

---

## Fiscal Health of Selected Indian Cities

Simanti Bandyopadhyay and M. Govinda Rao

---

Working Paper No. 2009-58

March 2009

---

National Institute of Public Finance and Policy  
New Delhi  
<http://www.nipfp.org.in>

# *Fiscal Health of Selected Indian Cities*

**Simanti Bandyopadhyay\***  
**and**  
**M. Govinda Rao\*\***

**Keywords:** Expenditure Needs, Revenue Capacity, Fiscal Gap

**JEL Classification Code:** H71, H72, H73, H76, H77, R51, R58

---

\* Senior Economist, National Institute of Public Finance and Policy, New Delhi. Email: simantib@nipfp.org.in; simantib@redifmail.com

\*\* Director, National Institute of Public Finance and Policy, New Delhi. Email: mgr@nipfp.org.in; mgr@vsnl.com

The Authors would like to thank the World Bank and Infrastructure Development Finance Company (IDFC) each for partial funding of the project 'Improving Fiscal Health of Indian Cities', which initiated the research on estimation of fiscal capacity and needs in Indian cities. We thank the research team of this project, particularly Kala Sridhar for her sincere efforts and Satadru Sikdar for his excellent research assistance in the initial drafts of the six reports submitted to the World Bank. We would also like to thank Om Prakash Mathur for his help and interest at different stages of the work. We are grateful to Andrew Reschovsky, Anwar Shah, Howard Chernick, Jorge Martinez, Melville Mcmillan for their comments and suggestions on an earlier version of the paper presented in the 'International Seminar on Fiscal Health of Cities' in World Bank Institute, Washington DC, during April 24-25, 2008. We thank Rita Wadhwa and Kavita Issar for editorial assistance. However, the usual disclaimer applies.

## Abstract

The paper aims to assess the fiscal health of five urban agglomerations (UAs) in India viz. Delhi, Hyderabad, Kolkata, Chennai, and Pune. Our sample consists of five corporations and sixty three smaller Urban Local Bodies (ULBs) dispersed in thirteen districts of five major states. The main objective of the paper is twofold. First, to review the status of revenue generation and expenditure responsibilities of the constituent ULBs. Second, to assess the magnitudes of their fiscal gaps by estimating the expenditure needs and revenue capacities and give some useful recommendations to reduce these gaps. Data on ULB finances for the financial year 2004-05 collected through surveys are used for the analysis. For estimation of expenditure needs the updated financial norms on the selected services specified by *Zakaria Committee* are used as benchmarks. For revenue capacity estimations Gross City Products (GCPs) are estimated from non-agricultural components of the District Domestic Products (DDPs). Revenue capacities are estimated by applying a tax-to-GCP ratio, which is higher than that existing in a ULB by a politically feasible margin, on the estimated GCPs.

The main findings suggest that excepting five small ULBs in Hyderabad, the others are not in a position to cover their expenditure needs by their present revenue collections. All the UAs have unutilised potentials for revenue generations but with the exception of one UA i.e, Hyderabad, all the others would fail to cover their expenditure needs, even if they realise their revenue potentials. In all the UAs, except Chennai, bigger corporations are more constrained than the smaller ULBs. Besides, concrete evidence in support of the efficiency of parastatal agencies in sharing the burden of responsibilities cannot be established. The paper recommends better utilisation of 'own revenue' handles of the cities, by improved administration of the property taxes, implementation of other taxes, and collection of user charges. The option of state governments to allow the local bodies piggybacking a small proportion on their VAT collections can also be explored. Another way to reduce the fiscal gap would be to earmark a portion of the sales proceeds from land and housing by state governments sold through their development agencies for improvement in the infrastructure of the cities. The paper also recommends that the State Finance Commissions (SFCs) should develop appropriate norms for estimating expenditure needs based on which transfers from the state to local governments can be decided.

# *Fiscal Health of Selected Indian Cities*

## **Introduction**

Perhaps, no other area of analysis and policy has received as much focus and yet continues to be in a poor state, as the provision of urban infrastructure and services. The rapid pace of urbanisation has placed heavy demands on infrastructure and services while faulty planning and frequent changes to suit political needs, its implementation, governance issues, obsolete laws, ill conceived policies, and low capacity of institutions have led to poor state of infrastructure and service delivery. Indeed the problem is complex and multi-dimensional and the solution requires reforms in both policies and institutions.

Financing urban infrastructure and services will be the most formidable challenge in the years to come. At present, there are over 330 million people living in urban areas distributed over 5,165 cities in the country. Urban population is growing at 2.7 percent and the growth rate is likely to accelerate to 3 percent in the next few years. Agriculture contributes to just about 18 percent of the GDP, although over 65 percent of the population resides in rural areas. With the passage of time, the population will gravitate towards urban agglomerations in search of livelihood opportunities. As economic activities, particularly in the manufacturing and service sectors increase, the transaction cost of mobility will decline and the rate of migration will increase. At present there are 35 cities with more than 1 million population and it is estimated that the urban sector currently contributes to about 62-63 percent of GDP and this is likely to increase to 75 percent by 2021 (Gol, 2008).

While the infrastructure demand and the financial requirement to provide the required minimum services is large and growing, the resources actually available can meet only a fraction of the requirements. Even going by the norms specified by the *Zakaria Committee* which was determined way back in the 1960s, a recent study for the period 1999-2000 to 2003-04 shows that in 30 municipal corporations in India, on an average, actual spending is only about 24 percent of the requirements or the extent of under-spending is as high as 76 percent (Mohanty *et.al*, 2007). The study also shows that of the 30 municipal corporations, the extent of under-spending was over 75 percent in 17 municipal corporations, and over 50 percent in all of them except in three, which are Pune (31.6 percent), Nagpur (30.8 percent) and Nasik (35.5 percent). In fact, the Patna Municipal Corporation actually spends only about 5.6 percent of the requirement and the shortfall was 90 percent in almost all municipal corporations in UP and Bihar, even going by the norms specified over 45 years ago.

By any reckoning, infrastructure deficit in urban areas is large and growing. The analysis shows that 34 percent of the urban households do not have water taps within their premises, 26 percent of them do not have toilets, 70 percent of waste is not treated before disposal, 21 percent of the urban population lives in squatter settlements, and untreated sewerage and unregulated discharge from industries is a major source of pollution of water bodies in the country. According to the draft Eleventh Five Year Plan document, only 63 percent of urban population had access to sewerage and sanitation facilities in 2004. Problem of urban transportation is acute; public transportation is congested and inefficient and those who can afford private transportation can travel a kilometer distance in 15 minutes on an average

due to road congestion. There are severe problems of housing as well, and as mentioned earlier, almost 21 percent of the people live in squatter settlements.

Comprehensive assessment of the investment requirements for provision of adequate urban infrastructure is not available. Most assessments simply apply the *Zakaria Committee* norms adjusted to increases in prices to arrive at investment requirements. In the past, the government was not able to make even the planned level of investments and this has only contributed to infrastructure deficit. During the Tenth Plan period, i.e. 2002-07, for example, the projected requirements for 100 percent coverage of urban population with potable water supply and 75 percent of urban population with sewerage was estimated at Rs. 537.19 billion. However, the funds actually made available for spending is estimated at Rs. 358 billion. As mentioned earlier, the under-spending on public services in the municipal corporations taken together worked out to be 76 percent for the period 1999-2003. As mentioned earlier, scientific assessment of expenditure needs for provision of urban services at reasonable levels do not exist. The assessment by the *Rakesh Mohan Committee* shows that in 2001-02, the annual requirement for urban services was Rs. 277.7 billion. As against this, the actual outlay on urban infrastructure by central, state and local governments taken together is less than one-third, at Rs. 90 billion out of which, an overwhelming proportion is spent mainly on maintenance. The draft Eleventh Plan document projects the investment requirement for water supply, sewerage disposal, waste management and related services at Rs. 1,292 billion of which, water supply alone requires Rs. 536.7 billion and urban sewerage and sewerage treatment an additional Rs. 531.7 billion.

The inability to finance exponentially growing urban public service need is compounded by inflexibility and low level of buoyancy in the local tax bases. The assignment system does not provide sufficient revenue handles to urban local governments and the only important tax handle is the property tax. In all the states, except Maharashtra, octroi has been abolished. Ironically, many of the state governments not only do not bother about providing adequate revenue handles to the ULBs, but even go about abolishing the local taxes for electoral gains leaving the ULBs with significant unfunded mandates. The recent abolition of property taxes in Punjab and Rajasthan is a case in point. In other ULBs their inability to effect periodic revision in property valuation has rendered the tax inelastic in raising revenues. Intergovernmental transfers from the state to local governments are characterised by discretion and lack of practicability and often serve as disincentives to revenue generation. Unwillingness on the part of the state governments to guarantee borrowings by urban local bodies to keep their own off-budget liabilities to the minimum to fulfill the fiscal responsibility legislation targets has not helped the institutional financing of ULBs to the extent desired.

The implementable rules of fiscal decentralisation require that there should be clarity in the assignment system in order to ensure accountability (Bahl, 2002). However, overlap in the assignment of functions between states and local bodies on the one hand, and the local bodies and the independent service providers on the other, has been a source of ambiguity and confusion. In all multilevel fiscal systems, finances should follow functions. However, the local bodies have not been assigned adequate revenue sources and as mentioned above, intergovernmental transfers are not systematic and do not keep up with the functions assigned. It is important that at the local level there should be linkage between revenue expenditure decisions at the margin to ensure accountability and incentives. However, the local bodies have failed to collect user charges to bring about stronger link between revenue and expenditure decisions and have failed to raise resources from the sources of revenue assigned to them. Thus, revenue from property taxes is low, many of the properties are not

included in the tax base, undervaluation of those included is phenomenal, and even when the tax is levied, it is not collected. The prevalence of rent control act has only added to the problems. In short, there is no scientific system of determining or periodic revision of the base. Thus, own revenues of local bodies are abysmal and transfers are inadequate. Most of the states have been unwilling to extend guarantees to the local bodies due to the constraints on the guarantees imposed by the fiscal responsibility legislations and therefore, accessing funds from the capital market is difficult. Thus, financing urban infrastructure presents one of the most daunting challenges to the Indian fiscal scene.

The Jawaharlal Nehru National Urban Renewal Mission (JnNURM) is one of the recent initiatives taken by the Government of India to deal with the issue of reform and financing of urban infrastructure. A novel feature of the programme is to take urban infrastructure provision in the mission mode and incentives the state and local bodies to undertake structural reforms through incentive linked financing programmes. It takes on board 23 reform initiatives which include *inter alia* elimination of distortions in land and housing markets, more rational pricing of municipal services, empowerment of urban local bodies with property tax and user charge reforms, bringing about transparency in the accounting systems, inducing increased participation of people in governance and working towards better access of public services to the poor. In many ways the reforms proposed under JnNURM aim at opening up the 'municipal sector'. The JnNURM proposes to make central investment of US\$1.7 billion in 63 cities with a forthcoming additional investment of US\$1 billion.

While cities in the states of Gujarat, Maharashtra, Andhra Pradesh, and Tamil Nadu have moved faster, those in many other states have lagged behind and in some states there is a distinct indifference and disregard to the JnNURM protocol. The experience with the implementation of the programme, has brought out a number of important issues. First, the programme design seems to have been drawn up in a hurried manner and, therefore, has been undergoing considerable changes over time. In other words, proper scheduling and sequencing of reforms can help to gain much more synergy. Second, there is capacity vacuum in the ULBs even for preparing the actual proposal under the JnNURM. Third, the system of evaluating the applications and periodic evaluation of the programme is not yet systematic. While the states do agree to undertake reforms after availing the assistance, they may not continue with them or may actually reverse the reforms. In fact, the state government of Rajasthan, after availing assistance for some of the cities has abolished the property tax on residential housing upto a specific floor area. This amounts to fiscal disempowerment of ULBs. Alongside the assistance, it is necessary to create a pool of resources for building capacity in institutions which has not been undertaken. Nevertheless, even with its shortcomings, this is an important initiative and is likely to augment urban infrastructure in the near future and motivate ULBs towards the much needed reforms in the area.

Despite this recent attempt, the issue of financing urban infrastructure remains a major challenge. The important reforms in the area should begin with ensuring clarity in the assignment of functions, providing adequate resources to finance the functions and create an appropriate incentive structure to mobilise resources and efficiently use them in the ULBs. An implementing rule of fiscal decentralisation is that the functions are assigned and the financial resources should follow the functions. It is also important that at the margin there should be a linkage between revenue and expenditure decisions and it implies that the ULBs should have independent revenue sources from which they can raise revenues to augment public services according to the preferences and need of people residing therein. While

assignment of independent revenue handles is important for ensuring both efficiency and accountability, it must be noted that subnational governments have inherent disadvantage in raising revenues commensurate with their expenditure responsibilities if the assignment is carried out according to the comparative advantage and therefore, a significant part of their expenditures will have to be financed through intergovernmental transfers.

Financing urban local services through intergovernmental transfers requires comprehensive assessment and quantification of fiscal capacities and needs. This is required to design the transfers so as to ensure comparable levels of urban local services at comparable tax rates within a state. Thus, fiscal capacity of an urban local body will provide an estimate of the revenue the local body can raise at a given normative tax rate. The shortfall in the capacity to raise revenue from a chosen benchmark (average capacity) is one component of the transfer system. However, standards of public service may vary even when the capacities across ULBs within a state are equalised due to significant differences in the cost of providing the services. Expenditure needs can also vary among ULBs if there are significant differences in the demographic composition of the population. In order to offset such cost disabilities and need differences, it is necessary to estimate expenditure needs.

Most of the studies estimating taxable capacities and needs typically employ a cross section model and take average as the benchmark to estimate the taxable capacity using either a regression approach or the 'representative tax system' approach. Similarly, expenditure need calculations are done in many ways by regressing quantity and cost variables on expenditures to estimate the justifiable cost of providing average standard of public services (Reschovsky, 2007; Rao and Aggarwal 1994). Such an analysis is possible only when there is uniformity in the public services provided and tax bases assigned to ULBs. The estimation also requires collection of a large volume of data on a comparable basis on various capacity, need, and cost variables. Such an approach is not feasible in the context of Indian cities because assignments vary significantly among different ULBs and comparable data on the above mentioned variables are simply not available. Therefore, the only alternative is to estimate the expenditure needs for individual UAs based on exogenously given norms.

The present study focuses on the various aspects of fiscal health of five major UAs in India which are: Chennai (Madras), Delhi, Hyderabad, Kolkata, and Pune. The main objective is twofold. First, to assess the conditions of finances and responsibilities in service delivery of the ULBs in these agglomerations and then see whether the revenues generated are sufficient enough to handle the responsibilities assigned to them. This involves a detailed analysis of the expenditures on core services, the existing institutional arrangements for service delivery between the local governments, and independent service providers (parastatal agencies) as also the different categories of revenues for these ULBs which give an idea of the extent of their dependence on transfers from the higher tiers of government.

Second, on the basis of the existing state of finances and responsibilities of the ULBs, needs and capacities are estimated for each of the UAs using specific norms and based on the assignment of functions to each of their constituent ULBs and their existing revenue handles. The difference between the two gives the fiscal gap. The gap can be reduced by (i) reducing the functions of urban local bodies, which is against the principle of subsidiarity; (ii) assigning more revenue handles which, beyond a point may not be feasible as the benefits of fiscal decentralisation may be outweighed by losses on account of fiscal disharmony (Rao, 2007); and (iii) by providing adequate intergovernmental transfers to offset the vertical and horizontal

imbalances. In the absence of any of the above, the ULBs will be left with unfunded mandates and as they do not have any way of resolving the issue, the public service delivery will suffer.

The analysis begins with the description of the five UAs and the constituent ULBs, their socio-demographic characteristics, status of core services, and a glimpse of economic activities in section 2. Section 3 analyses the finances of the local bodies bringing in detailed service wise break-up of total expenditures and source wise composition of revenues. Sections 4 and 5 provide the description of data, methodology, and results of estimations of expenditure needs and revenue capacities respectively. Fiscal gaps and a few other indicators of fiscal health are estimated and analysed in section 6. Section 7 provides major conclusions and summarises the data caveats and limitations of the study.

## II. Urban Agglomerations: Some Characteristics

The selection of the five UAs, though is partly subject to availability of data on local governments, the objective basis in terms of coverage and diversity of the entire nation is also not missing. First of all, efforts have been made to make the sample representative of the entire nation as best as possible. Secondly, all the UAs chosen for the study have recorded, over the last decade, a faster pace of urbanisation reflected in greater decline in primary sector activities, greater orientation towards manufacturing and services sector and higher literacy rates of population than the national average for Urban India.<sup>1</sup> *Table 1* gives a broad overview of the five urban agglomerations chosen for the study in terms of location and number of constituent ULBs.

**Table: 1** Urban Agglomerations : An Introduction

Urban Agglomeration	State	District	Number of ULBs
Hyderabad	Andhra Pradesh (Southern India)	Hyderabad, Rangareddy	11 <sup>2</sup>
Chennai	Tamil Nadu (Southern tail of India)	Chennai, Kancheepuram, Thiruvallur	36 <sup>3</sup>
Kolkata	West Bengal (Eastern India)	Kolkata, 24 Paraganas (North), 24 Paraganas (South), Hugli, Haora, Nadia.	41
Delhi	Delhi (Northern India)	Delhi	3
Pune	Maharashtra (West to Central India)	Pune	5

**Source:** Census of India, 2001

<sup>1</sup> The comparisons are in terms of the national urban averages subject to availability of data, See NIPFP 2007(a)(b)(c)(d), NIPFP (2008)(a)(b) for details on individual cities; the average literacy rate for urban India is 65 percent according to *Census of India, 2001*.

<sup>2</sup> In late 2007, all the ULBs in Hyderabad were merged to one Greater Hyderabad Municipal Corporation (GHMC). Our surveys were conducted before that, therefore we have considered the 11 ULB budgets separately.

<sup>3</sup> Our analysis is based on 8 ULBs in Chennai



A comparative analysis of some important socio-demographic indicators of these UAs has facilitated in getting a better idea about their fiscal health. In this study, the analysis has been carried out for the central cities (*Table 2*) and the surrounding ULBs in the non central cities (*Tables 3 and 4*) separately in order to compare the two categories of ULBs in an agglomeration and each category across agglomerations.

The main observations on central cities (*Table 2*) can be summarised as follows:

- According to *Census 2001*, the population of central cities range between 2.5 million to 10 million; The number of households varied from 500,000 to 3.2 million; The area varied from 173 sq. kms to 1397 sq kms, the population growth during the period from 1991 to 2001 varied from a mere 4 percent in Kolkata Municipal Corporation (KMC) to 62 percent in Pune Municipal Corporation (PMC); density of population per sq. km area varied from 6,000 persons to 25,000 persons and literacy rates from 76 percent to 85 percent..
- In terms of area, the Municipal Corporation of Delhi (MCD) is the largest followed by Pune (PMC), while Kolkata (KMC), Chennai (COC) and Hyderabad (MCH) corporations are almost of the same size.

**Table 2:** Socio Demographic Characteristics: Central Cities

Central city	Area (sq. km.)	House-holds	Population	Population growth 1991-2001 (%)	Population density (persons per sq km)	Literacy rates (%)
Municipal Corporation of Hyderabad	173	660,363	3,658,510	20	20,917	78
Corporation of Chennai	174	962,213	4,343,645	13	24,963	85
Kolkata Municipal Corporation	186	931,402	4,580,546	4	24,596	83
Municipal Corporation of Delhi	1,397	3,247,838	10,679,152	48	7,643	82
Pune Municipal Corporation	430	555,771	2,538,473	62	5,903	76

Source: Census of India, 2001

- In terms of population and number of households, Delhi records the highest numbers, and Pune the lowest. Kolkata and Chennai are in the same row (with Kolkata having a marginally higher average size of households), followed by Hyderabad.
- In terms of population growth, Pune records the highest, followed by Delhi, Hyderabad, Chennai and Kolkata. The lowest numbers in Kolkata can be attributable to massive out-migration due to closing down of industries while the highest number in Pune is partly due to its rapid gain in importance in the nineties as an investment destination in Maharashtra with over-saturation in Mumbai.

For the ULBs in the non central cities the major observations are<sup>4</sup>:

<sup>4</sup> In terms of average values, for details see *tables 3 and 4*.

- While the total area covered by the ULBS in the non central cities is maximum in Kolkata followed by Hyderabad, Chennai, and Pune, the minimum is in Delhi; Pune has the highest variation in terms of size of the smaller ULBs whereas Delhi has the least variation.
- The number of households and population figures are the highest for Kolkata (with maximum variation amongst ULBs) followed by Hyderabad.

**Table 3:** Proportion of Area and Population of Smaller ULBs

<b>UA</b>	<b>Area (%)</b>	<b>Population (%)</b>
Hyderabad	77	34
Chennai	54	22 <sup>5</sup>
Kolkata	79	63
Delhi	6	4
Pune	35	32

**Note:** The proportions are in terms of total population and total area of the respective UAs.

**Source:** Census of India, 2001

- Highest population growth is recorded in Pune followed by Hyderabad and the lowest in Delhi; the highest variation in population growth is recorded in Chennai.
- Smaller ULBs in Kolkata on an average have the highest population density with highest variation followed by Hyderabad.

---

<sup>5</sup> In Chennai we have considered 8 out of the 36 municipal governments which account for 89 percent of the UAs population, as well as of the UAs households, and 59 percent of the UA's land area.

**Table 4:** Socio Demographic Characteristics: Smaller ULBs

Urban agglomeration	Area (sq. km.) Total (maximum; minimum)	Households total (maximum; minimum)	Population total (maximum; minimum)	Growth rate 1991-2001 (%) average (maximum; minimum)	Population density (persons per sq.km) average (maximum; minimum)	Literacy rates (%) average (maximum; minimum)
Hyderabad	580 (103; 18)	410,180 (65,211; 19,748)	1,899,081 (292,289; 94,372)	67 (116; 20)	3,276 (10,770; 1,565)	78 (83; 63)
Chennai	202 (65; 17)	292,928 (174,145; 73,630)	1,257,587 (310,967; 76,093)	46 (1,118; 16)	6,220 (9,910; 3,529)	87 (92; 85)
Kolkata	705 (55; 3)	1,652,518 (211,441; 6,772)	7,865,180 (1,007,532; 33,858)	47 (459; -1)	11,144 (38,337; 1,835)	84 (94; 69)
Delhi	86 (43; 43)	94,079 (69,034; 25,045)	427,260 (302,343; 124,917)	8 (39; -1)	4,970 (7,031; 2,907)	NA
Pune	234 (171; 13)	272,003 (231,562; 9,773)	1,216,831 (1,012,472; 46,921)	69 (96; -3)	5,209 (5,938; 1,303)	77 (82; 73)

*Source:* Census of India, 2001

Water supply, sewerage/sanitation, solid waste management, roads and street lighting are the five core services chosen for this study. Most ULBs in India are responsible to provide these services. In addition to these services, some ULBs have the responsibility to provide primary education and health care facilities. Apart from these, a variety of other expenditures are incurred, common among these being expenses on general administration, slum rehabilitation, pensions, expenses for buying land, fire fighting, with slight variations across ULBs.

The status of five major services in the UAs are summarised in *tables 5, 6 and 7* below. The information presented in the tables suggests the following:

- Only the central city in Pune has full coverage with tap water, while both Pune and Chennai have full coverage by sewer network; Connectivity through roads as measured by road length per thousand population is the best in Chennai and the worst in Hyderabad; street lighting facilities are better in the central cities of Pune than in other ULBs but the worst in Hyderabad.
- When non-central cities are considered, the order of the UAs in terms of status of these services is different from those observed in central cities. While smaller ULBs in Hyderabad are better off in terms of availability of tap water, conditions are worse in Kolkata. Sewerage facilities are the best in the non-central cities of Delhi which has full coverage through sewer network, followed by Pune which has 50 percent coverage, while the smaller ULBs in Chennai do not have sewer network at all. In terms of comparable indicators on roads and street lighting, it is found that the conditions are worst in smaller ULBs in Chennai while those in Hyderabad's non central cities are better.
- Also, conditions in the smaller ULBs in Hyderabad are better than the smaller ULBs of other UAs. The conditions are moderate in Pune, both for central city and non central city.

**Table 5: Water Sources and Sewerage Systems in UAs<sup>6</sup>**

	Urban agglomeration	Sewerage		Sources of Water	
		Central city	Non-central city (proportion of ULBs covered by sources)	Central city	Non-central city (proportion of ULBs covered by sources)
Hyderabad	S, OSD	S, OSD (20%); OSD(70%); BSD(10%)		T, TW	T (60%); T, TW (30%); TW,T (10%)
Chennai	S	OSD (100%)		TW,T	TW (28.5%); T (28.5%); W (43%)
Kolkata	S, OSD	S, OSD (10%); OSD (62%); OSD, S(10%);OSD,BSD(5%);S (3%); OSD,O (5%); S,PT (2.5%); O(2.5%)		T,TW	T,TW (72.5%); TW,T (12.5%); T (5%); TW (7.5%); TW,TK(2.5%)
Delhi	NA	S (100%)		T,TW	T,TW (100%)
Pune	S	S (50%); S/OSD (50%)		T	T (50%); TW/T (25%); TW/T/W/TK (25%)

**Notes:** S-Sewer network; OSD-Open Surface Drain; BSD-Box Surface Drain; PT-Pit system; and O-Other types of sewerage. T-Tap water; TW-Tube well; W-Well water; and TK-tank water; ', ' implies 'and'; / implies 'or'

**Source:** Census of India, 2001

<sup>6</sup> The percentages in brackets for non-central cities denote the proportion of the non-central cities covered by the respective category of water source/sewerage system. For instance [S, OSD (20%)] would mean 20 percent of the smaller ULBs in Hyderabad UA have a combination of sewer network and open surface drains in which sewer network dominates. It is to be noted that the order in which the categories are mentioned in cases of multiple categories is important; (S, OSD) would mean a combination in which sewer network dominates whereas (OSD, S) would mean a combination in which open surface drains dominate.

**Table 6: Roads in UAs**

Urban agglomeration	Central city		Non central city average (maximum, minimum)	
	Pucca road length (km)	Road length(km) per thousand population	Pucca road length (km)	Road length (km) per thousand population
Hyderabad Urban Agglomeration	7,130	0.19	186.40 (425, 32)	1.42 (2.05, 0.45)
Chennai Urban Agglomeration	2,920	0.70	144.28 (421.7, 14)	0.85 (1.37, 0.06)
Kolkata Urban Agglomeration	1,585	0.41	145.75 (476, 10)	1.17 (5, 0)
Delhi Urban Agglomeration	NA	NA	NA	NA
Pune Urban Agglomeration	760	0.34	214.43 (641.92, 40.8)	1.08 (2.34, 0.53)

**Source:** Census of India, 2001

These broad comparisons suggest that there is a considerable difference in the status of these services in the central city and smaller ULBs in each UA. However, this difference in terms of coverage is the minimum in Hyderabad, if central cities are compared with non-central cities. In fact the indicators show better status for street lights and roads in the smaller ULBs than the central cities in Hyderabad. However, this may be caused by the smaller population and lower number of households in the smaller ULBs. However in the absence of comparable indicators on the supply and availability of these services in the ULBs, comparisons are restricted to these coverage indicators only.

**Table 7: Street Lighting in UAs**

Urban agglomeration	Central city		Non-central city average (maximum, minimum)	
	Number of street lights	Households per street light	Number of street lights	Households street light
Hyderabad Urban Agglomeration	18,138	36	6,368 (10,300, 1,465)	11 (44, 2)
Chennai Urban Agglomeration	79,303	12	5,922 (1,7606, 25)	199 (1,350, 4)
Kolkata Urban Agglomeration	78,354	12	3,408 (12,000, 55)	20 (181, 3)
Delhi Urban Agglomeration	NA	NA	NA	NA
Pune Urban Agglomeration	59,001	9	2,323 (4,000, 739)	82 (313, 4)

Source: Census of India, 2001

### III. Finances of Urban Local Bodies

We analyse the finances of the ULBs by considering expenditures and revenues separately. The main sources of information on expenditures and revenues of ULBs are the Annual Administrative Reports, Budgets of the ULBs, City Development Reports, and Environmental Status Reports depending upon availability at the city level. The smaller ULBs in India do not maintain systematic records of their finances. The data for this study was collected through extensive field visits to all the ULBs by circulating questionnaires structured according to the needs of the study.<sup>7</sup> In this analysis we have used the data for the year 2004-05. All the financial variables are expressed in 2004-05 prices.<sup>8</sup>

#### Expenditures

For expenditures we concentrate on the service wise break-up in each ULB in regard to on the five major services for comparisons across UAs. A considerable proportion of the total expenditures are spent on account of other expenditures which

<sup>7</sup> The surveys were conducted for the project titled 'Improving Fiscal Health of Indian Cities' funded jointly by the World Bank and IDFC. The contribution of the research team of the project for their inputs in designing the questionnaires, communicating with the ULB officials and conducting these surveys is gratefully acknowledged. Some further clarifications and additions in the dataset were made for the present analysis. However, the methodology, particularly for the estimation of expenditure needs is entirely different than that used in the project. See NIPFP (2007)(a),(b),(c),(d) NIPFP 2008(a),(b).

<sup>8</sup> For Kolkata the most recent data available is for 2003-04, so we have expressed the figures in constant 2004-05 prices with the standard sector specific deflators available for water supply, gas, and electricity (used for water supply and street lighting), roads (used for roads) and other services (used for sewerage and solid waste management).

we have considered later in the analysis. It is to be noted that for Delhi, Chennai, and Hyderabad, water supply and sewerage boards share the responsibilities with the ULBs. The manner in which the responsibilities are divided between the municipal government and the parastatal agency, however, is not the same in all the UAs.

The Delhi Jal Board (DJB) covers both capital and O&M expenditures but only for the central city; the smaller ULBs purchase in bulk from the DJB. Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) covers capital and O&M expenditures for 4 ULBs including the central city; other ULBs purchase in bulk from the HMWSSB. Planning, execution, and management of network is undertaken by the ULBs themselves. However there is a proposal for full coverage of capital and O&M expenditures of the entire area of the GHMC by the HMWSSB. Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) covers O&M and capital expenditures for the central city; the other ULBs cover their capital expenditure themselves. However they transfer resources on account of augmentation or new capital work to the Board and the planning, execution, and management of new capital work is done by the CMWSSB. All these Boards recover costs by borrowing funds from the state and financial institutions, as they incur perpetual losses.<sup>9</sup> All these UAs have mostly metered connections, private and government tankers are also available for additional supply of water.

The other services in which we find sharing of responsibilities are solid waste management, where the Residents' Welfare Associations and some private initiatives are found to have a role in Delhi and Pune; and roads for which Public Works Department and other state authorities are involved in all the UAs.

*Table 8*<sup>10</sup> summarises the expenditures in per capita terms on account of the five basic services of the UAs. The main observations suggest:

- Among the central cities Pune records the highest expenditures per capita on water supply while Hyderabad incurs the lowest;<sup>11</sup> Pune also incurs the highest expenditures on sewerage while Delhi the lowest; Delhi incurs the highest expenditures on solid waste management while Hyderabad incurs the highest expenditures on roads and street lighting; Chennai incurs the lowest

---

<sup>9</sup> CMWSSB is the only Board which has earned profits in the past few years.

<sup>10</sup> These are the O&M expenditures which are recurrent in nature. It is to be noted that we have not considered capital expenditures as service wise capital expenditures data is not available for the majority of ULBs. Among the services chosen, a major proportion of total expenditures on water supply, sewerage and roads are capital expenditures while for solid waste management almost the entire expenditure is on O&M and revenue, for street lighting the proportion of capital expenditure is moderate. The problems of estimating capital expenditure on each service taking pro-rata shares are manifold. First, the capital work for water supply and sewerage are jointly incurred, sometimes sanitation is also combined. So allocating the part attributable to a particular service arises from one project to another depending upon the nature of projects. Second, grants and aid from multilateral agencies are often used for capital work, which are project specific; for roads there are higher tiers of governments involved for the capital work. Multiplicity in donors often makes it difficult to apportion the shares for a particular service due to lack of records. Third, in cases of lumpy investments which are indivisible over time, annual data is difficult to be maintained. Fourth, the proportion of capital expenditures in total expenditure depends on the existing infrastructure in the city, and thus will be different over time as the city develops. However, we have used the relation between aggregate revenue and capital expenditures at the state level to estimate capital expenditure needs in the latter part of the analysis.

<sup>11</sup> Chennai's expenditure on water supply and sewerage and Delhi's on roads and street lights are combined together, hence not considered of comparisons of each of these services.



expenditures on three services, solid waste management, roads, and street lighting.

- Among the non-central cities, Hyderabad incurs the highest expenditures on water supply and sewerage, while Pune incurs the highest expenditures on the other three services. While Chennai incurs the lowest expenditures on three services, water supply, sewerage, and solid waste management, Hyderabad incurs the lowest expenditure on roads and Kolkata the lowest, for street lights
- A comparison of the expenditures of the central city and the (median value) of the non-central city of a UA<sup>12</sup> reveals that it is not always higher in the central city. For instance, in Chennai the central city spends lesser than the median spending by non-central cities in two services viz. solid waste management and street lights; in Hyderabad for three services, water supply, sewerage, and solid waste management and in Pune for three services viz. solid waste management, roads, and street lighting.

A word of caution may apply. For each service, there is a considerable variation in the per capita expenditures for the non-central cities. This is because of the variations in their size, population, population growth and density, and topography. So, the above comparisons on the basis of median per capita expenditures are subject to these variations. While comparing expenditures in per capita terms between the central and non-central cities, we have to keep in mind that central cities have larger populations than their non-central counterparts. Also the extent of scale economies varies across services and depends on the size of the city as also the maturity of its development process.

---

<sup>12</sup> Chennai, Hyderabad, and Pune are three UAs for which this comparison is attempted. Relevant data on the variables used for the analysis are not available for any of the non-central cities of Delhi and central city of Kolkata.

**Table 8:** Service wise Expenditures (O&M Per Capita) of UAs, (Rs. 2004-05)

UA	Water Supply		Sewerage		Solid Waste Management		Roads		Street Lights	
	Central City	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)
Delhi	100		8		250		127 <sup>13</sup>			
Chennai	612 <sup>14</sup>	30 (68, 1)		7 (117, 1)	6	26 (114, 2)	29	1.29 (80, 0.17)	6	40 (67, 2)
Hyderabad	10	225 (287, 49)	11	33 (236, 2)	175	51 (51, 51)	83	5 (71, 2)	84	66 (101, 0.41)
Kolkata		45 (120, 9)		19 (92, 1)		50 (145, 6)		15 (62, 2)		18 (72, 3)
Pune	418	106 (262, 6)	79	28 (29, 19)	154	235 (413, 168)	41	94 (292, 58)	65	78 (81, 74)

**Source:** ULB Budgets, Authors' Computations

<sup>13</sup> Combined expenditure for roads and street lights

<sup>14</sup> Combined expenditure on water supply and sewerage.

## Revenues

The revenue categories are roughly the same for all the ULBs with slight differences in the sub-categories because of the differences in the structure, functions, and nature of economic activities pursued in the big municipal corporations, smaller municipalities and cantonment boards. These differences are reflected mostly in the grants, octroi<sup>15</sup> and the 'other tax' components.

The total revenue can be broadly divided into 'own source' revenues and transfers from upper tiers of the government. The 'own source' component has tax revenues and non-tax revenues. Property tax and octroi are the main components of the tax sources. Property Tax is sometimes integrated with other charges for services like water and conservancy and in some places collected with transfer surcharge/stamp duty. The valuation is done mostly by Annual Rental Value (ARV) (rate based method) or Unit Area Method (UAM) (depending on characteristics of the locality and property). Self assessment valuation method is only followed in Delhi in our sample; all the other UAs follow ARV method based on unit area characteristics. This class of valuation methods assesses the rental values of properties based on the characteristics and location of the properties and then work out the rates according to the magnitude of the values after some deductions on account of maintenance and some standard exemptions.

The 'other taxes' can include toll tax, taxes on advertisements, trade and profession, carts and carriages, animals, pilgrim tax (Chennai), Howrah Bridge tax (Kolkata), tax on sale and supply of electricity (Delhi). The non tax revenue consists of sale proceeds of land, rent from the landed property of the ULB, rent from leases, proceeds from licenses, rent from the land other than the property of the government, sale of trees, and receipts from public gardens.

---

<sup>15</sup> Maharashtra is one state in India which still imposes octroi. The goods manufactured in Pune and going out of its territory are charged lump sum amounts according to their sale values whereas goods entering into the market of Pune for sale are charged at specified rates varying mostly between 1-3 percent of their transacted values, the minimum rate being 0.5 percent and the maximum 6 percent. In case the goods entering into the jurisdiction are not sold, 10 percent of the potential transacted value goes to the municipality funds. Though octroi is the major source of revenue for municipalities imposing it, because of its distortionary impact, it is a nationwide policy to abolish octroi at the earliest for any municipality which still imposes it. Octroi rates are amended from time to time but same rates are being followed by all the municipalities. Octroi rules are part of the *Bombay Provincial Municipal Corporation Act, 1949*, with successive amendments. Recently a number of instances of shut down of big production companies all over Maharashtra make it very clear that in near future the state has to take a decision on abolition of octroi if it wants to retain its production base. Because of this, for revenue capacity estimations, we have focused on an analysis considering revenues without octroi. The cantonment boards are eligible for some special grants from the upper tiers of the government, apart from the regular grants for education which all the municipalities get. Apart from their own collections from their check posts, Kirkee Cantonment Board and Pune Cantonment Board get shares of Pune Municipal Corporation's octroi while Dehu Cantonment Board generates octroi from its own check posts only. Most recent data shows that PMC shared around 2 percent of its octroi collection to each of these cantonment boards.

Transfers are generally a negotiated formula depending upon the status of commercial and economic activities of the state *viz.* population, deprivation index, difference with the highest income state, various compensations for alterations in tax regimes. Transfers are composed of assigned revenues and grants. Assigned /shared revenues generally come from entertainment tax, motor vehicles tax, stamp duty/surcharge and various shared taxes which may vary across states and so across UAs. Grants mainly is composed of the grants-in-aid component which is generally on account of education (Delhi, Pune), or road maintenance (Hyderabad), or others.

*Table 9* summarises the revenues in per capita terms from different sources of the UAs. An analysis of these per capita revenue figures suggests:

- For the central cities, Chennai collects the highest per capita property tax, Pune the lowest. However, both tax and non tax collections are the highest in Pune. Due to huge octroi collections at checkpoints, the highest collection in total revenues is also recorded in Pune. However, the intergovernmental transfer component in revenue is the highest in Delhi and lowest in Pune. Both tax and non tax, and thus the aggregate own revenue collections, are the lowest in Hyderabad.
- For non central cities, property tax collections are the highest in Hyderabad. While Pune takes the lead in the other own revenue components and the total revenues, per capita transfers are the highest in Hyderabad. Chennai records the lowest levels of transfers, while Kolkata records the lowest levels of all the own revenue components and total revenue.
- It is not always the case that the central cities generate more revenues than the non central cities (median value) in a UA in per capita terms. For instance, per capita property tax collection is higher in central cities than in non central cities for the three UAs *viz.* Chennai, Hyderabad, and Pune but total tax collections are lesser in central cities of Pune than in non central cities. Non tax revenue collections of central cities are lower than the non central cities in all the three UAs mentioned above.
- Own revenue collections are lower in central cities for Hyderabad and Pune than their non central counterparts. Intergovernmental transfers component is almost equal in central and non central cities of Pune while for the two other UAs the central cities earn more transfers than the non central counterparts. Total revenues are also lower in central cities of Pune and Hyderabad than their non central counterparts.
- For central cities, broadly speaking, the performance of Pune in terms of revenue generation is the best and Hyderabad, the worst. For non central cities, Kolkata is by far the worst in terms of revenue collections and Pune again the best while Hyderabad collects the highest per capita property taxes. The lower property tax collections in Pune are a direct consequence of the octroi overshadowing the importance of other own revenue potentials which is visible in both the central and non central cities of the UA

**Table 9: Source Wise Revenues (Per Capita) of UAs, (in. 2004-05 Rupees)**

UA	Property Tax		Total Tax		Non Tax		Own Revenue		Transfers		Total Revenue	
	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central-city	Non-central city median (maximum,, minimum)	Central-city	Non-central city median (maximum, minimum)	Central-city	Non-central city median (maximum, minimum)	Central-city	Non-central city median (maximum, minimum)
Delhi	427		710		112		822		466		1,288	
Chennai	489	216 (275, 37)	593	290 (371, 77)	156	319 (677, 67)	750	526 (1,003, 24)	441	92 (583, 3)	1,191	664 (1,095, 379)
Hyderabad	405	295 (424, 89)	407	380 (1,211, 94)	140	355 (840, 168)	547	811 (1,502,583)	313	273 (661, 146)	860	964 (1,886,723)
Kolkata		88 (307, 15)		109 (351, 17)		103 (243, 12)		190 (455, 29)		254 (518, 101)		435 (973, 197)
Pune	211	117 (350, 23)	1,327	2260 (3003, 1595)	874	565 (3208, 253)	2,200	3484 (4803, 1940)	163	164 (272, 88)	2,363	3664 (5017, 2054)

Source: ULB Budgets, Authors' Computations

*Figures A 1–A 8* in the appendix give details of the composition of revenues in the UAs. A close look at the composition of own revenues reveals that in the central cities of all the UAs, it is the tax component in own source revenues which dominates. As far as the non central cities are concerned, shares of tax collections are higher than those of the non tax collections in Hyderabad and Kolkata, while in Chennai it is just the reverse. In Pune for the central city in the 'without octroi' scenario, the share of non tax revenues is much higher than that of the tax revenues (roughly three and a half times larger) but for the non central cities it is the share of tax revenues that is higher than that of the non tax revenues.

An analysis of the intergovernmental transfers component across the central and non central categories of ULBs reveals that in general, the smaller ULBs are more dependent on grants while the central cities on 'shared taxes'. For Pune, at present octroi is the major source of revenues for both central and non central cities and the extent of dependence on grants is lower compared to other cities. Even in the scenario 'without octroi' and with the compensation according to our calculations, the dependence on transfers will not be very high. The central cities in our sample can generate, on an average, around 65 percent of their revenues from own sources. Even the smaller ULBs in Hyderabad and Chennai generate around three fourth of their revenues from own fund. However, the smaller ULBs in Kolkata are heavily dependent on transfers as more than half of their revenues come from intergovernmental transfers.

#### **IV. Estimation of Expenditure Needs**

Expenditure need of a ULB is the expenditure required to provide a minimum standard for the bundle of services which the local bodies are assigned to provide. Estimation of expenditure needs is a methodological challenge. Most of the studies estimate expenditure needs from actual expenditures on different services provided by the local governments. Expenditures actually incurred at the local government level do not necessarily match with these needs.

A common way out is to estimate an expenditure function in the reduced form equation for various public services. In the equation cross –section data on expenditures on a service across different urban local bodies are regressed on variables representing quantity and cost of providing the service. The cost of providing an average or any other normative standard of a given public service can be defined as the expenditure need for the service. The expenditure needs added for all services is the aggregate expenditure need.<sup>16</sup>

Expenditures of a local government would depend on a vector of public services it has to provide and a set of factors determining the cost of service provision. The cost factors again, may be within the control of the ULBs or beyond their control. By substituting the average (normative) value of quantity variables and cost variables that are within the control of the ULBs and actual values of the variables representing cost factors beyond the control of the ULBs, estimates of expenditure needs are arrived at for each of the services. These can be aggregated to get the total expenditure need. Estimation of need is necessary not only for designing the transfer system, but for the very planning of public service provision.

---

<sup>16</sup> For a discussion of various methods used to estimate expenditure needs in different countries around the world, see Reschovsky (2007)

Allocation of resources to various services in the budget in a scientific manner is possible only when the expenditure needs are estimated properly.

However, there are some difficulties in estimating expenditures by employing this methodology. At a general level, when single equation OLS models are used for estimation, there can be an element of simultaneity. However this can be overcome by employing two-stage models. But the problem in the context of Indian ULBs relate to heterogeneity in the functions assigned to ULBs and non availability of data at the required level of disaggregation. is insurmountable.

There are some specific problems with the data as well. First, analysis of the composition of expenditures in the ULBs shows that a big chunk<sup>17</sup> of total expenditures is clubbed under 'other expenditures'. These services can include expenditure on hospitals and dispensaries, education, pensions, general administration, fire fighting, maintenance of libraries, parks and other facilities and many other categories which are very specific to the functions of ULBs. Estimating a cost function for such a heterogenous category would be meaningless. Also, estimating the expenditure needs of ULBs with only the five core services would be a gross underestimation of their actual needs.<sup>18</sup> Nor is it possible to define physical norms for such a category.

Because of these problems, we have estimated the expenditure needs for individual ULBs based on exogenously given norms. First, we estimate the current expenditure needs for various services based on norms relating to population and other characteristics of the ULBs.<sup>19</sup> The need in respect of "other expenditures" has been estimated by taking the median value of other expenditure component of each ULB during the last five years. These values are added to the aggregate expenditure needs for the core services to get total current expenditure needs of a ULB.

The next step is to estimate the capital expenditure needs of ULBs. In the absence of disaggregated data and problems with lumpy capital expenditures mentioned in the previous section, we have used the ratio of capital to revenue expenditures of all the ULBs in the respective states<sup>20</sup> in which the UAs are located to derive the capital expenditure needs on the basis of revenue expenditure needs estimated by us. The assumption is that the prevailing ratio of capital expenditure to current expenditure will hold. The last step would be to add the two categories of expenditure needs, capital and revenue, to arrive at aggregate expenditure needs of ULBs. *Table 10* summarises the estimated expenditure needs of UAs.

---

<sup>17</sup> Kolkata ( 47%median value for smaller ULBs); Delhi (73% including Education, 52% excluding Education; Pune central city (62%), Non central city (85%); Hyderabad (central City 63%, Non central city (73%) Chennai central city 43 percent, non central city 78 percent.

<sup>18</sup> A set of reduced form regressions for Kolkata with a time series data was attempted to estimate the expenditure needs on only the five services at the ULB level. See, NIPFP 2007(a) for details.

<sup>19</sup> For Delhi the proportion of education on other expenditures is around 22 percent which is quite high. On the basis of the norm suggested by National Policy of Education (1986) in terms of minimum average salary of teachers and with the help of the existing teacher-student ratio and the proportion of salaries of teachers in total expenditures in schools in Delhi, we can convert these norms into per capita expenditures and take out education from the other services by specifying a norm.

<sup>20</sup> According to the Report of the Twelfth Finance Commission, the ratio of total capital expenditure to total revenue expenditure in West Bengal, Andhra Pradesh, Maharashtra, and Tamil Nadu are 15 percent, 26 percent, 43 percent, and 52 percent respectively, while the all India figure stands at 33 percent. This ratio for Delhi is not available from any reliable source. We have assumed this ratio to be 50 percent in Delhi, higher than the national average and at par with the better performing states like Maharashtra.

A review of studies on financial norms show that the norms set up by the *Zakaria Committee* (1963) have been updated by all subsequent studies and working groups of the government by simply adjusting for price increases. Mathur *et. al.*, (2007) gives a comprehensive summary of the literature on norms for Indian ULBs. They have considered the norms suggested from time to time, important among which are those by *Zakaria Committee*, National Institute of Urban Affairs (2007), Planning Commission (1983), ORG (1989), National Policy on Education (1986). We have used current expenditure norms for water supply, sewerage/sanitation and solid waste management on the basis of the National Institute of Urban Affairs (NIUA), as this is the most recent study on these norms (NIUA, 2007). The norms on roads and street lights are not specified in this study. We have referred to the most recent study available on these norms by Pricewaterhouse Coopers (2001). The norms on O&M used from different sources for our analysis are tabulated in *table A 1* in the appendix.

**Table 10:** Estimated Expenditure Needs (Per Capita) of ULBs (Rs., 2004-05)

UA	Expenditure Need Revenue		Expenditure Need Capital		Expenditure Need Total	
	Central city	Non central city median, (maximum, minimum)	Central city	Non central city median, (maximum, minimum)	Central city	Non central city median, (maximum, minimum)
Delhi	1,236		618		1,854	
Chennai	995	865 (2,996, 465)	517	450 (1,558, 242)	1,513	1,314 (4,555, 706)
Hyderabad	1098	637 (1,125, 238)	285	166 (293, 62)	1,383	802 (1,418, 299)
Kolkata		862 (862, 730)		129 (129, 109)		991 (991, 839)
Pune	2,673	2,665 (2,743, 2,581)	1,149	1,146 (1,179, 1,110)	3,822	3,811 (3,922, 3,691)

**Source:** Authors' Computations

It is interesting to note that

- Pune records the highest expenditure needs (capital, revenue, and total), both for central and non central cities. But this is mainly caused by higher other expenditure needs estimated.
- The lowest revenue expenditure need is recorded in Chennai for central cities while Kolkata records the lowest revenue expenditure needs for non central cities. Hyderabad records the lowest capital expenditure needs and total expenditure needs for central cities.
- The highest degrees of variations for the smaller ULBs in all the components of expenditure needs are recorded in Chennai.

## V. Estimation of Revenue Capacity

'Revenue-raising capacity' of a local government differs from the actual revenues raised by a local government. The revenue-raising capacity refers to the



maximum amount of revenue a government can raise at a standard (often average) tax rate, or set of tax rates when there is more than one tax instrument. Generally, the revenue raising capacity of a local government is not fully realised as a result of which the revenues actually raised are far below those measured by the capacity. Throughout the world it has been found that cities are underperforming in terms of realising their maximum revenue potential. Indian cities are no exception, as a result of which we find that most of the local governments are heavily dependent on the transfers in the form of plan and non-plan grants from higher levels of government.

Maximum revenue capacity as a function of the economic activities in a jurisdiction can be expressed as:

Maximum revenue capacity =

$$GCP \sum_{i=1}^N D_i \times t_i^{\max} \times share_i \left( \frac{B_i(t_1, t_2, \dots, t_n)}{GCP} \right)$$

In the above equation, GCP is Gross City Product, a measure of total output produced in the city;  $D_i$  equals one if a jurisdiction is allowed to use tax of type  $i$  and zero if it is not allowed;  $t_i^{\max}$  is the maximum tax rate allowed for tax of type  $i$ ;  $share_i$  is the proportion of the tax base ( $B_i$ ) that a local government is allowed to tax; and  $t = \{t_1, \dots, t_n\}$  is the vector of  $N$  tax rates imposed by a local government (some of these may be zero).

Maximum revenue capacity refers to an 'ideal' situation. So it is very difficult to quantify this measure in terms of numbers which can be claimed to be accurate. Identifying a comprehensive urban tax base and also arriving at correct numbers for different tax rates, simultaneously, that can result in realising the maximum potential for revenues of a local government is not an easy task as the variables involved share a complex relationship with each other. Also, the maximum amount of revenue extractable from the urban base is a function of the administrative efficiencies of local governments. So, econometric or statistical methods of estimations have limited scope for revenue capacity estimations.<sup>21</sup>

The "representative tax system" (RTS) is one of the widely applied approaches for measuring revenue capacity. It involves calculating the amount of revenues a jurisdiction would be able to raise if it imposed 'standard' tax rates on given tax bases in their jurisdictions. The standard tax bases include all of the taxes used by any of the jurisdictions within a metropolitan area or a state. The "standard" tax rates are generally taken to be the average rates utilised by the jurisdictions in the reference group. Fiscal (revenue) capacity is thus the weighted sum of  $N$  potential tax bases in a jurisdiction, where the weight for each base is the average tax rate,  $\tau_i$  for tax  $i$ . Ignoring any intergovernmental sources of revenue, the revenue-raising capacity of local government  $j$  can be written as:

$$R_j = \sum_i \tau_i \text{BASE}_{ij}$$

where  $R_j$  is the local government revenue-raising capacity of local governments in any given state and  $\text{BASE}_{ij}$  refers to local government  $j$ 's tax base for revenue source  $i$ .<sup>22</sup>  $\tau_i$  refers to the standard or the tax rate to be applied.

<sup>21</sup> Regression approach is used to estimate revenue capacity but for the present analysis adequate data is not available to carry out such procedures.

<sup>22</sup> In fact, we can make a further distinction here to define what is administratively feasible to be collected as revenues can be defined as feasible revenue capacity. This may be defined as  $\Sigma$

In the present analysis we would follow closely the above approaches. We have replaced the word 'taxes' by 'urban revenues' as we take both tax and non tax components of revenues for the revenue capacity estimations as we find in all the UAs the non tax component is fairly high, particularly for the smaller fast growing ULBs. However the methodology is subject to certain limitations due to non-availability of city level data at the desired level of disaggregation.

Our methodology involves two major steps. The first step would be to identify the urban base through which revenues can be generated. Due to non-availability of data on GCP for ULBs or any other reliable data on variables which can act as proxies for urban tax bases, we have followed a simple straightforward method for estimating the Gross City Products (GCPs). We have used per capita non agricultural component of Gross District Domestic Products<sup>23</sup> for the respective districts in which the ULBs are located<sup>24</sup> and multiplied them by the population of each of the ULBs to get a proxy for the GCP of the local government (*Figures 1 and 3, Table A 2*).<sup>25</sup>

Once the revenue base for measuring the revenue capacity is estimated, the next task would be to choose an appropriate rate which can be applied to the base specified. Choosing a 'standard' rate that maximises the revenue is very difficult because ULBs collect tax and non tax revenues which encompass a whole lot of categories. We have taken the ratio of own revenue<sup>26</sup> to the estimated GCP as a benchmark and to be consistent with the worldwide evidence on under-performing local governments, have applied a positive margin<sup>27</sup> to this ratio to estimate the 'standard' rate (*Table 11*). These rates are multiplied with the GCPs to get the maximum own revenue capacity figures. The existing levels of transfers<sup>28</sup> for each ULB is added to the estimated own revenue capacity to get the revenue capacity numbers for a ULB (*Figures 2 and 4, Table A 2*).

---

t. $\alpha$ .B, where all other terms are as defined before, and  $\alpha$  refers to the efficiency with which the taxes are collected.

<sup>23</sup> Published by Central Statistical Organisation.

<sup>24</sup> See *table 1* for details of the districts in which the ULBs are situated

<sup>25</sup> This implies that the per capita domestic product across municipalities of a district is the same, but with the data constraint this is the best way to construct a proxy for GCP at the municipality level in India. The rationale for using the non-agricultural component is that possibility of pursuing agricultural activities in the urban areas is minimal.

<sup>26</sup> For Pune we have not taken the actual own revenues but have estimated the own revenues without octroi taking into consideration the possibility of abolition of octroi in the near future. For this we have deducted the octroi component of own revenues from actual own revenues and taken the ratio of own revenues without octroi to GCP.

<sup>27</sup> It is to be noted that for each UA the median value of the ratio of own revenue to GCP of all ULBs is taken as the benchmark rate. The margins added to this rate vary across UAs. The margins are decided on the basis of the growth rate of own revenues in the ULBs of a UA in the past five years, the disparity in the own revenue to GCP ratios amongst the ULBs in the UA and political feasibility.

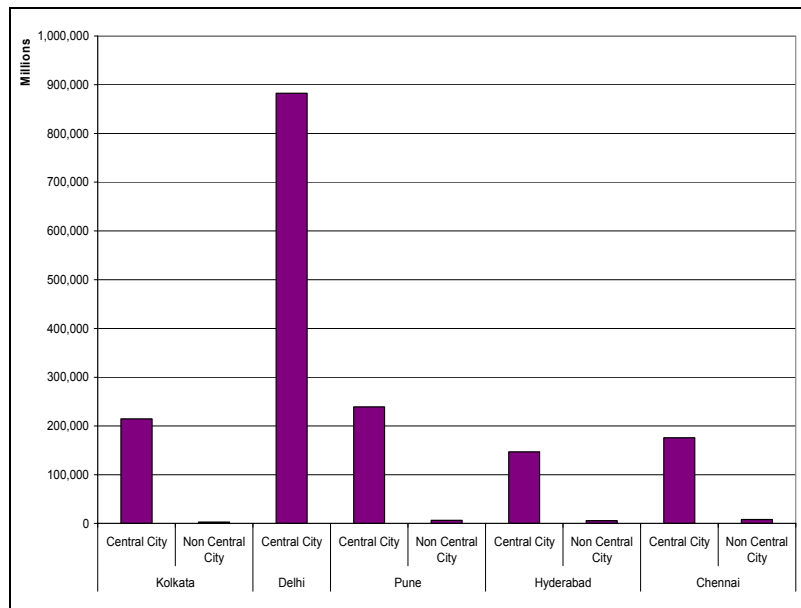
<sup>28</sup> For Pune we have estimated the transfers component in the absence of octroi by adding an estimated compensation from the higher government with abolition of octroi. The compensation is generally given as a percentage (varying between 5-10% for previous cases of abolition of octroi in India) of the average of the past three years octroi collection in the city. We have estimated the compensation with 7.5 percent in case of Pune.

**Table 11:** Ratio of Own revenue to Gross City Products of UAs

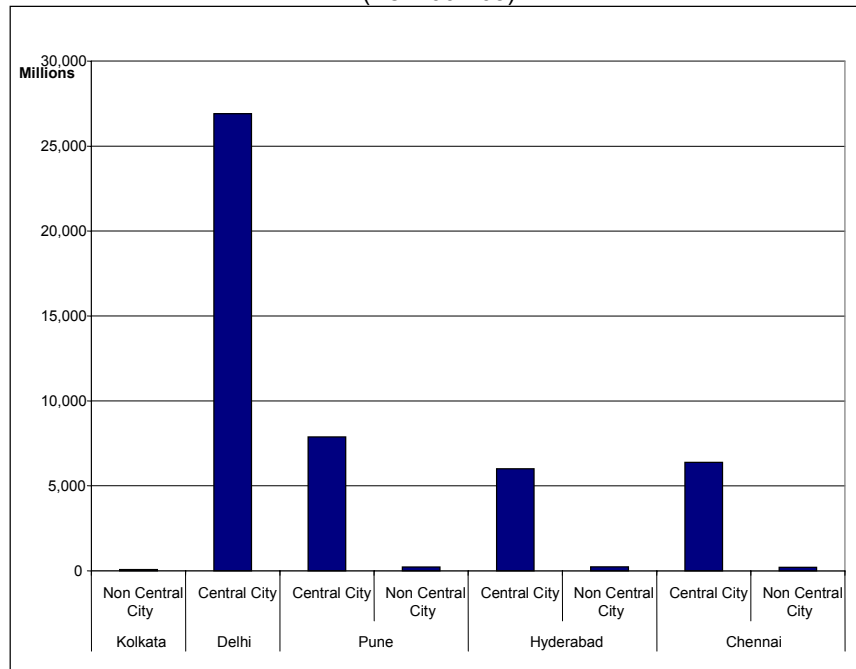
Urban Agglomeration	Ratio of 'own revenue' to GCP (median for all ULBs)	'Standard' rate of maximum own revenue capacity to GCP
Hyderabad	2.7%	3.25%
Chennai	1.7%	2.5%
Kolkata	1.15%	2.5%
Delhi	1.4%	2.25%
Pune	1.5%	3%

**Source:** Authors' Computations

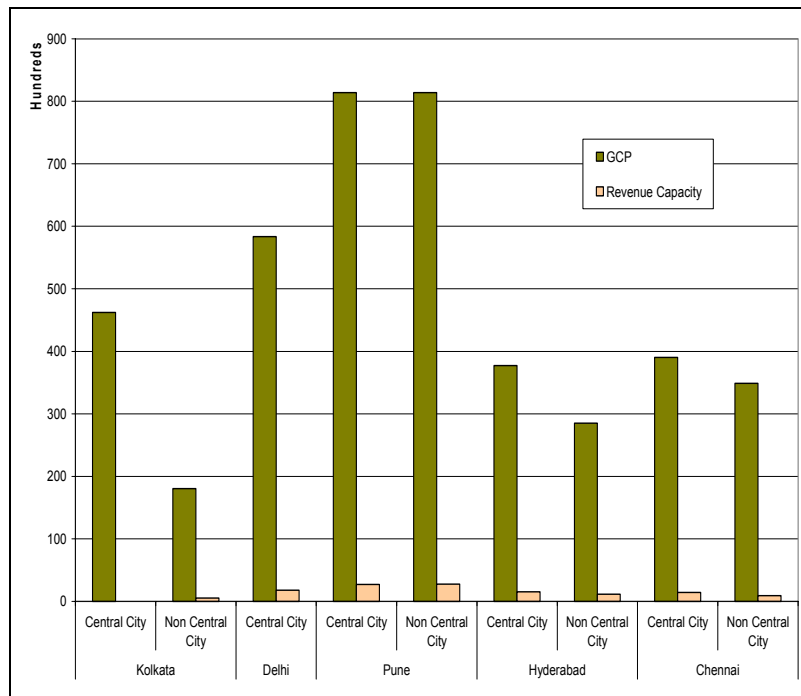
**Figure 1:** Estimated Gross City Products (Rs. 2004-05)



**Figure 2: Estimated Revenue Capacities of Five UAs in India (Rs. 2004-05)**



**Figure 3: Estimated Gross City Products and Revenue Capacities (Per Capita) of Five UAs in India (Rs. 2004-05)**



An analysis of these estimated GCPs and revenue capacities (*Figures 1, 2, 3* and *Table A 2*) suggests

- Among the UAs, for central cities GCP in absolute terms is the highest in Delhi and lowest in Hyderabad; for non central cities the highest GCP is recorded for Chennai and the lowest for Kolkata. In per capita terms, among both central and non central cities, Pune records the highest value. For the central cities, the lowest is recorded in Hyderabad, and for non central cities in Kolkata.
- The highest revenue capacity in absolute terms is recorded in the central city of Delhi and the lowest recorded in Hyderabad whereas for non central cities the highest is recorded in Hyderabad and the lowest in Kolkata. In per capita terms the highest for both the central city and non central cities are recorded in Pune and the lowest in Chennai whereas for the non central cities the lowest is recorded in Kolkata.
- GCPs , both in absolute and per capita terms, for the central cities in all the UAs are much higher than those in the non central cities (median value of non central cities are considered). In fact in all the UAs, the GCP of the central city is even higher than the maximum GCP of the respective non central city. This is true for the absolute levels of revenue capacities also.
- In per capita terms except for Pune in which the per capita GCP across the ULBs are the same because all the ULBs are located in the same district, the per capita GCPs in the central cities are higher than those of the non central cities, the difference being the least in Chennai.
- The per capita revenue capacities in the central cities are in general higher than the median values of those in the non central cities of a UA with the exception in Pune where per capita revenue capacity in the central city is lower than the median value of the revenue capacity in non central cities. In Hyderabad, some of the smaller ULBs record higher per capita revenue capacities than the central city, so the maximum per capita revenue capacity in the non central city is higher than the central city.

## **VI. An Assessment of Fiscal Health of the Selected Cities**

This section brings together the revenue and expenditure aspects of finances to assess the conditions of fiscal health in the ULBs in the selected UAs. We would estimate the conventional need capacity or fiscal gap as the difference between the estimated expenditure need and revenue capacity of each ULB. We would also consider two measures for a ULB, one in absolute and another in relative terms, to quantify the gains in terms of revenues if revenue capacities are realised. The difference between the per capita revenue capacity and per capita actual revenue for a ULB would measure the per capita gain in revenues once the revenue capacity is realised. The proportion of revenue capacity to actual revenue would measure the percentage increase in revenues once the revenue capacity is realised.<sup>29</sup>

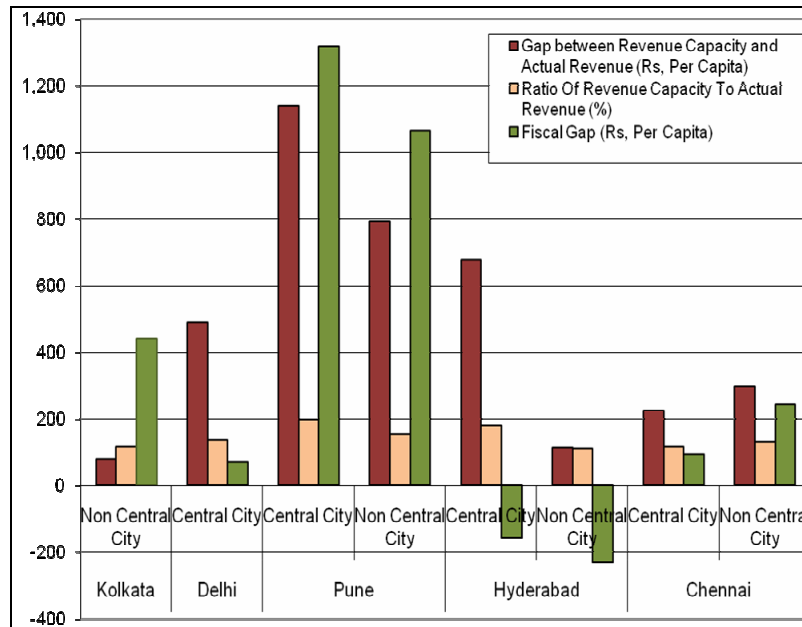
---

<sup>29</sup> In *Figure 4* and *Table A 3* they are expressed in percentages. For instance for central cities in Pune the ratio is 196 percent which means there is a potential increase in revenue by 96 percent if revenue capacity is fully utilised.

The estimates of fiscal gaps derived in the present analysis (in per capita terms in 2004-05 prices) reveal (Figure 4, Table A 3)

- All the UAs except Hyderabad both for central and non central cities record positive fiscal gaps which means even if the revenue capacities are realised, the expenditure needs of the cities cannot be covered. This implies that they have to rely more on intergovernmental transfers even if their revenue potentials are realised.
- Central cities have higher fiscal gaps than the non central cities for Hyderabad and Pune but for Chennai it is the other way round. All the non central ULBs in Hyderabad except one have recorded negative fiscal gaps.
- For central cities, fiscal gap in per capita terms ranges from Rs. 156 in Hyderabad (which is negative indicating a surplus of revenue capacity over expenditure needs) to Rs. 1137 (positive) in Pune while for non central cities the median ranges from Rs.232 (negative) in Hyderabad to Rs. 1066 (positive) in Pune with considerable variation in the non central cities in a UA.
- Hyderabad as a UA performs the best as it records lowest and negative fiscal gaps both for central and non central cities whereas Pune records the highest positive gaps both for central and non central cities. The performance of Delhi central city is next to Hyderabad in terms of the magnitude of the gap, followed by Chennai. For the non central cities, Chennai ranks next to Hyderabad followed by Kolkata.

**Figure 4:** Indicators of Fiscal Health of Five UAs in India



The analysis of the other related indicators mentioned above to get an idea about the potential gains in revenues across the UAs suggest the following:

- The potential gain, both in absolute per capita terms and relative proportionate increase, are more in central cities than in non central cities in Pune and Hyderabad, but for Chennai it is just the reverse.
- Pune as a UA, both for central and non-central cities, gains the most in absolute per capita terms and relative proportionate increases if the revenue capacities are realised. For central cities there is a gain of Rs. 1317 per capita which amounts to 96 percent increase in their revenues whereas for non-central cities the respective medians are Rs.792 and 55 percent.
- For the central cities, Hyderabad ranks next to Pune followed by Delhi and Chennai, both for absolute per capita and proportionate increases in revenues, the lowest figures for Chennai being Rs. 225 and 19 percent. For non-central cities Kolkata records the lowest in terms of absolute per capita increases in revenue (Rs. 82) and Hyderabad records the lowest in terms of proportionate increases (13 percent).

## **VII. Conclusions: Data Caveats and Limitations**

The above analysis gives a broad overview of the fiscal health of five major urban agglomerations in India. Analysing expenditures and revenues in detail for the financial year 2004-05, in a diverse sample of five big corporations and sixty three smaller ULBs dispersed in thirteen districts in five major states, we find that apart from only five smaller ULBs in Hyderabad (with population in the range of (0.1-0.3) million, the other ULBs are not in a position to cover their expenditure needs by their present revenue collections. Our sample of UAs consists of the fastest growing and the most lucrative destinations for investments. The existing state of affairs in city level finances in these cities indicates that in the relatively less competent cities, the situation would be worse.

It is surprising that with the exception of one UA i.e., Hyderabad, all the others would fail to cover their expenditure needs, even if they realise their revenue potential. As a result, they would require higher levels of intergovernmental transfers. This would create pressure on the higher tiers of the government for financing city development. In all the UAs, except Chennai, bigger corporations are more constrained than their smaller counterparts.

We do not find concrete evidence to justify the role of parastatal agencies in sharing the burden of responsibilities with the ULBs. Though in Hyderabad the HMWSSB functions to share the responsibilities, we cannot attribute the positive outcomes in Hyderabad to its efficiency because the entire responsibility for water supply and sewerage is not borne by the Board but the ULBs have a fair share of it. However, we find that the absence of a parastatal agency overburdens the ULB which is reflected in their increased expenditure needs on services.

Our estimates suffer from certain limitations which need to be mentioned. These limitations can mostly be attributable to non-availability of data at the required level of disaggregation. First, our expenditure needs estimate has a large 'other expenditure' component which arises due to non-availability of disaggregated

expenditure data. This comprises a variety of services which the ULBs provide. Also, given the nature of these expenditures, it is difficult to define norms for these services, both for physical levels and financial expenditures. In India, norms for these services are not available. In the absence of norms on these services, we have taken into account the recent trends in these expenditures from the ULB budgets to estimate this component.

Second, unfortunately, norms for various services are not available at the ULB level. Physical norms cannot be used for the reasons explained earlier. Most studies apply the *Zakaria Committee* expenditure norms adjusted to prices. It must be noted that these norms were designed in the sixties and therefore, mere adjustments to price levels in the following years do not take into account changes in preferences of public services as well as technological differences over the past few decades. The norms should be designed considering the changes in the lifestyle of people and newer technological and engineering innovations in the process of service provision in the cities. Efforts have been taken to use the most recent norms available but whether these financial norms reflect the true needs of urban society is a question.

Third, the revenue capacity estimates implicitly assume the per capita GCP of a ULB to be the same as the per capita non-agricultural component of District Domestic Product of the district in which the ULB is situated. In fact, the absolute GCP figures are derived from the per capita figures which make them directly proportional to the population of the ULBs.

Fourth, the study would have been more complete if the outcomes in terms of finances of the cities could be related to the levels of service delivery. Unfortunately, none of the ULBs have a systematic record on the levels of services provided. In the absence of data on the levels of services for each ULB, we cannot use the physical norms to assess the conditions but have to rely entirely on financial norms. Comparing the expenditures on each service with these financial norms can be misleading as expenditures *per se* do not mean much because higher expenditures can be due to inefficiency or leakage in the system. Whether the resources are getting properly utilised can only be confirmed through qualitative and quantitative indicators of services which are not available at the ULB level.

In spite of these shortcomings, the analysis is useful in making an overall idea about the fiscal health of the five UAs in India. Surely, there are considerable unmet needs. The cities are expected to be centres of economic transformation and this is possible only when the UAs are provided with adequate resources to provide reasonable levels of services. This can be done either by vesting larger tax powers to these UAs or through intergovernmental transfers.

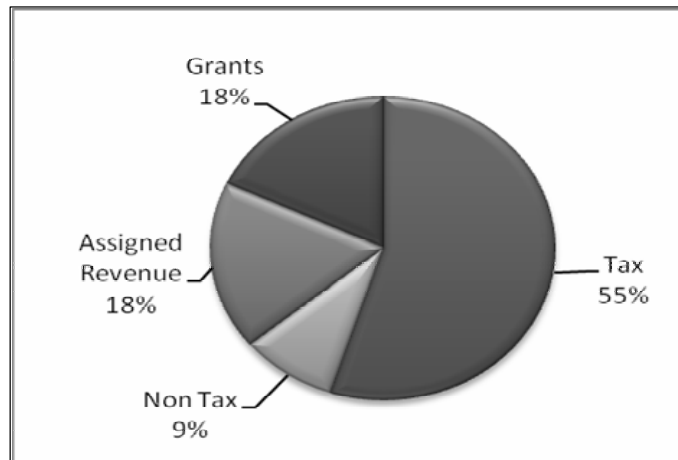
There can be four different ways through which the revenues of UAs can be augmented to enable them to provide the services they are entrusted with. First is the better utilisation of their 'own revenue' handles. Our analysis shows that there is considerable scope for enhancing revenues by better administration of the property taxes, better implementation of other taxes, and better collection of user charges. Second, the state governments should allow the local bodies to piggyback a small proportion on their VAT collections. Gujarat has decided to levy such a tax at one percent and this will go a long way in augmenting the resources of the UAs. Third, the state governments should earmark a portion of the sales proceeds from land and housing sold through their development agencies for the improvement in the infrastructure of the cities. Finally, the State Finance Commission should develop



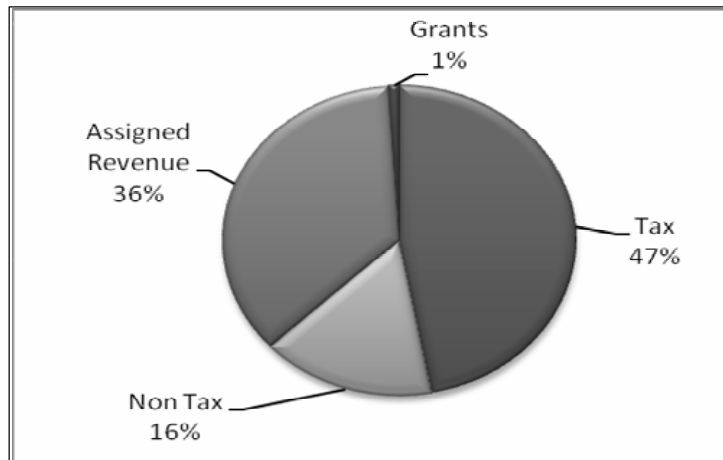
proper norms for estimating expenditure needs based on which, transfers from the state to local governments should be recommended.

### Appendix

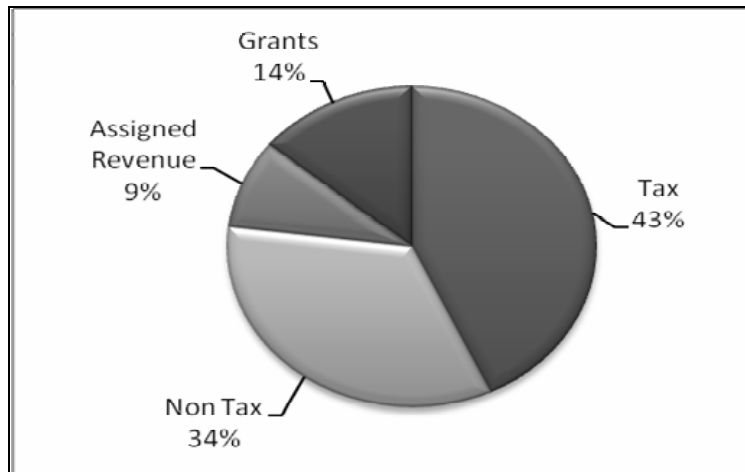
**Figure A 1:** Composition of Revenues: Delhi (central city)



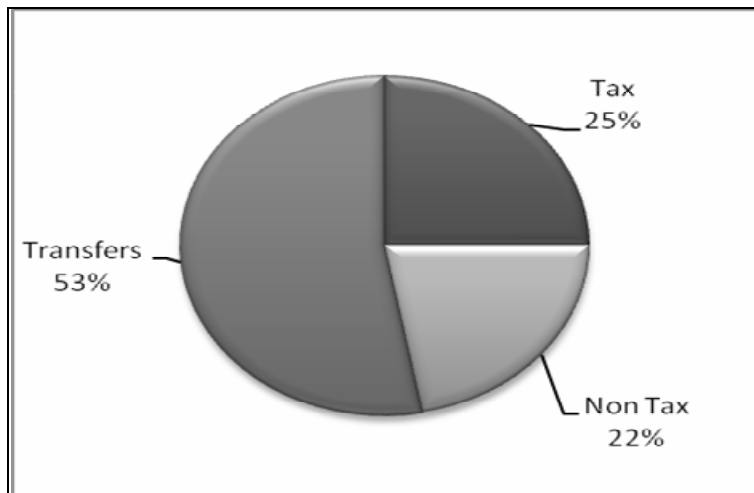
**Figure A 2:** Composition of Revenues: Hyderabad (central city)



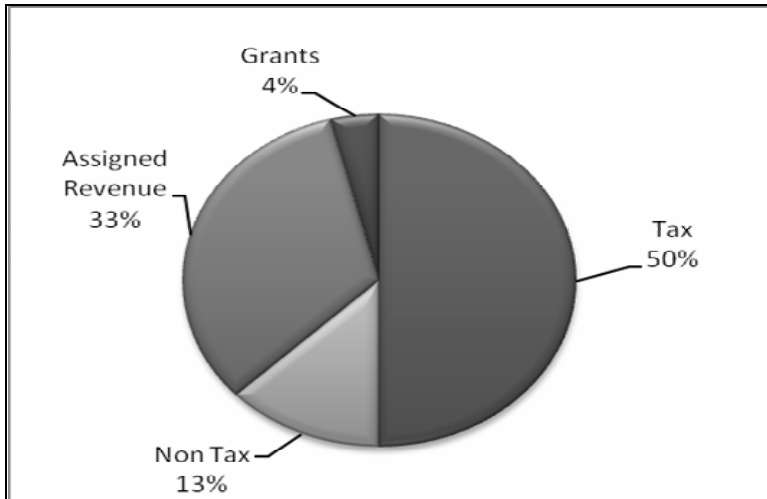
**Figure A 3:** Composition of Revenues: Hyderabad (smaller ULBs)



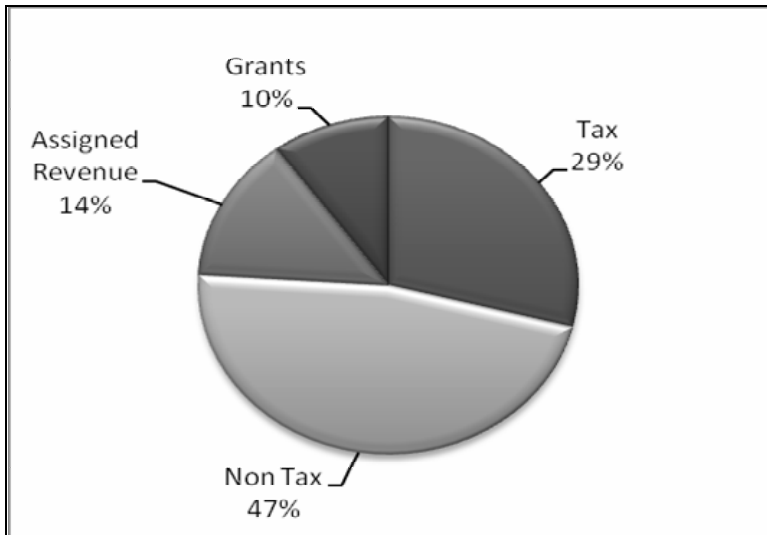
**Figure A 4:** Composition of Revenues: Kolkata (smaller ULBs)



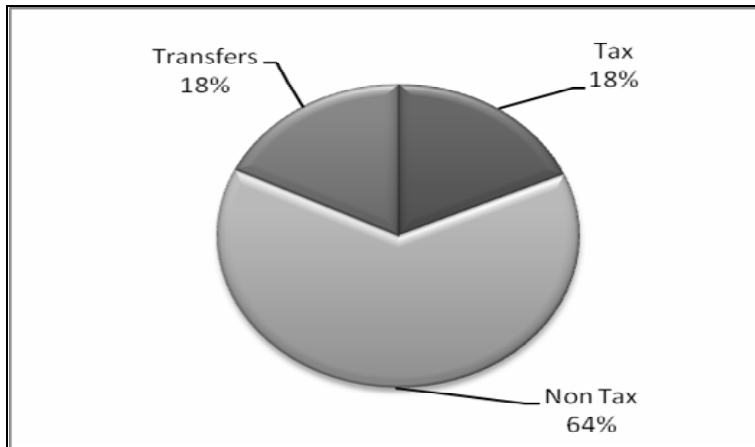
**Figure A 5:** Composition of Revenues: Chennai (central city)



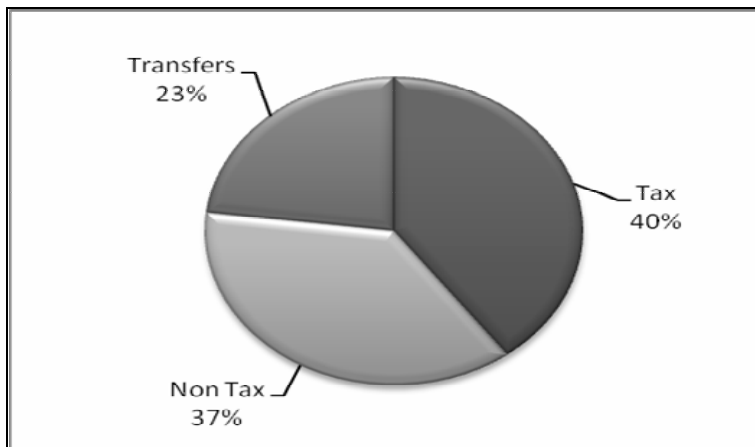
**Figure A 6:** Composition of Revenues: Chennai (smaller ULBs)



**Figure A 7:** Composition of Revenues: Pune (central city)  
[Without Octroi Scenario]



**Figure A 8:** Composition of Revenues: Pune (smaller ULBs)  
[Without Octroi Scenario]



**Table A 1: Per Capita Expenditure Norms (O&M, Rs. 2004-05) <sup>30</sup>**

UA	Water supply		Sewerage		Solid waste management		Roads		Street lights	
	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, Minimum)	Central city	Non-central city median (maximum, Minimum)
Delhi	140		39		348		84		60	
Chennai	140	258 (258, 258) <sup>31</sup>	39	65 (65, 65)	348	255 (255, 225)	53	33 (33, 30)	75	63 (63, 59)
Hyderabad	140	258 (258, 258)	39	65 (65, 65)	348	255 (255, 255)	50	28 (28, 28)	70	54 (54, 54)
Kolkata		218 (218, 198)		139 (139, 65)		285 (285, 225)		33 (33, 27)		55 (55, 47)
Pune	140	258 (316, 258)	39	47 (47, 37)	348	255 (285, 225)	59	32 (32, 30)	62	47 (47, 44)

**Source:** National Institute of Urban Affairs, 1995; Pricewaterhouse Coopers (2001), Authors' computations

<sup>30</sup> For street lights and roads taken from Pricewaterhouse Coopers (2001) are converted to 2004-05 prices from 2000-2001 prices in which they are expressed in the original report.

<sup>31</sup> The financial norms are calculated according to city size; wherever all the smaller ULBs belong to the same size class, the maximum and minimum expenditure norms in per capita terms are the same.

**Table A 2:** Estimated Gross City Products (GCPs) and Revenue Capacities of Five UAs in India (Rs. 2004-05)

UA	Gross City Products		Gross City Products (per capita)		Revenue Capacity		Revenue Capacity (per capita)	
	Central city	Non-central city median, (maximum, minimum)	Central city	Non-central city median, (maximum, minimum)	Central city	Non-central city median, (maximum, minimum)	Central city	Non-central city median, (maximum, minimum)
Delhi	882,349,992,046		58,353		26,907,120,821		1,779	
Chennai	175,799,332,496	7,932,475,550 (12,107,497,067 , 3,023,600,299)	39,008	34,875 (34,875, 26,320 )	6,382,483,312	203,539,522 (334,725,427 , 88,632,007)	1,416	895 (1,241, 713)
Hyderabad	146,955,034,547	5,572,729,053 (9,530,626,621, 2,989,546,788)	37,712	28,517 (28,517, 28,517)	5,996,619,623	228,008,891 (375,869,365, 123,890,416)	1,539	1,133 (1,588, 927)
Kolkata	214,380,616,686	2,646,339,495 (7,547,629,797, 839,657,428)	46,241	18,020 (23,925, 16,480)		73,105,265 (223,890,634, 25,595,231)	1,133	544 (802 ,384)
Pune	238,821,207,235	6,371,275,586 (100,820,791,973, 3,990,105,419)	81,399	81,399 (81,399, 81,399)	7,879,994,653	218,088,315 (3,393,975,461, 128,205,629)	2,686	2,748 (2,816, 2,615)

**Source:** Authors' Computations

**Table A 3:** Indicators of Fiscal Health of Five UAs in India

UA	Difference In per capita revenue capacity and per capita actual revenue (Rs. 2004-05)		Ratio of revenue capacity to total revenue (%)		Per capita fiscal gap (Rs. 2004-05)	
	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)	Central city	Non-central city median (maximum, minimum)
Delhi	491		138%		74	
Chennai	225	300 (403, 225)	119%	132% (188%, 158%)	96	244 (3,841, -168)
Hyderabad	679	116 (343, 29)	179%	113% (143%, 103%)	-156	-232 (368, -1,048)
Kolkata		82 (347, 29)		118% (277%, 108%)		442 (606, 37)
Pune	1,317	792 (1,789, 289)	196%	155% (288%, 111%)	1,137	1,066 (1,182, 995)

*Source:* Authors' Computations

## References

- Bahl, R. 2002. "Implementation Rules of Fiscal Decentralisation", Chapter 13 in (ed.) Rao, M. Govinda, *Development, Poverty, and Fiscal Policy*. New Delhi: Oxford University Press: 253-277.
- Government of India (GoI), 1990. Report of the Ninth Finance Commission, Ministry of Finance, Government of India.
- , 2004. Report of the Twelfth Finance Commission, Ministry of Finance, Government of India.
- , 2008. Eleventh Five Year Plan: Draft. New Delhi: Oxford University Press.
- Mathur, M.P, R. Chandra, S. Singh, B. Chattopadhyay, 2007. Norms and Standards of Municipal Basic Services in India, National Institute of Urban Affairs (NIUA) Working Paper 07-02 (January).
- Mieszkowski, P. and E.Mills, 1993. "The Causes of Metropolitan Suburbanization". *Journal of Economic Perspectives* 7; 135-147.
- Mills, E., and R. Price, 1984. "Metropolitan Suburbanization and Central City Problems", *Journal of Urban Economics* 15;1-17.
- Mohanti P.K, B. M. Mishra, R. Goyal, P.D.Jeromi, 2007. Municipal Finance In India: An Assessment, Study No. 26, Development Research Group, Department of Economic Analysis and Policy, Reserve Bank of India, Mumbai.
- Monitor, 2005. Rapid City Assessments of Hyderabad, Bangalore, and Alandur. Submitted to Water and Sanitation Program, April.
- National Institute of Public Finance and Policy (NIPFP), 2007a. Improving the Fiscal Health of Indian Cities: A Pilot Study of Kolkata, NIPFP, New Delhi, Draft Report. Submitted to World Bank.
- , 2007b. Improving the Fiscal Health of Indian Cities: A Pilot Study of Delhi, NIPFP, New Delhi, Draft Report. Submitted to World Bank.
- , 2007c. Improving the Fiscal Health of Indian Cities: A Pilot Study of Pune, NIPFP, New Delhi, Draft Report. Submitted to World Bank.
- , 2007d. Improving the Fiscal Health of Indian Cities: A Pilot Study of Hyderabad, NIPFP, New Delhi, Draft Report. Submitted to World Bank.
- , 2008 a. Improving the Fiscal Health of Indian Cities: A Pilot Study of Chennai, NIPFP, New Delhi, Draft Report. Submitted to World Bank.
- , 2008 b. Improving the Fiscal Health of Indian Cities: A Synthesis of Pilot Studies, NIPFP, New Delhi, Draft Report. Submitted to World Bank.
- National Institute of Urban Affairs (NIUA), 2005. Costs of Urban Infrastructure, Draft Report.



- Operations Research Group (ORG) 1989. *Delivery and Financing of Urban Services*.  
ORG, New Delhi, India.
- PricewaterhouseCoopers, 2001. *Infrastructure Development Action Plan for Chhattisgarh*, New Delhi.
- Rao M. Govinda, 2007. "Resolving Fiscal Imbalances: Issues in Tax Sharing", Chapter 11 in (eds.) *The Theory and Practice of Intergovernmental Fiscal Transfers*. Boadway Robin and Anwar Shah. Washington, DC: The World Bank. (319-338).
- Rao M. Govinda and V. Agarwal, 1994. *Intergovernmental Fiscal Transfers in India: Some Issues of Design and Measurement*, in (eds.) Chapter 4, *Tax Policy and Planning in Developing Countries Bagchi Amaresh and Nicholas Stern*. New Delhi: Oxford University Press. (195-221).
- Reschovsky, Andrew 2007. "Compensating Local Governments for Differences in Expenditure Needs in a Horizontal Fiscal Equalization Program", Chapter 14 in (eds.) *The Theory and Practice of Intergovernmental Fiscal Transfers*, Boadway Robin and Anwar Shah, Washington, DC: The World Bank. (397-424).