



INTERGOVERNMENTAL TRANSFER SYSTEMS IN NEPAL: PERFORMANCE AND INSTITUTIONS



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1 Introduction

Nepal has gone through varying degrees of decentralisation and complimented it with different intergovernmental transfer systems. Beginning in the early 1960's Nepal has gone through decentralization efforts in three distinct phases (Kelly, 2016 & Boex, 2012). The first phase (1960-1990) is the phase of articulation and transition, marked by the decentralization policy framework in 1962 and the Decentralization act in 1982. The second phase is decentralization within a democratic system. Restoration of democracy in 1990s and a renewed interest in local governance through consolidation of scattered laws on decentralization into the Local Self-Governance act in 1999 are significant achievements. The current phase i.e., 2015 onwards is characterized by an adoption of a federal system of governance and a commitment to it through the Constitution of Nepal 2015. Intergovernmental transfer system has also evolved to accommodate each phase. Earmarked and non-earmarked grant allocations have been made to local bodies using different criteria's, often having a larger goal of maintaining horizontal and vertical fiscal equity. Nepal's history of decentralisation or more specifically its experimentation with local governance is important from the perspective of the design of intergovernmental transfer systems. Each successive period of decentralization and each successive design builds on the previous, taking from it some learnings and adjusting them with the overall system of governance.

Despite having practiced a partially decentralised system of governance complimented by an intergovernmental transfer system that has been claimed to be on par with international practice (see for instance Boex (2012), Kelly (2016), Kelly et al. (2011), and Khanal (2016)), Nepal's fiscal architecture at least within the context of a federal Nepal remains to be completely fleshed out ¹.

Two pertinent problems are identified in this regard. First, sub-federal units have increasingly started to voice their dissatisfaction with the increase in conditional transfers (see figure 1 for a detailed breakdown of intergovernmental transfers made to the local bodies from fiscal years 2019/20-2022/23) and the inability of the fiscal commission to accommodate the suggestions made by local bodies associations (see for instance NARMIN (2022), Devkota (2021)). Secondly, the federal narrative about the weak performance of local bodies has led to performance-based grants (although only a minor share) and an increase in earmarked transfer to exercise some control over the spending (see for instance NARMIN (2022), World Bank (2023)).

¹ For a detailed discussion on Intergovernmental transfer design in the federal context see Devkota (2021), Devkota et al. (2020) and Shah (2019). Amongst other things Devkota (2021) and Devkota et al. (2020) discusses the constitutional and legal basis of transfer systems and comments on the nature of the ad-hoc determination of the total pool for grant allocation. More importantly, the discussion makes a crucial point about not having a proper definition of either expenditure or revenue needs which serve as the fundamental basis for Fiscal equalization grants.

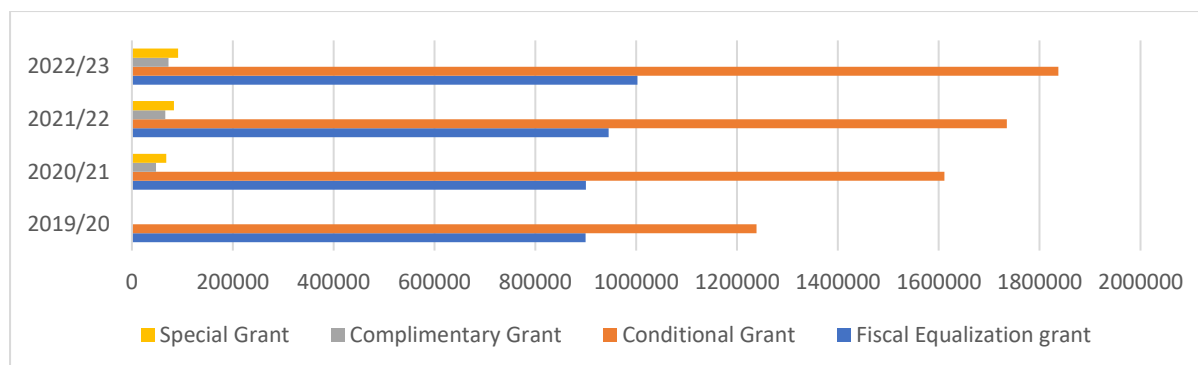


Figure 1: Local Government Transfers FY 2019/20-2022/23

Our subject of interest is therefore inter-governmental transfer systems. More particularly we are interested in understanding the interrelationship between Fiscal equalization grants and performance. Two justifications for our focus exist. First, under the current framework of rules, FEG is the only grant that seeks to achieve three objectives simultaneously a) Horizontal Fiscal Balance b) Vertical Fiscal balance and c) Performance incentivization. All three goals form the basis for the entirety of Fiscal federalism in Nepal. Secondly, FEG, unlike other grants, except for revenue sharing, is untied and furthers the autonomous nature of smaller government entities. Under the current rules, it is the right of the sub-national governments rather than the discretion of federal institutions involved in the grant system. Our focus is only limited to the local governments. Local governments have existed within the unitary structure as well to the extent that any assumption about local governments being able to navigate the bureaucratic structure, within the present context, better than the provincial governments would be justified. Similarly, local governments can also build on past experiences to the extent that in the context of an incomplete transition process, local governments in Nepal should likely be able to perform better than provincial governments.

The rest of the paper is structured as follows. First, we provide a brief analysis of the agencies involved in the intergovernmental transfer system with the sole aim of understanding if local government's dissatisfaction with the current formula sharing arrangement can be addressed by the National Natural Resources and Fiscal Commission. Next, we present our strategy for data collection and analysis followed by the results of our analysis. Finally, we provide some summary recommendations based on our findings.

2 A brief account of the institutions involved in the Inter-government transfer system.

Institutional arrangements for administering and managing the transfer system vary across jurisdictions. In general, these arrangements can be broadly classified as a) Central

Government/agency model² b) Independent agency model³ c) Intergovernmental forum model⁴ and d) National Legislature model⁵ (Shah & Broadway, 2006; Shah & Chen, 2006; Shah, 2007). Despite their role in designing a system that is aimed at fulfilling multiple objectives (depending on the nature of revenue/expenditure assignment and the extent of federal governance system), the institutional setting has received very little attention (Shah, 2007).

Nepal follows an amalgamation of all models for administration and management of intergovernmental transfer system. First is the independent agency model. Constitutionally established National Natural resources and fiscal commission is at least on paper independent and impartial. It is mandated with making recommendations for revenue transfers, Fiscal equalization grants, Natural Resources royalty sharing, Internal loan ceiling and Conditional grant allocation. For revenue transfers, resource royalty sharing and Fiscal Equalization grant, the commission designs the framework and criteria for determination of the amount of transfer for each sub-national government. In the case of Conditional grant, the commission only makes general recommendations for the nature of conditional grants and for internal loans, a generalized ceiling is prescribed for the provincial and local governments.

Secondly, line ministries and the National Planning commission are responsible for administration of conditional, special and Matching grants. Line Ministries, including the Ministry of Finance distribute conditional grants and some program specific grants. The National planning commission is currently responsible for administration of special and complimentary grants which is done based on the working procedures made by the commission itself.

Third, Nepal's constitution and the subsequent legislation on coordination of Federal, Provincial and Local government prescribes the formation of separate councils to a) maintain co-ordination and b) resolve any dispute between the three tiers of government. This along with the Ministry of Federal affairs and General administration forms the basis for an intergovernmental forum model that is often existent in other countries.

² This is the most common model. Typically, a central government line ministry assumes the responsibility of intergovernmental transfers, this responsibility includes both administration, configuration and monitoring. Relevant country examples include Italy, Ghana and Japan

³ Independent agency models are premised under the rationale that agencies responsible for intergovernmental transfers should be free from any political interference. The agencies are generally created as autonomous entity and report to the legislature rather than the executive. Relevant country examples include Australia, India and Nepal

⁴ Intergovernmental forum models are in general established to facilitate dialogue between various orders of government. It must be noted however, that this Intergovernmental forum compliment already existing structures. For instance, in Canada the responsibility of designing Intergovernmental transfers rests with the Ministry of Finance, yet the Federal-Provincial Fiscal arrangement Committee comprised of federal and provincial finance and treasury officials provide strong guidance to the Ministry of Finance.

⁵ Like the Intergovernmental Forum model, National Legislature model is a complimentary institutional arrangement model. In almost all federal countries the rules of intergovernmental transfer including the design of institutions is made by the national legislature.

Finally, the workings of all the institutions are guided by laws made by the parliament. Under the current institutional setting, the Local Government Operation act, Intergovernmental Fiscal transfer Act, National Natural Resources and Fiscal Commission Act, Audit Act, Financial procedure and Financial Accountability act define in detail the institutions involved, the rights and duties of the institutions and the purpose that each institution is supposed to fulfill.

Till date, no detailed analysis of the complex institutional setting of Nepal's intergovernmental transfer system exists. Two possible reasons exist for this. First, since the subject matter has received very little attention no framework for judging the institutional setting has been proposed. Secondly, Nepal's fiscal architecture itself remains to completely carved out, to that end all attention has been focused on transfer designs rather than the institutional setting of designs.

Nonetheless, comparative studies of institutions the world over provide some valuable insights that can be used as a basis of analysis. Furthermore, they also establish the need for such an analysis to complement the entire apparatus of intergovernmental transfer systems. We rely on three sources to inform our analysis of the institutional setting. First, we provide a brief overview of the evolution of the intergovernmental transfer system and the institutional set-up. Second, we approach the institutional setting from a policy triangle analysis perspective looking at the context, content, processes and actors⁶. Next, we use lessons from New Institutional Economics in a manner similar to Shah (2007). And finally, we complement both perspectives with lessons derived from Boex and Vazquez (2004) which contains generalized observations one must consider in designing the institutional setup.

Evolution of the institutional setup

There are similarities between the intergovernmental transfer system within the unitary framework and under our current federal model. Both governance structures have made use of earmarked and non-earmarked transfers. Allocations based on population size, infrastructure development situation, human development indices and social inequality indices are a feature of formula-based allocations in both governance systems. The engagement of line ministries in earmarked transfers has also continued in the federal government structure as well. Except for a well-defined legislation on the nature of grants and the fundamental basis of grant allocation, the transfer system under the current Federal structure does not show a significant departure from the unitary system of governance.

The policy and legal basis for decentralisation and intergovernmental transfer system in the unitary structure were Local Self Operation Act, 1999 supplemented by the Local Bodies Self Governance Regulations, 1999, Working procedures of the Local bodies Fiscal commission, Local Bodies

⁶ Developed by Walt and Gibson (1994). Policy triangle analysis is a holistic view of the policy making process. It looks at the context of the policy i.e. why, content of the policy i.e. what, process i.e. how was the policy made and the actors involved in the policy making process i.e. who.

Resource Mobilization and Management Directives, 2013, Village Development Committee Grant Operation Directive, 2013, District body Grant Operation Directive, 2013 and Municipal Body Grant Operation Directive, 2013. The legislation formed the basis of operation including the assignment of revenue and expenditure rights and grant transfers by the center government for 3542 smaller units of government⁷ until the adoption of the Federal Constitution in 2015 and restructuring of local governments in 2017. In the current federal setup, these policies have been substituted by the Local Government Operation Act, Intergovernmental Fiscal Transfer system, National Natural resources and Fiscal Commissions Act and Regulations, and Working Procedures for Special and Complementary grants. The policy basis for decentralisation and intergovernmental transfer system in the current is a significant departure from the previous system in so far as the current policies lay an emphasis on clearly spelling out the details of the transfer system. Whereas, both systems of governance used earmarked and non-earmarked transfer system, the current system to a large degree specifies the basis of these transfers and offers some form of consistency in the federal government's approach to the transfer system⁸. On the other hand, despite offering some form of consistency at a policy level, practical realities and even factors considered for transfers remain the same.

The unitary structure and the Federal structure have made use of earmarked and non-earmarked transfers. The goals for using these grants have been the same i.e. to achieve some form of vertical and horizontal fiscal equity. Beginning in early 2008, non-earmarked transfers to smaller units of government were made transparent through a formula and performance-based allocation. Table 1 provides a brief overview of formula-based unconditional allocation to DDC's and VDC's. Unconditional transfers were complemented with recurrent transfers (transfers meant for current expenditure) and earmarked transfers. Earmarked transfers were received from line ministries and donor agencies in the form of either program-based grants, social mobilization grants or capacity enhancement grants (Boex, 2012; Kelly, 2016). Needless to say, earmarked transfers came with a strong central directive and whatever little autonomy local bodies had in the unitary system of governance was further weakened by it. One thing to note, however, is that formula-based

⁷ We use the term smaller units of government to denote Village Development Committees, Municipalities and District Development Committees. Up until the adoption of a federal constitution in 2015, Nepal's model of decentralisation was different tiers of government within the framework of a unitary constitution similar to models practiced in China, Egypt, Indonesia and Norway. Autonomy of these smaller units of government was limited insofar as the assignment of function through the LSGA, 1999 and revenue raising powers is concerned. This model of decentralisation was more akin to administrative decentralisation with a paternal central authority. For more details on the revenue, expenditure assignment and Intergovernmental transfer mechanism (both vertical and horizontal) see Shah (2019), Bhatta (2011), and Jenkins et al. (2001), Kelly (2016).

⁸ Whereas in the unitary structure, the Local bodies Fiscal commission was autonomous to decide the basis of grant transfer on a yearly basis, in the current structure, the provisions of the Intergovernmental Fiscal Transfer Act and National Natural Resources and Fiscal commissions act dictate both the factors to be considered when designing the grant formula and even places a time limit of five years for its revision. Similarly in case of earmarked transfers there is some limitation on the discretion of the Line ministries to the extent that the current policies clarify the areas under which earmarked grants may be provided, the limit of the amount of grant and the need for sub-national governments to propose earmarked grants before each fiscal year starts.

block/unconditional grants had been in practice before 2008, their use however limited to the DDCs. Unconditional transfers to VDCs came in the form of a lump sum grant till the fiscal year 2007/2008 ⁹¹⁰. The evolution to a formula-based transfer system for greater transparency in the allocation of resources, however, only came through the support of donor agencies (Boex, 2012; Kelly, 2016).

Factor	DDC	VDC (Including Municipality)
Minimum Grant	NPR 4,000,000	NPR 1,500,000-3,000,000
Population	40%	60%
Weighted Poverty Index	25%	-
Land Area	10	10
Weighted Cost Index ⁴	25	30

Table 1: Allocation formula for Unconditional Transfer, 2008 (Adapted from Boex (2012))

Under the current system of intergovernmental transfers, sub-federal units receive non-earmarked transfers in the form of Fiscal Equalization grants¹¹ and earmarked transfers in the form of Conditional, Special and Complimentary Grants. One distinction within the category of earmarked transfers is that Conditional grant allocation is determined by the federal level, whereas Special and Complimentary grant allow some form of autonomy to the extent that these grants are allocated once a sub-federal unit requests transfer for the implementation of a certain project. Despite the nomenclature of grants in federal Nepal, they resemble Unconditional grants and block grants transferred to Local Bodies and District Development committees within the previous unitary system. In today's context, Fiscal equalization grant is equivalent to Unconditional grants, whereas other earmarked transfers resemble block grants. In fact, the determination of Fiscal Equalization grants to sub-federal units is similar to unconditional grants under the unitary system. Table 2 presents the current Fiscal equalization grant allocation formula. Although the nomenclature of components within the formula-based grant category has changed, it is

⁹ NPR 300,000 from the fiscal year 1995/1996- 1997/1998, NPR 500,000 from the fiscal year 1998/1999 till the fiscal year 2005/2006 and NPR 1,000,000 in the fiscal year 2006/2007

¹⁰ The cost index was calculated in the year 2005 by the Local bodies Fiscal Commission secretariat. It is calculated at the district level through the use of a commodity basket consisting of skilled labor, unskilled labor, cement, iron rod, zinc Sheet, wooden frame, sand, boulder, pipe fitting and supervision.

¹¹ Fiscal Equalization Grant itself is transferred under three headings a) a minimum share b) a formula-based share and c) a performance-based share.

nonetheless a measure of similar factors. Human development Index and Economic and Social Inequality both capture poverty, similarly infrastructure development captures the same things that Weighted cost index does. The only difference between the two is merely the use of population as an indicator. Whereas in the previous system it was part of the formula itself, in the new system it is part of a different sub-category of fiscal equalization grant i.e. Minimum Fiscal equalization grant. These learnings from the previous system are also incorporated in the Performance based category. One possible reason for the continuation of the previous system albeit with a different flavor is the influence that the Nepalese bureaucracy had in designing them¹².

Factor		Province	Local Government
Formula based Allocation	Human Development Index	10%	10%
	Economic and Social Inequality	5%	5%
	Infrastructure development	10%	10%
	Revenue Condition	5%	5%
	Expenditure needs and Capacity to raise Internal Revenue	70%	70%
Minimum Allocation	Population	50%	100%
	Area	50%	-
Performance based allocation		Based on 11 indicators	Based on 17 indicators

Table 2: Fiscal Equalization Grant allocation rules (Adapted from National Natural Resources and Fiscal Commission Reports).

The National Natural Resources and Fiscal Commission has recently started allocating a minor share of fiscal equalization grants based on performance. The implementation of performance based fiscal equalization grants finds its rationale on the need to incentivize local government performance. Indeed, this too is a continuation of the previous system where minimum conditions and performance measurements were part of non-earmarked transfers. The rationale for having

¹² Although the National Natural Resources and Fiscal Commission is a constitutional commission, during the initial days of its formulation, members had not been appointed. In the absence of appointed members, the bureaucratic apparatus designed the system which soon found continuation after the commission took its complete shape.

performance-based transfers is too, similar, to the extent that both governance systems find it necessary to either reward or punish local bodies. Despite, not having a federal structure in place, Nepal's adoption of performance measures suggests that the notion of intergovernmental transfers and social welfare maximization at the local level has gone through its own evolution. Whereas the previous assumptions about intergovernmental transfers would suggest that expenditure and revenue assignments were to be done based on spatial patterns, renewed interest in the subject matter calls for an equal importance to be placed on incentive structures to achieve the desired outcomes. In fact, in Nepal's case there is an acknowledgement of the need to pay special attention to the incentive structures, to the extent that performance-based allocations are specified as a major responsibility of the National Natural Resources and Fiscal Commission which was previously absent in the previous setup. There is however a deviation in the way performance-based allocations have been implemented in the two structures. Table 3 provides a highlight of the two systems.

	UNITARY SETUP	FEDERAL STRUCTURE
MODALITY OF IMPLEMENTATION	Performance based allocations were tied to Capital grant allocations i.e. eligibility to capital grants itself is based on performance measures except for village development committees where performance is tied to the eligibility of securing other block grants	Performance based allocations are a separate part of the Fiscal equalization grants, scoring low in performance indicators does not automatically mean that a local government is not eligible for formula-based allocations.
TOTAL INDICATORS AND RANKING	15 minimum condition Indicators and 62 performance-based indicators based on the functions of local bodies. Local bodies are ranked against each other, but eligibility for capital grants is dependent upon the minimum score; after a local body is deemed eligible, higher performing local bodies are given 25 percent more capital grant.	17 indicators for local governments. Local governments are ranked against each other and the higher the ranking the higher the share of performance allocation from the total pool.
INCENTIVES FOR EMPLOYEES	Employees of local bodies receive monetary rewards if their local body ranks higher	Non-Existent
TOTAL SHARE OF PERFORMANCE ALLOCATION	32 percent on average	3 percent

*Table 3: Differences between performance allocations in unitary and federal set-up
Source: Compiled by the authors based on various government reports.*

Over the years, the design of intergovernmental transfer system has not changed significantly. On the other hand, there is a difference between the unitary setup and the federal setup to the extent that the previous system of governance relied on government structures to fulfill the goals of the intergovernmental transfer system. The current system of governance, at least as far as the Constitution is concerned, imagines an independent constitutional commission to carry out a significant part of intergovernmental transfer system functions.

Policy Triangle Perspective of institutions

Any form of analysis of policy draws from concepts of numerous disciplines, most analysis also focuses on policy processes. Predominant definitions of policy analysis before 1994 contains an inherent understanding that policy analysis is done within the context of improving pre-existing policies and it involves analysis and evaluation of policy options within a framework of goals set for policymakers (Walt & Gilson, 1994). The most obvious implication of this vein of thinking is that “policymakers are concerned largely with the content of the policy”. Introspective analysis of policy to that end is normative, establishing how policies change over time and prescribing the ideal design for policymaking under the assumption of rational policymaker constrained by the goals set by society (Head, 2019; O’Brien, 2020). Yet policies do not arise in a vacuum, nor do they develop outside of the complex social, political and economic interactions that the field of political economy largely concerns itself with (Walt and Gilson, 1994). Retrospective analysis of policies to that end are an evaluation of the underlying structures of a particular policy, often considering the web of socio-economic interactions between the multiple parties involved and offer insights into the considerations for effective policy design. Instead of pursuing a purely rationalist thought, retrospective analysis often considers why and how a particular policy has taken its final shape. This allows for valuable lessons to be drawn as to how a particular policy change is driven rather than the technical aspects of the policy i.e., content. The policy triangle is a framework that is specially designed to aid this. Walt and Gilson (1994) argue that normative policy analysis through its focus on content of the policy often becomes prescriptive in nature, consequently, policy change instituted without a proper study of the context are implemented ineffectively. Our use of policy triangle analysis is precisely to overcome any normative prescription. We look at the intergovernmental transfer system through the lens of policy triangle to understand, in what context institutions have been shaped, the actors involved in the prevailing institutional set up and process of engagement.

The context of a Constitutional Commission and Line Ministries

The inevitable consequence of a federal system with a highly centralised revenue assignment and decentralised expenditure assignment is the reliance of subnational governments on transfers from the federal government (Bahl, 2020). Transfers from the national government is also a political affair, despite having a constitutional right to access equitable shares of total revenue, political competition about the ways of allocating and dividing the total pool is a reality (Bahl, 2020; Boex & Vazquez, 2004). In federal systems, subnational governments that are not aligned with the central

government may be punished through lower shares of the total revenue. The outlay of institutions responsible for management of intergovernmental transfer systems to that extent should be designed in a way that ensures the need for minimal political interference. Notwithstanding the different kinds of transfers that may be present in a federal system, at least the largest share of transfers should be administered by an institution that has this peculiar character (Shah, 2007). Many countries have this feature. Institutions comprising of experts make decisions based on transfers. Often, these institutions are kept separate from the bureaucratic apparatus as well. The rationale here is to limit any political or bureaucratic influence and ensure an impartial system is put in place.

Like many federations around the world, Nepal's envisioning of an institution is also similar. Our current Intergovernmental transfer system comprises of four grants a) Fiscal Equalization grants¹³, b) Special Grant¹⁴ c) Complimentary Grant¹⁵ and d) Conditional grant¹⁶. Of these four, FEG is

Box 1: Commission Member on security of tenure and Independence

Our removal can only come from impeachment. If we look at the past instances of impeachment in Nepal, we see that impeachment is both a lengthy and difficult procedure. This provides the basis for our impartiality i.e. we don't have to dance to the tunes of who is in power.

administered by the National Natural resources and Fiscal commission. It serves as an independent body for three reasons. First, the appointment of members of the council is not entirely a political choice, it is rather a collective choice of the Prime Minister, Chief Justice, Speaker and Deputy speaker of the parliament, the Chairperson of National assembly and the leader of the opposition party, who make up the constitutional council. Second, members once appointed enjoy secure tenure. Their removal can only come through impeachment, which is a matter of the legislature and not of the executive. Finally, the commission members have a fixed tenure removing any incentive for adhering to political party suggestions. Some members of the commission also echo the independence of the commission in so far as the security of tenure is concerned.

Despite having a character of impartiality, the commission is not completely free from political maneuvering. National Natural Resources and Fiscal Commission is not the only constitutional commission in Nepal. A recurring theme among the appointment of commission members is the initial division of leadership whenever a collation government is in power either post-electoral

¹³ Unconditional transfer made to subnational governments on the basis of revenue, expenditure needs and performance.

¹⁴ Special purpose grants administered by the National Planning Commission and transferred for development and delivery of basic services.

¹⁵ Matching funds administered by the National Planning Commission and transferred for implementation of Infrastructure development projects.

¹⁶ Earmarked grants administered by line ministries and provided for implementation of federal government projects.

coalition government or pre-electoral coalition government (Niti Foundation & Social Science Baha, 2022)).

Currently the commission is comprised of five members including the chairperson, all appointments are made by the constitutional council itself. The possibility of appointment of five members based on political strength in any given coalition, although anecdotal, is furthered by the frequent tension between commission members themselves. In fact, tensions between commission members are not entirely unique to the National Natural Resources and Fiscal Commission. Constitutional commissions in Nepal, although envisioned to be impartial are subject to some degree of influence. This influence is especially pronounced when the speaker, deputy speaker, prime minister and the chairperson belong to the same coalition. National Natural Resources and Fiscal Commission appointments too happened within this context i.e., of the Chairperson of National Assembly, Speaker and Deputy speaker of the House of Representatives and the Prime Minister belonged to the pre-electoral alliance of CPN-Maoist Center and CPN-UML. Since the council appointments must be unanimously approved and representation is given to the leader of the opposition party, appointment of members along political lines is always a possibility.

On the other hand, the engagement of line ministries in the intergovernmental transfer system is premised under the context of implementation of projects during the transitional period. More particularly, conditional grants were transferred to subnational governments for projects that were previously being implemented by the line ministries. Conditional transfers in the unitary system were in large parts a means to exert some level of bureaucratic control over local entities. In the current context, their existence seven years into the federal practice is somewhat questionable.

Box 2: Commission Member and National Natural Resources and Fiscal Commission employee on tensions between the commission members

There are both ideological disputes and disputes regarding how the commission should design the grant transfer system. Although these disputes ultimately benefit the work we are doing, members must reach a common consensus on what we seek to achieve.

Sometimes we receive conflicting instructions from the commission members. It is clear that commission members have differing views on how to allocate grants to sub-national governments. Some members are more proactive than the others. Ultimately, some form of consistency is required.

Box 3: Ministry of Finance Official on Conditional Transfers

Local governments still do not have complete capacity to formulate plans and policies. This is evident from their budget formulation and Midterm expenditure framework. Conditional grants work by aligning local plans and policies to the national plans and policies. More importantly, there is also the question of achieving the goals in the 15th periodic plan and Sustainable development goals, we align conditional grants to ensure that these goals are met.

Nonetheless, their justification is often argued from the lens of the insufficient capacity of subnational governments to formulate plans and policies.

Special and complimentary grants are administered by the National planning commission. These grants take the form of project specific earmarked amounts. Unlike the conditional grants, special and complimentary grants allow some form of autonomy to sub-national governments to the extent that they are allocated based on proposals developed by the sub-national governments themselves. The decision to have the apex planning body involved in the allocation, supervision and administration of grants follows from the need to avoid any duplication in projects. National Planning Commission is involved in the budgetary

Box 4: National Planning Commission official on Special and Complimentary grants

Special and complimentary grants are project specific grants that are administered with the purpose of a) increasing infrastructure spending and b) increasing investment in projects that target the socio-economic conditions of people within a given territory. There is need to properly evaluate all aspects of the project including but not limited to the detailed project report. National Planning Commission has the capacity to evaluate all project documents to ascertain whether or not a particular project is feasible or not

process and the formulation of mid-term executive framework and therefore is believed to be uniquely situated to assess the feasibility of projects, their alignment with the periodic plans and avoid duplication.

The content of policies defining the institutional set-up

The institutional setup of intergovernmental transfer is primarily laid out in the constitution through articles 60, 250 and 251. The constitutional imagination of fiscal equalization grants as far as article 60 provides is to maintain equity among sub-federal units. Distribution of fiscal equalization grant is strictly done from the perspective of revenue and expenditure needs. The constitution is, however, silent on the purpose of Special, Complimentary and Conditional grants, and leaves it to be decided by the national legislation. Under the general rules of the constitution, the Intergovernmental Fiscal transfer act further expands on the roles of the commission, other institutions that will be involved in the process and the basis for determination of grants.

Performance based allocation of fiscal equalization grant is not imagined in the constitution, it is rather the legislation made subsequently that creates the legal basis for performance allocations. Nepal's practice follows the general trend of leaving details on modalities of grant transfer to national legislation rather than the constitution. Except for Brazil, federal countries usually adopt national legislation to detail out institutions and the basis for the functioning of institutions. Legislation too provides general guidelines or more appropriately norms that must be considered when designing transfer systems. The IGFA approaches the transfer system in a similar manner, prescribing only two norms i.e., expenditure needs and revenue capacity. Indeed, this approach would allow the commission to take into consideration the changing dynamics of sub-federal operations to meet the larger goals.

However, deviation from this approach stems from the provisions of the National Natural Resources and Fiscal Commission act and Rules. Unlike the IGFA and the Constitution of Nepal, National Natural Resources and Fiscal Commission act, and rules stipulate that while deciding the basis of fiscal equalization grants eight factors must be considered. These include, a) Human development index b) Economic and social inequality c) Infrastructure condition d) Services to be delivered by sub-federal units e) Revenue condition and capacity f) Expenditure needs and g) equitable development parameters of sub-federal units h) Performance of sub-federal units. The legal provisions of the National Natural Resources and Fiscal Commission act and rules are prescriptive in nature to the extent that the legislation takes away the autonomous character of the commission, a feature that was imagined in the constitution. Instead, the content of the policies suggest that the power of the commission is not to determine the criteria or the basis of allocation, it is rather to only determine which criteria is more important from the list already provided.

On the other hand, legislation relating to conditional, special and complimentary grants allows the relevant institutions to set their own procedures for determination of modality and administration. Neither the IGFA nor the Constitution approach the three grants in a prescriptive manner. Details on Special and Complimentary grants, including the ceiling of grants, the criteria of determining whether a particular project is selected are guided by directives issued by the National planning commission. Unlike the primary legislation i.e. IGFA act, National Natural Resources and Fiscal Commission act, directives are easier to amend and thus allow the central government agency more autonomy.

One possible explanation for this phenomenon comes from the need to have a consistent basis for determination of untied grants. FEG are still the largest share of untied grants that sub-federal units receive. National Natural Resources and Fiscal Commission members maintain that legislative prescription although goes against the spirit of an autonomous constitutional agency, nonetheless, acts as a safeguard from the vantage of sub-federal units to the extent that they are aware of the system that determines the share and prescriptive provisions provides some legitimacy to the commission's work and safeguards it from any allegation of political maneuvering. One evident consequence of having a pre-defined criteria is the limitation on the Commission to acknowledge and work on sub-federal units claim of the current system being unequitable.

Box 5: National Natural Resources and Fiscal Commission members on legislative provisions

Although we can only change the weightage of the criteria provided in the National Natural Resources and Fiscal Commission act and rules, it provides us some basis for our ultimate work. Sub-federal units often complain of unequitable transfers, yet, having the criteria already in place means that our work is legitimate, and no pre-conceived biases form the basis of our ultimate decision.

The process of determining grants under the current institutional set-up

The determination of FEG is predominantly guided by the legislation. Nevertheless, the National Natural Resources and Fiscal Commission has two roles that are worth exploring. First is the assignment of weightage to the criteria and second is the creation of a performance measurement

Box 6: National Natural Resources and Fiscal Commission official on Grant design Formula

Once we had made necessary changes to the previous formula under the unitary setup, we called on experts to provide suggestions on the formula, some were national experts others were international experts. The final formula was agreed upon after all deliberations were completed with experts and officials from the Ministry of Finance

index. On the former, the commission played a limited role. The process of setting up the grant distribution formula along with assigning weightage to each criterion was entirely done by the bureaucracy. Commission appointments were delayed and in the absence of members, the bureaucracy designed the formula. Minor changes were made to the formula after commission members were appointed, however, these changes did not have any significant impact. The Bureaucratic apparatus designed the formula on the basis of two factors. First, grant allocation design formula in the unitary setup was considered and second, inputs were solicited from experts.

The process of designing a grant allocation formula and performance indicator has suffered from a lack of credible data. Statistics that the commission relies on for evaluating the Social and economic context of local governments, Infrastructure development conditions, and Human Development index are aggregated at the district level. Commission members claim to have conducted a study to transform these statistics at the provincial and local level. The process of allocation of grant is strictly deemed to be data driven although it is an imperfect data environment that the commission must work on.

Designing the performance indicator was an equally challenging endeavor. Unlike the self-assessment measures of performance indicators used by central line ministries, commission

Box 7: National Natural Resources and Fiscal Commission member on Performance Indicators

We know the problems of self-assessment of performance. We could have taken LISA as an indicator, but we know LISA indicator may not paint a true picture. Instead, we discussed amongst ourselves as to what data that was being generated by the central line ministries could be used to design an unbiased performance indicator. Initially, we had to send a lot of letters to the line Ministries, and they were hesitant to give us all the data, but now we have established a system, and it seems to be working fine.

members early on focused on designing the indicators in a manner that could be deemed credible. This required coordination among different line ministries, for instance forest coverage data was sought from the Ministry of Forest and Environment, and school enrollments rates were sought from the Ministry of Education. While the commission did have some challenges in coordinating

with the central line ministries, these issues seem to have been solved. The process of designing the indicators based on central line ministry generated data rather than self-assessment was driven by commission members' experience working in the bureaucracy.

While there are plans to ascertain the effectiveness of these indicators and the entire formula itself, the commission does not have the capacity to undertake this process. First, bureaucratic positions that were envisioned for the commission have not been fulfilled. Second, the government policy to transfer employees frequently affects the commission's ability to function insofar as specialized knowledge about the area of work is concerned. Finally, the commission, although authorized to hire external experts, is allocated insufficient funding.

In contrast however, National planning commission processes are guided by the prevalent culture of committee-based decision making in Nepal. Although, the directives state that the committee will evaluate the feasibility of the project, the capacity of the sub-federal unit to implement the project, the potential benefit of the proposed project, whether there is duplication in project or not and total estimated cost of the proposed project, the committee's decision making is based on whether or not all documents specified by the commission are submitted on time or not. Problems relating to the lack of employees do not exist in the National Planning Commission. They function at a fuller strength than the commission and therefore are more capable of adhering to their own directive. Under the current system, the National Planning Commission argues that sub-federal government's do not have enough capacity, to that end if all things were to be considered no grant would be allocated and thus development projects would be stalled or never initiated. This rationale allows the National Planning Commission to become lenient in the application of the procedures set.

Box 8: National Planning Commission official on the process of determining special and Complimentary grants.

Currently, we only look at whether or not a particular sub-federal unit has submitted all the required documents on time or not. We also look at whether or not the documents adhere to the general format. We recognize that sub-federal units may not have the capacity to develop projects that match our expectation, therefore we are approaching this as a transitional and incremental process.

National Natural Resources and Fiscal Commission proceedings are transparent to the extent that they are guided by a well-defined formula. National Planning Commission proceedings, however, are guided by committee meetings and recommendations. As such influence over the decision making of the National Planning Commission cannot be denied, although only anecdotal evidence exists regarding such influence, the design of the process itself makes the National Planning Commission susceptible to either political influence or administrative influence.

The New Institutional and Boex and Vazquez (2004) perspectives on Nepalese Institutions

Shah (2002, 2004 and 2007) provides a general framework for evaluation of institutions based on the learnings of New institutional economics. The use of NEI in intergovernmental transfer system institutions follows the standard rationality of principal and agent problem i.e. “the principal (citizens) and the agent (institution) act rationally based on the information and since information is both costly and not uniformly available the agent may not act in the interest of the principal and the principal may not be able to restrain the acts of the agent” (Dollery, 2001). Based on these insights Shah (2002 and 2004) provides three implications for an independent commission design.

Since an independent commission is not part of bureaucratic apparatus, its existence is contingent upon its necessity. This forces the commission to enlarge its scope of operation and exert its influence to justify its continued existence. However, in Nepal’s case this seems to be unlikely. The existence of the Commission in the future is guaranteed under the pretext of how difficult constitutional amendments are in Nepal. Moreover, the commissions’ role is itself limited and predefined by a national compact on the modality of grant distribution. Amending these legislations will not only require a new national compact, but also the support of the bureaucracy that is heavily involved in the law-making process of Nepal.

Secondly, Shah (2002, 2004 & 2007) argues that independent agencies have an incentive to complicate the design of the grant system because the complexity fuels the demand for members working in the agency in the external market. Indeed, this is supported by observations from India and Australia, where independent agencies have established a complex regime of intergovernmental transfer systems. Nepal’s current system however has safeguards for this. Whether this was intentional or a byproduct of limiting the commission’s autonomy is unknown. Unlike Australia and India, Nepalese commission cannot set its own criteria for determination of grants, the criteria’s have already been predefined in a manner which allows the commission to only make partial changes to the overall grant allocation formula. However, complexity may arise in the performance-based allocation, where the commission is allowed to design the system in its entirety. Here, however, we must note that the commission’s existence (read as existence at full strength i.e., from the date of appointment of all members) is relatively new. The usual practice of intergovernmental commissions is to have a fixed mechanism for a fixed period to ensure consistency. Ours is also a similar system, as time goes by, the possibility of commission’s workings becoming complex within the given framework is something that cannot be denied. Yet in its initial days, it restrained itself from doing so.

On the other hand, Boex and Vazquez (2004) provide five key considerations in Institutional design based on their experience. We take recourse to the three learnings in the analysis to follow. First, comparative experience federal countries suggest that institutional design should be guided by the goals of the transfer system and the overall federal system. As a consequence, an independent commission is better suited for countries with central bias i.e. centralised revenues and

decentralised expenditure. However, this does not imply that countries in transition should immediately establish an independent institution, rather a sufficient analysis of gaps and weakness of the current arrangement. Nepal's imagination of an independent commission although based on a need to arrange for equitable transfer in the absence of decentralised revenue falters solely because existing gaps and weaknesses were not considered. Policy coordination and policy clarity in the absence of a well-crafted exclusive and concurrent list was always going to be a problem that any form of institution would face in Nepal. Opting for a commission that cannot clarify on these matters would only make the task of the existing commission hard, especially when prescriptive legislative regime was put in place. The debate on equalization in this setting was always going to be a political one and to that end, a political structure i.e., one that ensures that representatives of all three tiers of government have a voice in the final design would have been better suited. This could take the form of an inter-governmental forum that first settles the issue of expenditure assignment and jurisdiction. From this perspective it is then easier to explain why sub-federal governments in Nepal often consider the current grant allocation mechanism especially Fiscal equalization grant to be unfair.

Secondly, any form of fiscal transfer must be complemented by a mechanism to monitor local government finances. Untied grants often offer perverse incentive to those receiving it, this learning comes not just from Boex and Vazquaz (2004) but also from the literature on SGFF. The Ministry of Finance is often thought to be uniquely positioned to undertake this task because of its capabilities and its role in government financial operations. However, this function must be undertaken at the very outset to avoid any precedent to contrary being set in. Although the National Planning commission requires the submission of periodic reports to the National Planning Commission itself, this has rarely happened. Instead, sub-federal governments have opted to submit a report to the Financial Comptroller Generals Office (FCGO), the entity responsible for the transfer based on the decision of the National Planning Commission. Since the FCGO is only the implementing agency, submission of reports to the agency undermines the purposes of some form of oversight. On the other hand, FEG is an untied grant and by its very nature cannot be tied to any oversight, thus the absence of any mechanism for oversight on part of the National Natural Resources and Fiscal Commission.

Third and finally, institutional setup i.e., composition should be determined by the function. Intergovernmental transfer institution in Nepal largely adheres to this learning. The National Natural Resources and Fiscal Commission is an independent commission specifically designed to be free from political interference which supports its purpose of maintaining equity across sub-federal units, whereas the central line ministries are established with a more centralised mindset i.e. gearing grants to achieve larger national goals and policy coordination.

There are three implications that follow from an analysis of the institutional set-up through three distinct but interrelated lenses. First, the context in which an independent commission was

imagined is not furthered by the content of the policies that define the responsibilities and limits of the institutions. Although the National Natural Resources and Fiscal Commission is deemed to be an independent commission, it is nonetheless limited in its approach to designing a grant allocation formula. As a consequence, any complaint by sub-federal units about the grant allocation system being inequitable cannot be addressed by the commission itself. While, limiting the overall scope of the formula itself is somewhat of a safeguard against complexities that might follow in line with the NIE learning, it is nonetheless, a significant barrier to ensuring that the institutional setup can fulfill the goals it was designed to pursue.

Secondly, any institutional set up that has been designed in the absence of clear revenue and expenditure assignment will face problems in pursuing its goals. Grant allocation should be sufficiently kept free from politics, yet grant allocation is also dependent on revenue and expenditure assignment which is an inherently political matter. The roles of independent commissions or central agencies to that end need to be complimented with institutions that allow for political bargaining to take place at least until the assignment of revenue and expenditure between all three tiers of government is clearer. In the absence of such a mechanism, any model is likely to face criticism from sub-federal units, a case that is true for our current model.

Finally, express legislative intent of grants must be decided early on to ensure that they are free from any form of bureaucratic or political influence. In other words, the context in which a particular grant is envisioned must be complimented by the content that defines the terms of those grants. This largely relates to the allocation of conditional grants. Whereas the context of conditional grants was to ensure that programs and projects in the unitary setup receive continuation in the federal setup, the legislative basis for it provides greater autonomy to central line ministries in its administration. This autonomy is in fact absent in the commission's role. Consequently, the continuation of the grant scheme relies on narratives to justify its legitimacy. The current narrative is one of sub-federal units not having enough capacity, which is both damaging to the transition process and questions the autonomy of sub federal units. In the next section, we provide some key indicators to test this narrative.

3 Data Collection

Our primary objective is to analyse if the current performance-based allocations incentivize local governments to perform better. Secondly, we also seek to know whether the current formula-based component of fiscal equalization grant has any inherent mechanism to reward better performing local governments.

We collect data for four fiscal years i.e., 2020/21, 2021/22, 2022/23 and 2023/24. The Intergovernmental Fiscal Management division of the Ministry of Finance publishes the amount of transfers to be made to each local government in any given budget year as soon as the Appropriation act and Finance act has been published in the Nepal gazette. We compile data

relating to Minimum allocations, formula-based allocations and performance-based allocations for each local government.

Similarly, we compile data relating to scores received by local governments for performance allocation. Currently, the commission has 17 indicators of performance, each of which have been given weightage to make the combined score 100. Each local government is ranked on the basis of the scores they received, and transfers are made accordingly. Data for fiscal years, 2021/22, 2022/23 and 2023/24 was provided by the National Natural Resources and Fiscal Commission. It must be noted that the National Natural Resources and Fiscal Commission had made recommendations for performance-based transfers in the fiscal year, 2020/21, however, the Ministry of finance refused to make allocations based on performance citing the covid-19 crisis.

In addition to the scores received by the local governments we also collect data relating to total population, total capital expenditure of local governments, total internal revenue of local governments, total transfers received by local governments, total fiscal irregularities for fiscal years 2019/20, 2020/21 and 2021/22. This was obtained from the Office of the Auditor general's yearly reports for the said fiscal years. Table 4 presents the description of data.

Variable	Description
Formula based_FEG.	Total Fiscal equalization grant allocated to a local government based on the Formula devised by National Natural Resources and Fiscal Commission
Minimum	Minimum Fiscal Equalization grant allocated to the local government based on Population size.
Performance based_FEG	Performance base allocations made in any given fiscal year based on the scores received by local government
National Natural Resources and Fiscal Commission Score	Total mark achieved by local governments out of 100 for any given fiscal year
Quartile Rank	A quartile rank of a local government based on the scores received in the National Natural Resources and Fiscal Commission indicator in any given year.
Capital expenditure ratio	Ratio of Capital expenditure to total expenditure in any given fiscal year
Total Internal Revenue	Total revenue generated from own sources by local governments.
Total Grants	Total grants received by local governments from both the provincial and local government. This includes condition, special and Complimentary grants.
Revenue Distribution Amount	Total transfers received from provincial and federal government as revenue distribution.
	Ratio of Irregular expenses to total audited amount of Local governments.

Fiscal Irregularities Ratio Category of local governments based on accessibility. This was developed by Ministry of Finance/AGA considering cost of service delivery, distance from the center, and road conditions among other things.

Category of Local Government

Table 4: Description of Variables used.

Table 5 provides a brief overview of the latest performance ranking of local government based on their category. We present the data based on quartiles of values attained in the performance indicators. A within group comparison of local governments (based on the category of local governments in terms of accessibility) reveals a higher share of local governments within the most accessible category perform better than their peers i.e. the majority fall in either the third or the fourth quartile, this is followed by the remote category, Far remote category and Moderately accessible category.

Administrative Category	4 quartiles of National Natural Resources and Fiscal Commission scores_22_23				
	1	2	3	4	Total
Accessible	14	12	42	29	97
	14.43	12.37	43.30	29.90	100.00
	7.41	6.38	22.34	15.43	12.88
Moderately Accessible	76	67	56	65	264
	28.79	25.38	21.21	24.62	100.00
	40.21	35.64	29.79	34.57	35.06
Remote	64	51	54	51	220
	29.09	23.18	24.55	23.18	100.00
	33.86	27.13	28.72	27.13	29.22
Far Remote	35	58	36	43	172
	20.35	33.72	20.93	25.00	100.00
	18.52	30.85	19.15	22.87	22.84
Total	189	188	188	188	753
	25.10	24.97	24.97	24.97	100.00
	100.00	100.00	100.00	100.00	100.00

Table 5: Summary of National Natural Resources and Fiscal Commission scores by quartiles categorized by local government accessibility.

The first row has frequencies; second row has row percentages, and third row has column percentages.

Table 6 reports the changes in performance of local governments based on National Natural Resources and Fiscal Commission index values. We present the values segregated into four quartiles and report the changes in quartile rankings for four categories of local government¹⁷. In comparison to peers within their own category, the lowest share of local governments either remaining in the same quartile or moving down a quartile is recorded in the category Accessible followed by Moderately Accessible, Remote and Far Remote. In terms of local government that have jumped three quartiles the highest share is present in the category Accessible followed by Far remote, Remote and Moderately Accessible. An overall comparison, regardless of the category of the local

¹⁷ 0 being no change or a negative change in quartile ranking, 1 being a jump in quartile ranking, 2 representing a local government climbing two quartiles higher than previous year and so on.

government, reveals that a majority of the local government have either remained in the same quartile or have witnessed a negative change in quartile rankings.

Administrative Category	Changes in Quartile ranking				
	0	1	2	3	Total
Accessible	38	35	19	5	97
	39.18	36.08	19.59	5.15	100.00
	7.35	25.36	26.39	19.23	12.88
Moderately Accessible	187	46	24	7	264
	70.83	17.42	9.09	2.65	100.00
	36.17	33.33	33.33	26.92	35.06
Remote	163	33	17	7	220
	74.09	15.00	7.73	3.18	100.00
	31.53	23.91	23.61	26.92	29.22
Far Remote	129	24	12	7	172
	75.00	13.95	6.98	4.07	100.00
	24.95	17.39	16.67	26.92	22.84
Total	517	138	72	26	753
	68.66	18.33	9.56	3.45	100.00
	100.00	100.00	100.00	100.00	100.00

Table 6: Summary of local government performance based on changes in rankings, segregated by local government accessibility.

First row has frequencies; second row has row percentages, and third row has column percentages.

In Figure 2 we present box plots of four variables i.e. the total amount of Fiscal equalization grants, the Per-capita Fiscal irregularities amount, the Per-capita development expenditure amount and the rankings in LISA. In fiscal years 2021/22, local governments that were categorized as Accessible received higher amounts of Total Fiscal Equalization grant followed by Moderately accessible, Remote and Far Remote local governments. In terms of the relationship between total fiscal equalization grant and performance, we see conflicting results to the extent that Accessible category of local government's had a lower Fiscal irregularity per-capita indicating fiscal prudence, yet the amount of development expenditure per-capita is also lower indicating a lack of adequate planning in capital expenditure. This, however, could also mean that accessible categories of local governments have access to infrastructure and thus would not need large sums of budget allocated to infrastructure. On the other hand, since the Fiscal equalization grant is primarily designed to consider expenditure needs, local government's falling in accessible categories receiving larger chunks would indicate some flaw in design in so far as the need for development spending is concerned. Similarly, local governments in the accessible category also rank higher in LISA indicator. This should not be surprising since LISA measures service delivery and governance. The sub-categories include measurements on the frequency of judicial committee meetings, the number of cases decided, the process of budget-making, participatory approach in budget making, the timeline of revenue and expenditure forecasts. These are areas where a local government in the accessible category is expected to perform better. However anecdotal evidence also suggests that since LISA is based on self-assessment the rankings are suspect.

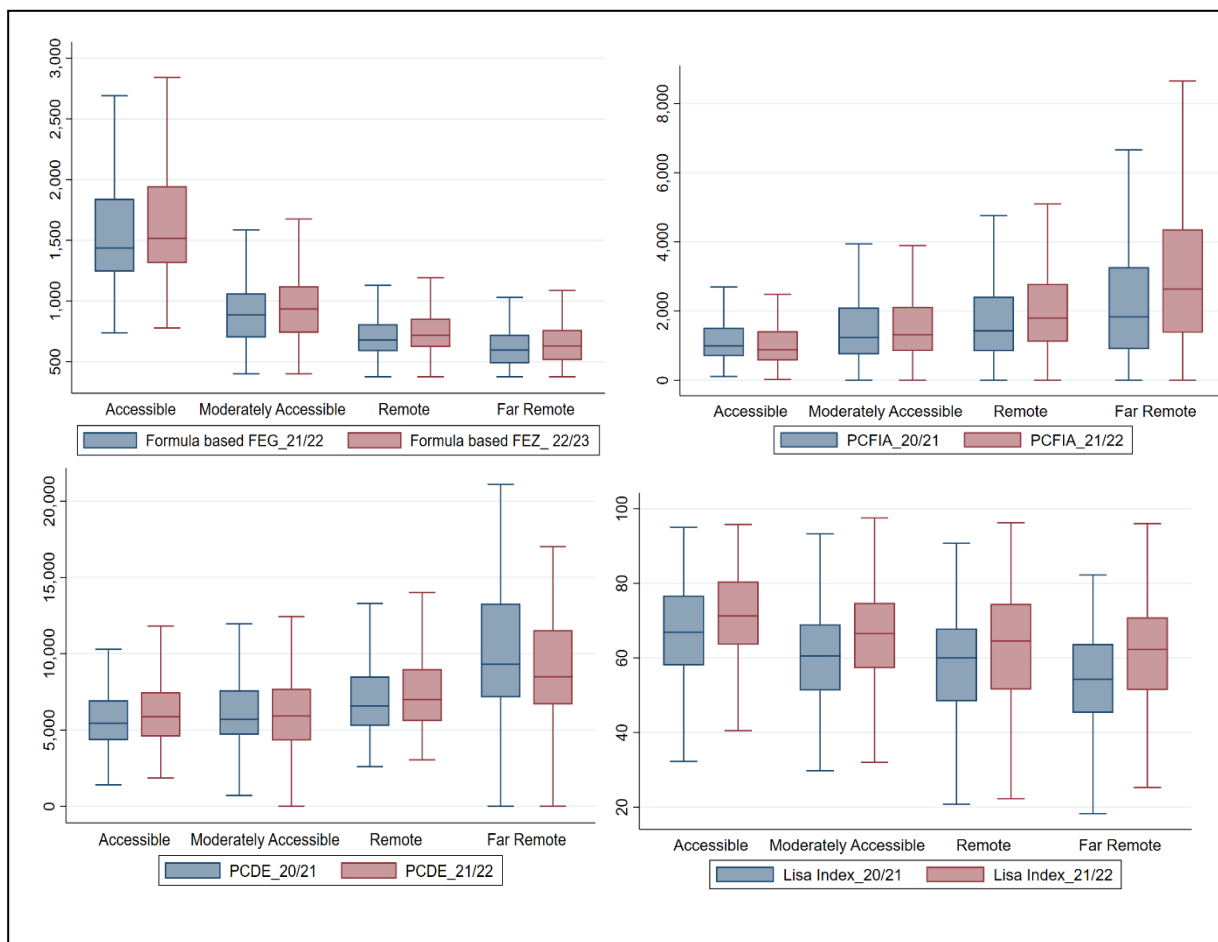


Figure 2: Box plot of Formula based Fiscal equalization transfer, Per capita Fiscal Irregularities amount, Per capita Fiscal development expenditure and LISA index values based on categories of local government.

In table 5 we reported that a higher share of local governments within the far remote category fell in either the third or fourth quartile of National Natural Resources and Fiscal Commission ranking. This is likely because of the share of performance-based ranking in comparison to a) Total fiscal equalization grant (Figure 3) and b) Total internal revenue of the local government (Figure 4). Whereas the ratio of performance-based grant to internal revenue and performance-based grant to total fiscal equalization grant is almost negligible, this ratio is nonetheless higher for local governments that fall in the Far Remote category, followed by Remote, Moderately Accessible and Accessible category.

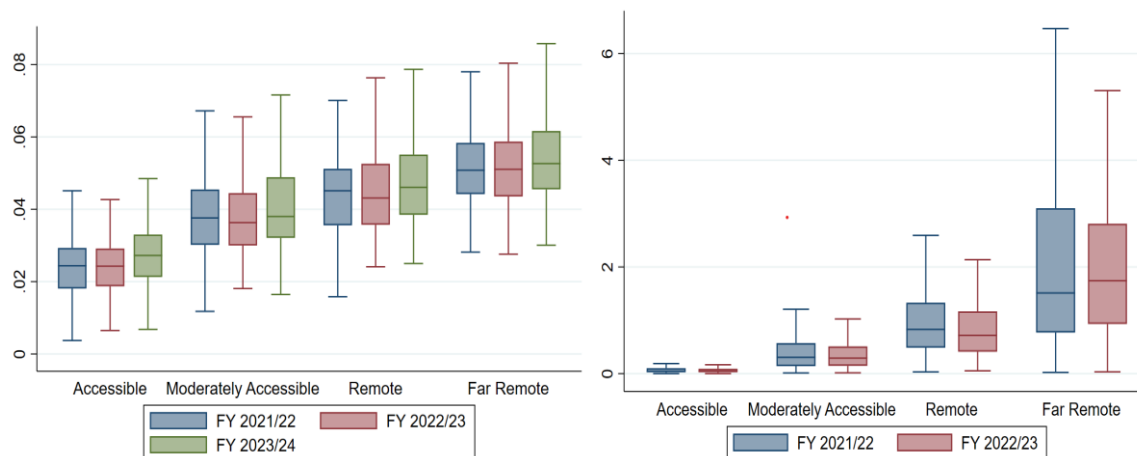


Figure 4: Share of Performance based transfer as a percentage of Formula based transfer.

Figure 3: Share of performance-based allocation as a percentage of Internal revenue of local governments

4 Methodology

A simple ordinary least square regression approach would help us estimate the changes in performance scores in time period t as a result of performance-based allocations in time period $t-1$. However, since National Natural Resources and Fiscal Commission performance indicators have not been consistent for the years we collect data for, the results of OLS would be misleading in so far as any changes in scores would likely be affected by the change in metrics rather than allocations in time period $t-1$. In order to get an unbiased estimate regardless of changes in metrics we construct a new variable i.e., performance mobility. Performance mobility measures the change in quartile rankings of a particular local government i.e.

$$Performance\ mobility\ (P'_{ij}) = QR_{t+1} - QR_t \dots \dots \dots (1)$$

Where QR is the quartile ranking of any given local government with 1 being the local government which is in the first quartile and 4 being the local government in the last quartile. Performance mobility then measure is a particular local government that has moved up or down the quartile rankings.

We use a maximum likelihood estimator to analyse the effect that performance-based allocation has on changes in quartile ranking. It takes the following form.

$$P'_{ij} = \beta'x_{ij} + \epsilon_{ij} \dots \dots \dots (2)$$

Where, P'_{ij} is the probability of the i th local government either climbing up or down in quartile rankings in as defined in equation 1 and X'_{ij} is the vector of observed factors that affect the performance of local government and ϵ_{ij} is the vector of unobserved factors that affect performance.

Since our dependent variables takes on the values 0, 1, 2 and 3 with 0 being no jump in quartile or a step down in quartile rankings and 1, 2 and 3 being respective positive changes in quartile rankings, we estimate the effect of performance allocations on incentive through the use of ordered-probit regression. We cluster the standard errors based on the category of local government.

We estimate the relationship between Performance based allocations given in the begining of fiscal year 2021/22 and its effect on change in performance quartile rankings between years 2021/22 and 2020/21. One thing to note here is that performance rankings are done at the end of any given fiscal year and allocations are made in the beginning of the fiscal year. Therefore, the difference between the quartile rankings will realistically speaking be affected by the Performance based allocations made in the beginning of the fiscal year. Since recommendations of the fiscal commission are already out by the fourth quarter of any given fiscal year, local governments already have knowledge about the proposed allocation and thus this information should form the basis of their performance.

Similarly, we also estimate the relationship between performance allocations made in the beginning of year 2022/23 and change in quartile rankings between year 2022/23 and 2021/21.

For analyzing the relationship between formula-based grants and performance, we use a simple ordinary least square regression. We use log transformed Formula based allocations as our dependent variable and our main explanotary variable is the Log transformed National Natural Resources and Fiscal Commission performance score in year t-1. our equation for estimating the relationship takes the following form.

$$Y_{it} = a_0 + b_1 X_{it-1} + b_2 z_{it-1} + e_{it} \dots\dots\dots(3)$$

Where Y_{it} is the i th local government's formula-based allocation in the year t , X_{it-1} is the i th local government's Log transformed performance score in year $t-1$ and z_{it-1} is our control variable.

For both our analysis, we estimate the effects for two consecutive years. This allows us to understand if our findings are consistent or not. Since, data is limited, and a panel dataset cannot be constructed, we do not imply any causation, rather our interpretation is strictly limited to the way in which variable interact with each other i.e. the possible direction in which the relationship might follow.

5 Results

First, we estimate the effect of performance-based allocations on performance mobility of the local governments. Table 7 presents the results of ordered probit regression. Row 2 reports the effects of performance-based allocation on performance mobility. There is a negative relationship suggesting that performance-based allocations for year $t-1$ and the chances of a local government moving up the quartile ranking move in opposite directions. This relationship is significant at a one percent significance level.

Row 2 reports the effect of total grants received by local governments and its relationship with performance mobility. We use two-year lagged values for this. Our justification for using two-year lagged values follows the grant timeline. Except for Fiscal equalization grants, other grants are not rights of the subnational units, local governments need to submit a report on the use of grants to several agencies, in practice however, they only submit it to the FCGO. Transfers are then made, although the policy prescription calls for these transfers to happen at a specific time, in practice, grant transfers can happen in the last month of fiscal transfer as well. Since, Performance based rankings are done within the third quarter of any fiscal year, the effect of other grants on performance allocation takes the form of informed decision taken as a result of estimation based on grants received two years prior. This relationship is also negative and significant. In simple terms, the results suggest that the higher the total grants (federal and provincial) received by a local government the lower their chances of moving up the quartile ranking classification. This should not be surprising, since the total grant share is higher than performance-based allocations.

In row3 we estimate the effect of performance mobility because of the category in which a local government falls in. Only the category Far Remote shows a significant association with performance mobility. Put simply in comparison to the local government that are accessible in nature, Far remote local governments have lower chances of moving up the quartile ranking. This is in line with our earlier assumption i.e. performance is tied to the category of local governments and to that end, we present two more estimates in column 4 and 5.

Column 4 reports the results of probit regression with standard errors clustered at the local level. Here too, the association is negative, suggesting that performance-based allocations reduce the likelihood of any local government climbing up the quartile ranking. Internal revenue, however, is positively associated with performance mobility. This should not be surprising, since one of the measures of performance itself is whether a particular local government has made efforts to raise its own source of revenue.

	(1) Mobility	(2) Mobility_21/22 _20/21	(3) Mobility_21/22_20/ 21	(4) Mobility_21/22_2 0/21	(5) Mobility_21/22_ 20/21
Performance based FEG_21/22	-0.0563*** (-8.28)	-0.0566*** (-8.30)	-0.0590*** (-8.55)	-0.0566*** (-6.63)	-0.0550*** (-8.22)
Total Internal revenue_20/21	0.0000146 (1.42)	0.0000158 (1.52)	0.00000410 (0.43)	0.0000158*** (3.74)	0.00000519 (0.48)
Total Grant_20/21		-0.00000277* (-2.27)	-0.00000303** (-2.72)	-0.00000277*** (-3.51)	-0.00000355** (-3.25)
Accessible			0 (.)		
Moderately Accessible			-0.261 (-1.93)		

Remote			-0.404** (-2.79)		
Far Remote			-0.180 (-1.28)		
<hr/>					
/					
cut1	-2.145*** (-6.68)	-2.169*** (-6.72)	-2.531*** (-7.29)	-2.169*** (-4.75)	-2.022*** (-6.45)
cut2	-1.413*** (-4.42)	-1.437*** (-4.48)	-1.794*** (-5.22)	-1.437*** (-3.79)	-1.336*** (-4.26)
cut3	-0.582 (-1.79)	-0.604 (-1.85)	-0.965** (-2.77)	-0.604 (-1.63)	-0.465 (-1.44)
Observations	740	740	740	740	731

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: Probit estimates of performance mobility (2021/22-2020/2021)

In column 5 we report the estimates of coefficients based on quartile rankings of local governments within each category. In other words, each local government is ranked against their own peers and performance mobility is calculated as moving up or down the quartile classification based on the category in which they fall in. Here too the results show us a similar association i.e. performance allocations and performance mobility move in opposite directions.

One possible explanation for performance allocation and performance mobility moving in opposite direction, might come from the fact that performance allocations are a very small part of the overall transfers that local governments receive. In order to estimate the effect of performance allocation, we calculate the expected probability of moving up or down the quartile ranking based on the amount of allocation.

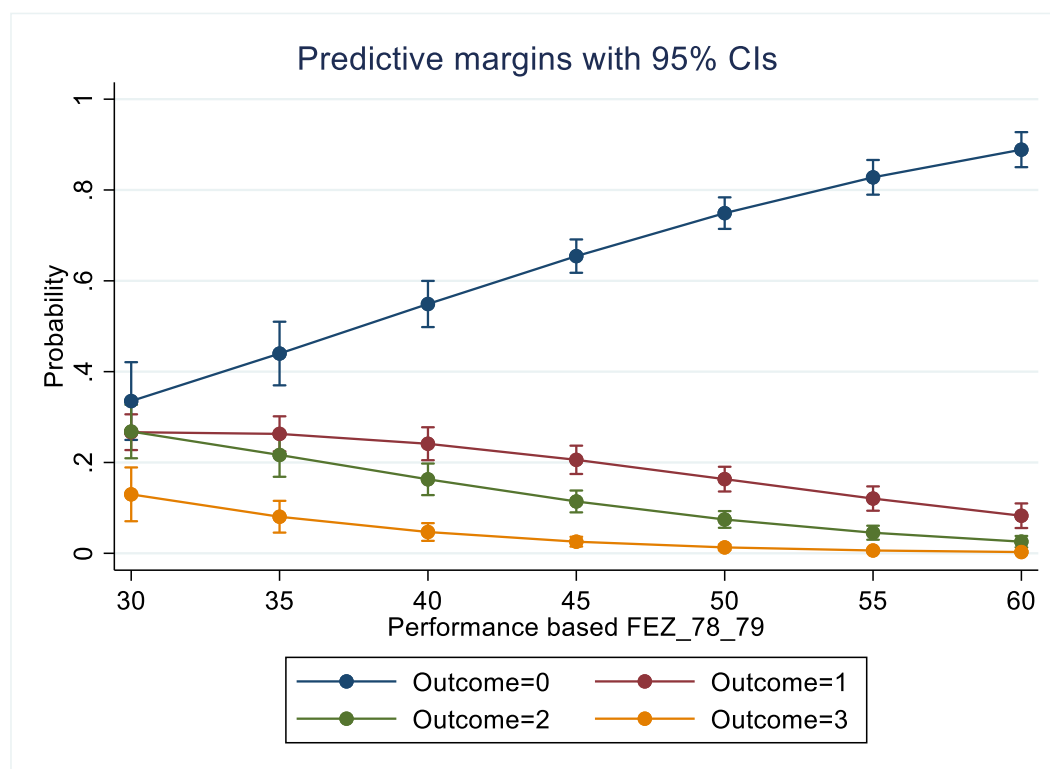


Figure 5: Predicted probabilities based on allocation of performance based Fiscal grants.

Whereas local governments that receive NPR 6,000,000 are 85 percent likely to either remain in the same quartile or move down a quartile, the probability of a local government receiving the same amount and moving up one step in the quartile classification is 17 percent. The expected probability decreases as we consider the likelihood of a local government moving either two or three quartiles up in comparison to previous years. Although, we are cautious to not imply any causal mechanism, our results suggest that performance of local governments is not tied to performance-based allocations, rather something else is affecting the manner in which local governments approach their governance.

This result is consistent across two cross sections. Table 8 reports the results from another cross section. We use a similar strategy here too, first estimating the effects of allocations, then using categories of local government, clustering standard errors using categories and finally comparing each local government to their own peers. Although there are some changes in the way our control variable interacts with the dependent variable, our main explanatory variables relationship remains the same. Instead of a negative relationship between the total grant and performance mobility we see a positive relationship suggesting that it is not the amount of performance-based allocation, but rather the overall allocation of grants that works as an incentive. This could be because, the National Natural Resources and Fiscal Commission indicators measures things such as school enrollment, school retention rates, school pass out rates, forest coverage, number of women seeking maternity services from the hospital. It is likely that local governments that receive a higher share of overall grants spend the amount in these sectors and are thus able to score higher.

Interestingly however, the effect of local government categories on performance mobility is significant in comparison to previous cross-sectional estimates. In comparison to local governments that are accessible, other local governments have a lower chance of moving up the quartile ranking. This is also consistent with our earlier hypothesis about the category of local government affecting performance and thus our decision to cluster standard errors by local government category.

	(1)	(2)	(3)	(4)
	Mobility_22/23_21/22	Mobility_22/23_21/22	Mobility_22/23_21/22	Mobility_22/23_21/22
Mobility_22/23_21/22				
1/22				
Performance_22/23	-0.0807***	-0.0805***	-0.0845***	-0.0805***
3	(-12.05)	(-12.00)	(-11.94)	(-11.21)
Internal Revenue_21/22	0.00000818	0.00000794	-0.00000794	0.00000794
	(0.55)	(0.53)	(-0.73)	(1.28)
Total_grant_21/22		0.000000720*	0.000000895***	0.000000720***
2		(2.11)	(4.39)	(8.72)
1.Accessible			0	
			(.)	

2.Moderately Accessible			-0.446** (-3.16)	
3.Remote			-0.716*** (-4.74)	
4.Far Remote			-0.389* (-2.49)	
<hr/>				
/				
cut1	-3.353*** (-10.21)	-3.343*** (-10.14)	-3.983*** (-10.65)	-3.343*** (-7.63)
cut2	-2.431*** (-7.48)	-2.421*** (-7.42)	-3.036*** (-8.27)	-2.421*** (-5.28)
cut3	-1.571*** (-4.71)	-1.561*** (-4.67)	-2.152*** (-5.80)	-1.561*** (-3.62)
<hr/>				
N	738	738	738	738

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Probit estimates of performance mobility (2022/23-2021/2022)

Next, we estimate the effect of performance on formula-based allocations of local government. Table 9 presents the results of our analysis. In Column 1 and 2 we show the effects of log scores received on National Natural Resources and Fiscal Commission indicators, population, area, and accessibility of local government on log formula-based allocations. When controlling for population area and the category of local government, the scores received by local governments do not show any significant effect on the formula-based allocation. Our analysis indicates that there are no hidden mechanisms to address the performance of local governments. Interestingly, however, the category of local government shows a statistically significant relationship (at 5 percent level) with the amount of formula-based allocations. In comparison to the accessible category Remote and Far remote categories of local government's receive .54 percent and .65 percent less in formula-based allocation. This is surprising since one of the goals of the formula-based allocation is to achieve horizontal equity, yet local governments with minimal facilities in terms of access receiving lesser amounts of formula-based transfer would indicate some flaw in the overall design of the allocation system.

To validate our finding in terms of the association of performance and formula-based transfer, we test the relationship between percapita development expenditure, percapita fiscal irregularities amount and formula-based allocations in column 2. If the assumption that formula-based grant has a positive association with performance is true than the result should indicate percapita development expenditure and formula-based allocation to move in the same direction, whereas the opposite would be true for Percapita fiscal irregularities. Our regression result reveals that a percent increase in Percapita Development expenditure leads to 0.11 percent decrease in formula-based allocation. The results are significant at 5 percent confidence level and validate our earlier finding on the inter-relationship between formula-based allocation and performance. Although the

direction of relationship between Per capita Financial Irregularities amount and Formula based transfer is in line with our initial assumption, it is nonetheless an insignificant variable. In Column 4 we add Internal revenue as an additional control variable. We find that a percentage increase in Internal revenue leads to 0.0735 percent increase in formula-based transfer. Overall, we see mixed results to the extent that increase in internal revenue would be an indicator of better revenue management and forecasting, its positive association suggests that there is some mechanism of accounting for performance, however an insignificant association with the commission's own index value and a negative (significant) association with per capita development expenditure would suggest otherwise. A possible explanation for this phenomenon would simply be that the variations in our results are merely because of the limited amount of data that provides us with limited measures of association. Equal emphasis must also be placed on the fact that this association is not causal, it is rather merely correlations and further research on this area is still needed, this includes the identification of new and more robust data sources.

	(1)	(2)	(3)
	LogFormula21_22	LogFormula21_22	LogFormula21_22
LogNational Natural Resources and Fiscal Commission20_21	0.0500 (0.0707)	0.0714 (0.0814)	0.00994 (0.0629)
Population	0.00000383 (0.00000427)	0.00000354 (0.00000411)	0.00000286 (0.00000387)
Area	-0.0000672** (0.0000207)	-0.0000222 (0.0000212)	-0.0000139 (0.0000215)
Moderately Accessible	-0.368 (0.192)	-0.368* (0.187)	-0.274 (0.141)
Remote	-0.545* (0.236)	-0.537* (0.224)	-0.378* (0.155)
Far Remote	-0.657* (0.273)	-0.621* (0.249)	-0.418* (0.167)
LogPCDE20_21		-0.110* (0.0491)	-0.129* (0.0505)
LogPCFIA20_21		-0.00310 (0.0116)	0.00418 (0.0125)
LogIR20_21			0.0735** (0.0233)

Constant	6.784*** (0.258)	7.701*** (0.517)	7.653*** (0.473)
Observations	753	720	720
R ²	0.647	0.667	0.702

Standard errors robust against heteroskedasticity reported in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Ordinary Least Square estimates for fiscal year 2021/2022.

The results are similar across two cross sections. Table 10 presents the results which uses a similar strategy. Here too there is strong evidence to support our original finding. Log scores received by local governments in the National Natural Resources and Fiscal Commission index are not significant, whereas, Log Percapita development expenditure is negatively associated with Log Formula based transfers, the results are now significant at 1 percent level of confidence. Additionally, our earlier finding about the formula-based transfer achieving its goals still holds true to the extent that we see similar results when comparing the category of local government.

	(1)	(2)	(3)
	LogFormula22_23	LogFormula22_23	LogFormula22_23
LogNational Natural Resources and Fiscal Commission21_22	-0.0458 (0.0569)	-0.0566 (0.0583)	-0.0693 (0.0572)
Population	0.00000379 (0.00000438)	0.00000340 (0.00000414)	0.00000276 (0.00000398)
Area	-0.0000700*** (0.0000186)	-0.0000105 (0.0000335)	0.000000667 (0.0000350)
Moderately Accessible	-0.372 (0.198)	-0.381* (0.187)	-0.288* (0.143)
Remote	-0.552* (0.245)	-0.554* (0.225)	-0.396* (0.160)
Far Remote	-0.680* (0.280)	-0.644** (0.247)	-0.432* (0.172)
LogPCDE21_22		-0.134* (0.0560)	-0.156** (0.0576)
LogPCFIA21_22		-0.0116 (0.0141)	-0.00353 (0.0127)

LogIR21_22			0.0746** (0.0285)
Constant	7.246*** (0.480)	8.581*** (0.939)	8.320*** (0.783)
Observations	753	721	721
R^2	0.617	0.645	0.671

Standard errors robust against heteroskedasticity reported in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Ordinary Least Square estimates for fiscal year 2022/2023

Discussion

The idea of performance-based allocations finds its justification in the ongoing narrative about the weak capacity of local governments. Indeed, our analysis suggests that performance-based allocations are not significantly related to the performance of local governments, nor is the formula-based transfer related with the performance of local government. In fact, local government allocation largely favors accessible categories of local governments.

One possible explanation for performance-based allocation being negatively associated with the performance of local governments might come from the design of the performance criteria itself. Performance measurement criteria have indicators that measure things in either absolute terms or relative to the national average. Our analysis suggests that allocations are affected by the category of local government and the ratio of internal revenue to performance-based allocations are higher for categories that fall under the Far remote category than it is for the accessible category.

To test whether local governments are actually performing better than their peers and in comparison, to federal government, we take recourse to ratio analysis. Literature on public finance, largely considers whether a particular local government can remain solvent or not, whether its expenditure has large components of fringe benefits or not, whether it efficiently is able to achieve its own target in terms of revenue generation and whether it has adequate development spending per capita as indicators of performance. Instead of relying on absolute terms comparison, we use percapita measures to account for differences in local governments and to form a realistic basis of comparison between local governments.

We take a sample of three local governments per province. Our sampling strategy considers the scores received by the local governments in the National Natural Resources and Fiscal Commission indicators. We select the best performing, worst performing and average performing local governments from each province to calculate the afore-said ratios. We then compare it with federal government ratios and estimate the correlation coefficient to test whether the current indicators adhere to suggestions made in the literature of public finance.

Table 9 Presents the results of ratio analysis. Except for the local government Ramechhap, all other local governments in our sample are relatively in a strong position to the extent that they are solvent owing to fiscal surplus. This should not be surprising, since local governments rarely use the facilities of internal lending and largely rely on either their own source revenue or intergovernmental transfers. From this vantage point, local governments are better at managing their finances than the federal government which has an overall fiscal deficit.

Similarly, we also calculate the collecting efficiency of local government and federal government. In our sample, the actual revenue to targeted revenue ratio of all local governments is comparable to the federal government, in fact, some local governments exceed the federal government's collecting efficiency. This suggests that local governments have enough capacity to mobilize their own internal source of revenue, the problem with local government's not being to collect enough revenue to finance their own spending might be a revenue base problem rather than an efficiency problem.

Similarly, local governments showcase varied municipal development expenses. Although one would expect that local governments that have a higher municipal development expense per capita should score more on National Natural Resources and Fiscal Commission indicators, the relationship is moving in the other direction. Infact, high performing local governments have a higher degree of local service expense percapita. One possible explanation for this might be that better performing local governments have adequate infrastructure and therefore focus on local service delivery. On average, Local government service per capita spending is higher than what the federal government spends on service delivery per capita. Similarly, development expense per capita is higher at the federal level when we compare average spending values of all 753 local governments. However, there are some local governments that surpass the federal government in terms of percapita development expenses.

When it comes to the scores received by the local governments, there is a negative correlation between Fiscal year balance percapita, collecting efficiency, Municipal Development expense percapita, and local service expense per capita. The only positive correlation is between the Operating expenditure to current expenditure ratio and total share of internal revenue ratio. This makes sense, because the design of indicators considers own source revenue of local governments and also the financial irregularities of local governments. Since local governments have a higher operating expenditure to current expenditure ratio than the federal government, there is less scope for irregularities through distribution of fringe benefits.

On the other hand, the correlation coefficient suggests that by and large, our indicators for performance look at absolute terms rather than relative terms i.e. percapita terms which is the standard norm. Notwithstanding the difficulty of making indicators in the presence of imperfect data, the current reasoning of local governments not having enough capacity is also faulty. Comparison of collecting efficiency between the federal and the local government indicates that

local governments are at par with the federal government, the same is the case with municipal development expense per capita. In fact, local governments have better fiscal discipline as suggested by the fiscal year balance per capita and operating to current expenditure ratio.

Local Government Average	Province	Self-Income Ratio	Fiscal Balance per capita	YearCollecting Efficiency	Municipal Development expense per capita	Local Service Expense per capita	PerOperating to current ratio	ExpenditureIndex expenditurevalue
Ramechhap	Bagmati	0.045737116	-4059.00813	0.070258	1639.322	1468.481	0.252641	73.3
Dulikhel	Bagmati	0.24246094	3621.113101	0.918677	10806.79	8470.256	0.327438	63.3
Balephi	Bagmati	0.117007094	6885.871651	0.967515	5691.499	7675.617	0.352483	48.3
Thasang	Gandaki	0.206413129	39002.8241	1.003602	28245.2	31407.78	0.372476	65.7
Nissikhola	Gandaki	0.167822718	6313.345853	0.954797	2956.716	5842.104	0.298231	65.3
Gaidakot	Gandaki	0.28553258	4840.120616	1.014395	4921.797	2385.401	0.169702	67.3
Shey Phoksundo	Karnali	0.209929822	9338.497373	0.915023	29901.96	14227.18	0.141883	51.9
Bagchaur	Karnali	0.000459941	19117.67982	0.762905	8792.426	25059.06	0.155793	43.7
Siddakumakh	Karnali	0.000877909	5515.762697	0.86363	4228.159	4913.149	0.222437	48.7
Biratnagar	Koshi	0.371059582	2290.006349	0.58231	3465.622	3298.183	0.313621	55.6
Maneybharyang	Koshi	0.197396585	4023.861356	0.873907	5401.632	6855.777	0.345249	60.4
Arjundhara	Koshi	0.066866188	404.5674565	0.803193	3721.733	1216.074	0.093119	55.5
Butwal	Lumbini	0.241114083	-1982.0701	0.108817	2096.723	586.1315	0.141805	66
Susta	Lumbini	0.226234653	6883.285705	1.082618	3325.737	314.5951	0.036935	45
Duduwa	Lumbini	0.224071623	1237.074233	0.823523	1694.581	1564.024	0.105104	72
Gaushala	Madhesh	0.23617844	4121.668441	NA	2141.316	662.517	0.0599	40.6
Pipra	Madhesh	0.201593559	6550.939469	0.923189	2296.045	4195.629	0.383979	45.4
Kalaiya	Madhesh	0.232401266	1220.036956	0.809976	4589.614	3022.578	0.269667	48.1
Mangalsen	SudurPaschim	0.07878843	2768.857294	0.992627	3343.96	6167.988	0.379874	74
Janaki	SudurPaschim	0.135200206	133.7268509	0.722474	3290.797	4911.656	0.308234	54.2
Chure	SudurPaschim	0.171555954	2933.891486	0.956836	5794.681	5887.774	0.25008	62.7
Local Government Average		0.071551121	3508.565107		4236.818	4059.561	0.279123	
Federal Government Average		0.987222332	-6196.55226	0.956537	4840.861	3859.339	0.085921	
Correlation coefficient		0.120584558	-0.14983936	-0.2733	-0.06168	-0.12056	0.129769	

Table 11: Selected indicators of sample local government

6 Concluding Observation and Recommendations

As the commission looks to evaluate its own criteria about performance indicators, it is important to first consider whether performance-based allocations have the desired effect or not. Indeed, the commission's role itself is limited and its powers only extend to making recommendations. In recent years, the ministry of finance has adhered to the recommendations, but in the past, there have been instances when it has not.

Our paper considers three things, first we discussed whether performance-based allocations incentivize performance or not. Although we establish no causation, the relationship between performance allocations and incentive to perform better move in the opposite direction. Next, we considered whether the formula-based allocation considers performance of local governments, here too there was a negative relationship between what is deemed as local governments performing better and the final allocation. In doing so we also looked at some ratios of both the local governments and the federal government, to establish if local governments indeed lack capacity to perform. As far as some key indicators of public finance are concerned, the capacity of local governments is comparable to the federal government if not on par. Finally, we also looked that institutions that shape the entire apparatus of intergovernmental transfer. There is certainly a mismatch between the goals of the transfer system and the eventual institutional structure that is made responsible for pursuing these goals. This could perhaps be one of the reasons why performance-based allocation has not been able to incentivize performance as expected. The commission's role is already limited, it then must tread carefully to establish any new mechanism amidst both its imperfect autonomy and criticism of failing to maintain any basis of equity among sub-federal units.

Regardless, learnings from second generation fiscal federalism suggests that untied grants provide a disincentive for welfare maximization. Some form of mechanism to establish certain incentive schemes will always be needed. This might take the form of either performance allocation or pursuing the goals of capacity equalization rather than revenue and expenditure equalization.

Under Nepal's current scheme, our analysis suggests that performance allocations are too small to provide any incentive to local governments. But more importantly, an important issue is what to measure when we talk of performance. Some local governments might have higher capital spending than others, but not all local governments need the same level of capital spending, some might require spending on areas of public service delivery. These issues are further compounded by the fact that adequate data for measuring any basis for performance objectively is unavailable. Based on this context we provide the following recommendations

- Performance allocations only work when they are a significant share of local government finances. Rather than making performance allocation a part of the Fiscal equalization grant, special and complimentary grants can be reimagined to reward better performing local governments. Fiscal equalization grant by its very nature needs to ensure some form of equity, this often means that pursuing the goals of performance run counter to its overarching objective and thus any push for increasing the share will always be met with resistance from local governments.
- Measuring performance in absolute terms will often mean that those local governments that already have a higher share of grants will receive higher allocations. For instance, Kathmandu already has a higher base of revenue, and its budget cannot be comparable to Bagchaur, it thus follows that in absolute terms Kathmandu will always perform better than Bagchaur. Yet measuring performance in percapita terms allows for having a component of local context that is essential.
- Not all local governments are the same. Some local governments fared better in the unitary structure, thus when the country transitioned, they were better off. Comparison sans recognition of this context will always be unfair. Rather, comparison must be among peers that exhibit similar characteristics. Performance indicators should then be designed to allow this comparison between different groups of local governments.
- As far as our analysis suggests formula-based grant allocations are biased towards local governments that are accessible. This is in line with findings of similar research conducted in Nepal. Although the commission's role in selecting the basis for equalization is itself limited, necessary changes will need to be made to the overall formula-based sharing mechanism.
- Changes to the formula-based sharing must be complemented with an intergovernmental forum that allows the necessary bargaining of multiple parties on areas of revenue and expenditure assignment. The Intergovernmental council as envisioned in the constitution must be strengthened and needs to become actively engaged in the process of grant allocation.

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Annex 1: Summary statistics

	Total	Mean	Standard Deviation	25 th percentile	50 th percentile	75 th percentile
Accessible						
Performance_21_22	92	47.57609	5.657308	48	49	49
Formula_21_22	92	1712.87	877.1823	1245	1448.5	1982.5
National Natural Resources and Fiscal Commission_20_21	92	82.68435	9.30445	85.055	86.255	87.255
PCDE20_21	92	7373.383	2956.76	5399.782	7042.327	8945.575
PCFIA20_21	92	613.0173	371.2607	369.0063	520.2999	807.6891
Moderately Accessible						
Performance_21_22	254	46.86614	6.446327	48	49	49
Formula_21_22	254	910.9331	272.5118	713	891.5	1070
National Natural Resources and Fiscal Commission_20_21	254	81.8924	10.68546	85.44	86.885	87.62
PCDE20_21	254	7909.208	4869.006	5699.894	7002.67	9179.683
PCFIA20_21	254	835.9314	733.2771	386.2293	632.1853	1037.175
Remote						
Performance_21_22	212	45.21226	8.091142	36	49	50
Formula_21_22	212	711.0236	173.6245	586.5	676	811
National Natural Resources and Fiscal Commission_20_21	212	79.51755	13.22535	63.56	86.935	87.745
PCDE20_21	212	14137.41	66864.44	6556.727	8145.817	10284.7
PCFIA20_21	212	1488.998	7562.636	431.3096	709.8012	1223.048
Far Remote						
Performance_21_22	164	46.79268	6.262632	48	49	50
Formula_21_22	164	610.689	159.346	486	595.5	719.5
National Natural Resources and Fiscal Commission_20_21	164	81.98951	10.19052	85.635	87.24	87.93
PCDE20_21	164	16593.27	19401.84	9099.881	11881.67	15940.03
PCFIA20_21	164	1292.198	1383.919	475.8545	932.3469	1642.007
Total						
Performance_21_22	722	46.45429	6.880896	48	49	50
Formula_21_22	722	886.2202	501.4384	608	767	1017
National Natural Resources and Fiscal Commission_20_21	722	81.31805	11.27239	84.86	86.91	87.66
PCDE20_21	722	11642.27	37650.45	6124.759	8046.419	11039.29
PCFIA20_21	722	1102.926	4181.434	405.9903	705.2849	1158.826

Table 12: Summary of dependent and independent used for Fiscal Year 21_22

	Total	Mean	Standard Deviation	25 th percentile	50 th percentile	75 th percentile
Accessible						
Performance_22_23	96	49.11458	6.789884	44.5	49	53
Formula_22_23	96	1794.885	898.5985	1309.5	1510.5	2013.5
National Natural Resources and Fiscal Commission_21_22	96	55.93969	7.483702	51.22	55.93	60.105
PCDE21_22	96	8319.646	3659.323	6039.751	7424.226	9408.743
PCFIA21_22	96	562.272	466.2261	282.4988	445.2614	742.9836
Moderately Accessible						
Performance_22_23	255	48.76863	7.618189	43	48	54
Formula_22_23	255	960.4078	286.4998	746	938	1128
National Natural Resources and Fiscal Commission_21_22	255	56.19467	8.778124	49.38	55.27	62.75
PCDE21_22	255	8452.513	6316.334	5630.476	7190.297	9594.636
PCFIA21_22	255	858.2898	682.7443	441.0199	669.4763	1089.281
Remote						
Performance_22_23	209	48.41148	8.500739	42	48	55
Formula_22_23	209	745.6842	181.9967	619	713	853
National Natural Resources and Fiscal Commission_21_22	209	55.50904	9.825009	48.69	55.35	62.93
PCDE21_22	209	14625.8	70997.48	7021.198	8908.205	10830.97
PCFIA21_22	209	1639.669	7425.071	550.6433	900.3335	1412.34
Far Remote						
Performance_22_23	163	50.2454	7.416275	45	50	57
Formula_22_23	163	643.5276	181.7389	512	637	764
National Natural Resources and Fiscal Commission_21_22	163	57.35092	8.198092	51.56	56.99	64.08
PCDE21_22	163	16075.86	20443.87	8439.155	10622.96	13581.07
PCFIA21_22	163	1588.2	1159.877	709.7719	1304.224	2171.091
Total						
Performance_22_23	723	49.04426	7.753168	43	49	55
Formula_22_23	723	937.6985	529.3075	643	810	1077
National Natural Resources and Fiscal Commission_21_22	723	56.22329	8.821143	50	55.94	62.93
PCDE21_22	723	11938.08	39670.09	6355.845	8447.405	10930
PCFIA21_22	723	1209.418	4069.701	453.1765	795.796	1358.184

Table 13: Summary of dependent and independent used for Fiscal Year 22_23

Annex 2: Robustness check

	(1)	(2)	(3)	(4)
	Mobility	Mobility	Mobility	Mobility
Performance based FEG_21_22	-0.0153*	-0.0149*	-0.0151*	-0.0149
	(-2.06)	(-2.00)	(-2.02)	(-1.56)
Total Internal revenue_20_21	-0.0000402	-0.0000410	-0.0000225	-0.0000410*
	(-1.07)	(-1.09)	(-0.71)	(-2.04)
Total Grant_20_21		0.00000114	0.00000130	0.00000114*
		(0.63)	(0.71)	(2.63)
Moderately Accessible			0.181	
			(1.04)	
Remote			0.158	
			(0.87)	
Far Remote			0.346	
			(1.87)	
/				
cut1	-0.146	-0.122	0.0703	-0.122
	(-0.42)	(-0.35)	(0.18)	(-0.27)
cut2	0.531	0.555	0.750	0.555
	(1.51)	(1.57)	(1.93)	(1.27)
cut3	1.150**	1.174**	1.371***	1.174**
	(3.24)	(3.29)	(3.50)	(2.68)
Observations	682	682	682	682

Table 14: Probit estimates results for fiscal year 21_22 using changes in Lisa Index

	(1)	(2)	(3)
	LogFormula22_23	LogFormula22_23	LogFormula22_23
LogLisa21_22	0.0588 (0.0339)	0.0888* (0.0404)	0.0663 (0.0351)
Population	0.00000376 (0.00000435)	0.00000337 (0.00000410)	0.00000275 (0.00000394)
Area	-0.0000718*** (0.0000209)	-0.0000113 (0.0000303)	-2.66e-08 (0.0000322)
Moderately Accessible	-0.369 (0.198)	-0.378* (0.186)	-0.288* (0.143)
Remote	-0.548* (0.245)	-0.545* (0.221)	-0.393* (0.159)
Far Remote	-0.674* (0.278)	-0.636** (0.243)	-0.432* (0.172)
LogPCDE21_22		-0.143* (0.0583)	-0.162** (0.0588)
LogPCFIA21_22		-0.00487 (0.0139)	0.00251 (0.0128)
LogIR21_22			0.0732** (0.0283)
Constant	6.817*** (0.330)	8.029*** (0.756)	7.793*** (0.622)
Observations	737	706	706
R ²	0.619	0.647	0.672

Table 15: Ols Estimates using LISA index value for Fiscal year 22_23.

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$