states) during the 1979-2017 (38 years) period. We estimate:

$$\ln(dt_pc)_{st} = \varphi_s + \beta \cdot \ln(eap_pc)_{st} + \beta \cdot Z_{st} + \lambda_t + \vartheta_s + \omega_{st} \quad (10)$$

wherein, $\ln(dt_pc)_{st}$ is discretionary fiscal transfers per head (log) accrued to the states from the central government each year measured in Indian Rupees (₹) current prices. The data is sourced from the 2020 statistics on State Finances Study published by the Reserve Bank of India (RBI). As discussed earlier, these are transfers largely coming through various central government ministries and are different to formulaic transfers undertaken by the Finance Commission and Planning Commission of India. The mean value is 3647 rupees per head, while the standard deviation is 10887 rupees per head. Over the years, there has been a steady increase in the allocation of discretionary fiscal transfers to states wherein the maximum value in the sample in 1979 is about 725 rupees per head which increases to about 140,733 rupees per head as of 2017.

Our main explanatory variable is $\ln(eap_pc)_{st}$ EAPs flows per capita (log) in state s during year t measured in Indian Rupees (₹) current prices. The EAPs data is complicated as it is not available in public domain. We secure this data from various sources namely, from the study of Bajaj (1992), the periodic Bulletins of Reserve Bank

of India on state finances, yearly documents on central assistance to states from the Planning Commission of India and finally various yearly reports of the Comptroller and Auditor General (CAG) of India on the financial accounts of various state governments. The mean value is 1472 rupees per head, while the standard deviation is 3576 rupees per head. The maximum value in the sample in 1979 is about 146 rupees per head which increases to about 18226 rupees per head as of 2017. The evolution of EAPs flows to the states (see Figure 1) suggests there has been a continuous increase since the central government started to transfer the external resources to the states.

The vector of control variables (Z_{st}) includes other potential determinants of intergovernmental transfers in India, which we obtain from the literature on the subject (Panda 2016, Biswas et al. 2010, Arulampalam et al. 2009, Khemani 2007). In controlling for other covariates we are aware of the “garbage-can models” or “kitchen-sink models” trap in which a large number of variables are lumped onto the right hand side of the equation thereby making the interpretation of results difficult (Achen 2005, Schrodtt 2014). We adopt a conservative strategy of accounting only for the most important factors that affect distribution of discretionary transfers, adding several more in the robustness checks. Accordingly, we include the level of development measured as *state per capita income* (log) in Indian rupees current prices. The income level has a bearing on transfers as poorer states should receive additional assistance from the center. We also control for the size of the state using *population* (log) as large states natural tend to have a higher need for development finance and hence more

fiscal transfers. Both per capita income and population variables are sourced from the 2020 statistics on State Finances Study published by the RBI. Likewise, we also include historically marginalized Scheduled Caste and Scheduled Tribe (SC/ST) population share in state s during year t as a proxy for underdevelopment as these groups are subjected to discrimination, socio-economic exclusion, and a stigmatized identity (Song et al. 2021). We control for two variables gauging the fiscal performance of states. These include gross state fiscal deficit as a share of total expenditure and revenue share of state own tax revenues. Finally, we include a dummy measure capturing if state s is a swing state or otherwise in the recently concluded state election. We construct this measure by examining the vote share difference between the winning party (pre-poll coalition) and the runner up party (pre-poll alliance grouping) using state election result report from the Election Commission of India. Accordingly, we dummy code the state as 1 if the difference in the win margin was less than 2% of the vote share and 0 otherwise in each of the recently concluded state elections. Previous studies (Arulampalam et al. 2009, and Khemani 2007) show a positive association between swing states and fiscal transfers.

The descriptive statistics are provided in Appendix 2 and the details on definitions and data sources are in Appendix 3. We estimate OLS estimation specification with Huber-White corrected robust standard errors, a method which is robust to heteroskedasticity (Wiggins 1999). We also include state-specific fixed effects

(ϑ_s) as well as year-specific dummies (λ_t) to account for regional heterogeneity. Note that Hausman test favors deploying fixed effects estimator.

4.2 Interaction effects

Next, we introduce interactions to examine whether the effect of EAPs flows on discretionary transfers is conditional upon political alignment between state and center. We introduce:

$$\ln(dt_pc)_{st} = \varphi_s + \beta.(lneap_pc \times align)_{st} + \beta.\ln(eap_pc)_{st} + \beta.align_{st} + \beta.Z_{st} + \lambda_t + \vartheta_s + \omega_{st} \quad (11)$$

wherein, $\ln(eap_pc \times align)_{st}$ is the interaction term and $align_{st}$ is a dummy measure if the political parties in power in state s and center during year t are in political alliance. We use election results information from the Election Commission of India to dummy code the $align$ variable. However, it is noteworthy that political alliances in India are complex. We estimate another interaction model reflecting the complex political alignments between states and center. Using the information from the Election Commission of India we construct our own measure of *political alignment index* which is coded on a 0-4 scale which denotes:

0 = No political alliance between the party in power in state s and center in year t . The party in power in state s forms opposition to the ruling party in the center.

1 = The party in power in state s is a non-influential coalition partner in central government in year t . This suggest that the ruling party in the center can survive a motion of no confidence vote comfortably without relying on its coalition partners.

2 = The party in power in state s is an influential coalition partner in central government in year t . The central government would rely on its coalition partners who are part of the central government (and the cabinet) to survive a motion of a no confidence vote.

3 = The party in power in state s provides support to the central government from outside Parliament in year t . The central government relies heavily on the coalition partners who are not part of the government but extend issue-based support to the ruling party heading government in the center. Without the support of coalition partners the central government will not survive its full term.

4 = Same political party in power in state s and center in year t .

Like before, we employ OLS estimator controlling for state-specific and year-specific fixed effects along with a lagged dependent variable to estimate our interaction models and generate marginal plots to assess the interaction effects.

4.3 Endogeneity

Our EAPs measure could be plagued by endogeneity concerns if external assistance (or lack of it), for example, is an outcome rather than cause of discretionary transfers. This issue is not trivial because those who argue that foreign aid impacts how the center allocates transfers also make causal claims that fiscal transfers reduce incentives for the states to put in effort to attract EAPs (Kumar 2017, Pedersen 1996). For instance, using *Samaritan's Dilemma* Kumar (2017) argues that foreign aid donors induce recipient governments to reduce their own contribution to development efforts in order to secure more development aid. Furthermore, EAP flows could also be caused by other factors which could then explain discretionary transfers from the center, such

as budgetary constraints, state capacity, among others. Failing to account for endogeneity might yield biased results. To address this problem, we utilize a two-stage least squares instrumental variable (2SLS-IV hereafter) controlling for state and year-specific fixed effects along with control variables discussed above in which we instrument for EAP flows. It is noteworthy that good exogenous instruments are very difficult to find specially in aid literature and in this instance where the dependent variable is fiscal transfers. In this paper we attempt to construct one. We follow Brazys and Vadlamannati (2021), Dreher and Langlotz (2020) to use the *probability* of a state receiving EAPs in the past weighted by the *share of low-income and lower-middle income countries (LICs) in the world* capturing the demand side aspect of development aid, which varies across time – $iv = \left[\frac{1}{40} \sum_{y=1}^{40} p_{it} \times (LICs)_t \right]$. The data on share of low-income countries is secured from the World Bank classification of countries by income.¹⁰ The World Bank group categorizes countries into four income groupings namely, low, lower-middle, upper-middle, and high-income determined by GNI per capita measured in US dollars, converted from local currency. These thresholds are annually updated at the commencement of the World Bank's fiscal year starting from July 1, incorporating adjustments for inflation. The income classification aims to mirror a country's development level.

¹⁰ For more details on how income group thresholds are calculated, revised and updated, see: <https://datahelpdesk.worldbank.org/knowledgebase/topics/19280-country-classification>.

Foreign aid remains the primary approach for delivering assistance to low- and low-middle-income countries (Moyo 2009, World Bank 1998). Some donors like France even enacted a legislation in 2021 on programming of development cooperation that requires it to focus its development assistance to low-income countries located in Sub-Saharan Africa (Ministry for Europe and Foreign Affairs 2022). Therefore, it is reasonable to expect that demand for development aid is higher among the low-income countries. In fact, our back of the envelope calculations based on OCED statistics on aid show that low- and lower-middle income countries received roughly 56% of the total aid during the last two decades from 2000. Thus, the logic of the argument is that the probability of a state i in India securing external aid decreases as low- and lower-middle income countries in the world experience demand for higher levels of development aid. This is akin to the argument presented in the literature on IMF loans that the probability of IMF signing programs with other countries reduces as the number of countries already with IMF programs in a given year increases (Dreher and Vaubel 2004, Vreeland 2003). The resources of the Fund become constrained resulting in fewer new lending agreements (Forster et al. 2019). In the literature on aid, numerous studies emphasize the adverse effects of development aid volatility and fragmentation. Most notable among these include the work by Davies and Klasen (2017), Rogerson and Steenson (2009), OECD (2009), Marysse et al. (2007) who find while some aid recipients are favoured by most donors, others are largely overlooked by the international donor community. Our argument

is similar in spirit to the findings of these studies. Aid is a scarce resource and a substantial part of it goes to low- and lower-middle income countries, especially the poorest and least developing countries. Providing greater priority in aid allocation to these countries may diminish the likelihood of a state in India securing aid.

The validity of our instrument is determined by three important criteria. First is the instrument relevance which is determined by the strength of our selected instrument. Bound, Jaeger, and Baker (1995) indicate that a *joint F-statistic*, along with the more robust Kleibergen and Paap (2006) *F-statistic*, in the first stage of the IV estimates should exceed a critical value of 10 (Staiger and Stock 1997). Otherwise, the selected instrument is deemed weak. Second, the valid instrument should pass the exclusion restriction. Meaning, it must not differ systematically with the error term in the second stage of the IV estimates, i.e., $[w_{it} | IV_{it}] = 0$. Thus, our instrument cannot explain fiscal transfers, our outcome variable of interest, either directly or indirectly (via unobservables) other than exclusively through its effect on EAPs flows. We test this assumption by following others who used similar method (Vadlamannati *et al.* 2023, Brazys and Vadlamannati 2021, Dreher *et al.* 2017, Stubbs *et al.* 2018) wherein we plot the share of low- and lower-middle income countries in the world over time, and discretionary fiscal transfers, respectively, by *states with high and low exposure to EAP flows*. The results, discussed in section 4, indicate no obvious parallel trend between share of low-income countries, and discretionary fiscal transfers from center in *high and low exposure states*. Finally, valid instruments must also satisfy the conditional

independence assumption, meaning that the variation in our instrument should be reasonably independent of the potential outcome variable of interest. To the best of our knowledge, the instrument we propose has no direct link with discretionary fiscal transfers from the center to the states. Furthermore, the instrument is not influenced by outcome measure and cannot be directly controlled by the decisions of individual state governments. However, it is a substantively important determinant of states receiving EAPs.

5. Empirical Results

Table 1 reports the main results from baseline estimations. Table 2 presents the results of the interaction effects between EAPs flows and political alignment. Finally, Table 3 also provides results on the interaction effects but using our constructed measure of political alignment index.

5.1 Baseline estimates

We begin with Figure 1 which provides bivariate correlation between EAPs flows and discretionary transfers. As seen, there is a strong positive correlation between these two measures. States with higher levels of EAP flows are positively associated with discretionary transfers from center. This bivariate relationship, at least, suggest that foreign aid and discretionary part of the inter-governmental transfers are supplements. These simple bivariate statistics, however, may lead to spurious conclusions without controls, such as level of income or tax effort, because

prosperity and state capacity, rather than EAPs flows, may explain the differences in our dependent variable. We examine the statistical relationship in greater detail and precision in our regression models. Column 1 in Table 1 presents the parsimonious model, column 2 includes other control variables. In column 3 we also control for a lagged dependent variable. Finally, in column 4-5, we show the IV estimations results.

As seen from column 1, EAPs per capita (log) is associated with an increase in discretionary transfers per head (log), a result which is statistically significant at the 5% level. Notice that these results are the unconditional effects of EAPs flows. These results remain robust, and significantly different from zero at the 1% level, to including other control variables in column 2. The substantive effects are quite large. At the mean value of EAPs per capita (log) (5.14) there is roughly a 16% increase in discretionary transfers per head (log). However, a one standard deviation increase above the mean value yields an increase of 43% in discretionary transfers per head (log). These results are contrary to the aid *fungibility* argument and suggest *resource loading*, a crowd-in effect, of foreign aid with respect to discretionary part of the inter-governmental transfers in India. In fact, our results, in line with theoretical proposition H1, suggest that the increase in the proportion of earmarked EAP funds transferred to the states in our sample period does imply that the funds are truly additional for the states. Our findings indicate that at the margin, states do benefit on account of EAPs as they are not only acquiring external resources but are also being rewarded for doing so. These results also remain robust to including a lagged dependent

variable in column 3. Finally, in column 4-5, we present the results from our IV estimations. As seen there, after controlling for endogeneity concerns, we still find the positive effect of EAPs flows on discretionary fiscal transfers, which is significantly different from zero at the 10% level. Notice that these results remain robust net of other control variables and a lagged dependent variable in column 5. Our IV estimation results rely on the assumption that the proposed identification strategy is valid. In the bottom-end of Table 1 the first-stage regression results predicting the EAP flows are presented. As seen, the variation in EAPs flows per capita is determined by the share of low- and lower-middle income countries. The interactive effect of the IV estimations is explored through a conditional plot displayed in Figure 3.

To compute the marginal effect of probability of receiving EAP flows, we consider share of low- and lower-middle income countries (our conditioning variable) and visually illustrate the marginal. The y-axis in Figure 3 shows the marginal effect of probability of receiving EAP flows in the past, and on the x-axis the marginal effect is evaluated on the share of low-income countries. In line with our theoretical expectations, we find that EAP flows probability in the past is associated with a decline in EAP flows to the states when the share of low- and lower-middle countries is higher (Figure 3). The strength of the instrument, as indicated by both the *joint F-statistics* and the Kleibergen-Paap *F-statistics* from the first stage regressions, demonstrates the relevance of our selected instrument.

We also evaluate the parallel trends in discretionary fiscal transfers to states with high and low exposure to EAPs flows and exogenous variation in share of low- and lower-middle income countries to examine the excludability of our instrument. The left-side in Figure 4 depicts the temporal evolution of low-income countries share in the world. The right-side in the Figure shows discretionary fiscal transfers per head across states with high and low exposure to EAPs flows in the past. As seen from Figure 4, there is no similarity in trend between share of low- and lower-middle income countries and discretionary fiscal transfers in high exposure states.

Taken together, two key findings emerge from our IV estimations. First, the results on EAPs flows remain robust to correcting for endogeneity concern. Moreover, the substantial effects of EAPs flows per capita are at least three to four times larger compared to the corresponding OLS estimations. This suggests that our baseline estimations could be underestimating the aid effects. Second, the additional statistics and tests provided in Table 1 speak to the strength of our selected instrument. These results suggest excludable instruments that have accounted for reverse causality and other sources of endogeneity. Overall, our results from Table 1, contrary to conventional wisdom, provide evidence supporting *resource loading* argument as proposed in H1. In the subsequent models in Table 2-3, we will explore if the *resource loading* - complimentary effect is driven by political concerns.

5.2 Conditional effects: Role of domestic politics

In Table 2, we introduce interaction between EAPs flows per capita (log) and political alignment dummy measure. As seen in column 1, our interaction term is positive and statistically significant at the 1% level. Notice that this result remains robust across all the columns in Table 2. Both the individual constituent terms remain statistically insignificant. These results suggest that though the center rewards states for attracting EAPs but these rewards, fiscal transfers, are directed to those states which are politically aligned to the center. This reduces the efficacy of the reward if they are based on political considerations.

Next, in Table 3 we replicate the interaction effects but replace the alignment dummy with an index capturing the full spectrum of political alignment between the state and center. As discussed earlier, the political alignment index ranges from 0 to 4, where highest value denotes the governments in state and center belongs to the same party. As seen, we find the interaction effect remains positive and significantly different from zero at the 5% level in column 1-2. However, the results become marginally insignificant once we control for a lagged dependent variable in column 3. We also find that the individual constituent terms of the interaction remain statistically insignificant. It is important to note that the interpretation of the interaction terms even in linear models is not straight forward. Consequently, a simple t-test on the coefficient of the interaction term is not sufficient to examine whether the interaction term is statistically significant or otherwise and hence we rely on margins plot in Figure 5. To calculate the marginal effect of EAPs per capita (log) on the

discretionary transfers, we consider both the conditioning variable (political alignment index) and the interaction term to display graphically the total marginal effect conditional on political alignment index. The y-axis in Figure 5 presents the marginal effect of EAPs flows, and the marginal effect is evaluated on the political alignment index on the x-axis. Note that we include the 95% confidence interval. The conditional plot in Figure 5 reveals that an additional unit of the EAPs per head (log) increases discretionary transfers when political alignment index is above 0 (on the scale of 0-4). For instance, EAPs flows increases discretionary transfers per capita (log) by 24% when the political alignment index is very high (i.e., an index score of 4), which is statistically significant at the 1% level. Our results show that the gains realized by states in attracting external resources occur when accompanied by political alignment of the state with center. In a way, our results are also in line with other studies in the literature on inter-government transfers who argue that an opportunistic center uses its discretion to make transfers to state governments based on political considerations (Arulampalam et al. 2009, Khemani 2007). But more importantly, the findings from our interaction models are an addition to, earlier discussed, burgeoning literature on politics of subnational development aid allocation that demonstrate how aid allocation at the local level is swayed by local political factors.

5.3 Falsification tests

We conduct falsification test using the fiscal transfers from *formula* driven non-discretionary sources. Table 4 displays the results on the impact of EAPs flows on the

tax devolutions to the states from the Finance Commission of India. Table 5 shows the results on Grant-in-Aid provided to the states by the Finance Commission of India. Finally, Table 6 presents the results on *formulaic* transfers from the Planning Commission of India. If our findings hold true, then we should not anticipate finding any correlation of EAP flows with non-discretionary transfers, as they are determined by pre-established parameters with differing weights and a formula. The falsification test in Table 4-6 show no statistically significant effect of EAPs flows on non-discretionary *formulaic* transfers namely, tax devolutions and statutory grants allocated by the Finance Commission and state plan grants assigned by the erstwhile Planning Commission of India. Furthermore, we also find no significant effect of political alignment driving the relationship between EAPs flows and these transfers from the center. These results are largely in line with the findings from the previous studies that fiscal transfers from the Finance Commission and the Planning Commission remain apolitical and are driven based on a set criterion (Arulampalam et al. 2009, Khemani 2007).

5.4 Checks on Robustness

We put our results to a range of robustness tests. First, we replace our main variable of interest EAPs per capita (log) with EAPs flows as a share of state GDP. Using different operationalization of our main variable of interest does not alter our findings (Table A in online appendix). These findings remain robust using IV estimations as well. Second, to capture the reforms undertaken by the center in allocation of EAPs

flows to the states, we estimate our baseline models using a sample of post-economic liberalization period, from 1992 onwards. Our results, presented in Table B (online appendix) remain robust to using the sample from the year 1992. Third, we use alternative instrumental variable namely, share of countries in the world that have received development aid from bilateral and multilateral donors during the study period. This data is sourced from the OECD statistics on development aid and from the World Development indicators, 2022 series. We use the probability of a state receiving aid in the past interacted with share of countries receiving development aid as our instrument. The logic of the argument remains the same. As more countries receive aid, the probability of state i in year t securing external assistance reduces. These results presented in Table C (online appendix) uphold our findings. The strength of the instrument captured by *joint F-statistic* and *Kleibergen-Paap F-statistic* in the first step of the estimates show that our instrument is relevant. Figure C shows a negative relationship between the selected instrument and EAPs flows, while the parallel trends assumption is captured in Figure D.

Finally, we replace EAPs flows to state i with a measure capturing average EAP flows across all other states ($j \neq i$). If center rewards states for putting in effort to attract EAPs, then we examine whether center penalizes states for not doing enough in attracting external resources. We do find a negative effect of average EAPs flows per capita log ($j \neq i$), which is significantly different from zero at the 5% level, suggesting that state i is penalized with a reduction in discretionary fiscal transfers (Table D).

However, this result is not robust especially when we control for a lagged dependent variable. In summary, taken together, our results seem to remain robust to sample split, alternative specification, and data.

6. Conclusion

In this paper we examine the impact of foreign aid on inter-governmental fiscal transfers to the states in India. To the best of our knowledge, studies assessing the effects of aid on inter-governmental transfers at the subnational level are scant. We hypothesize that if the relationship between aid and transfers is complementary, *resource loading* is likely. However, if substitution occurs, it would indicate *fungibility*. If the relationship is indeed complementary, we ask whether this relationship is influenced by domestic political factors. Using panel data covering 29 states during the 1979-2017 period (39 years) we find that EAPs per capita is positively associated with the disparity in central government's fiscal transfers to states under the non-formulaic "discretionary" head in a robust way. Moreover, we do not find statistically significant effect of EAPs per capita on non-discretionary transfers namely, tax devolutions and statutory grants allocated by the Finance Commission and formulaic state plan grants assigned by the Planning Commission of India. Furthermore, we find that positive effect of EAPs per capita on discretionary transfers from the center is conditional upon political alignment between the incumbent parties at the central and state levels. Our results add to the growing literature on subnational aid allocation and influential role of local politics.

There are three broad policy implications of our findings. First, the central government's expenditure choices in the form of fiscal transfers are shaped by EAPs in the states. However, for the center, at least, *resource loading* may not be necessarily a bad outcome as aid money to states might soften its budgetary constraints in the long run. Second, state governments may not be reaping the full benefits if discretionary transfers from the center are driven by political considerations largely as a result of states accruing external assistance. Moreover, the implications of EAPs on the state governments' expenditure patterns and composition remain unclear. Finally, though external donors finance aid projects which are being allocated to the states, they might be assisting in providing perverse incentives to the central government at the margin.

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Table 1: Estimates on EAPs on discretionary transfers from the center

	(1)	(2)	(3)	(4)	(5)
EAPs per capita (log)	0.101**	0.157***	0.0681**	0.260*	0.190*
	(0.0410)	(0.0407)	(0.0334)	(0.143)	(0.110)
Per capita State GDP (log)		1.032**	0.225	0.877**	0.265
		(0.429)	(0.285)	(0.432)	(0.286)
State Population (log)		-6.013***	-2.059**	-2.033	-1.623
		(1.352)	(0.999)	(1.863)	(1.389)
SC/ST Population share		-0.0171	-0.0196	0.0410	-0.00968
		(0.0467)	(0.0332)	(0.0482)	(0.0355)
State Fiscal deficit/Expenditure		0.00802	0.00160	0.00794	0.00180
		(0.00786)	(0.00583)	(0.00808)	(0.00641)
State Own Tax Revenue Share		0.00610	-0.00291	-0.000678	-0.00183
		(0.0103)	(0.00764)	(0.00867)	(0.00739)
Swing State		-0.224	-0.109	-0.134	-0.0756
		(0.137)	(0.0863)	(0.103)	(0.0840)
Lagged Dependent Variable			0.709***		0.616***
			(0.0648)		(0.0824)
Constant	5.672***	18.61**	7.224	4.567	8.479
	(0.932)	(7.889)	(5.854)	(10.63)	(8.724)
Estimator	OLS-FE	OLS-FE	OLS-FE	2SLS-IV	2SLS-IV
Observations	1,019	1,019	1,008	991	983
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First-stage <i>F</i> -statistics				36.10***	48.75***
Kleibergen-Paap rk LM statistic				47.33***	57.65***
Number of States	29	29	29	29	29
R-squared	0.494	0.533	0.771	0.628	0.774
First Stage Regressions					
Share of LICs X Probability of EAPs				-0.1084***	-0.1170***
				(0.018)	(0.017)
Control variables				Yes	Yes
State Fixed Effects				Yes	Yes
Year Fixed Effects				Yes	Yes
Number of States				29	29
Total Observations				993	989

Note: Standard errors in parenthesis. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2: EAPs, discretionary transfers from the center and political alignment

	(1)	(2)	(3)
EAPs per capita (log) × Aligned State	0.225*** (0.0583)	0.231*** (0.0547)	0.0889** (0.0368)
EAPs per capita (log)	-0.0211 (0.0562)	0.0339 (0.0531)	0.0228 (0.0330)
Aligned State	-0.867*** (0.328)	-0.947*** (0.310)	-0.356* (0.198)
Per capita State GDP (log)		1.102** (0.437)	0.273 (0.276)
State Population (log)		-5.905*** (1.291)	-2.091** (0.985)
SC/ST Population share		-0.0219 (0.0471)	-0.0222 (0.0345)
State Fiscal deficit/Expenditure		0.00582 (0.00772)	0.000803 (0.00581)
State Own Tax Revenue Share		0.00687 (0.0104)	-0.00245 (0.00749)
Swing State		-0.170 (0.130)	-0.0895 (0.0834)
Lagged Dependent Variable			0.694*** (0.0665)
Constant	6.047*** (0.990)	18.06** (7.760)	11.22 (6.929)
Estimator	OLS-FE	OLS-FE	OLS-FE
State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	1,019	1,019	1,008
Number of States	29	29	29
R-squared	0.515	0.554	0.774

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Table 3: EAPs, discretionary transfers from the center and political alignment index

	(1)	(2)	(3)
EAPs per capita (log) × Alignment Index	0.0291** (0.0142)	0.0343** (0.0133)	0.0115 (0.00813)
EAPs per capita (log)	0.0515 (0.0563)	0.0993* (0.0533)	0.0496 (0.0379)
Alignment Index	-0.129 (0.0835)	-0.165** (0.0795)	-0.0580 (0.0506)
Per capita State GDP (log)		1.187*** (0.452)	0.286 (0.281)
State Population (log)		-5.927*** (1.306)	-2.052** (0.987)
SC/ST Population share		-0.0173 (0.0481)	-0.0192 (0.0346)
State Fiscal deficit/Expenditure		0.00652 (0.00778)	0.00105 (0.00577)
State Own Tax Revenue Share		0.00506 (0.0104)	-0.00336 (0.00760)
Swing State		-0.189 (0.134)	-0.0982 (0.0854)
Lagged Dependent Variable			0.705*** (0.0649)
Constant	5.780*** (0.921)	17.07** (7.864)	10.75 (6.972)
Estimator	OLS-FE	OLS-FE	OLS-FE
State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	1,019	1,019	1,008
Number of States	29	29	29
R-squared	0.498	0.539	0.771

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Table 4: EAPs and Tax devolutions from the Finance Commission of India

	(1)	(2)	(3)	(4)
EAPs per capita (log) × Aligned State				-0.0126 (0.00803)
Aligned State				0.0744 (0.0472)
EAPs per capita (log)	-0.00950 (0.00722)	-0.0140* (0.00740)	-0.00288 (0.00428)	0.00332 (0.00657)
Controls	No	Yes	Yes	Yes
Lagged Dependent variable	No	No	Yes	Yes
Estimator	OLS-FE	OLS-FE	OLS-FE	OLS-FE
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1,022	1,022	1,011	1,011
Number of States	29	29	29	30
R-squared	0.964	0.966	0.984	0.984

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Table 5: EAPs and Grant-in-Aid from the Finance Commission of India

	(1)	(2)	(3)	(4)
EAPs per capita (log) × Aligned State				0.0161 (0.0228)
Aligned State				-0.172 (0.153)
EAPs per capita (log)	-0.0124 (0.0233)	-0.0278 (0.0222)	-0.0114 (0.0251)	-0.0191 (0.0283)
Controls	No	Yes	Yes	Yes
Lagged Dependent variable	No	No	Yes	Yes
Estimator	OLS-FE	OLS-FE	OLS-FE	OLS-FE
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1,006	1,006	992	992
Number of States	29	29	29	30
R-squared	0.824	0.833	0.877	0.877

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Table 6: EAPs and 'Formulaic' Transfers from the Planning Commission of India

	(1)	(2)	(3)	(4)
EAPs per capita (log) × Aligned State				0.0110 (0.0164)
Aligned State				0.0773 (0.0744)
EAPs per capita (log)	-0.0194 (0.0123)	-0.0169 (0.0134)	-0.00642 (0.0134)	-0.0147 (0.0144)
Controls	No	Yes	Yes	Yes
Lagged Dependent variable	No	No	Yes	Yes
Estimator	OLS-FE	OLS-FE	OLS-FE	OLS-FE
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1,013	1,013	1,002	1,002
Number of States	29	29	29	30
R-squared	0.874	0.876	0.888	0.889

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

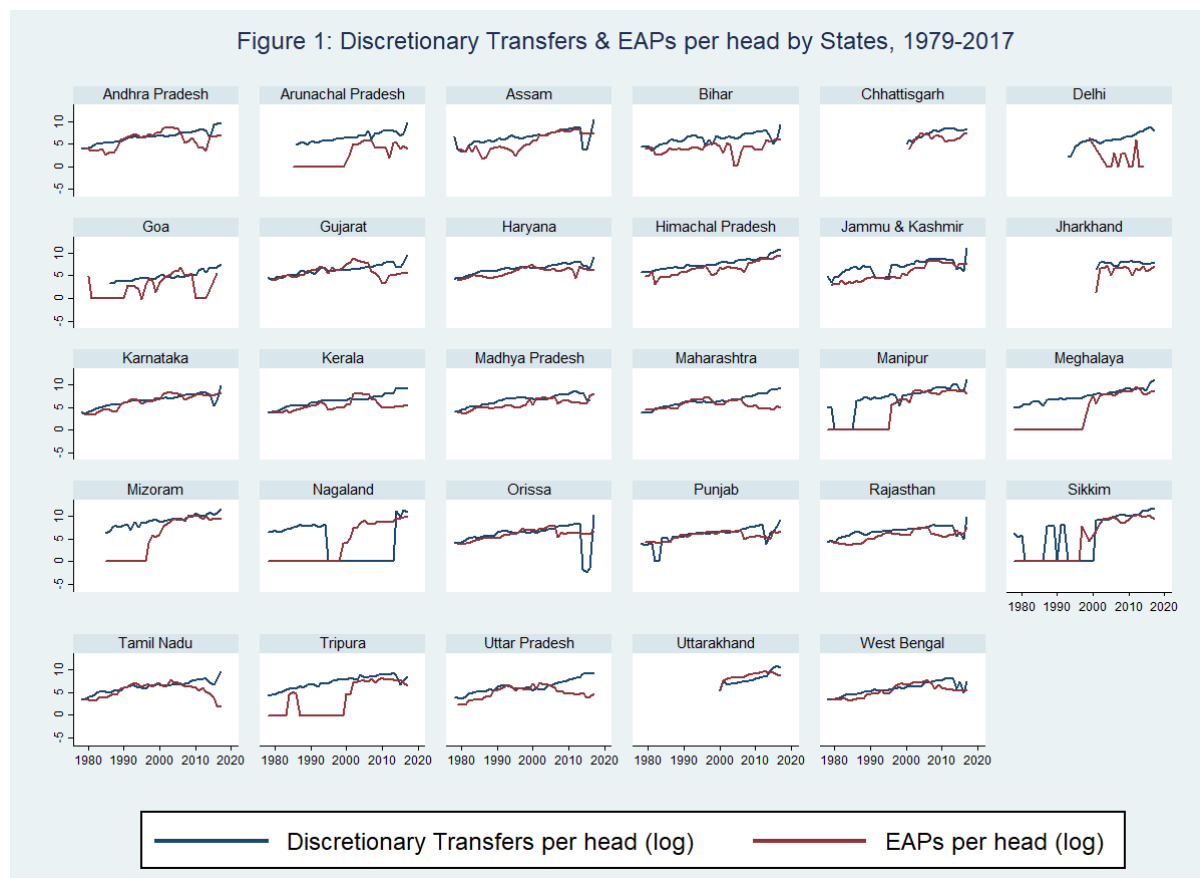


Figure 2: Bivariate Correlation between Discretionary Transfers and EAPs, 1979-2017

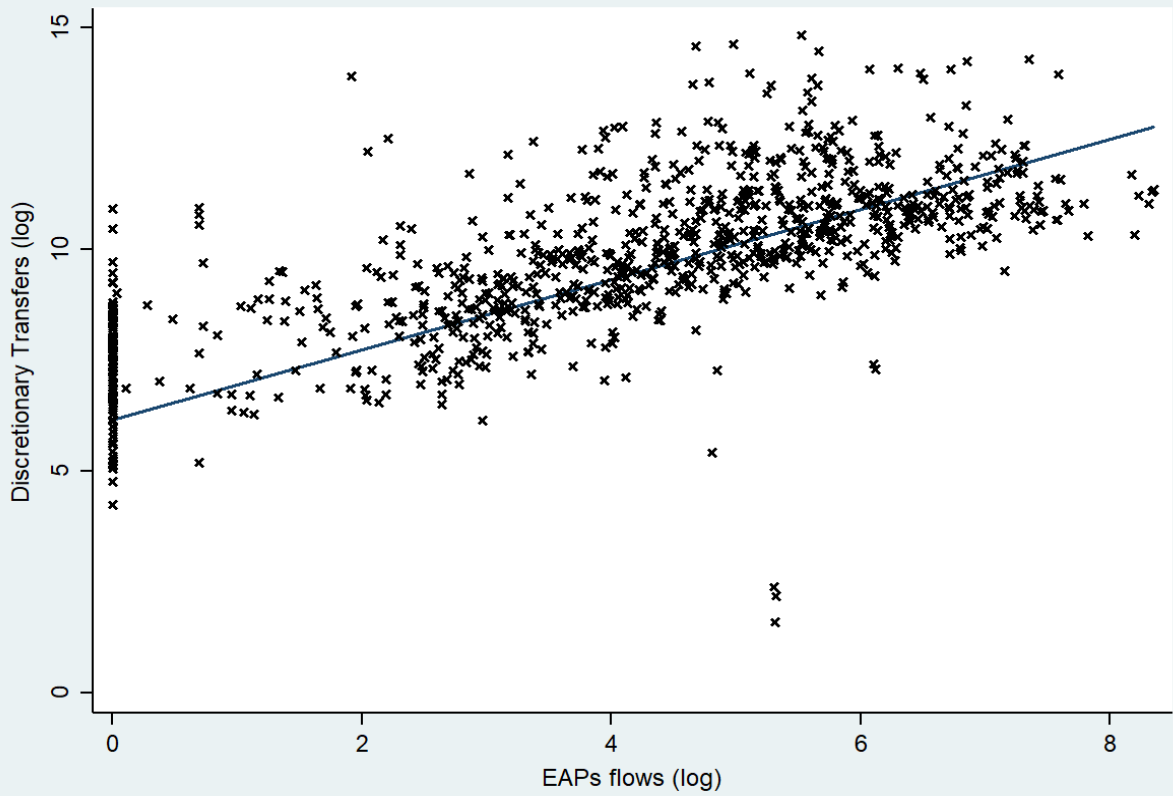


Figure 3: Visualization Effect of the Instrumental Variable on EAPs per head

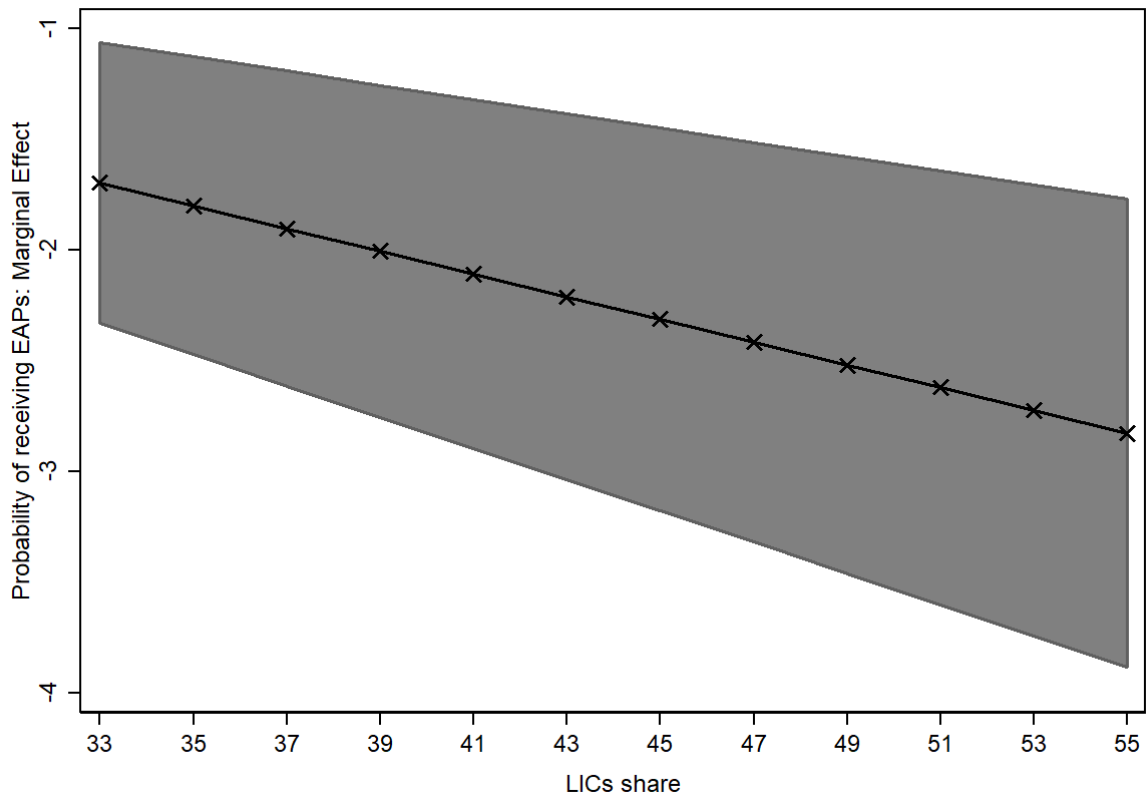


Figure 4: Parallel Trends in Discretionary Transfers per head (log)

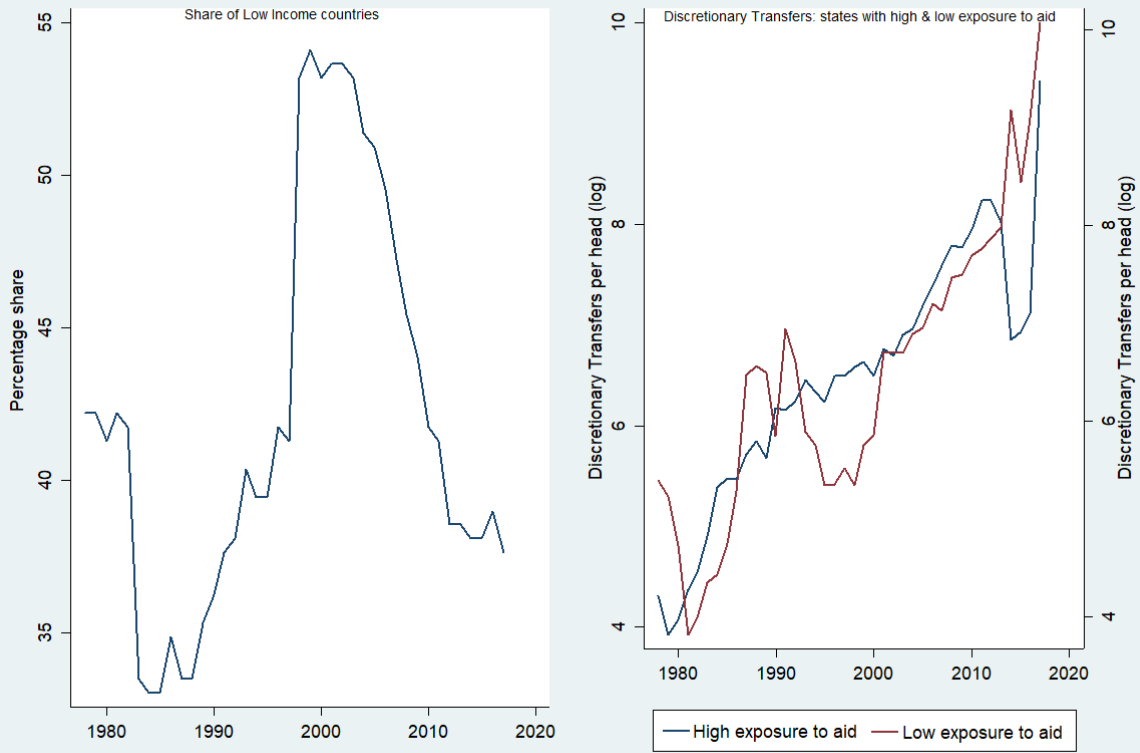
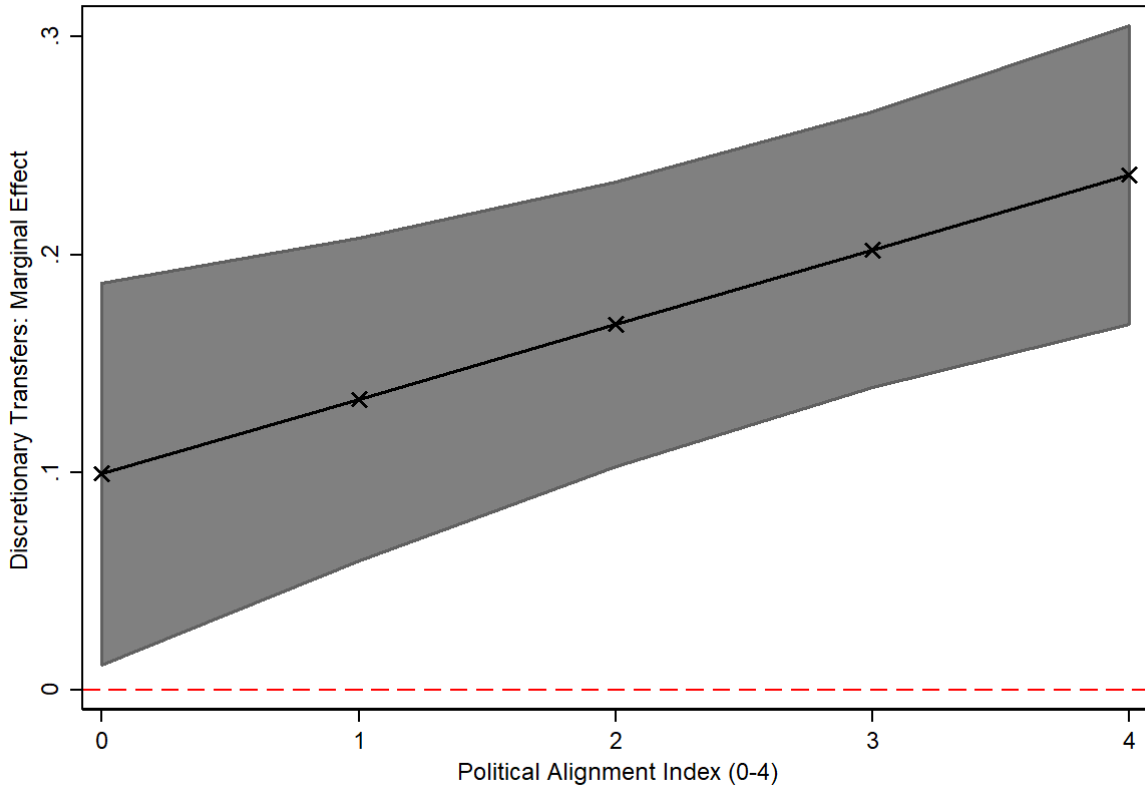


Figure 5: EAPs per head, Political Alignment Index & Marginal Effect on Discretionary Transfers



Appendix

Appendix 1: States under study

Andhra Pradesh	Jammu & Kashmir	Orissa
Arunachal Pradesh	Jharkhand	Punjab
Assam	Karnataka	Rajasthan
Bihar	Kerala	Sikkim
Chhattisgarh	Madhya Pradesh	Tamil Nadu
Delhi	Maharashtra	Tripura
Goa	Manipur	Uttar Pradesh
Gujarat	Meghalaya	Uttarakhand
Haryana	Mizoram	West Bengal
Himachal Pradesh	Nagaland	

Appendix 2: Descriptive statistics

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
Discretionary Transfers per capita (log)	6.54	2.10	-2.40	11.90	1,053
Discretionary Transfers per capita	3646.93	10887.11	0.09	147033.70	1,053
EAPs per capita (log)	5.14	2.66	-0.12	10.28	1,028
EAPs per capita	1471.33	3576.08	0.89	29254.46	1,028
EAPs/state GDP	0.52	1.07	0.00	10.59	1,028
Per capita State GDP	27252.17	21729.00	1639.00	179968.00	1,109
Per capita State GDP (log)	10.00	0.62	7.40	12.10	1,109
State Population (log)	2.75	1.51	-1.25	5.39	1,160
SC/ST Population share	33.36	22.91	1.67	94.85	1,112
State Fiscal deficit/Expenditure	15.76	9.68	-40.94	86.70	1,056
State Own Tax Revenue Share	26.44	17.50	0.34	90.99	1,058
Swing State	0.24	0.43	0.00	1.00	1,079
Political Alignment	0.54	0.50	0.00	1.00	1,094
Political Alignment Index	1.86	1.87	0.00	4.00	1,094
LICs share in the world	42.08	6.53	33.03	54.13	1,160

Appendix 3: Data definition and sources

Variables	Data definition and sources
Discretionary Transfers per capita (log)	Non-formulaic discretionary fiscal transfers per capita (log) to the state i undertaken by various ministries at the central government in year t sourced from the 2020 statistics on State Finances study published by the Reserve Bank of India (RBI).
EAPs per capita (log)	EAPs flows per capita (log) to the state i in year t is sourced from multiple avenues namely, Bajaj (1992), the periodic Bulletins of Reserve Bank of India on state finances, yearly documents on central assistance to states from the Planning Commission of India and various reports of the Comptroller and Auditor General (CAG) of India.
State per capita GDP (log)	State GDP per head (log) in 1993-94 constant prices (Indian Rupees) from Reserve Bank of India.
State Population (log)	State population count (log) from Reserve Bank of India.
SC/ST Population share	Share of SC and ST population of state i in year t sourced from the government of India's census documents.
State fiscal deficit/GDP	Fiscal deficit of state i in year t measured as a share of state GDP sourced from the RBI's Annual publication series on State Finances: A Study of Budgets.
State Own tax revenue share	Share of state i 's own tax revenue in total revenue in year t sourced from the RBI's Annual publication series on State Finances: A Study of Budgets.
Swing state	Dummy coded 1 if the margin of victory of incumbent is less than 2% of the vote share and 0 otherwise. The data was own construction based on the information published by Election Commission of India.
Political Alignment index	The index captures alignment of political parties in states and center. The align index is coded on 0-4 scale in which 0 denotes no political alliance between party in power in state s & center in year t . 1 = party in power in state s is a non-influential coalition partner in central government. 2 = the party in power in state s is an influential coalition partner in central government. 3 = party in power in state s provides support to central government. from outside Parliament. 4 = same political party in power in state s and center in year t .
LICs share in the world	Share of low- and lower-middle income countries in the world in year t sourced from the World Bank classification of countries in income criteria.