

# **Mainstreaming Climate Change Commitments through Finance Commission's Recommendations**

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**Abstract**

India was the first to integrate climate change criterion in the inter-governmental fiscal transfers. This analysis suggests that climate change criterion in the intergovernmental fiscal transfer mechanism in India is a significant step to incentivise the conservation of forests. However, the macropolicy channel of this link is through the public expenditure priorities related to climate change commitments by the state governments, to make a “just transition” towards a sustainable climate-resilient economy.

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Within fiscal federalism frameworks, there is an increasing recognition to integrate climate change commitments into intergovernmental fiscal transfers. The rationale for facilitating such fiscal decentralization in climate change commitments through conditional or unconditional fiscal transfers is to compensate for the cost disabilities of the subnational governments for revenue foregone and other opportunity costs of protected areas. The “principle of subsidiarity” is crucial here, which demands that the responsibility for providing a particular service should be assigned to the smallest jurisdiction whose geographical scope encompasses the relevant benefits and costs associated with the provision of services (Oates, 1998).

In Brazil and Portugal, such fiscal transfers are conditional in nature, which incentivizes decentralized conservation efforts of environment (Droste N, 2017 a and 2017b ), while in India, climate change criterion is incorporated in formula-based unconditional tax transfers (Kaur and Chakraborty, 2019; Kaur et al 2021). However, the amount allocated by the Twelfth and Thirteenth Finance Commissions of India for forest conservation were in the form of conditional grants - Rs 1000 crores and Rs 5000 crores respectively for forestry sector<sup>i</sup>. In addition to these intergovernmental fiscal transfers, the CAMPA - Compensatory Afforestation Management and Planning Authority- funds<sup>ii</sup> are also there with the objective to enhance forest cover to maximise carbon sequestration. The conditional grants and CAMPA funds were not significant to make a ‘just transition’ towards sustainable climate resilient economy<sup>iii</sup>.

Against this backdrop, the Fourteenth Finance Commission was the first to integrate climate change criteria in the intergovernmental fiscal transfers. In the cross country analysis, it is highlighted that until 2014 such fiscal transfers were mostly involved “protected areas” – for instance, in Portugal (Santos et al. 2012), France (Borie et al. 2014), and in 16 Brazilian states (Droste et al. 2017); and it was only in 2014, the world's first tax transfers for forests were enacted in India (Busch and Mukherjee, 2017). This was when the 14th Finance Commission integrated climate change as one of the criteria to determine the intergovernmental fiscal transfers to the 29 states. The Fifteenth Finance Commission that submitted its report in 2021 retained the criterion. However, the literature on fiscal federal determination of climate change related fiscal transfer is rare, and the existing studies are mostly focused on the “race to the bottom” analysis to attract mobile capital. For instance, Oates and Schwab (1988) examined the inter-jurisdictional competition over environmental

regulations where many states compete to attract mobile capital to polluting industry. In the literature, the 'race to bottom' and 'pollution haven hypothesis' often addressed issues related to trading lower environmental quality for more mobile capital.

In India, integrating forest cover in the devolution of taxes to the States is significantly different than what has been the practice in the past. This paper examines how this mechanism has worked, its potential to address the issue of climate change and to incentivise public spending on forest. Apart from the introduction, section II deals with the analytical framework, while section III translates the measurement issues in integrating climate change related variables in the intergovernmental fiscal transfer mechanisms. Section IV interprets how Finance Commissions in India – fourteenth and fifteenth - incorporated the climate change variables in the devolution of taxes to the States. Section V concludes.

## 1. The Analytical Framework

In a fiscal federal setup, Oates (2001) envisions *three standard-setting functions* of environmental quality within the intergovernmental hierarchy. The first case considers environmental quality as a *pure public good* for the nation as a whole; the second prototypical case considers environmental quality as a *pure local public good* and the third case, which deals with the effects of inter-jurisdictional externalities and Coasian-type negotiations, based on the principles that *polluter has to pay*. Oates (2001) narrated the three functions as follows.

*(1). Environmental Quality is a Pure Public Good: Centrally determined standard-setting function*

This benchmark case considers that the vector of environmental quality ( $Q_i$ ) is a function of the aggregate level of emissions from all sources in the nation ( $E$ ).

$$Q_i = f \{E\} \quad (1)$$

Global warming and depletion of the ozone layer fall under this category. For these matters, environmental quality is an international *public good*.

*(ii) Environmental Quality is a Pure Local Public Good: Decentralized Determination of standard-setting function*

This prototypical case considers the level of environmental quality in the  $i^{\text{th}}$  jurisdiction as a function of the level of activities in that jurisdiction alone.

$$Q_i = f \{ e_i \} \quad (2)$$

The 'principle of subsidiarity' is directly applicable to this case; envisioning a decentralized determination of environmental quality. Each jurisdiction is expected to set its own appropriate standard for environmental quality, for instance, the protected area or net forest cover.

However, the empirical evidence suggests that in decentralized determination of environmental quality, there are dangers of 'race to bottom', which can emerge due to interjurisdictional competitiveness to attract mobile capital by excessively lax environmental standards. This can result in sub-optimal outputs of local public good, including environmental quality.

*(iii) Environmental Quality as a function of interjurisdictional Spill Over Effects*

This most recurring case considers environmental quality as a function of activities that flow across boundaries from other jurisdictions.

$$Q_i = f \{ e_i, e_2, \dots, e_n \} \quad (2)$$

For instance, both air and water pollution flow across jurisdictions. Under this case, one solution is to invoke central intervention, though the centrally determined uniform ambient national standards for environmental quality is not an optimal solution.

A Coasian<sup>iv</sup> sort of resolution of jurisdictional spillover effects through regional co-operations. But such co-operations are not easy to come as the cases of spill over effects across jurisdictions spurt a complex set of policy alternatives<sup>v</sup>. It is also to be noted that there exists a dichotomy in the nature of inter-jurisdictional externalities, whether emission of pollution flows is unidirectional or bidirectional.

## II Measurement Issues in Integrating Climate Change in Intergovernmental Fiscal Transfers

The intergovernmental fiscal transfers in India designed by the Finance Commissions integrated the climate change variables only from the perspective of the second setting functions of Oates (2001). It is confined to Oates' decentralized determination of standard functions of environmental quality in concomitant with the *principle of subsidiarity* (Oates, 1998). However, there is a criticism that intergovernmental fiscal transfers need to be broader than addressing just one objective function.

Ideally, the objective of climate change related criteria in the transfers need to be an encompassing one about the three setting functions envisaged by Oates (2001) about (i) climate change being an international public good, (ii) as a local public good and (iii) as a public good addressing the interjurisdictional climate change issues. The point to be borne in mind here is that any composite index on climate change as a criterion in the finance commission formula can complicate the transfer-formula, particularly when the objective of tax transfers is to offset fiscal disabilities. Against this backdrop, two sets of criteria on climate change for finance commission transfers are discussed in this section. One, a criterion on climate change based on a single indicator, for instance net forest cover across the jurisdictions. Two, a criteria based on a composite index on climate change. The Fourteenth Finance Commission followed the former, which was retained by the Fifteenth Finance Commission.

### II.1 : A single indicator approach

The rationale for integrating climate change based on "single indicator approach", like net forest cover, is based on the cost disabilities a subnational government tend to face for maintaining large forest land. The evaluation of the opportunity costs forgone for the plausible high economic value of forest is a "hard to price" category, as it is "non-marketed" and therefore, does not get into the Systems of National Accounts (SNA) framework. The net forest cover across the states are "unpriced" and therefore reflects the cost disabilities in economic or financial terms. Assigning values to the opportunity costs for retaining forest cover, which is otherwise available for economic growth in the primary, secondary or tertiary sectors can give an absurd range of estimates. Those estimates of opportunity costs either from the potential loss of tax and non-tax revenue or due to the direct loss of economic benefits could be partial irrespective of the assumptions and methodologies implied. On the

other hand, the valuation of “protected areas” and/or net forest cover for ecological services from the perspective of carbon sequestration has both efficiency and equity dimensions in terms of global storage value and livelihood values. In the tax transfer formula, the Fourteenth Finance Commission had not gone into the detail estimations of the efficiency and equity dimensions of protecting forest cover as well as the opportunity costs forgone as the estimates can be partial. Recognizing the significance of cost disabilities and the issues related to climate change concerns, the Fourteenth Finance Commission used net forest cover as a single criteria of climate change. Use of single criteria had the benefits of practical assignments of values in the tax transfer formula. The Fifteenth Finance Commission also retained this approach of single indicator of net forest cover in the devolution formula.

## II.2: A composite index approach

A composite index approach in integrating climate change in intergovernmental fiscal transfers is very complex. The complexities of developing a composite index to capture the climate change can be organized under three scenarios. The scenario-1 is based on Oates’s three setting functions, one can develop a composite index which can capture the ecological services from global level (international public good), local level (national or subnational) based on the principle of subsidiarity and as interjurisdictional spillovers. However, the potential variables which can be used to proxy each of these dimensions can be context-specific. This composite index can be very broad and the first dimension of “international public good” may go outside the purview of Finance Commissions mandated to focus on the tax transfer to subnational governments based on scientific formula. The scenario-2 can be based on the second and third setting functions of Oates (2001) focusing on subnational governments in terms of addressing the climate change concerns as local public good as well as the issues relate to interjurisdictional spillovers. The scenario-3 can be based on one dimension – for instance forest cover – and capture the various dimensions of that variable in terms of (i) endowment (total growing stock or the geographical area) (ii) conservation (area under dense forest cover) and (iii) transaction costs (variables including connectivity and infrastructure)<sup>vi</sup>.

The methodology to construct the composite index can be by assigning equal weight to all the three dimensions after a normalization procedure using the formula for each state as

$$[x (\text{value}) - \min (x)] / [\max(x) - \min (x)].$$

A decision to be taken here is whether the maximum and minimum values of proxy variables are pre-determined or data driven. The equation for arithmetic mean based index can be as follows.

$$CCI_1 = 1/3 \{G_t + L_t + J_t\}$$

where  $CCI_1$  is climate change based index and  $G_t$  is global component,  $L_t$  is localized component and  $J_t$  is the interjurisdictional spill over component. The set of variables proxying these three setting functions as envisaged in the Oates's analytical framework can be country-specific.

It is a normative question whether Finance Commissions should be responsible for incorporating the variables of climate change relate to global public good or whether it should be confined only to the localized public goods relate to environmental quality. The value of each dimension is expressed as a value between 0 and 1. The Climate Change index can also be weighted by demand factors like population. However, a single indicator approach is preferred to a composite indicator approach to make the climate change related fiscal transfers simple, practical and transparent.

### III. How Finance Commissions of India have integrated the Climate Change variables?

In India, the Union Finance Commissions are appointed every five years by the President of India primarily for tax sharing between the Union government and the States. The Terms of Reference (TOR) defines the specific tasks of the Finance Commissions. The TOR of Finance Commissions is expanding in recent years and tackling climate change commitments has become an addition to TOR since Thirteenth Finance Commission. Chakraborty (2010) puts it :

*“Although the primary function of the Union Finance Commission as envisaged in the Constitution of India is to correct vertical and horizontal imbalances, ever-broadening TOR have required it to look into, among other things, the critical issues of macroeconomic stability and fiscal restructuring by both the centre and the states. The Thirteenth Finance Commission, 2010 to 2015, had larger than usual TOR, which required it, apart from carrying out its primary task of resource sharing, to suggest measures for improving the output and outcome of government expenditure; to look into means of tackling climate change and environmental sustainability; and to assess the implications of the proposed goods and services tax (gst) on the finances of the centre and the states.”* This TOR on climate change was retained in 14<sup>th</sup> and 15<sup>th</sup> Finance Commissions as well.

Indian fiscal federalism has reached a point of inflexion with the radical decision of the Fourteenth Finance Commission of devolving 42 per cent of the divisible tax pool among the States. This is a remarkable decision in tax transfer mechanism in India (Chakraborty, 2020). It is not only the quantum of devolution that has undergone a major transition since Fourteenth Finance Commission, but also the criteria of devolution by 'greening' intergovernmental fiscal transfers. The transfer of divisible tax pool with subnational governments within a country based on climate change indicators thus marks an emerging policy tool in environmental policy. The Fourteenth Finance Commission of India has established the world's largest ecological fiscal transfer system in 2015, integrating climate change criteria in devolution (Busch *et al* 2020).

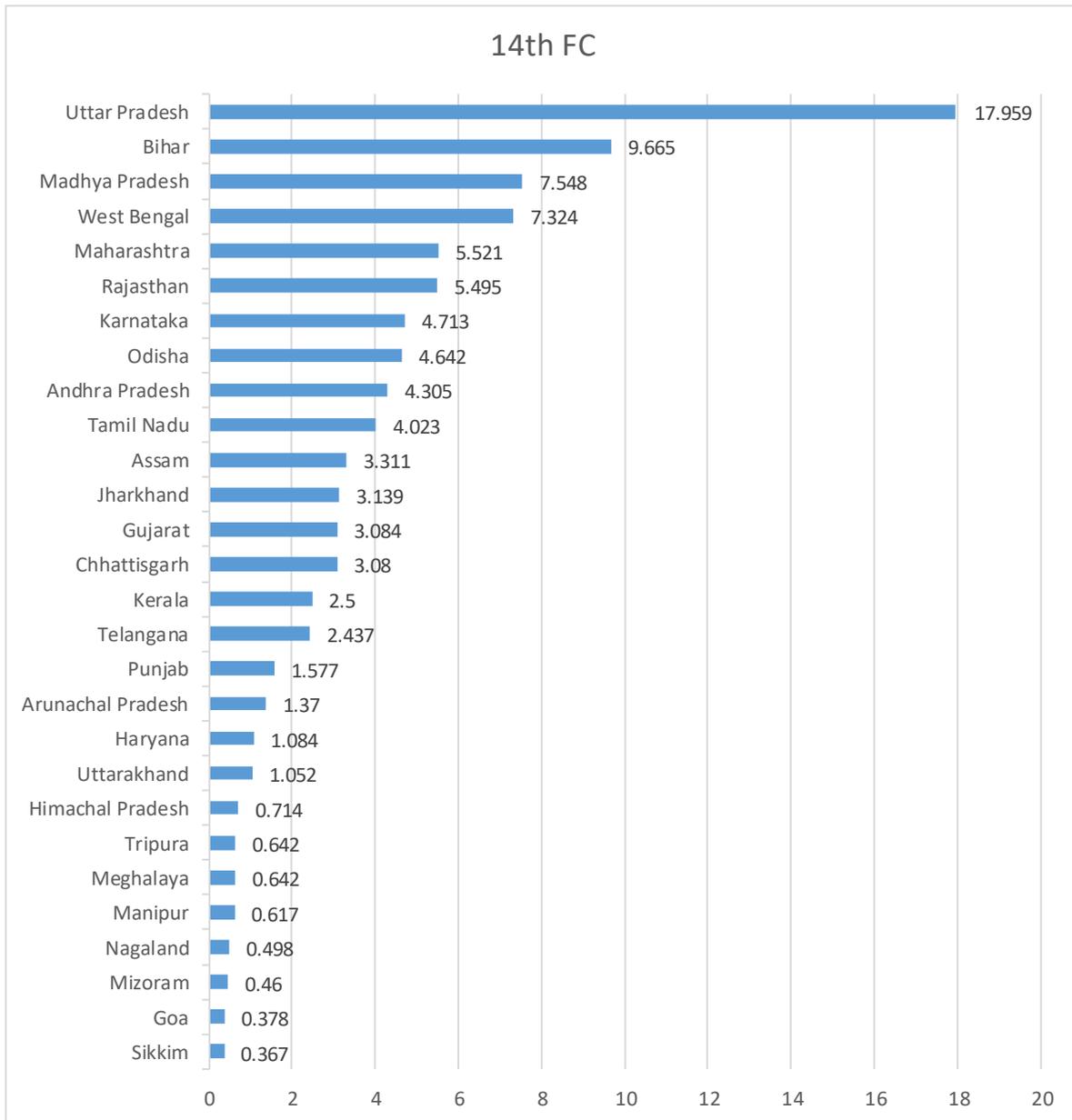
The fourteenth Finance Commission had added net forest cover criterion along with the other criteria including the population, area and the income distance, for the tax transfer for the period 2015–16 to 2019–2020. A weightage of 7.5 per cent of the divisible central tax pool was given to the climate change criterion to the sub national governments based on their share in states' area of 'very dense' or 'moderately dense' forest cover. The net forest cover data used for the tax transfer was as collated by the India State of Forest Report 2013 (Fourteenth Finance Commission report, 2013). The criterion of net forest cover was retained by the Fifteenth Finance Commission. In their interim report in November, 2019, they have used 2017 data based on India State of Forests Report, for the decision of tax transfers for the fiscal year 2020-21. (Fifteenth Finance Commission Report, 2019). In the final report of the Fifteenth Finance Commission, the variable on climate change is retained under the component forest and ecology, with 10 per cent weightage in the tax transfer formula to share the divisible pool of taxes to the sub national governments during the period 2021–22 to 2024–25.

### *III. 1: The rationale for a criterion on ecology in fiscal transfers*

The Fourteenth Finance Commission had incorporated forest variable in the intergovernmental tax transfers formula based on the rationale that “*a large forest cover provides huge ecological benefits, but there is also an opportunity cost in terms of area not available for other economic activities and this also serves as an important indicator of fiscal disability*” (Fourteenth Finance Commission report, 2014). The Finance Commission has used the forest and ecology criterion from the perspective of both a “compensation

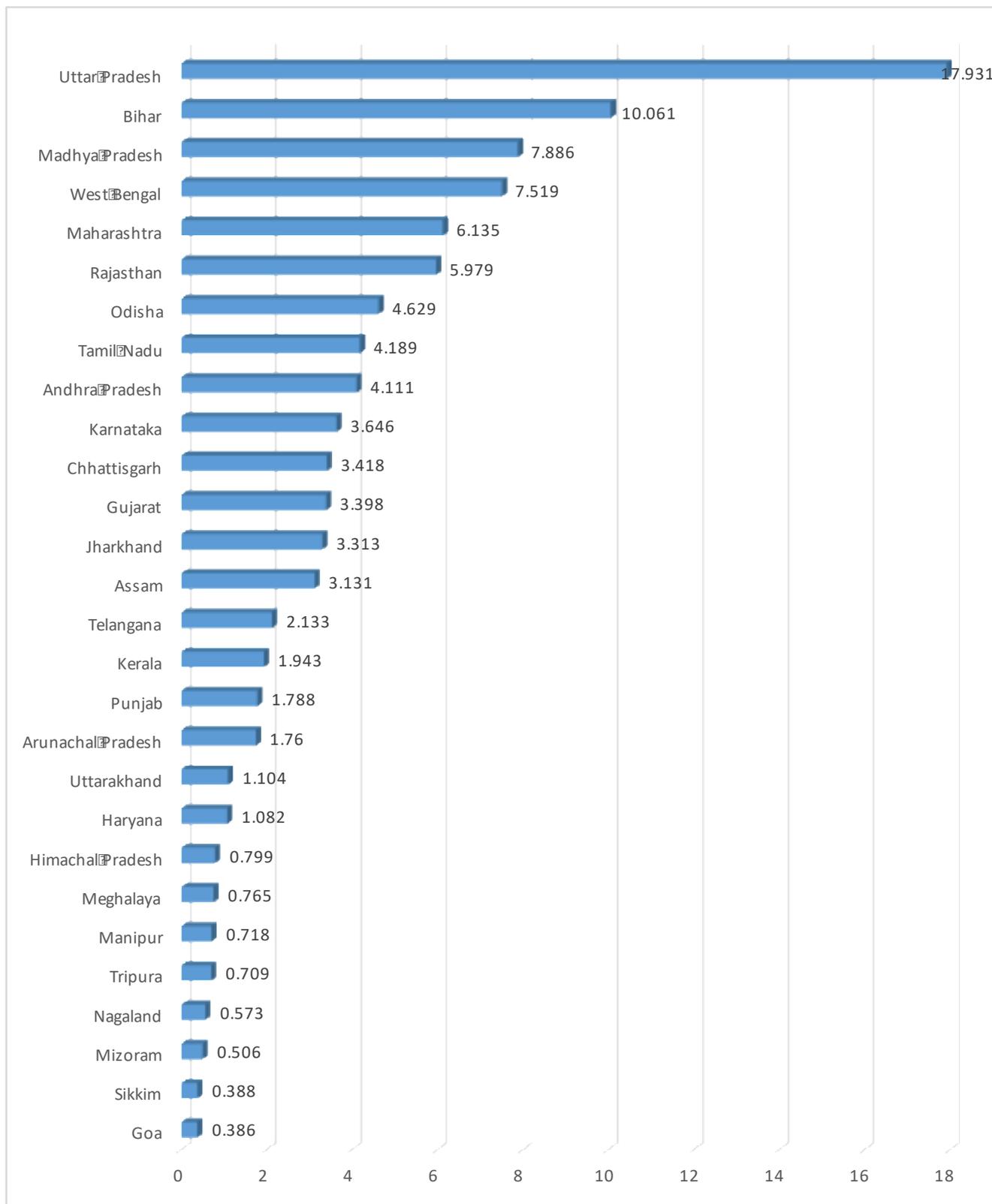
mechanism” and incentive mechanism” (Jonah Busch *et al* 2020). However , translating the subnational “action plans of climate change” into fiscal commitments by the State governments depend on the prioritization of the finance commission transfers for this purpose. This is because the formula-based finance commission transfers are unconditional in nature and it is not tied to the department of forest or ecology. The finance commission transfers based on the climate change criteria were also not earmarked transfers either, to respond to India’s “Nationally Determined Contribution” climate commitments, however the document has mentioned the fourteenth finance commission recommendations on incentives for forestry sector (Government of India 2015). The climate change related fiscal transfer share of fourteenth and fifteenth (interim and final) are given in figures 1, 2 and 3 respectively.

**Figure 1: Climate Change related Fiscal Transfer share in 14<sup>th</sup> Finance Commission  
(in per cent)**



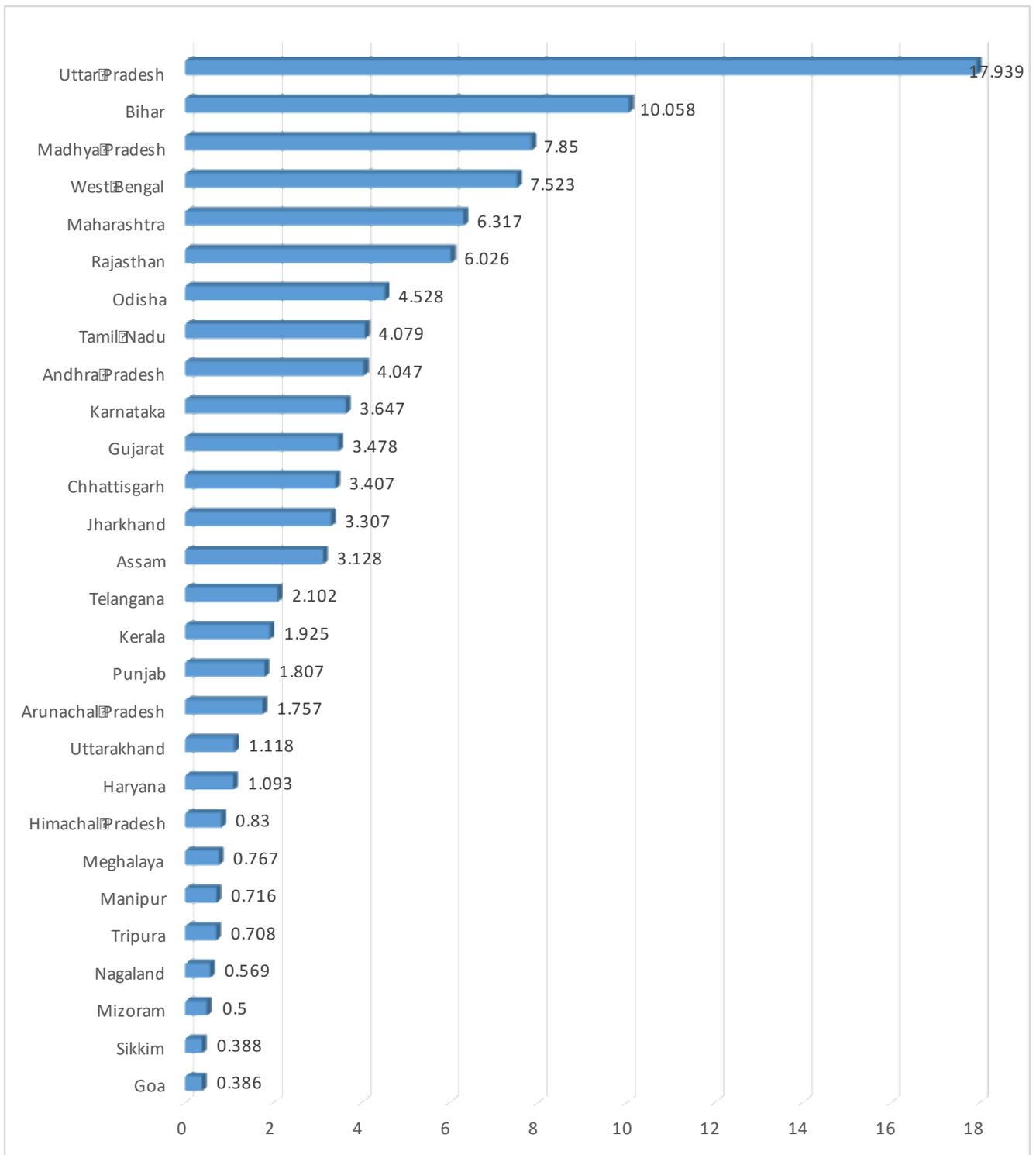
Source: Finance Commission report, 14<sup>th</sup> (2014)

**Figure 2: Climate Change related Fiscal Transfer share in 15<sup>th</sup> Finance Commission  
Interim Devolution (in per cent)**



Source: Finance Commission Report, 15<sup>th</sup> (Interim) (2020)

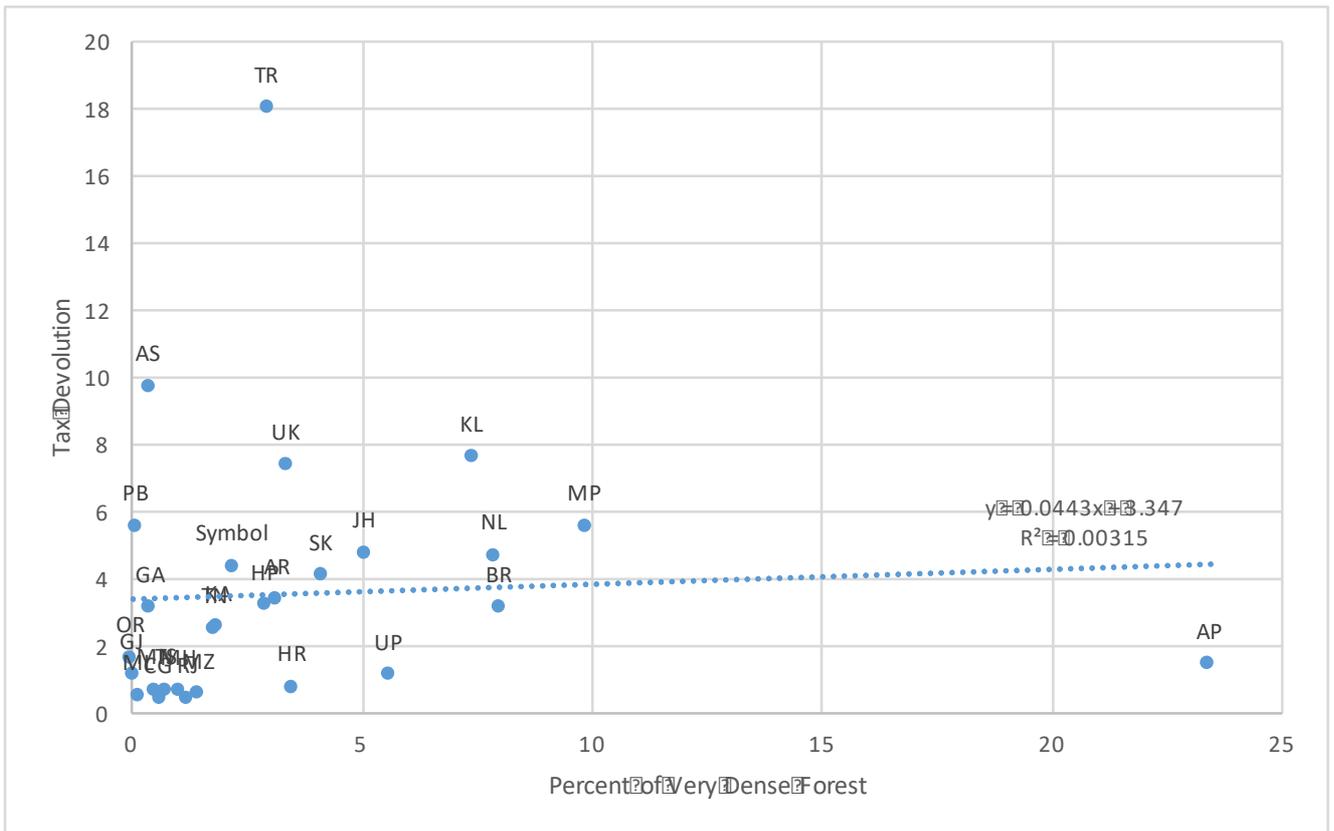
**Figure 3: Climate Change related Fiscal Transfer share in 14<sup>th</sup> Finance Commission  
(in per cent)**



Source: Finance Commission report, 15<sup>th</sup> (Final) (2021).

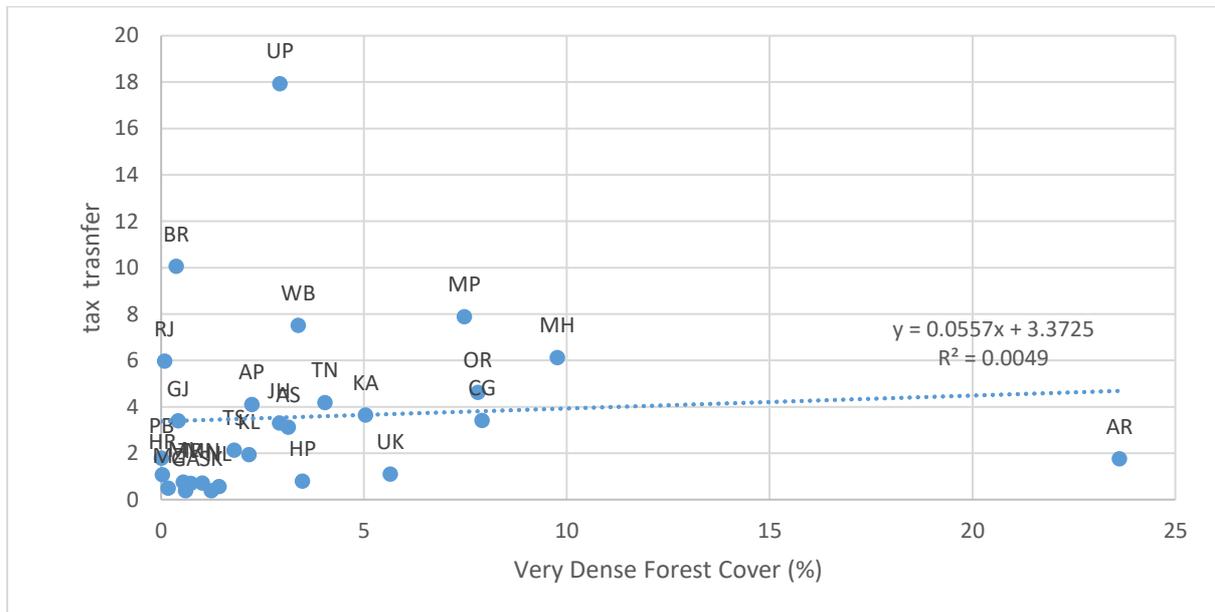
The point to be noted here is that the consistency of finance commissions in integrating climate change variable in tax devolution may have resulted in an increase in forest cover in India. The bivariate scatterplots revealed that the link between climate change related fiscal transfer share and the very dense forest cover is positive. The beta coefficients are increasing over time, from 0.044 in fourteenth finance commission and state wise forest cover in 2017 to 0.056 in fifteenth finance commission (final) share of climate change related component of fiscal transfer (Figures 4, 5 and 6) . This consistency in climate change related fiscal transfer across 14<sup>th</sup> and 15<sup>th</sup> (interim and final) is laudable.

**Figure 4: Scatterplot: link between climate change related fiscal transfers share (14<sup>th</sup> FC) and dense forest cover 2017**



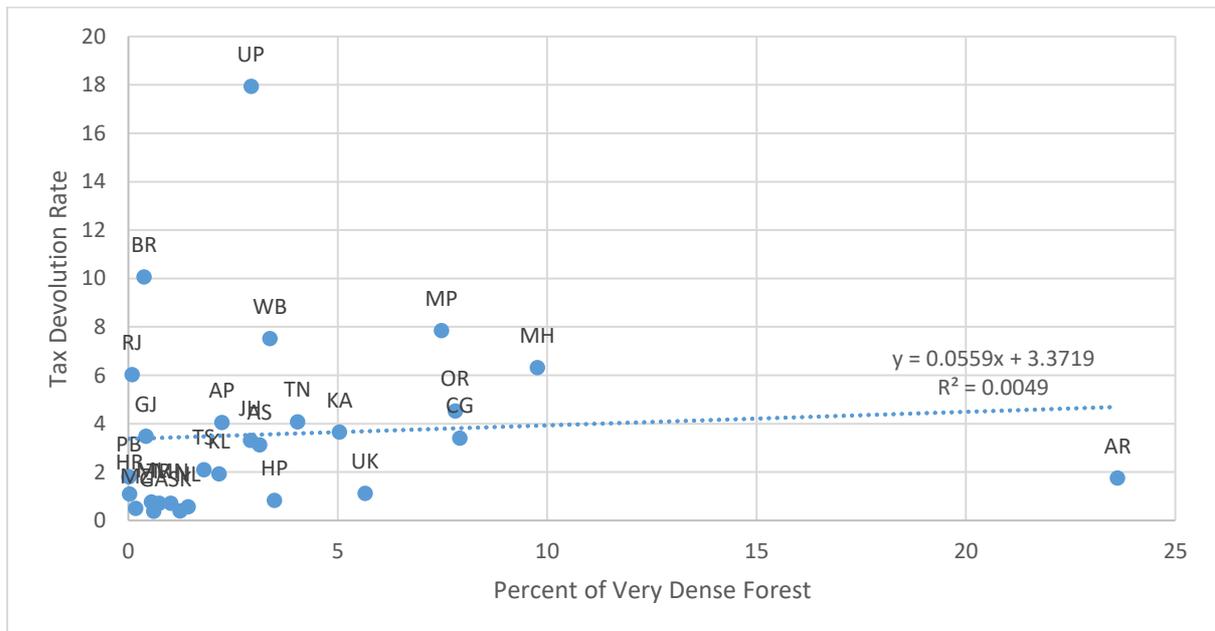
Source: State Forest Report and Fourteenth Finance Commission Report

**Figure 5: Scatterplot: link between climate change related fiscal transfers share (15<sup>th</sup> FC, Interim) and dense forest cover 2019**



Source: State Forest Report, 2019 and 15th Finance Commission Report (Interim) 2020

**Figure 6: Scatterplot: link between climate change related fiscal transfers share (15<sup>th</sup> FC, Final ) and dense forest cover 2019**



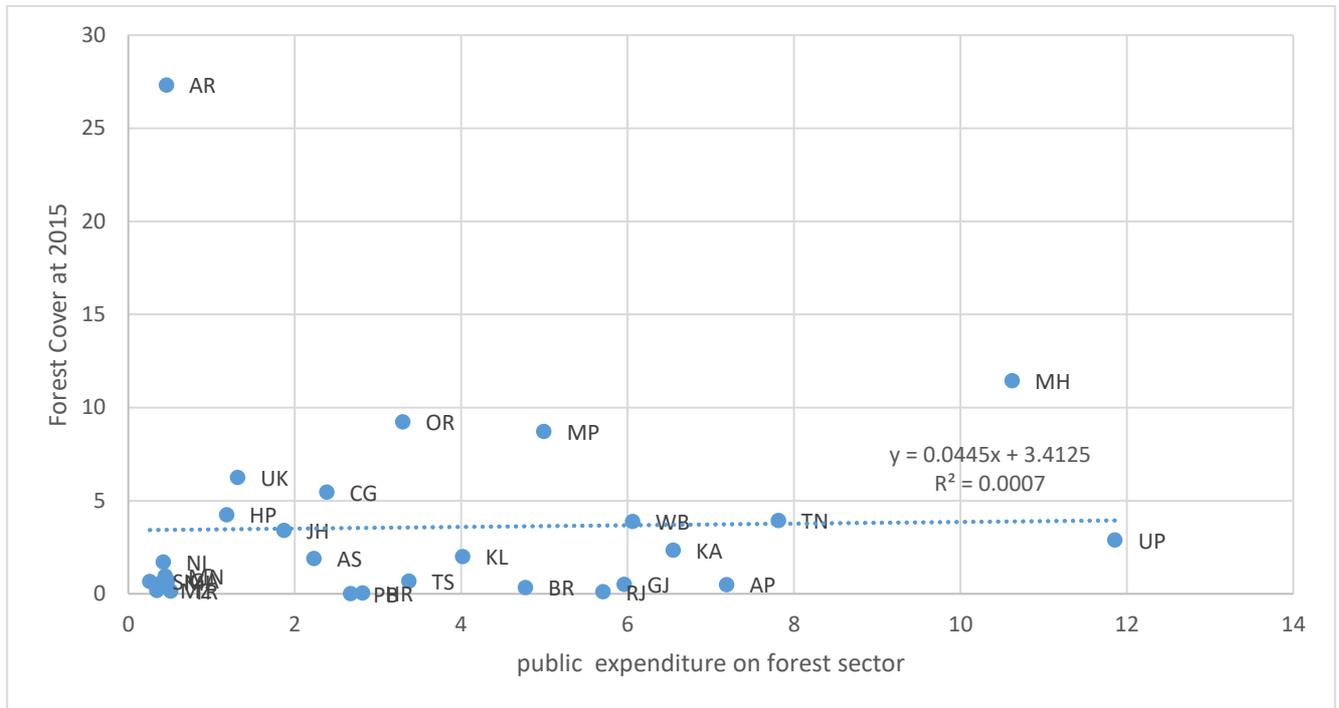
Source: State Forest Report and Fifteenth Finance Commission Report (interim), 2020

The positive relation between the climate related fiscal transfers share and dense forest cover is not one-to-one. The macroeconomic link of these two variables are through the public expenditure decisions on climate change commitments by the State governments. The rationale of fifteenth Finance Commission (both in interim and final reports) to retain the forest criterion with higher weightage of 10 per cent was based on their “impact on the revenue disabilities and expenditure needs of States, and also for the huge ecological benefits to the nation and for meeting our international commitments”. However, the climate change related variables are not just the forest sectoral variables. The future finance commissions may consider other crucial climate change related variables.

What is the effect of climate change related fiscal transfers on State level spending on climate change outcomes? Are there any flypaper effects – evidence of impact of intergovernmental transfers on local spending than own income? Jonah Busch *et al* (2020) found that introduction of ecological fiscal transfers has not yet led states to increase their forestry budgets. Kaur, et al (2021) however found evidence for the impact of intergovernmental fiscal transfers on climate change commitments (sectoral budget on forest) more than the State’s own income. The existence of flypaper effects in the context of climate change fiscal space is thus reiterated. Having established the evidence for effectiveness of climate change related fiscal transfers on State level spending decisions on climate change commitments (Kaur et al, 2021), it is inevitable to examine the degree in which the public spending on climate change commitments is translated into better outcome (proxied by forest cover variables).

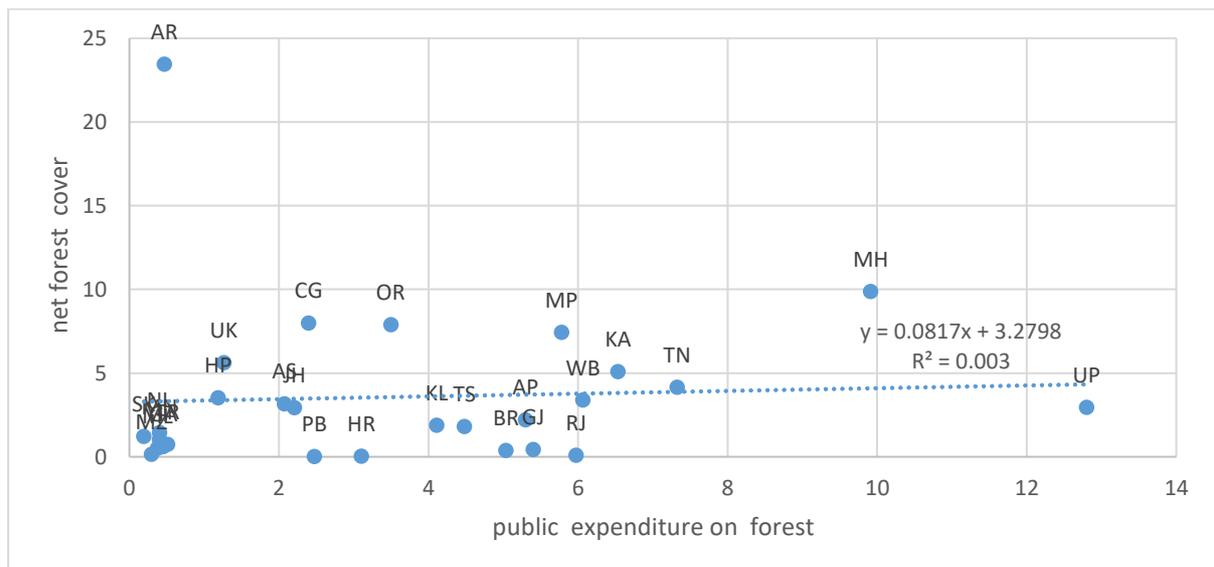
There is no direct variable on public spending on climate change commitments. The demand for grants for forestry is taken as the proxy for climate change related spending by the various State governments. The link between spending on forests by various State governments and the net forest cover is positive , and the coefficients are increasing over time (figures 7, 8 and 9).

**Figure 7: Scatterplot: Link between public spending on forests and the net forest cover , 2015**



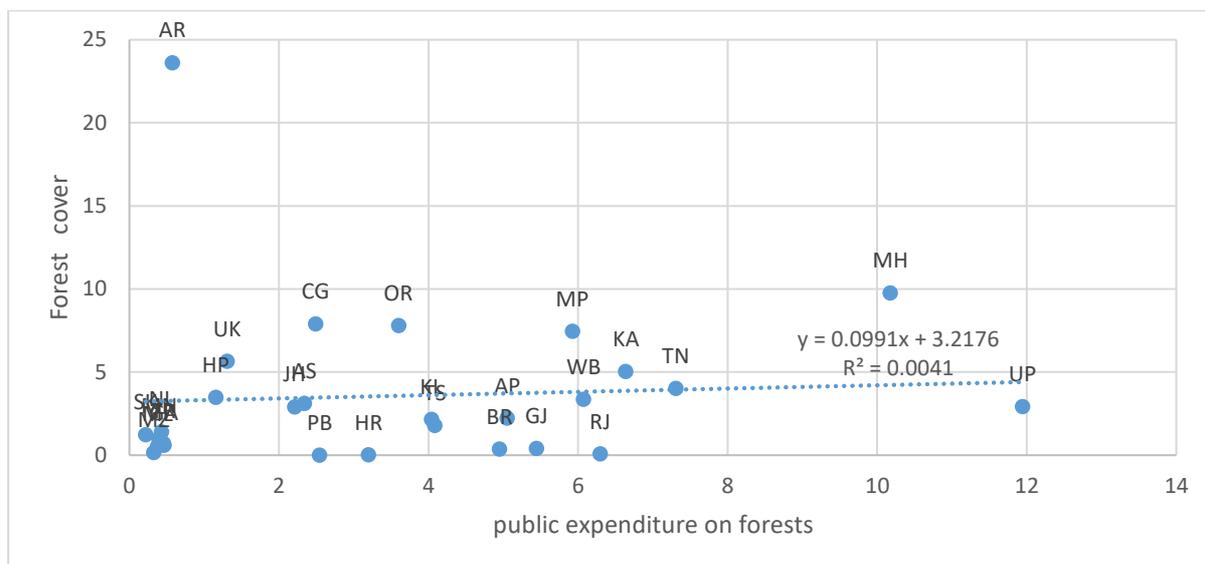
Source: State Forest Report and Finance Accounts, various States

**Figure 8: Scatterplot: Link between public spending on forests and the net forest cover , 2017**



Source: State Forest Report and Finance Accounts, various States

Figure 9: Scatterplot: Link between public spending on forests and the net forest cover , 2019



Source: State Forest Reports and Finance Accounts, various States

#### IV. Conclusion

The climate change related intergovernmental fiscal transfers within a country is designed to incentivize the subnational governments for ecological conservation and compensating the costs disabilities. The climate change related instrument's weights in tax devolution increased during the Fifteenth Finance Commission's award. 'Greening' intergovernmental fiscal transfers may be an emerging tool for *just transition* in India towards a sustainable environmental policy. In this paper, I explored the analytical framework and the fiscal policy imperatives for integrating climate change criteria in the intergovernmental fiscal transfers in India towards this transition.

Translating three setting functions of climate change commitments - as a global public good along with the plausibility of interjurisdictional spill overs and the localized public good characteristics - into three components of intergovernmental tax transfer formula encounter measurement issues as well as methodological challenges to construct a composite climate change criterion. Given that the global public good characteristics is also outside the purview of intergovernmental tax transfers designed by Finance Commissions, a simple indicator incentivizing the local public good relate to climate change can be one of

the criteria of tax transfers, along with other criteria including per capita income distance, population, demographic transition, area and tax effort. From that perspective, Fourteenth Finance Commission of India had designed the world's first ever largest climate change related component in fiscal transfers and the Fifteenth Finance Commission not only retained the criteris, it increased its weightage in total transfers. The exploratory data analysis seems to suggest that climate change related criteria in intergovernmental fiscal transfers in India has helped to increase the net forest cover. However, the impact analysis needs to factor in the multidemsional channels of this link.

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<sup>i</sup> Thirteenth Finance Commission recommended a forest grants of Rs. 5000 Crores for five years starting from the year 2010-11 with the objectives to provide the wherewithal for preservation, “so as to halt and reverse past declines in the quantum and quality of area under forest, and to provide fiscal resources by which the state can enable alternative economic activities as a substitute for economic disability imposed by forest cover. The forest grant allotted to States is calibrated to the share of the national forested area falling in a state, as well as to economic disability on the basis of the percentage of forested area in each state and quality of forest in each state as measured by density”. [http://naeb.nic.in/Reports/13FC\\_note.pdf](http://naeb.nic.in/Reports/13FC_note.pdf) . The 12th Finance Commission allocated Rs 1,000 crore for conserving forest.

<sup>ii</sup> CAMPA is meant to promote afforestation through compensating for forest land diverted to non-forest uses. However, over the years, there is a concern that CAMPA fund was not strictly used for increasing the forest cover. PwC (2020) noted that in May 2020, as part of economic stimulus packages announced by Government of India, INR 6,000 crore of the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funds was announced to be used for generating employment through afforestation and plantation works. Ghosh (2017) noted that compensatory afforestation under CAMPA is controversial as it may accelerate environmental damage instead of mitigating or compensating it, if State-business relations legitimise the destruction of forests, allowing a compensation.

<sup>iii</sup> “Just transition” refers to the policies to shift towards a carbon-neutral world, which reinforces the sustainable and equitable energy transition and the policies which help to mitigate the impacts of climate change (Bhushan et al, 2020; OECD, 2019; iFOREST, 2020). However, the role of fiscal instruments such as intergovernmental fiscal transfers – especially climate change related fiscal transfers – for “just transition” is not yet analysed globally. The existing literature on “just transition” in India analyses only the coal-economy to examine the energy transition towards zero-carbon growth trajectory (iFOREST, 2020). The role of ecological fiscal transfers in “just transition” needs a comprehensive analysis of how Finance Commissions responded to their Terms of Reference on climate change.

<sup>iv</sup> Contrary to Pigou's theory that only governments, by means of taxes and subsidies, can "internalize" externalities in economic exchange or production, Coase argued that, when one considers opportunity cost in its full meaning, no such devices are necessary: private losers and winners in such cases can "internalize" these externalities themselves through negotiation and that the result will be identical regardless of which party has rights of ownership over the cause of the externality (Oates, 2001).

<sup>v</sup> The basic idea here is that so long as the polluting activities that are the source of the spillovers are not at their efficient levels, there exist potential gains from trade from an interjurisdictional program to regulate these activities. The costs, in such cases, of pollution abatement are less than the benefits accruing to residents of both the home and the neighboring jurisdictions (Oates, 2001).

<sup>vi</sup> The author acknowledges the discussions with Rita Pandey relate to scenario 3.