



Analyzing Revenue Performance Of Municipal Corporations In India

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Abstract

Municipal corporations constitute the third tier of government and increasing urbanisation has led to a massive demand for urban infrastructure which in turn underlines the need for adequate revenue provisioning. The paper has focused on the revenue performance employing two ratios viz ratio of own revenues to revenue receipts and, own revenues to revenue expenditure which reflect the revenue raising ability, fiscal autonomy and ability to support current expenditure for the time period 2019-20 to 202-23. The results indicate that on an average municipal corporations are able to raise and finance only 53-54 percent of their revenue requirements and hence there is a significant reliance on funds from the State and central government. The results of clustering analysis reiterates the findings on spatial effects.

Keywords: municipal finances, revenue performance, spatial dependence, clustering, club convergence.

I. Introduction

The pace of urbanization in India has been rapid and by 20230 urban population is estimated to be around 40 percent (Economic Survey, Government of India, 2023-24). India, currently, has 4852 urban local bodies (ULBs) which can be further classified into eight types viz. Municipal Corporations (268), Municipality/Municipal Council (1874), Nagar (town) panchayat (2458), Notified Area Council (142), Cantonment Board (60), NCT Municipal Council (1), City Municipal Council (61) and Town Municipal Council (123) (localbodydata.com). ULBs form the third tier of government under the 74th Constitutional Amendment Act (Nagarpalika Act), 1992 shoulder the responsibility for the delivery of ever increasing demands for civic and urban infrastructure services and under the 12th Schedule would be required to enhance revenues. The Reserve Bank of India in its report on finances of municipal corporations (2024) has emphasized the under-utilized and under developed tax systems,

administrative inefficiencies in revenue collection, shortcomings in valuation and collection of property tax, and inadequate user charges of municipal corporations in the country and the consequent dependence on grants from the Government of India (GOI) and the State Governments. This dependence on external funds has constricted the financial autonomy and the ability to undertake civic projects for the municipal corporations and ULBs as low own revenues translate into low spending capacity. Municipal revenues comprise a mere 0.6 percent of GDP for the period 2019-20 to 2022-23 while both own tax and own non-tax revenues are a miniscule 0.2 percent of GDP. Municipal corporation revenue receipts when viewed as a ratio of revenue receipts of State governments are less than 5 percent (Table 1). Mohanty et al. (2007) have also pointed that aggregate municipal revenues were at 0.75 percent of GDP for 2000-04. Hence, municipal revenues have been stagnant in India since 2000.

Table 1: Profile of Revenues of Municipal Corporations in India (Percent)

Year	Revenue Receipts to State Government Revenue Receipts	Revenue Receipts to GDP	Own Tax Revenue to GDP	Own Non Tax Revenue to GDP
2019-20	4.2	0.6	0.2	0.2
2020-21	4.3	0.6	0.2	0.1
2021-22	4.2	0.6	0.1	0.2
2022-23	3.6	0.5	0.2	0.2
Source: Tables II.3, II.4 and II.9 Report on Municipal Finances, Reserve Bank of India, 2024				

II. Review of Studies

One of the earliest papers that examined the health of municipal finances was Nallathiga (2009) which analyzed revenue performance, expenditure patterns and efficiency in service delivery. The paper recorded a wide

variation in performance across ULBs on each of these parameters and identified that several ULBs, as a consequence, of inadequate revenues faltered on the efficient delivery of civic services. Further, inefficiencies in collection of property tax including weak assessment

methods and administrative inefficiencies resulted in substantial revenue differentials across ULBs. The paper underscored the dependence of several medium sized municipal corporations on grants from central and State governments. Similar findings have been recorded in later studies by Rao and Bird (2010), Ahluwalia et al. (2019), Jain and Joshi (2020), Subalakshmi and Raghunathan (2022) and Mehta et al. (2024) and also that cities propel economic growth and make significant contributions to State GDP. Ahluwalia et al. (2019) attributed the low fiscal capacity of ULBs to weak constitutional provisions for financial devolution, limited revenue sources like property tax, and the diminished fiscal autonomy and revenue loss from the Goods and Services Tax (GST) which incorporated major local tax sources such as octroi, entry tax etc. Mehta et al. (2024) also pinpointed the low intergovernmental transfers to municipalities in India (0.5 percent of GDP) while in Brazil and the Philippines, where transfers are between 6% - 10% of GDP. Jain and Joshi (2022) highlighted the concerns of fiscal sustainability of ULBs as a result of reliance on external resources while

Recommendations to overcome the resource gap facing ULBs include the issuance of municipal bonds to finance capital expenditure and the public private partnership model for urban infrastructure projects (Rao and Bird, 2010) while Ahluwalia et al. (2019) advocated for revenue augmentation through improved efficiency in property tax collection and greater intergovernmental transfers to municipal corporations that adequately cover operational and capital expenditure apart from introduction of user charges that cover operational costs, and leverage of land-based financing tools such as like betterment levies. Mehta et al. (2024) also argued for higher intergovernmental transfers, increase in untied grants to ULBs and the introduction of green bonds and blended financial instruments.

Literature, thus, emphasizes inadequacy of own source revenues, wide variations in own revenues and expenditure and the consequent adverse impact on service delivery, the necessity to improve property tax collections.

III. Theoretical Background and Research Objectives

The theory of fiscal federalism propounds that local government ensure an efficient provisioning of public goods and service delivery as they understand local preferences (Tiebout, 1956; Buchanan, 1960; Oates, 1969). Huo et al. (2018) indicate that endogenous growth and agglomeration theory can explain coordinated fiscal policies by neighbouring municipalities that can lead to the creation of clusters of fiscal performance.

This paper seeks to examine the revenue performance of municipal corporations by focusing on two ratios which reflect self-reliance in revenues namely, ratio of own revenues to revenue receipts (ORRR) and ratio of own revenue to revenue expenditure (ORRE) and to the following research objectives:

(i) Revenue raising ability of municipal corporations and the fiscal autonomy in undertaking expenditure especially financing projects with lesser reliance on external resources/grants.

(ii) Extent to meet current expenditure (includes administrative, establishment and operational expenditure) from its own resources.

The paper, thus, proposes the following hypotheses:

H1: Do agglomeration effects lead to positive spatial autocorrelation and spillovers in revenue raising ability and the ability to meet current expenditures from own resources of municipal corporations across States.

H2: Do municipal corporations across States form convergence clubs that suggests prevalence of multiple equilibria and divergent transition paths.

IV. Methodology

The paper examines spatial effects by looking at spatial autocorrelation (Moran's I) and given the wide variations in revenue raising abilities of municipal corporations one can expect multiple equilibria and emergence of clubs rather than absolute convergence in revenue performance.

A. Spatial Autocorrelation

A study of cross-section observations of any variable for a set of neighbouring regions or States may be biased for the standard OLS regression due to the existence of spatial autocorrelation. The spatial weights matrix considers the geographic relation between observations in a neighborhood. A simple spatial weights matrix is the creation of a binary contiguity matrix, where the element

(i,j) of the spatial weight matrix, $w_{ij} = 1$ if region i and j share a border, and zero if they do not share a border.

Cliff and Ord (1981) pointed spatial autocorrelation is when the spatial distribution of the variable studied displays a systematic pattern. When positive - the value of a variable 'x' at each location will tend to be similar to the value of 'x' whereas when negative the value of 'x' at each location will be different from the value of 'x' at neighbouring and contiguous locations. So when spatial autocorrelation is positive and significant there would be clustering of similar values and significant and negative spatial autocorrelation would imply dissimilar values across geographic regions. As pointed above, Moran's I has been used to examine spatial effect. When the weights matrix is row standardised (sum of each row equals 1) the Moran's I is computed as:

$$I = \left(\frac{n}{s_0} \right) \sum_{i=1}^N \sum_{j=1}^N w_{ij} x_i x_j / \sum_{i=1}^n x_i^2 \quad (1)$$

n - observations, w_{ij} - element of the weight matrix referring to regions (i,j), x_i and x_j - mean deviations for region i and j respectively, s_0 - the normalising factor ($s_0 = \sum_i \sum_j w_{ij}$).

The null is no global spatial autocorrelation and the expected value of I can be computed as

$$E(I) = -1/(N-1) \quad (2)$$

When the computed value of I is greater/smaller than the expected value it would indicate positive/negative spatial autocorrelation respectively. Moran's I is between -1 and +1.

B. Philip Sul Method

This method tests for the existence of clubs and does not impose any specific assumptions for trend stationarity or stochastic non-stationarity. The method is a data driven algorithm that identifies clustering/ convergence and groups units with similar transition paths. The tests employ a time varying model and the equations below are from Du (2017).

The first step decomposes the variable of a panel data, X_{it} , into

$$X_{it} = g_{it} + a_{it} \quad (3)$$

Where, g_{it} - systematic component a_{it} - transitory components.

So as to separate the systematic from idiosyncratic components, equation (3) is transformed as

$$X_{it} = \left(\frac{g_{it} + a_{it}}{u_t} \right) u_t = \delta_{it} u_t \quad (4)$$

Where, δ_{it} - time-varying idiosyncratic term and u_t - systematic component.

In equation (4) u_t is the deterministic (systematic) component and the time varying coefficient δ_{it} measures the idiosyncratic distance between X_{it} and u_t .

Philps and Sul (2007) imposed restrictions on δ_{it} and u_t , for model estimation as follows:

$$h_{it} = \frac{X_{it}}{\frac{1}{N} \sum_{i=1}^N X_{it}} = \frac{\delta_{it}}{\frac{1}{N} \sum_{i=1}^N \delta_{it}} \quad (5)$$

Where, h_{it} - the relative transition.

In other words, h_{it} traces out a transition path of 'i' in relation to the panel average.

In Equation (5) the cross-section mean of h_{it} is unity, and the cross-section variance of h_{it} satisfies the following condition:

$$H_{it} = \frac{1}{N} \sum_{i=1}^N (h_{it} - 1)^2 \rightarrow 0 \text{ if } \lim_{t \rightarrow \infty} \delta_{it} = \delta, \text{ for all } i \quad (6)$$

The regression test - log t concludes the convergence of X_{it} and entails

$$\lim_{t \rightarrow \infty} \frac{X_{it}}{X_{jt}} = 1, \text{ for all } i \text{ and } j \quad (7)$$

Equation (5) represents relative convergence and similar to the convergence of the time-varying coefficient

$$\lim_{t \rightarrow \infty} \delta_{it} = \delta, \text{ for all } i \quad (8)$$

The null hypothesis of convergence is $\delta_i = \delta$ and $\alpha \geq 0$ with the alternative, $\delta_i \neq \delta$ or $\alpha < 0$ and can be tested using the log t regression model:

$$\log \left(\frac{H_1}{H_t} \right) - 2 \log \{ \log(t) \} = a + b \log(t) + \varepsilon_t \quad (9)$$

for $t = [rT], [rT] + 1, \dots, T$ with $r > 0$

V. Empirical Evidence

The paper analyzes revenue performance of municipal corporations across States using data obtained from the *Report on Municipal Finances* (Reserve Bank of India, 2024) for 2019-20 to 2022-23. The ratios considered focus on the self-reliance in finances and the consequent fiscal autonomy enjoyed by municipal corporations to fund projects and meet current expenditure. The wide variability in municipal finances discussed in literature continues to be observed in the recent period and the summary statistics (Table 2) convey that on an average municipal corporations across States are able to generate only 54.14 percent of own revenues (tax and non-tax) and finance only 53.31 percent of their revenue expenditure from own revenues, thereby, highlighting the substantial dependence on grants/external resources.

Table 2: Summary Statistics: Revenue Performance (Percent)

	ORRR	ORRE
Mean	54.14	53.31
Std. Deviation	21.51	27.31
Min	23.50	11.49
Max.	91.50	111.38
Source: Author Calculations		

State-wise performance for each of the indicators/ ratios (Table 3) reveals that in half of the States (11 of the 22 States) the ratio of own revenues to revenue receipts is higher than the all-States average whereas municipal corporations in only 9 of the 22 States were able to support more than 53 percent (all States average) of their revenue expenditure from own revenues.

Table 3: State wise Revenue Performance (Percent)

State	ORRR	ORRE
Andhra Pradesh	80.75	98.99
Bihar	24.75	24.38
Chhattisgarh	41.75	39.23
Delhi	56.75	54.91
Goa	91.50	111.38
Gujarat	63.50	67.57
Haryana	47.00	50.15
Himachal Pradesh	63.00	33.64
Jammu and Kashmir	33.50	11.49
Jharkhand	51.00	42.17
Karnataka	86.25	59.64
Kerala	36.50	42.15
Madhya Pradesh	42.50	45.53
Maharashtra	59.00	73.68
Odisha	39.25	31.99
Punjab	65.00	65.36
Rajasthan	30.25	29.58
Tamil Nadu	60.00	49.47
Telangana	89.75	106.33
Uttar Pradesh	27.50	28.71
Uttarakhand	23.50	26.24
West Bengal	78.00	80.28
Average	54.14	53.31
Source: Author Calculations		

The results of Table 3 and the wide inter State variations in revenue performance supported by the findings in literature point to the possibility of spatial effects and emergence of divergent transition paths rather than absolute convergence. The spatial effects were examined using Moran's I statistic and Table 4 finds spatial dependence for both the revenue ratios – ORRR and ORRE.

Table 4: Results of Spatial Dependence

Year	ORRR	ORRE
2020	0.3488 # (0.0010)	0.2643# (0.0086)
2021	0.3488# (0.0011)	0.3007# (0.0032)
2022	0.2268# (0.0095)	0.2814# (0.0055)
2023	0.3670# (0.0007)	0.4668# (0.000)
P-values in parentheses # 1% and *** % percent level of significance ORRR – own revenues to revenue receipts ORRE – own revenues to revenue expenditure		

Results of Philips- Sul (2007) convergence test (Table 5) revealed absence of absolute convergence for both revenue ratios as the co-efficient of the t- test was smaller than the critical value of -1.65 at the 5 percent level (Rows 1 and 7) and to the emergence of multiple clubs for each of the fiscal ratios and a pointer to varied transition paths.

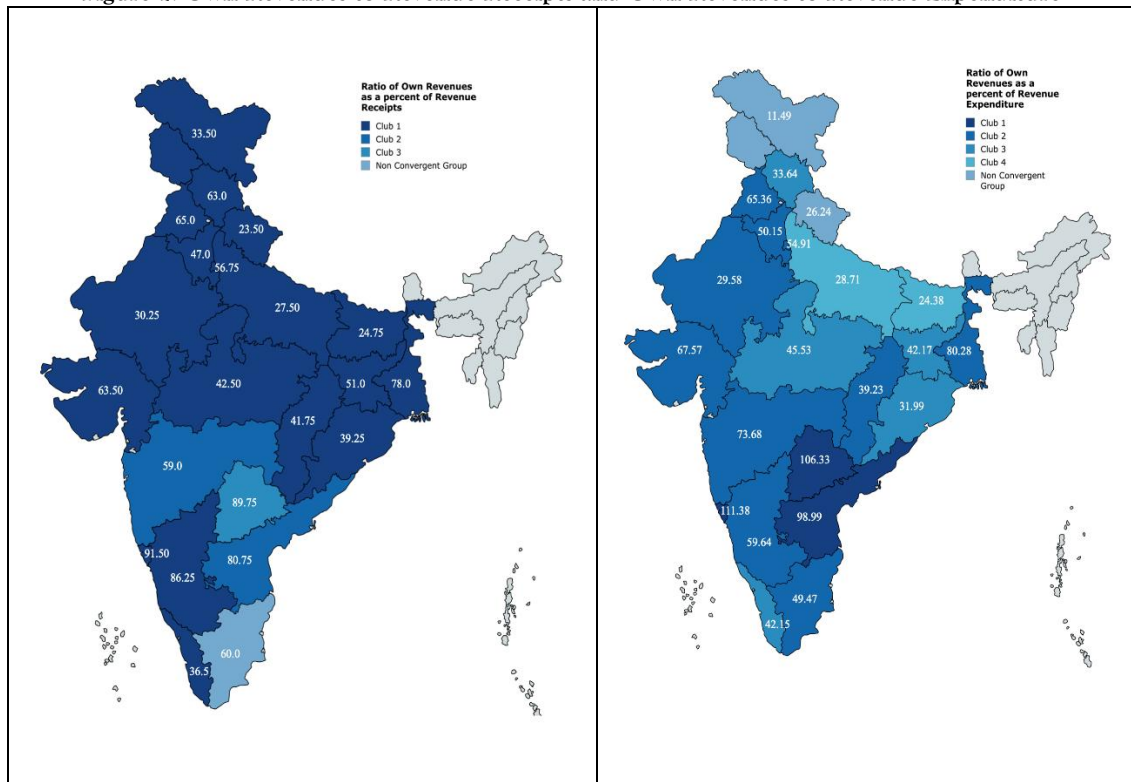
Table 5: Results: Club Convergence

Row		States	Coefficient (t- statistic)	Speed of Convergence
	Ratio of Own Revenues to Revenue Receipts (ORRR)			
1	Full Sample		-3.5031 (-3.1530)	
2	Club 1 (18 States)	Bihar Chhattisgarh Delhi Goa Gujarat Haryana Himachal Pradesh Jammu and	-2.1638 (-1.3688)	-1.0819

		Kashmir Jharkhand Karnataka Kerala Madhya Pradesh Odisha Punjab Rajasthan Uttar Pradesh Uttarakhand West Bengal		
3	Club 2 (2 States)	Andhra Pradesh Maharashtra	1.7866 (1.5425)	0.8933
4	Club 3 (1 State)	Telangana	2.5436 (1.7723)	1.2718
5	Non Convergent Group (1 States)	Tamil Nadu	-1.8546 (-12.7313)	-0.9273
Own Revenues as a percent of Revenue Expenditure (ORRE)				
7	Full Sample	All States	-1.7274 (-17.5625)	
8	Club 1 (3 States)	Andhra Pradesh Goa Telangana	1.0107 (1.0920)	0.5054
9	Club 2 (10 States)	Chhattisgarh Delhi Gujarat Haryana Karnataka Maharashtra Punjab Rajasthan Tamil Nadu West Bengal	-0.3259 (-1.6013)	-0.1630
10	Club 3 (5 States)	Himachal Pradesh Jharkhand Kerala Madhya Pradesh Odisha	0.7813 (1.9804)	0.3907
11	Club 4(2 States)	Bihar Uttar Pradesh	1.0387 (1.8453)	0.5194
12	Non Convergent Group (2 States)	Jammu and Kashmir Uttarakhand	-1.7590 (-12.7313)	-0.8795
Note: t statistic critical value -1.65 @ 5% level (ii) Clubs specified are final clubs after merging (iii) speed of convergence is calculated as $\beta/2$				

Speed of convergence varies across clubs and clubs with negative co-coefficients would have slow/weak convergence. The emergence of clubs also emphasizes that municipal corporations in different groups of States have varying transition paths and supports the evidence in literature of wide variations in the fiscal behavior of municipal corporations across States. Figures 1 maps the clubs and thereby reiterates the findings of the spatial dependence.

Figure 1: Own Revenues to Revenue Receipts and Own Revenues to Revenue Expenditure



VI. Conclusions

The paper has focused on revenue performance of municipal corporations which constitute the third tier of

government and emerging as engines of growth. Revenue performance of municipal corporations has been studied using two ratios that provide insights into the revenue raising capacity, fiscal autonomy and ability to meet current expenditures. The paper finds support for the stagnancy observed in municipal revenues and substantial variations in revenues that has been well documented in literature. Further, own revenues constitute a mere 0.6 percent of GDP. The paper finds spatial effects across municipal corporations for both the revenue ratios considered. The clustering of States as clubs indicates to the existence of multiple local equilibrium rather than to the prevalence of the catch up effect associated with convergence. Results on spatial effects have been reinforced by the findings of the clustering of States. A limitation of this study has been studying the revenue performance of municipal corporations aggregated for a State rather than as corporation wise due to the nature of the available data.

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