Measuring Fiscal Performance of States: An Alternative Approach

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An Alternative Approach

An alternative approach of measuring the fiscal discipline of states by preparing a composite index (Fiscal Performance Index) out of eight fiscal indicators is attempted in this paper. It is argued that although the Eleventh and Twelfth Finance Commissions fully recognised the importance of different fiscal parameters, like the composition of government expenditure, sources and pattern of government finances, the magnitude of debt, subsidies and interest burden, the measure of fiscal discipline, adopted by them is based on only one indicator. The Fiscal Self Reliance and Improvement Index constructed by the TFC that considers the 'change' in a single indicator is narrowly based, unstable and biased against the better fiscal performers. The suggested FPI, on the other hand, is multi-dimensional, more stable, just towards better performers and also useful for state level policy-making. The empirical analysis suggests the large inter-state variations in the level of FPI and almost continuous fiscal deterioration during the post-reform years.

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I
Introduction

The present note is devoted to suggesting an alternative approach to measure the states' fiscal discipline through a comprehensive index consisting of eight different fiscal indicators. Unlike the single indicator based method, namely Fiscal Self Reliance and Improvement Index (FSRII), adopted by the Eleventh Finance Commission (EFC) and now also recommended by the Twelfth Finance commission (TFC) for measuring fiscal discipline, the paper advocates for a multidimensional composite index the same [GoI 2000, 2004]. The formulae for the horizontal devolution of taxes accepted by both the EFC and TFC evince that this so called fiscal discipline index is given 7.5 per cent weightage. The fact that the weight given to FSRII is more, or at least equal to that of Tax Collection Effort (TCE) in the devolution formulae, implies that the former is as important as the latter in perception of both the finance commissions.

Apart from the issue that these two factors together, namely FSRII and TCE, (which can be termed as efficiency factors) are given only 12.5 per cent by the EFC and 15 per cent by the TFC in the entire distribution scheme, the more important issue in our opinion is whether such a single indicator based index viz, FSRII, would be good enough to capture all aspects of fiscal discipline. Secondly, would it really provide sufficient encouragement to the states to become fiscally prudent, without sacrificing macroeconomic performance as emphasised by the TFC? We briefly discuss these issues below before developing an alternative approach to measure the states' fiscal performance.

It is well recognised that apart from its role as an income equaliser, the Finance Commission as an institution can play a very important role in the growth and development of states by providing various incentives and disincentives to them, through designing appropriate formulae for the vertical as well horizontal distribution [Bird and Smart 2002, Govind Rao 2004]. However, the successive finance commissions of India were so preoccupied with the 'equity' objective that they totally discouraged the efficiency of states in terms of revenue mobilisation and utilisation. [Dholakia 1999]. Perhaps the simultaneous deterioration in the fiscal balance of almost all Indian states around the mid-1980s may be considered as the cumulative effect of such 'progressive' formulae. Especially the formulae used from the Eighth Finance Commission onward were applicable to virtually all possible central taxes, meant for devolution. This encouraged the states to become more profligate and fiscal indiscipline became a rule rather than an exception [Dholakia 1999].

As a part of its terms of reference(TOR) the EFC tried to develop a measure of fiscal discipline (FSRII) and the TFC (whose recommendations will be implemented during 2005-10) has also suggested a similar factor to be used along with other factors like population, income distance, area and tax efforts in the future devolution scheme. Although the TFC has many novelties and more rationalised incentive schemes, its measure of fiscal discipline still remains a single indicator based index (FSRII), i e, on the lines of the EFC. It is such a narrowly defined index that it is unlikely to capture different dimensions of fiscal performance as already noted earlier. Hence, another kind of a measure is suggested by us. But as a prelude to the main discussion on our method of measuring fiscal discipline, section II discusses the prevailing fiscal situation among the Indian states. Section III gives an idea about the construction of FSRII that is adopted as a measure of fiscal discipline by both the EFC and TFC. Section IV discusses the proposed composite Index, for measuring fiscal indiscipline of the states. We have named it as a Fiscal Performance Index (FPI). Section V discusses the results of the empirical exercise carried out for some post-reform years for 14 major Indian states. Section VI finally presents broad summary and conclusions of the paper.

II
Fiscal Conditions of States in the Post-reform Period

It is painful to observe that the fiscal crises, which started around 1985-86 among the states, aggravated further during the post-reform period. The RBI report for the year 2002 revealed that gross fiscal deficit as a proportion of NSDP had increased in almost all states [RBI 2002].The states' own revenue as a proportion of their aggregate expenditure had gone down from 43.5 per cent to 41.5 per cent between 1990-91 and 2000-01. Interest payments showed a sharp rise from 13 per cent of revenue receipts to 21.6 per cent during the same period and increased further to 22.7 per cent in 2001-02. The debt-GDP ratio, which had declined during the 1990s till 1996-97, started rising again continuously. It was 19.4 per cent in 1991 but rose to 23.1 per cent during 2000-01. The primary deficit of the states, which had already worsened to reach 1.8 per cent of GDP in the bad fiscal year of 1990-91, increased further to 2.4 per cent by 1999-2000. In other words, until 2001, almost all indicators suggested worsening of the fiscal situation in all major states [RBI 2002].

Although, the RBI report of 2004 on *State Finances* observes a reversal of this trend in the case of certain indicators, the improvement is only marginal and confined only to a few states. On the whole, the fiscal situation is still disconcerting in almost all the Indian states [RBI 2004].

In fact, there has been a serious concern among policy-makers about these crises during the post-reform years. This is evident from the fact that the Tenth Finance Commission first emphasised the need to bring about fiscal balance and then, for the first time in the 50-year history of finance commissions, an item of fiscal restructuring explicitly appeared in the TOR of the EFC [GoI 2000]. There was hardly any sign of improvement while it was being implemented and hence these items were more elaborately included in the TOR of the TFC. As observed by the chairman of the TFC:

> It is not as if the issues are entirely new, but the problems are more serious. The balancing of resources against responsibilities is qualitatively different now when governments at all levels are nursing large and rising revenue deficits than when the centre and some of the better-off states had a surplus [Rangarajan 2004].

Keeping in mind the targets set under the Fiscal Responsibility and Budget Management (FRBM) bill (introduced by Government of India in 2003), on one hand, and the concerns of the state governments on the other, the TFC, after carefully studying the issues, has come up with various innovative suggestions [GoI 2004]. With proper implementation, they are likely to contribute positively towards the improvement of the finances of the states and the centre. But still in their tax devolution formula, as high as 85 per cent weightage is given to the so-called 'equity'-oriented factors with the remaining 15 per cent weightage to efficiency factors as noted earlier. Thus there is no inherent change in the approach compared to the Commission's predecessors.

III
EFC's and TFC's Measure of Fiscal Discipline

The EFC was entrusted with the task of addressing the issue of fiscal restructuring along with its usual functions relating to devolution. Item 4 of its TOR explicitly related to"Restructuring of public finances of states and centre to restore the budgetary balance and maintain macro economic stability". A single indicator based index, viz, FSRII was designed by the EFC for this purpose and was given 7.5 per cent weight in the inter se distribution formula. But the EFC was also given the task to draw the 'monitorable' fiscal reform programme, through an additional term of reference. The idea behind this was to encourage the state governments to implement fiscal reforms. So the EFC also came up with a scheme called Fiscal Reform Facility (FRF). It is interesting to know how this FRF scheme, based on the use of only one indicator (revenue deficit (RD)/Revenue Receipt (RR)) was used and miserably failed to provide any incentive to the states to put their fiscal houses in order. Table 1 gives the targeted values of the RD/RR ratio and the actual performance of states on this count.

Under the FRF, the non-plan revenue deficit grants given to the states are linked with their fiscal performance. This is done through an incentive fund formed by the government of India. The fund comprises two parts. The first part comprises 15 per cent of the non-plan revenue deficit grants recommended by the EFC for the states. (This implies that 85 per cent of the grants are not linked with the fiscal performance of the states.) The second part of the fund comprises an equal amount of contribution from the central government. The total amount of the incentive fund created through both these sources for the entire period of 2000-05 turned out to be Rs 10,608 crore. Thus about Rs 2,422 crore are being distributed annually to the state governments on the basis of their achievements in terms of a monitorable target suggested by the EFC. However as Table 1 suggests the states are nowhere near the targeted value under the FRF scheme.

What is more interesting to note is that in its report, the EFC did recognise the importance of other fiscal parameters and identified the following five indicators as a measure of fiscal performance, along with recommended weights for each (Table 2). However, at the same time it stated that the areas for monitoring were only suggestive and so were the weights; hence they could be modified while drawing state specific programmes. [GoI 2004]. But somehow these factors did not find place in the ultimate measurement of fiscal performance! While introducing the FRF scheme the government of India prescribed only a single monitorable indicator (RD/RR) for the purpose of release from the incentive fund, implying that other parameters were totally neglected or considered to be unimportant.

In the ultimate analysis, the government thought that the 'change' in the ratio of revenue deficit to revenue receipts between the two periods was the most important and 'monitorable' criterion to measure fiscal performance. Each state is required to achieve a minimum improvement of 5 per cent in the revenue deficit/surplus as a proportion of its revenue receipts each year, till 2004-05 [GoI 2000]. For this purpose, the states were asked to prepare their Medium Term Fiscal Reform (MTFR) plans indicating how they proposed to reduce the revenue and fiscal deficits. This is the main contribution of the scheme, namely,

Table 1: Ratio of Revenue Deficit (RD) to Total Revenue Receipts (RR)

RD/RR ratio	1999-00	2000-01	2001-02	2002-03	2003-04 BE/RE
FRF objective	-27.40	-22.40	-17.40	-12.40	-7.40
Performance as per ministry of finance	-27.23	-23.85	-24.49	-21.00	-22.89
Performance as per the TFC	-27.53	-23.59	-25.19	-21.29	-23.34

Source: GoI 2004.

that the states were encouraged to plan [GoI 2000]. Interestingly, some states had achieved their five-year quota of improvement in one year, hence they were not expected to do anything during the remaining four years of the award! However, the assessment of the FRF scheme by the ministry of finance and TFC clearly suggests that it has largely failed. For this reason the TFC has suggested discontinuing the FRF scheme [GoI 2004]. The TFC also argues that the FRF fund is too small to be effective. Well, we do not necessarily agree with this but given the focus of the present paper we will not devote much space in discussing it.

As far as FSRII is concerned, like the EFC, the TFC also wants it to be used for tax devolution purposes by attaching to it a 7.5

Table 2: Fiscal Indicator Identified by 11th FC for Fiscal Reform Facility

No	Indicator	Weight(Per Cent)
1	Growth of tax revenue	30
2	Growth of non-tax revenue	20
3	Growth of non-plan revenue expenditure on salaries and allowances	30
4	Interest payments	10
5	Reduction of subsidies	10

Source: GoI 2004.

Table 3: Indexes of Fiscal Self Reliance and Improvement (FSRI) given by EFC and TFC

States	ORR/OREX		ORR/OREX		Index of Fiscal Reliance		Index of Improvement	
	FSRI as per Eleventh Finance Commission							
	1990-93		1996-99		1990-93	1996-99	1990-99	
	Ratio	Rank	Ratio	Rank	Index	Index	Index	Rank
1 Andhra Pradesh	0.597	8	0.561	9	1.062	1.034	97.40	10
2 Bihar	0.343	15	0.354	14	0.611	0.652	106.82	3
3 Goa	0.525	11	0.670	6	0.935	1.235	132.18	1
4 Gujarat	0.830	2	0.785	2	1.477	1.447	97.97	9
5 Haryana	0.795	3	0.739	4	1.416	1.362	96.14	11
6 Karnataka	0.727	4	0.742	3	1.295	1.368	105.61	4
7 Kerala	0.571	9	0.604	8	1.017	1.114	109.56	2
8 Madhya Pradesh	0.601	7	0.555	10	1.070	1.022	95.53	12
9 Maharashtra	0.836	1	0.801	1	1.488	1.477	99.26	7
10 Orissa	0.381	14	0.342	15	0.678	0.630	92.95	14
11 Punjab	0.674	5	0.674	5	1.200	1.243	103.52	6
12 Rajasthan	0.560	10	0.512	11	0.997	0.943	94.58	13
13 Tamil Nadu	0.638	6	0.647	7	1.136	1.193	104.96	5
14 Uttar Pradesh	0.399	13	0.378	13	0.710	0.697	98.22	8
15 West Bengal	0.500	12	0.424	12	0.890	0.782	87.88	15
All India	0.562	-	0.542	-	1.000	1.000	100.00	-

States	FSRI as per Twelfth Finance Commission							
	1993-96		2000-03		1993-96	2000-03	1993-2003	
	Ratio	Rank	Ratio	Rank	Index	Index	Index	Rank
1 Andhra Pradesh	0.592	9	0.595	6	1.04	1.18	114	3
2 Bihar	0.342	16	0.248	16	0.60	0.49	82	15
3 Goa	0.779	3	0.734	2	1.37	1.47	108	5
4 Gujarat	0.796	2	0.588	7	1.40	1.17	84	14
5 Haryana	0.755	4	0.776	1	1.32	1.55	117	1
6 Karnataka	0.736	5	0.615	5	1.29	1.23	95	12
7 Kerala	0.637	8	0.542	10	1.12	1.08	97	10
8 Madhya Pradesh	0.567	10	0.488	11	0.99	0.97	98	9
9 Maharashtra	0.801	1	0.675	3	1.40	1.34	96	11
10 Orissa	0.376	15	0.343	14	0.66	0.68	104	7
11 Punjab	0.696	6	0.577	9	1.22	1.15	94	13
12 Rajasthan	0.520	12	0.458	12	0.91	0.91	100	8
13 Tamil Nadu	0.686	7	0.646	4	1.20	1.29	107	6
14 Uttar Pradesh	0.426	14	0.415	13	0.75	0.83	111	4
15 West Bengal	0.507	13	0.322	15	0.89	0.64	72	16
16 Chhattisgarh	0.567	10	0.582	8	0.99	1.16	117	1
All States	0.507	-	0.502	-	1.00	1.00	100	-

Note: ORR-Own Revenue Receipts; OREX-Own Revenue Expenditure.
Source: GoI 2000, GoI 2004.

per cent weight as mentioned above. It is a little surprising though that if such an index did not work as an incentive in the FRF scheme, why the TFC should advocate the use of an almost similar index (such as the FSRI) in the devolution formula. While talking about public finance restructuring the TFC recognises that it must aim at both, revenue account balancing and, more importantly, macroeconomic stabilisation. The composition of government expenditure, its sources of financing, extent of subsidies, etc, significantly affect macro parameters like inflation and growth. But somehow its measure of fiscal performance (FSRII) incorporated in the allocation formula does not contain these aspects.

As is known, the FSRII is constructed out of the ratio of own revenue receipts (RR) to own revenue expenditure (REX). To construct it, change in the RR/REX ratio was indexed by considering the all India figure as 100. The average ratios for the years 1990-93 and 1996-99 were taken into consideration by the EFC for this purpose (Table 3). The TFC has also suggested a similar ratio but the respective years are changed to 1993-96 and 2000-03. It is difficult to understand why both the commissions preferred to use the single indicator based measure when consistent and comparable data on other fiscal parameters are readily available.

Apart from FSRII being narrowly defined, it is also potentially self-defeating as the data on a single indicator can be easily subjected to manoeuvring/manipulation by the state governments. The state governments would engage themselves in reducing their revenue deficit at any cost, and by any means. They might manipulate by shifting their revenue expenditure under the 'capital expenditure' head to show lower revenue deficit or might use special purpose vehicles (SPV) to achieve the target. Past experiences suggest that state governments would show their ingenuity in window dressing and manipulating to achieve a low RD-RR ratio (or high RR/REX ratio) without actually carrying out reforms in terms of reducing wasteful expenditure or raising revenue resources. In fact, some of them might also cut the desirable social sector expenditures whereas it would be difficult for them to manipulate figures, if more indicators were used.

Secondly, as mentioned earlier, the FSRII may prove to be disadvantageous for those states whose level of RR/REX ratio may be high in both the base as well as the reference years, but the direction of movement of the ratio over the period might be negative. And theoretically, the high performers, both in terms of growth and fiscal aspects, have a greater probability to suffer, because having attained a particular level of the RR/REX ratio, it becomes more and more difficult for them to bring about an increase in its value, compared to those states which are all time poor performers. For example, a state 'A', which meets 80 per cent of its fiscal expenditure through its own resources may have to make much more effort to raise the RR/REX ratio by let us say 5 percentage points compared to a state 'B', which generates hardly 30 to 40 per cent of its requirement through its own efforts. But a measure such as FSRII does not take care of such concerns. In fact, the construction of FSRII is based on the ' linear change' in the RR/REX ratio, irrespective of its magnitude in the base year. This would imply, for instance, that an increase in the ratio from 80 per cent to 85 per cent in state 'A' is considered to be as good as the increase from 40 per cent to 45 per cent in case of 'B'. In other words both these states will be treated almost equally on this count under the FSRII. To overcome a limitation of this type, Bhide and Panda (2002) had suggested the use of a non-linear index method. The finance commissions are also expected to treat the two states like 'A' and 'B' differently, by

using some such method like Kakwani's method or the Disparity Reduction Rate (DRR) method [Kakwani 1993, Bhide and Panda 2002, Morris and McAlpin 1982]. In a later Section of this paper, we will show how the DRR can be used for measuring the temporal improvement or deterioration in the index.

The estimates of FSRII obtained from the EFC's and TFC's reports clearly establish that the absolute level of fiscal performance/efficiency does not matter in getting larger allocation from the finance commission. Table 3 shows that as per the EFC, the FSRII of Gujarat was 97.97, only marginally higher than 97.40 for Bihar, though in terms of absolute performance, the former could meet 83 per cent of its revenue expenditure through its own efforts, compared to 34 per cent in the case of the latter! During both the selected periods by the EFC, Gujarat ranked number two in terms of RR/REX collecting more than 79 per cent of its current requirement through its own efforts. But the difference in the FSRII was only to the tune of 0.57 out of 100. Similarly, as per the TFC also the difference between the FSRII of two diverse states viz, Gujarat and Bihar is only 2 points out of 100 as can be seen from the TFC's estimates given in Table 3. Interestingly, in terms of the level of the RR/REX ratio, even after deterioration, Gujarat's performance is 2.6 times higher than that of Bihar. Similarly, as per the TFC's estimates, both Chhatisgarh and Haryana have the same value of the FSRII viz,117, but the former hardly meets 58 per cent of its current expenditure through revenue resources whereas the figure for Harayana is 78 per cent, which is higher by 20 percentage points. These illustrations show that the better performing states would be punished even if they slid down a little by 2-3 percentage points. However, the poor fiscal performers, collecting hardly 35-40 per cent of their revenue expenditure through their own efforts, would be rewarded if they showed even the slightest improvement in their otherwise small revenue base.

Even on theoretical grounds, the selection of only one indicator for measuring the fiscal discipline is unjustified because (a) it increases the probability of error of measurement; (b) emphasis on only one variable like revenue deficit/revenue receipts amounts to the neglect of other fiscal aspects which may be quite important (c) the level of the indicator itself may be partially a function of the centre's revenue transfers as well as its current or past policies and hence can be misleading if used alone; (d) the rate of improvement is likely to slow down eventually, if there is an upper limit to the value of an indicator; and finally (e) it ignores the qualitative aspects of the fiscal parameters. We may note here that from the view point of 'public finance principles', factors like how the government raises resources (i e, the composition of revenue receipts in terms of tax, non-tax and central transfers), how it spends, on what it spends, what its debt position is, affordability and sustainability, how the fiscal deficit is financed and for what it is used etc, are also important apart from the sheer size of the budget [GoI 2004 and Dholakia and Solanki 2001]. All these aspects have short-term as well as long-term implications on the allocative and distributive efficiency of the resources and thereby, on the growth, development and welfare of the state economies [Dholakia 1999, GoI 2004].

The selection of only one indicator instead of a set of relevant indicators could be justified at the most , if the selected indicator shows almost perfect correlation with other relevant fiscal indicators. This should hold true, not only for one or two years but also, for all the years under the study. We would like to note however that the RR/REX ratio does not depict this characteristic

and hence cannot be used as a proxy or summary measure for other fiscal indicators. The correlation coefficients between the selected indicator and other fiscal indicators in fact, suggest statistically imperfect relationships between them and for some indicators the correlations are even statistically insignificant [Dholakia and Solonki 2001].

What is surprising is that although a very large number of economists and policy-makers have been making use of the composite indexes for measuring the overall economic development, human development, level of living, level of infrastructure facilities level of corruption etc, only a few of them have adopted such an approach for measuring fiscal performance so far. In the next section we intend to develop such a multi-factor index for measuring fiscal discipline.

IV
Proposed Composite Index of Fiscal Performance (FPI)

In the previous section we provided the justification for using a multiple indicator approach to measure the fiscal discipline of states rather than a single indicator one. As mentioned earlier, some attempts have been made in this direction. Dholakia and Solanki (2001) had developed a composite index of fiscal performance consisting of six different fiscal indicators and the states were ranked on the basis of the value of the index for different years. Similarly, Bhide and Panda (2002) had come up with another composite fiscal index, made up of five components, for judging the quality of central government budgets. Venkatraman (2003) did not construct a composite index but did rank the states according to their fiscal achievements by using six indicators. In the present paper we have considered eight fiscal indicators, reflecting various aspects of fiscal performance and combined them into three major component indices viz, Deficit Index, Own Revenue Effort Index and Expenditure and Debt Repayment Index, which in turn are combined to form a proposed composite Fiscal Performance Index (FPI). The component indices of the FPI are formed as follows.

Component Indices of FPI

(a) Deficit Index (DI): It consists of the following three indicators:

(i) Gross Fiscal Deficit as a proportion of total expenditure (GFD/TEX)

(ii) Revenue Deficit as a proportion of fiscal deficit (RD/FD); and

(iii) Capital outlay as a proportion of fiscal deficit (CO/FD).

The ratio of GFD to TEX indicates what part of a state's fiscal spending is met out of borrowing, leading to an increase in its total debt. Thus, it measures the degree of dependence on external sources that are used by a state over and above its own revenue and the fiscal transfers from the centre. It is for this reason that we took Total Expenditure (TEX) in the denominator instead of GSDP. The second aspect, which we need to consider is quality of the fiscal deficit (FD). It is necessary to know whether the fiscal deficit is created for meeting the current requirement or is an outcome of major capital projects, which are likely to generate a stream of income for several years. If FD is created for the latter it can be justified to a large extent but, if it is due to the former, it needs to be reduced urgently. Considering this

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we have taken RD/FD and CO/FD separately and assumed that an increase in the former is undesirable but a rise in the latter may have positive economic consequences.

(b) Own Revenue Effort Index (OREI): It is constructed out of the following two indicators:

(i) Own tax collection as a proportion of revenue expenditure (OT/REX) and

(ii) Own non-tax collection as a proportion of revenue expenditure (ONT/REX).

These two indicators together measure the revenue raising efforts of a state in relation to its revenue expenditure and thereby indicate the so called degree of fiscal discipline as defined by the EFC and TFC. It may be mentioned that the Tenth Finance commission had given 7.5 per cent weightage to this aspect, which was reduced to 5 per cent by the EFC. In terms of the implications for private sector productivity, implicit subsidies, excess burden through the distortion in consumption, production, investment and so on, it is equally relevant to know whether the rupee collected by a given state, comes from taxes or non-tax sources [Sarma and Dholakia 2000]. In other words their composition indicates the quality of fiscal resource generation by a state. Hence, we have separately considered the indexes of OT/REX and ONT/REX.

(c) Expenditure and Debt Servicing Index (EDRI): It is made up of the following three indicators:

(i) Non-development revenue expenditure as a proportion of revenue receipts, (NDRE/RR).

(ii) Interest payment as a proportion of revenue expenditure (IP/REX); and

(iii) Debt repayment as a proportion of central fiscal transfers received by a state (DR/CFT).

The indicator of NDRE/RR measures to what extent a state's revenue receipts get used up for the payment of non-developmental charges. A higher proportion of NDRE in RR suggests a longer degree of freedom in terms of allocation of resources for various developmental purposes. Another indicator is IP/REX, which measures the consequences of unthoughtful debt creation in the past. Since interest payment is a committed expenditure it puts tremendous pressure on the exchequer and hence it is important to know what the proportion of such expenditure in total revenue expenditure is it should also be given additional weightage. The indicator of DR/CFT shows the efforts of a state in terms of repaying the debt which will have implications on future interest payment liabilities and hence also the revenue deficit in coming years

In order to construct the component indexes out of the specified indicators, first we need to convert the values of each indicator into indices. This is because, the selected indicators are ratios with different numerators and denominators and hence their simple summation is not possible. For this purpose we have used the methodology developed by Morris and McAlpin (1982), which was used for constructing the Physical Quality of Life Index (PQLI). Accordingly, we first identified the worst and best values of each indicator during the period of 1990-2003. We defined the best and the worst values in such a way that all the indexes became unidirectional and could be horizontally combined to form the FPI. That is, an increase in the value of an indicator index would necessarily mean improvement in the fiscal performance and vice versa. For each indicator the performance of an individual state is put on a 0 to 100 scale where 0 represents an absolutely defined worst performance and 100 represents an

absolutely defined best performance (Table 4). Since, the worst and best values are based on the 'actual' fiscal achievements of one or more states during the post-reform period, they are neither unrealistic nor over-ambitious. In other words 0 and 100 represent the worst and best 'observed' values of an indicator respectively and not the 'hypothetical' values. To aid the calculations, one unit point was added to the best values of the indicators.

In our opinion, defining absolute performance targets is an important feature of such a method, which is missing in the calculation of the FSRII by the EFC and the TFC. The method proposed by us however can help not only in inter-state allocation of funds but may also provide clear cut signals to the states as to where they need to focus first, what steps they need to take and with what urgency.

We would like to clarify that we have given equal weights to all the three components while constructing the FPI and within each component too each indicator is assigned equal weight. In fact, one can use more sophisticated techniques for deriving weights like factor analysis or taxonomy. However, they too are not without limitations [See Gupta et al, 1983].

It may also be argued that constructing an index like FPI, which is based on the 'empirically observed' best and worst values of indicators, may amount to attaching implicit weights to the indicators. However, Morris and McAlpin (1982) had argued in a similar context that even though the method has this problem, it should not be considered serious due to two reasons. First, arbitrariness at some level is virtually impossible to exclude, especially when one is dealing with policy matters. Second, so long as the weights used are made explicit and remain constant spatially as well as temporally, it does not create much of a problem in consistency and comparability. Moreover, as argued earlier, the selection of a larger number of indicators instead of one or two probabilistically reduces the error of judgment regarding the level of fiscal performance which is being measured [Dholakia 2002, Dholakia and Solanki 2001].

Table 4: Critical Values and Formulae for Indices

Indicator	Best Value (=100)	Worst Value (=0)	Formula
Fiscal Deficit as percentage of total expenditure	9.1(=10.1-1) Bihar 1997-98	53.3 West Bengal 1999-00	$\dfrac{53.3-V}{53.3-9.1} \times 100$
Revenue deficit as percentage of fiscal deficit	2.4(=3.4-1) Rajasthan 1990-95	103.4 Gujarat 2001-02	$\dfrac{103.4-V}{103.4-2.4} \times 100$
Capital outlay as percentage of fiscal deficit	99.2(=98.2+1) Rajasthan 1997-98	8.6 West Bengal 1999-00	$\dfrac{V-8.6}{99.2-8.6} \times 100$
Non development revenue expenditure as percentage of revenue receipts	27.8(=28.8-1) Tamil Nadu 1990-95	84.8 Punjab 2001-02	$\dfrac{84.8-V}{84.8-27.8} \times 100$
Interest payment as percentage of revenue expenditure	8(=9-1) Tamil Nadu 1990-95	31.4 West Bengal 2002-03	$\dfrac{31.4-V}{31.4-8} \times 100$
Own taxes as percentage of revenue expenditure	61.4(=60.4+1) Tamil Nadu 2001-02	19.4 Bihar 2001-02	$\dfrac{V-19.4}{61.4-19.4} \times 100$
Own non tax revenue as percentage of revenue expenditure	40.8(=39.8+1) Haryana 1997-98	2.3 Bihar 2002-03	$\dfrac{V-2.3}{40.8-2.3} \times 100$
Debt servicing as percentage of gross transfers	126.1(=125.1+1) Punjab 1999-00	14.1 Orissa 1999-00	$\dfrac{V-14.1}{126.1-14.1} \times 100$

Note: The letter 'V' stands for the actual value of that indicator for a given state.
Source: RBI 2002 and 2004.

Empirical Estimates of Fiscal Performance Index (FPI) for States

The three component indices prepared for various states for different years are presented in Table 5. The composite FPIs, formed by taking their simple averages, are presented in Table 6. As expected, the values of all the component indexes, for almost all the states, show a declining trend during the post-reform years.

But two things are worth noticing. One is that the inter-state variations in respect of the entire component indexes, although quite high, seem to be declining during the post-reform period.

Second, the inter-component variations as can be seen from Table 5, are high for majority of the states, which justifies the inclusion of more than one component for constructing the fiscal discipline index. For instance, during 1990-95, for Orissa, the value of DI is as high as 73, but value of OREI is as low as 20, which implies that, in terms of own collection effort the state is doing quite badly, but as far as the deficit index is concerned its performance is above average. The same is true for Rajasthan, MP and Bihar.

It is important to note that even the best performers for the entire period i e, before and after reform, had achieved the FPI value of 70 compared to the ideal value of 100 (Table 6). As can be seen, the richer states like Maharashtra, Gujarat, Haryana, and Karnataka, etc, had a relatively high value of FPI during 1990-95 but by the year 2002-03, they had slid down considerably. It is disconcerting to observe that during the entire post-reform

Table 5: Component Indices for the Fiscal Performance Index (FPI)

States	1990-95			1997-98			1998-99			1999-00		
	DI	REI	EXDBTI	DI	REI	EXDBTI	DI	OREI	EXDBTI	DI	OREI	EXDBTI
1 Andhra Pradesh	75.6	50.0	61.4	66.8	48.1	56.3	43.0	44.0	55.3	60.5	50.9	51.4
2 Bihar	50.1	17.9	45.9	63.2	11.4	46.2	47.8	17.8	42.4	38.8	15.0	40.5
3 Gujarat	78.1	66.2	64.1	65.4	62.3	60.0	46.2	55.0	59.4	43.4	51.1	60.5
4 Haryana	74.1	76.2	59.0	54.1	68.2	51.8	43.5	54.8	52.7	47.9	57.7	50.8
5 Karnataka	86.5	60.2	63.5	83.2	59.1	60.3	62.5	55.7	58.8	49.7	48.2	57.1
6 Kerala	54.6	45.8	52.5	48.0	47.6	50.9	34.6	41.7	47.6	22.6	33.3	39.8
7 Madhya Pradesh	85.3	44.2	62.0	86.1	42.6	55.0	37.1	32.9	53.2	38.1	36.5	55.2
8 Maharashtra	84.0	68.8	65.6	58.1	65.9	61.2	50.2	57.8	52.1	47.0	60.7	61.2
9 Orissa	72.7	20.0	49.4	50.9	17.2	35.1	29.4	10.5	32.2	27.0	8.9	44.8
10 Punjab	43.4	56.6	49.6	44.6	59.3	46.1	29.4	43.6	31.0	25.4	50.1	46.7
11 Rajasthan	87.0	41.8	55.2	82.2	41.5	44.7	36.5	29.6	39.8	32.5	29.2	37.9
12 Tamil Nadu	45.6	47.6	66.5	65.2	52.8	61.1	37.4	47.1	58.3	29.9	45.1	54.5
13 Uttar Pradesh	52.8	26.3	46.1	36.4	19.0	35.1	22.9	17.4	30.0	32.3	21.9	31.7
14 West Bengal	47.9	33.2	53.2	34.9	26.6	37.8	19.8	17.3	32.3	7.9	9.0	30.8

States	2000-01			2001-02			2002-03		
	DI	REI	EXDBTI	DI	REI	EXDBTI	DI	OREI	EXDBTI
1 Andhra Pradesh	48.1	43.8	51.1	56.2	48.9	48.5	57.5	50.4	46.6
2 Bihar	37.1	5.6	41.9	40.9	0.8	30.4	44.6	0.4	26.5
3 Gujarat	33.5	42.5	64.1	25.2	43.9	53.8	32.4	42.9	35.8
4 Haryana	66.5	71.3	55.1	58.2	67.2	57.4	54.7	66.2	52.4
5 Karnataka	56.8	51.3	57.0	45.0	44.7	54.1	50.5	45.5	45.8
6 Kerala	26.6	39.9	37.8	31.2	40.5	35.1	44.5	47.1	32.0
7 Madhya Pradesh	57.6	33.6	50.5	38.8	27.3	47.8	63.7	31.3	46.6
8 Maharashtra	43.1	56.1	67.8	36.3	56.0	55.6	42.0	56.5	37.3
9 Orissa	36.8	13.5	28.6	28.7	12.8	19.7	49.8	16.8	31.6
10 Punjab	42.4	56.3	45.9	26.4	49.3	34.9	35.3	52.7	33.2
11 Rajasthan	43.3	30.5	37.1	36.8	28.6	34.8	38.5	29.9	38.0
12 Tamil Nadu	43.7	51.4	53.7	50.7	55.2	51.3	33.6	46.5	34.0
13 Uttar Pradesh	40.6	24.2	30.6	42.7	19.9	26.1	39.6	19.5	28.4
14 West Bengal	20.4	13.0	30.2	16.6	11.3	19.8	16.8	14.0	11.0

Notes: DI = Deficit Index; OREI = Own Revenue Effort Index; EXDBTI = Expenditure and Debt Repayment Index.

Table 6: Composite Fiscal Performance Index (FPI)

States	1990-95		1997-98		1998-99		1999-00		2000-01		2001-02		2002-03	
	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank
1 Andhra Pradesh	62.34	6	57.07	7	47.44	6	54.25	2	47.65	6	51.20	3	51.52	2
2 Bihar	37.94	14	40.26	11	36.01	9	31.43	11	28.18	12	24.00	12	23.81	13
3 Gujarat	69.46	4	62.58	2	53.56	2	51.68	4	46.67	8	40.95	6	37.05	9
4 Haryana	69.75	3	58.06	6	50.34	4	52.10	3	64.30	1	60.92	1	57.77	1
5 Karnataka	70.04	2	67.52	1	59.01	1	51.68	5	55.04	3	47.91	5	47.29	3
6 Kerala	50.97	9	48.85	10	41.29	7	31.91	10	34.76	10	35.60	9	41.20	6
7 Madhya Pradesh	63.81	5	61.21	4	41.04	8	43.26	6	47.25	7	37.94	7	47.20	4
8 Maharashtra	72.80	1	61.72	3	53.38	3	56.32	1	55.66	2	49.27	4	45.24	5
9 Orissa	47.36	11	34.45	12	24.05	12	26.89	13	26.29	13	20.40	13	32.74	11
10 Punjab	49.86	10	49.99	9	34.69	11	40.74	8	48.18	5	36.86	8	40.40	7
11 Rajasthan	61.34	7	56.15	7	35.28	10	33.21	9	36.99	9	33.41	10	35.46	10
12 Tamil Nadu	53.21	8	59.72	5	47.58	5	43.17	7	49.61	4	52.41	2	38.02	8
13 Uttar Pradesh	41.76	13	30.15	14	23.42	13	28.64	12	31.83	11	29.57	11	29.19	12
14 West Bengal	44.75	12	33.13	13	23.14	14	15.87	14	21.18	14	15.89	14	13.93	14

Notes: (i) Calculated by converting eight indicators into Indices and then combining them.
(ii) Best values for all indicators have been changed by one unit to aid calculations.
Source: Basic data obtained from 'State Finances', RBI.

period the FPI of all the major states continued to fall, irrespective of their level of per capita income. (Table 6). For instance, for Gujarat and Karnataka, the FPI declined from 70 to 37 (1990-95) and 47 respectively by the year 2003. Low-income states like Bihar, UP and West Bengal already had poor FPI, around 35 to 40, which declined further to a figure of less than 30 by the year 2003. However, Punjab seems to be an interesting case. In spite of having high per capita GSDP, its FPI value was only 49 during 1990-95, which was marginally higher than that of Orissa (47) and West Bengal (45). By the year 2003, Punjab's FPI declined further to 40. Its performance is below average in terms of all the three components, but the performance of the Deficit Index (DI) is the worst of all. The relative ranking of the states in terms of fiscal performance has also changed considerably due to the uneven rate of change in the FPI of different states.

We may note here that the ranking of states as per the FPI and the EFC's FSRI are quite different (Table 7). The correlation coefficient between the two indices is 0.29, implying that the EFC's index cannot be used as a surrogate for the other.

Disparity Reduction Rate (DRR) to Measure Improvement in FPI between the Two Periods

To analyse the temporal changes in the FPI, instead of simple percentage growth, we have used the tool of Disparity Reduction Rate (DRR) developed by Grant and also used by Morris and McAlpin (1982) for measuring the changes in PQLI. The DRR measures the rate at which the disparity between the actual value

Table 7: Comparison of FPI and EFC's FSRII

States	FPI Index	Rank as Per FPI	FSRI Index	RANK as per FSRI
	1990-99		1990-99	
1 Andhra Pradesh	57	6	97	10
2 Bihar	41	11	107	3
4 Gujarat	62	3	98	9
5 Haryana	69	4	96	11
6 Karnataka	66	1	106	4
7 Kerala	47	9	110	2
8 Madhya Pradesh	57	5	96	12
9 Maharashtra	62	2	99	7
10 Orissa	38	12	93	14
11 Punjab	44	10	104	6
12 Rajasthan	53	8	95	13
13 Tamil Nadu	54	7	105	5
14 Uttar Pradesh	33	14	98	8
15 West Bengal	35	13	88	15

Source: Same as Table 3.

and ideal value of an index increases or decreases over the years. A positive DRR indicates improvement and a negative DRR indicates deterioration in the fiscal performance of a state and its value indicates the speed (rate) with which it is happening. For instance, the negative value of DRR for Andhra Pradesh between 1997-98 and 1998-99 suggests that the state moved away from the ideal value (or towards the worst value) of FPI at the rate of 22.4 per cent per annum during this year. However, between 1999-2000 the DRR is positive, indicating improvement in FPI and hence the movement towards an ideal value at the rate of 13 per cent p a.

The period of 1997-99 appears to be the worst in respect of the states' finances as the DRRs in the FPI of all the major states show a negative sign with high magnitude (Table 8). Until the year 2001-02, almost all states experienced a negative DRR, but between 2001-02 and 2002-03, the overall financial condition of some state governments like Kerala, Madhya Pradesh, Orissa and Rajasthan showed some sign of improvement. Madhya Pradesh and Orissa had the positive DRR of as high as 15 per cent and 16 per cent p a respectively, whereas Andhra Pradesh's DRR was hardly 0.7 per cent. Several other states continued to have a negative DRR, as shown in Table 8.

VI
Summary and Conclusion

The present paper attempts to develop a multidimensional index for measuring the fiscal discipline of states. A composite index called the FPI was constructed by using eight different fiscal indicators. Given the level and length of fiscal crises, the need for such an index cannot be overemphasised.

The successive finance commissions of India have not been in a position to provide adequate incentives to the states to become fiscally efficient. As a cumulative effect of such policies, fiscal crises started in the states since 1985-86 and the situation has remained disconcerting on this front. On account of the severity of fiscal problems in the states, the criterion of fiscal discipline was explicitly added in the devolution formulae of the EFC and later in the suggested formula of the TFC. In pursuance of its additional terms of reference, the EFC also came up with the scheme of FRF through which fiscal performance is being measured through the change in the revenue deficit/revenue receipts ratio. Thus a monitorable target is defined in terms of this ratio but, due to several reasons, the FRF seems to have failed and hence the TFC has suggested it should be discontinued.

Table 8: Disparity Reduction Rate in FPI during Post-reform Years

States	1992-98		1997-99		1998-00		1999-01		2000-02		2001-03	
	FPI	RANK	FPI	RANK	FPI	RANK	FPI	RANK	FPI	RANK	FPI	RANK
1 Andhra Pradesh	-6.8	8	-22.4	8	13.0	1	-14.4	14	6.8	1	0.7	6
2 Bihar	1.9	2	-7.1	1	-7.2	10	-4.7	12	-5.8	6	-0.3	7
3 Gujarat	-10.7	11	-24.1	9	-4.0	9	-10.4	13	-10.7	10	-6.6	11
4 Haryana	-17.7	13	-18.4	6	3.6	7	25.5	1	-9.5	9	-8.1	13
5 Karnataka	-4.1	6	-26.2	10	-17.9	14	7.0	5	-15.9	12	-1.2	9
6 Kerala	-2.1	4	-14.8	3	-16.0	13	4.2	9	1.3	3	8.7	3
7 Madhya Pradesh	-3.5	5	-52.0	14	3.8	5	7.0	4	-17.6	13	14.9	2
8 Maharashtra	-18.6	14	-21.8	7	6.3	4	-1.5	11	-14.4	11	-7.9	12
9 Orissa	-11.6	12	-15.9	5	3.7	6	-0.8	10	-8.0	8	15.5	1
10 Punjab	0.1	3	-30.6	12	9.3	2	12.5	2	-21.8	14	5.6	4
11 Rajasthan	-6.5	7	-47.6	13	-3.2	8	5.7	7	-5.7	5	3.1	5
12 Tamil Nadu	7.2	1	-30.1	11	-8.4	11	11.3	3	5.6	2	-30.2	14
13 Uttar Pradesh	-9.5	9	-9.6	2	6.8	3	4.5	8	-3.3	4	-0.5	8
14 West Bengal	-10.0	10	-14.9	4	-9.4	12	6.3	6	-6.7	7	-2.3	10

Source: Same as Table 5.

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Both the EFC and TFC have incorporated a factor of fiscal discipline in their tax devolution formula, and given 7.5 per cent weight for the inter se distribution of the taxes. To measure the fiscal discipline the FSRII is recommended by both the commissions.

However, the FSRII as a measure of fiscal performance of the states suffers from four major limitations. First, it considers only one indicator, namely, ratio of revenue receipts to revenue expenditure, ignoring other dimensions of fiscal performance such as quality of fiscal deficit, composition and source of expenditure, states' efforts for repayment of debt and so on. Secondly, instead of the level of a fiscal indicator, it is based on the 'change' in the indicator value between two periods, which biases it in favour of bad fiscal performers. The distribution of funds on the basis of the change in this narrowly defined index irrespective of the level of achievement of the index, is harsh on and unfair to consistently better performing states on the fiscal count. Even for policy purposes, consideration of the 'change' in values does not give a clear idea about the seriousness of fiscal problems in various states. Thirdly, the probability of a measurement error in FSRII increases due to the possibility of manipulation in a single required ratio. Fourthly, the use of a single indicator-based method makes such an important index temporally and spatially unstable with the slightest changes in the measurement of the numerator or the denominator. Thus the paper argues that the FSRII is inadequate, inefficient as well as defective in measuring the fiscal discipline and may not act as an effective instrument to encourage the states to become fiscally efficient. In fact, the failure of a single indicator-based FRF scheme lends support to this belief. A comprehensive and multidimensional index consisting of a larger number of fiscal parameters is not only needed to give proper signals to the states but is a must for reducing the probability of manipulation and the error of measurement arising out of this.

As an effort in this direction, in the present paper, we have provided an alternative index viz, FPI. It uses eight indicators reflecting different fiscal aspects. The best (or optimum) and the worst values of FPI help us to evaluate the fiscal performance of various states spatially as well as temporally. The components of FPI also indicate the type and degree or severity of the states' fiscal problems. Calculation of the DRR of FPI between the two periods can give us an idea about the dynamic situation, i e, it can help us to assess the rate of progress (or deterioration) towards the targeted level of fiscal parameters.

We have calculated FPI and DRR for different post-reform years for the 14 major Indian states. The estimated FPI for different years and states evince significant inter-state variations and deterioration in the fiscal performance of states during the post-reform period. The value of FPI for the rich states like Gujarat, Maharashtra and Haryana was above 70 during 1990-95 compared to states like Bihar and Orissa whose FPI was less than 40 during the same period. However, during the post-reform years, the FPI of all major states deteriorated and the rate of deterioration was by and large higher among those states, that were known to be 'good fiscal performers' in the pre-reform era.

The DRR (per annum) of FPI for all the states was large and negative during 1991 and 2001-02. However, only during 2001-03, some states like Kerala, Madhya Pradesh and Rajasthan showed a positive DRR in their FPIs suggesting improvement in their fiscal condition.

The inter-state variations in the three components of FPI suggest that the variety of fiscal problems differ from state to state (Table 5). Some states like Rajasthan had achieved a relatively higher value of the DI but lower value of EDRI, whereas Tamil Nadu had achieved a relatively lower value of DI but higher value of EDRI around 1990-95.

Although we have calculated the DRRs between different years and have also ranked the states as per their performance in this respect, we think that it is the 'level' of the Fiscal Performance Index, which should be used for measuring the degree of fiscal discipline of the states. An allocation design based on the simple percentage 'change', or even DRR is not desirable for various reasons discussed above.

Finally, it may be added that the above exercise is largely illustrative in nature and that the number and composition of the indicators can be changed to make it more comprehensive. In fact, given that the TOR of the TFC also include items relating to investment in human development and environmental improvement, we may consider the composition of government expenditure in terms of these categories by including related indicators. ⬛

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References

Bhide, S and M Panda (2002): 'Evaluating Quality of Budgets with a Composite Index', *Economic and Political Weekly*, March 30.

Bird, Richard and Michael Smart (2002): 'Intergovernmental Fiscal Transfers: International Lessons for Developing Countries', *World Development*, Vol 30, No 6, pp 899-912.

Dholakia, Archana (1999): 'Role of the Centre in Fiscal Balance of States: The Case of Gujarat', *Journal of Indian School of Political Economy*, Vol 11, No 2, April-June.

– (2002): 'Basic Welfare and Role of the Government in the Third World Countries: An Indian Case', *Pennsylvania Economic Review*, Vol 11, No 1, Spring.

Dholakia, Archana and Tarang Solanki (2001): 'Ranking States on Fiscal Performance', paper presented at seminar on *Economic Reforms*, Gujarat University, Ahmedabad, March.

Govind, Rao M (2004): 'Linking Central Transfers to Fiscal Performance of States', *Economic and Political Weekly*, May 1, pp 1820-25.

Gupta, S P et al (1983): 'Indicators of Standard of Living', *Regional Dimensions of India's Economic Development*, State Planning Commission of Uttar Pradesh, Lucknow.

GoI (2000): *Report of the Eleventh Finance Commission*, Ministry of Finance, Government of India, July.

– (2004): *Report of the Twelfth Finance Commission*, Ministry of Finance, Government of India, November.

Kakwani, N (1993): 'Performance in Level of Standards: An International Comparison', *Journal of Development Economics*, Vol 41.

Morris, M D and M B McAlpin (1982): 'Measuring the Conditions of India's Poor', *A Physical Quality of Life Index*, Promila and Company Publishers, New Delhi.

Rangarajan, C (2004): 'Issues before Twelfth Finance Commission', *Economic and Political Weekly*, June 26, pp 2707-10.

RBI (2002): *State Finances: A Study of Budget of 2000-2001*, Reserve Bank of India, Mumbai.

– (2004): *State Finances: A Study of Budget of 2002-2003*, Reserve Bank of India, Mumbai

Sarma, Atul and Archana Dholakia (2000): *Reforms of Budgetary Management, Minor Taxes and Non-Tax Revenue*, Asian Development Bank, Manila and ORG (February 1999), also published by Government of Gujarat as 'Companion Volume' to *Report of State Public Finance Reforms Committee* (SPFRC), December.

Venkatraman, K (2003): 'Towards a Fiscal Responsibility Index: Some Preliminary Analysis, *Vishleshan*, Vol 28, No 4, October-December.